

A Just Transition Fund for the Western Balkan countries

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Executive summary

After many years of inaction, in 2015, more than 190 countries and the European Union set a common target 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’ in order to mitigate the worst of the climate change impacts (Paris Agreement). To achieve this goal, global leaders agreed to reduce greenhouse gas emissions and achieve climate neutrality in the second half of this century, while also ‘taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities’.

Following the Paris Agreement, the European Union, the Western Balkan countries (WB6)¹ and many more countries around the world embraced the 2050 decarbonisation goal. The EU in particular enshrined the climate neutrality by 2050 target in the European Climate Law. To support citizens and workers in the EU regions which will be impacted the most by the required transformation of all sectors of the economy, it further established the Just Transition Mechanism, aiming to mobilise more than EUR 100 billion in investments over the period from 2021 to 2027. The Just Transition Fund (EUR 17.5 billion) constitutes one of the three pillars of the Just Transition Mechanism.

In addition to the longer-term climate neutrality target, the EU set an intermediate target of reducing its net greenhouse gas emissions by at least 55 per cent by 2030 compared to 1990 levels. The EU’s 2030 climate target and associated ‘Fit for 55’ package will not only influence the EU Member States once it comes into effect, but will also have an immediate impact on the economies of Western Balkan countries. The Carbon Border Adjustment Mechanism (CBAM) and the EU Emissions Trading Scheme (EU ETS) in particular are bound to lead to a gradual reduction in coal production in the Western Balkans.

It is therefore of utmost importance to design, as early as possible, a Just Transition Fund for the Western Balkans, prioritising support for coal regions in order to successfully address the economic and social impacts associated with the transition.

This report aims to design a fair allocation method for such a Fund, taking into account the magnitude and urgency of the transition challenge for each of the six countries in the region.

The allocation model developed and presented here employs five criteria which quantify the dependence each country has on coal and oil, the climate ambition of each country as reflected in known phase-out commitments, the environmental impacts of coal use, and the financial ability each country has to cope with the challenges of the transition away from fossil fuels. In particular, the following set of criteria was identified, implemented and analysed:

1. The levels of the three main air pollutants (SO₂, NO_x, dust) from coal power plants;
2. The number of employees in coal mining and coal power plants;
3. The speed by which the countries commit to phase out coal (transition speed);
4. The annual crude oil production levels;
5. The gross national income (GNI) per capita for each country.

¹ The term refers to the countries Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia, which are located in the Western Balkan region.

Using data from official sources, six coal phase-out scenarios and a variety of different weightings for the allocation criteria were analysed in order to account for uncertainties in the model, as well as assess the effect that different scenarios and design parameters have on the final allocation among Western Balkan countries. The main outcomes of the analysis can be summarised as follows:

- Climate ambition expressed in the form of early coal exits significantly increases the share of the fund a country receives.
- Serbia benefits the most from an early coal phase-out date in five out of the six scenarios analysed, receiving as much as 45.43 per cent of the Just Transition Fund.
- Bosnia and Herzegovina (BiH) may receive up to 34.61 per cent and surpass even Serbia's share if BiH phases out coal by 2030 and Serbia and Kosovo continue with the coal-based electricity model until 2050 and 2040, respectively.
- Kosovo may receive up to 23.78 per cent provided it commits to a coal phase-out by 2030.
- The 2027 coal phase-out date North Macedonia has committed to will enable it to claim 13 per cent of the fund, almost double the share of 7.36 per cent it would have received had it decided to prolong its dependence on coal until 2050.
- Montenegro could potentially almost triple its share to 3.95 per cent of the fund if it decides to retire its single coal plant, currently operating above the legal emission limit values, by 2022 instead of its pledged phase-out date of 2035.
- The differences between each country's smallest and largest potential shares for the six coal phase-out scenarios increase when the transition speed criterion has a larger weight. The shares of Serbia, BiH and Kosovo change considerably, whereas the shares of Montenegro and Albania are not very sensitive to changes.
- The implementation of the gross national income (GNI) criterion favours the financially weaker countries (Kosovo, BiH and Albania).

Based on the results of the analysis, the main recommendations to decision makers in the WB6 and the European Commission are to:

- Take into account the transition speed in the design of the Just Transition Fund, in order to accurately and fairly assess the urgency of the transition for each of the countries.
- Account for the coal-related air pollution in the region which not only affects WB6 but also EU Member States.
- Plan the transition immediately rather than wait until the funding is available. Early starters would definitely receive additional financial benefits, as well as the guaranteed environmental benefits and drastic improvement in their climate performance.

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1. Introduction

As the Intergovernmental Panel on Climate Change (IPCC) states in its latest report on the physical basis of climate change,² humans have contributed to the changes in weather and climate extremes observed today, and the impacts of climate change are expected to intensify as the mean global temperature increases.

After many years of inaction, in 2015, more than 190 countries and the European Union set a common target 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’, in order to mitigate the worst of the climate change impacts.³ To achieve this goal, global leaders agreed to reduce greenhouse gas emissions and achieve climate neutrality in the second half of this century, while also ‘taking into account the imperatives of a just transition of the workforce and the creation of decent work and quality jobs in accordance with nationally defined development priorities’.

Following up on the Paris Agreement goals, the EU has committed to climate neutrality by 2050 through the European Green Deal,⁴ converting the commitment into a binding law⁵ in 2021. The Western Balkan countries⁶ (WB6), parties to the Energy Community Treaty,⁷ also embraced the 2050 decarbonisation goal through the adoption of the Sofia Declaration⁸ in 2020 within the Green Agenda for the Western Balkans process, which mirrors the European Green Deal.

However, achieving climate neutrality will require major changes in all economic sectors and will undoubtedly have major economic and social impacts on local communities that have been dependent for many years on fossil fuels, especially coal.

In order to address the challenges local societies face as a result of the transition away from fossil fuels, the EU introduced the Just Transition Mechanism, aimed at mobilising more than EUR 100 billion in the 2021 to 2027 budget period. It consists of three pillars, a Public Loan Facility (via the European Investment Bank), the InvestEU instrument to support investments of the private sector, and the Just Transition Fund (JTF).

The latter pillar essentially contains all the new funds of the mechanism, which amount to EUR 17.5 billion, and is governed by the Just Transition Fund Regulation.⁹

One of the key challenges in the process of designing the Just Transition Fund was to determine how the Fund would be distributed among the EU Member States. The criteria that were finally introduced are as follows:¹⁰

1. Greenhouse gas emissions of industrial facilities in regions where the carbon intensity of those emissions exceeds the EU average (weighting 49 per cent);
2. The level of employment in the mining of coal and lignite (weighting 25 per cent);
3. The level of employment in industry in the regions referred to under point 1 (weighting 25 per cent);
4. The production of peat (weighting 0.95 per cent);
5. The production of oil shale (weighting 0.05 per cent).

² IPCC, *Summary for Policymakers, Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)], In Press, 2021

³ United Nations, *Paris Agreement*, United Nations Climate Change, 2015

⁴ European Union, *A European Green Deal*, European Commission, accessed 10 November 2021.

⁵ European Union, *Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No. 401/2009 and (EU) 2018/1999 ('European Climate Law')*, Official Journal of the European Union L 243/1, EUR-Lex, 9 July 2021.

⁶ This term refers to the countries Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia, which are located in the Western Balkan region.

⁷ Energy Community, *Treaty establishing Energy Community*, Energy Community, 2018.

⁸ Regional Cooperation Council, *Sofia Declaration on the Green Agenda for the Western Balkans*, Regional Cooperation Council, 10 November 2020.

⁹ European Union, *Regulation (EU) 2021/1056 of the European Parliament and of the Council of 24 June 2021 establishing the Just Transition Fund*, Official Journal of the European Union L 231/1, EUR-Lex, 30 June 2021

¹⁰ European Commission, *Allocation method for the Just Transition Fund*, European Commission, 15 January 2020.

In addition to the aforementioned criteria, the gross national income (GNI) per capita of each Member State was taken into account, in order to ensure a fairer distribution between less and more developed Member States. Also, a cap on the maximum share a Member State can receive was set at 20 per cent to avoid a situation where a Member State receives an unfairly large share of the fund. Finally, a minimum level of aid intensity was introduced at 14 EUR/capita to assure that every Member State receives at least some financial support for its transition process.

However, the criteria that were selected by the EU do not accurately capture the urgency or the magnitude of the transition challenge; thus, this has led to an unfair allocation between Member States, especially for the financially weaker ones which have committed to ambitious coal phase-out dates.¹¹

Since the WB6 are committed to achieving carbon neutrality by 2050, they are also faced with the same challenge of shifting their economies from fossil fuels to clean forms of energy, which will be accompanied by major economic and social impacts, especially for the coal regions.

The situation becomes even more pressing for the Western Balkan countries if one considers the interaction of their economies with that of the EU. In addition to the climate neutrality by 2050 target, the EU set an intermediate target of reducing its net greenhouse gas emissions by at least 55 per cent by 2030 compared to 1990 levels. The EU's 2030 climate target and associated 'Fit for 55' package will not only influence the EU Member States once it comes into effect, but will also have an immediate impact on the economies of Western Balkan countries. Specifically, the Carbon Border Adjustment Mechanism (CBAM) and the EU Emissions Trading Scheme (EU ETS) in particular are bound to lead to a gradual reduction in coal production in the Western Balkans.

Furthermore, the transition is even harder for the WB6 than for the EU Member States because of their weaker financial situation, and also the very high dependence of most countries in the Western Balkans on coal (see Table 1), as well as more pronounced coal-related air pollution levels, which significantly exceed legal limits. According to the latest *Comply or Close* report,¹² all the WB6 countries that use coal have failed either to comply with the air pollution limits set by their National Emission Reduction Plans (NERPs), emitting much higher quantities of pollutants, or, in the case of Montenegro, to close the country's only coal plant after the expiration of its limited lifetime derogation. In fact, it was found that in 2020, the 18 coal power plants in the WB6 emitted 2.5 times higher quantities of SO₂ than the 221 coal power plants in the EU combined. This in turn causes thousands of air-pollution-related deaths in the Western Balkans countries as well as in many other countries in the EU.

Country	Gross electricity production (GWh)	Electricity production from coal (GWh)	Share of coal in electricity generation
Albania	5,206	0	0%
Bosnia and Herzegovina	17,493	10,963	63%
Kosovo	6,350	6,019	95%
Montenegro	3,431	1,504	44%
North Macedonia	5,870	3,508	60%
Serbia	37,600	25,583	68%

¹¹ The Green Tank, *How just is the Just Transition Fund?*, The Green Tank, July 2020.

¹² CREA and CEE Bankwatch Network, *Comply or Close*, September 2021.

¹³ Eurostat, *Production of electricity and derived heat by type of fuel [nrg_bal_peh]*, 2019.

Table 1: Share of coal in electricity generation (2019)¹³

¹⁴ European Commission, [Initiative for coal regions in transition in the Western Balkans and Ukraine](#), European Commission, last updated 22 October 2021, accessed 10 November 2021.

¹⁵ Energy Community, [Montenegro continues to take major steps to reduce GHG emissions as government approves cap and trade system for major emitters](#), Energy Community, 24 February 2020.

¹⁶ The system is currently being revised, as in April 2021 it was reported that the new leadership of the state-owned electricity company Elektroprivreda Crne Gore (EPCG) had requested the public prosecutor to look into the scheme. The number of free emissions allowances for the troubled KAP aluminium plant had been calculated on the basis of production levels from 2005 to 2008, which were up to three times as much as current production. Thus, when the Pljevlja coal power plant operated for more hours than expected in 2020, KAP ended up raking in EUR 17 million from EPCG, prompting speculation that the emissions trading scheme had been set up as little more than a hidden state aid scheme for KAP. Biljana Matijašević, 'EPCG platila KAP-u 17 miliona za ništa', [Vijesti.me](#), 12 April 2021.

¹⁷ Regional Cooperation Council, [Sofia Declaration on the Green Agenda for the Western Balkans](#).

¹⁸ Energy Community, [Decarbonisation Roadmap](#), Energy Community, 30 November 2021.

¹⁹ Energy Community, [Study unveils the most cost-effective and sustainable way to price carbon emissions in the Energy Community](#), Energy Community, 20 January 2021.

²⁰ European Union, [Directive \(EU\) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision \(EU\) 2015/1814](#), Official Journal of the European Union L76/3, EUR-Lex, 19 March 2018.

²¹ European Commission, ['Western Balkans: An Economic and Investment Plan to support the economic recovery and convergence'](#), 6 October 2020.

²² European Commission, [Carbon Border Adjustment Mechanism: Questions and Answers](#), European Commission, 14 July 2021.

²³ CREA and CEE Bankwatch Network, [Comply or Close](#).

²⁴ Eurostat, [Production of lignite in the Western Balkans – statistics](#), accessed 7 December 2021.

²⁵ Assuming an emission factor of 1.3 t CO₂/MWh of electricity produced from the lignite plants in the WB6 and an average carbon price in the EU ETS – determining the corresponding value of CBAM certificates – during the 2023 to 2030 period of 70 EUR/t.

In order to tackle these challenges and at the same time move towards carbon neutrality, there is an obvious need for financial support for the WB6. The EU has recognised this need and already shown its willingness to support the transition in the Western Balkans with the Initiative for coal regions in transition in the Western Balkans and Ukraine,¹⁴ which is managed jointly by the European Commission, the World Bank, the Energy Community Secretariat, the European Bank for Reconstruction and Development, the European Investment Bank, Poland's National Fund for Environmental Protection and Water Management and the College of Europe in Natolin. Although this initiative is important, it is clearly not enough.

The establishment of a separate Just Transition Fund to financially support Western Balkan countries to tackle the transition challenges associated with the shift towards green energy sources and the mitigation of the challenges associated with this transition is absolutely essential.

Several possible sources for developing such a fund already exist. For example, there are discussions about the establishment of a carbon pricing mechanism such as an emissions trading scheme (ETS) for the WB6 or even allowing the countries to enter the EU ETS. Montenegro has already introduced such a mechanism,¹⁵ albeit highly flawed,¹⁶ and all the Western Balkan countries committed to 'continue alignment with the EU Emissions Trading Scheme, as well as work towards introducing other carbon pricing instruments to promote decarbonization in the region' with the Sofia Declaration.¹⁷ The adoption of a Decarbonisation Roadmap under the Energy Community Treaty on 30 November 2021 further demonstrated the countries' commitment to work towards introducing carbon pricing.¹⁸

A study commissioned by the Energy Community Secretariat found that the optimal policy would be for the Energy Community countries to introduce carbon pricing mechanisms and gradually become integrated into the EU ETS.¹⁹ As is the practice in the EU ETS directive,²⁰ it is possible to partially channel the revenue from the auctioning of emissions allowances to support coal regions in transition. Furthermore, part of the EUR 9 billion from the European Commission's Economic and Investment Plan for the Western Balkans²¹ could be channelled towards a Just Transition Fund for the region.

Another source of revenue that could be channelled towards the just transition in the WB6 is revenue expected from the CBAM²² proposed by the Commission. According to the CBAM proposal, EU importers will need to buy carbon certificates that correspond to the carbon price that the producer would have to pay had the production occurred under the EU carbon pricing scheme.

This procedure is expected to generate revenue for the EU and according to the current proposal these revenues will end up in the EU budget. However, in order for them to create value, part of the revenue could be channelled towards the Just Transition Fund for the WB6, according to the 'polluter pays principle', instead of being used to service the debt of the NextGenerationEU as the European Commission proposes. During the 2018 to 2020 period, the Western Balkans exported approximately 25 TWh of electricity,²³ with approximately 63 per cent²⁴ of this generated by coal. Therefore, the carbon cost associated with coal-generated electricity production is estimated to be approximately EUR 480 million per year,²⁵ or EUR 3.36 billion during the 2023 to 2030 period.

Irrespective of the financial resources that would be employed for the development of such an essential Just Transition Fund, it should be designed to address both the urgency as well as the magnitude of the transition challenges in the fairest possible way. Therefore, the aim of this study is to define an appropriate set of criteria for the fair allocation of a Just Transition Fund among Western Balkan countries and to systematically examine the quantitative effects that various parameters have on the final allocation outcome.

2. Criteria selection

Clearly, the fairness of the Fund's distribution among the WB6 countries will be a direct consequence of the choice of the allocation criteria. To avoid the well-documented shortcomings of the EU's choices when determining the allocation between EU Member States^{26,27,28,29,30} which did not adequately reflect the urgency and the magnitude of the transition challenge (especially in coal regions), the criteria should take into account:

1. The dependence of each of the countries on coal and fossil fuels.
2. Each country's climate ambition as it relates to phasing out fossil fuels.
3. The special characteristics of the Western Balkan region (i.e. extreme pollution levels from coal power plants)
4. The financial ability that each country has to cope with the social and economic impacts of a transition towards carbon neutrality.

Based on the above characteristics and the availability of reliable data, five (5) criteria were selected and further analysed. In particular:

1. The levels of the three main air pollutants (SO₂, NO_x, dust) from coal power plants;
2. The number of employees in coal mining and coal power plants;
3. The speed by which the countries commit to phase out coal (transition speed);
4. The annual crude oil production levels;
5. The gross national income (GNI) per capita for each country.

2.1 Air pollutants (SO₂, NO_x, dust) from coal power plants

According to official data analysed in *Comply or Close*,³¹ there is a considerable problem with pollutants from coal in the WB6. In all of the countries that have developed a National Emissions Reduction Plan (Bosnia and Herzegovina, Kosovo, North Macedonia and Serbia) as part of their obligations to comply with the Large Combustion Plants Directive³² under the Energy Community Treaty,³³ the pollutant levels are much higher than the legal pollutant limits. In addition, Montenegro has failed to close or reconstruct its Pljevlja plant after its limited lifetime derogation hours expired in 2020.

In fact, it was found that in 2020, the total SO₂ emissions from 18 coal power plants in the Western Balkans were 2.5 times as high as the total SO₂ emissions from 221 coal plants in the EU. The impact that these exceedances have on public health is enormous, both for the Western Balkan countries as well as for EU countries. Pollutant emissions from coal power plants in the Western Balkans are responsible for an estimated 19,000 deaths between 2018 and 2020, of which around 10,800 occurred in EU Member States, 6,500 in Western Balkan countries and 1,700 in other neighbouring countries. The corresponding health costs were estimated to be between EUR 25.3 billion and 51.8 billion.

²⁶ The Green Tank, [How just is the Just Transition Fund?](#)

²⁷ The Green Tank, [Just Transition: History, Developments and Challenges](#), The Green Tank, 28 July 2020.

²⁸ Energypress, [Αλλαγή των κριτηρίων για τους πόρους του Ευρωπαϊκού Ταμείου Δίκαιης Μετάβασης ζητάει ο Δήμαρχος Φλώρινας από την Κομισιόν](#) [Letter by the five Mayors of the Greek lignite regions to the Executive Vice-President of the European Commission], Energypress, 21 February 2020.

²⁹ Echo Florina, [Επιστολή του Δημάρχου Φλώρινας και Προέδρου του Δικτύου Ενεργειακών Δήμων, Βασίλη Γιαννάκη, στους Έλληνες Ευρωβουλευτές](#) [Letter by Vassilis Yiannakis, Mayor of Florina and President of the Network of Energy Producing Municipalities to the Greek MEPs], Echo Florina, 20 March 2020.

³⁰ [Letter by the Regional Governors of Western Macedonia and the Peloponnese to the President of the Committee of the Regions requesting support regarding the proposal to amend the Just Transition Fund's allocation criteria](#), Peloponnese Region, 20 May 2020.

³¹ CREA and CEE Bankwatch Network, [Comply or Close](#).

³² European Union, [Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants and Directive 2001/81/EC of the European Parliament and of the Council of 23 October 2001 on national emission ceilings for certain atmospheric pollutants](#), Official Journal of the European Communities, L 309, EUR-Lex, 27 November 2001.

³³ Energy Community, [The Energy Community: Legal Framework, 4th edition](#), Energy Community, January 2018.

Due to these huge impacts on public health, a clear priority of the Just Transition Fund for the WB6 should be to reduce the air pollution coming from coal power plants by supporting a transition to cleaner energy sources. To account for this priority in the model, a criterion calculated as the weighted average of the SO₂, NO_x and dust emissions³⁴ from the coal power plants in each of the WB6 countries was developed.

Since reducing the emissions from all three pollutants is of equal significance, the weights for each pollutant in the weighted average were taken to be equal as well (33.33 per cent). Figure 1 shows the emissions from coal power plants in the WB6 in 2020 according to European Environment Agency data, while Figure 2 shows the share of the Just Transition Fund for the WB6 per country, based only on the calculated weighted average of the pollutants.

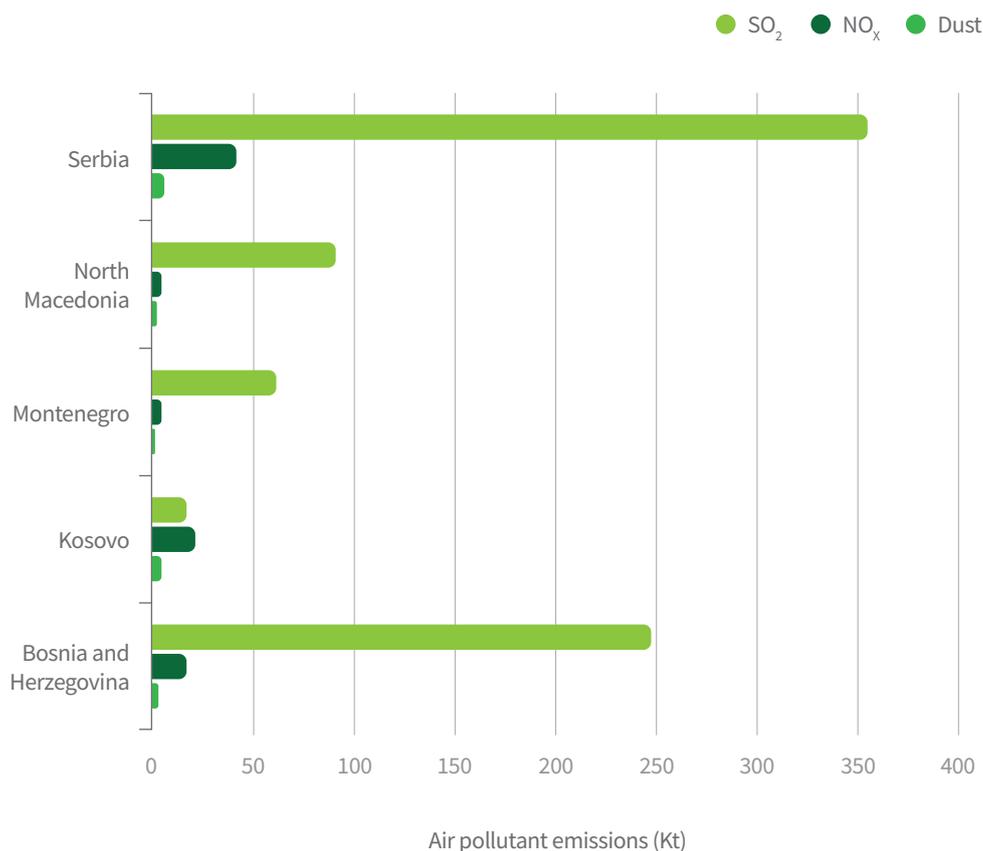


Figure 1: Air pollutant (SO₂, NO_x and dust) emissions from coal power plants for each of the WB6

Serbia, emitting the largest quantities of air pollutants in absolute quantities, receives by far the highest share (44 per cent) of the criterion, followed by BiH (23 per cent), Kosovo (18 per cent), North Macedonia (11 per cent) and Montenegro (5 per cent). Since there are no coal plants in Albania, its corresponding share is zero.

Even though Kosovo's coal plants emitted considerably lower SO₂ quantities than those in North Macedonia and Montenegro (Figure 1), its NO_x and dust emissions were much higher than those in the respective two countries, resulting in a higher share for Kosovo, based on the weighted average of the pollutant emissions (Figure 2).

³⁴ European Environment Agency, *Reporting on Combustion Plants*, European Environment Agency, 2020.

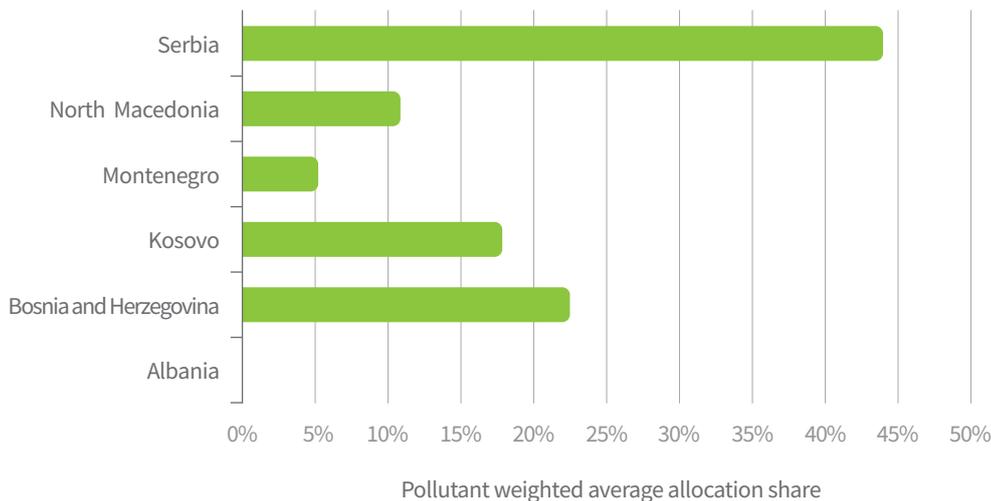


Figure 2: Allocation share based on the air pollutant weighted average criterion

2.2 Employment in coal mining and coal power plants

The higher a local economy's dependence on coal-related activities is, the more challenging it is to shift this economy away from coal. One measure that can be used to quantitatively describe this dependence is the size of the workforce in the coal mines and coal power plants. Thus, the number of coal mine employees (similar to the European Commission's approach for the EU JTF³⁵) together with the number of the employees in coal power plants in each of the WB6 countries was chosen as the second criterion of the model for determining the allocation of the JTF for the WB6. The corresponding data for each country were obtained from the latest study by the European Commission's Joint Research Centre (JRC)^{36,37} and refer to 2018.³⁸

As can be seen in Figure 3, Serbia has the largest number of coal mining employees (15,459), followed by BiH (14,472), Kosovo (3,246), North Macedonia (2,980) and Montenegro (750). The distribution of the number of people working in coal power plants follows the same order: Serbia (2,931), then BiH (2,466), Kosovo (1,482), North Macedonia (678) and Montenegro (171).

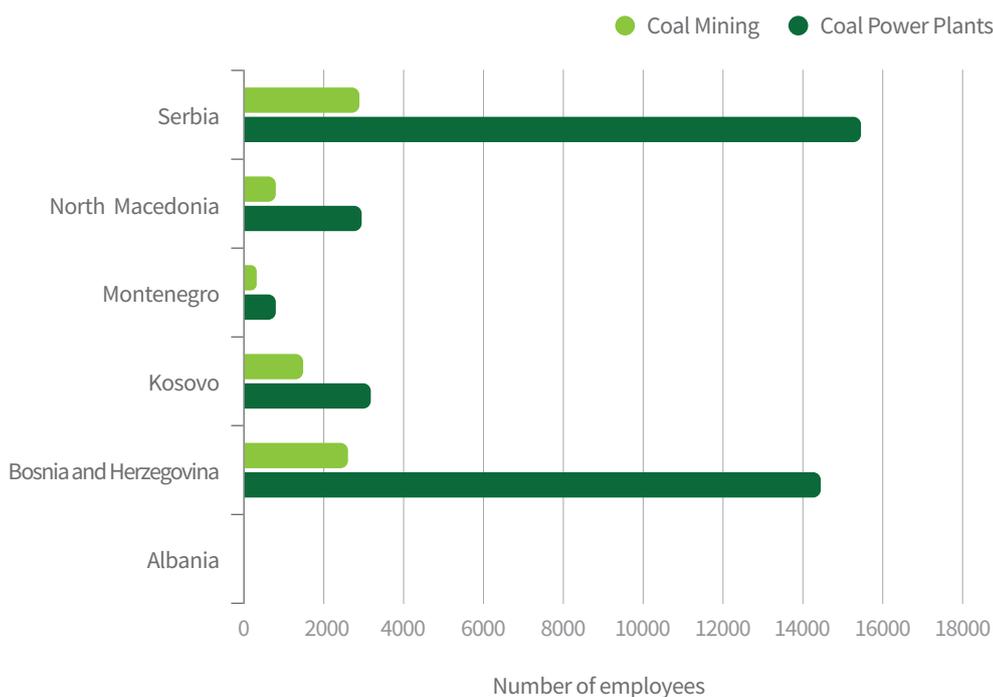


Figure 3: Coal mining and coal power plant employees in the Western Balkan countries

³⁵ European Commission, *Allocation method for the Just Transition Fund*.

³⁶ Ruiz, P., Medarac, H., Somers, J., Mandras, G., *Recent Trends in Coal and Peat Regions in the Western Balkans and Ukraine*, EUR 30837 EN, Publications Office of the European Union, Luxembourg, 2021.

³⁷ The data were obtained from the JRC study referenced in footnote 36, except Serbia's number of employees in coal mining since it was noticed that the JRC study did not account for the employees of the Resavica mines. Thus, Serbia's number of coal mining employees was calculated by adding the number of employees at the Resavica mines (3,128) to the JRC number (12,331). JP PEU Resavica, *Data on the number of employees and employed persons in the JP PEU Resavica*, JP PEU

³⁸ Note that the EU has also chosen a similar criterion to allocate the EU JTF among its 27 Member States. However, coal plant employees were not considered although they clearly constitute an essential part of the coal industry in each country. This particular choice by the Commission served to unfairly favor coal mining Member States at the expense of others which are only burning imported hard coal.

Based on the aforementioned data, the allocation share for each country of the JTF for the WB6 based only on the sum of the coal mining and coal power plant employees is calculated and shown in Figure 4.

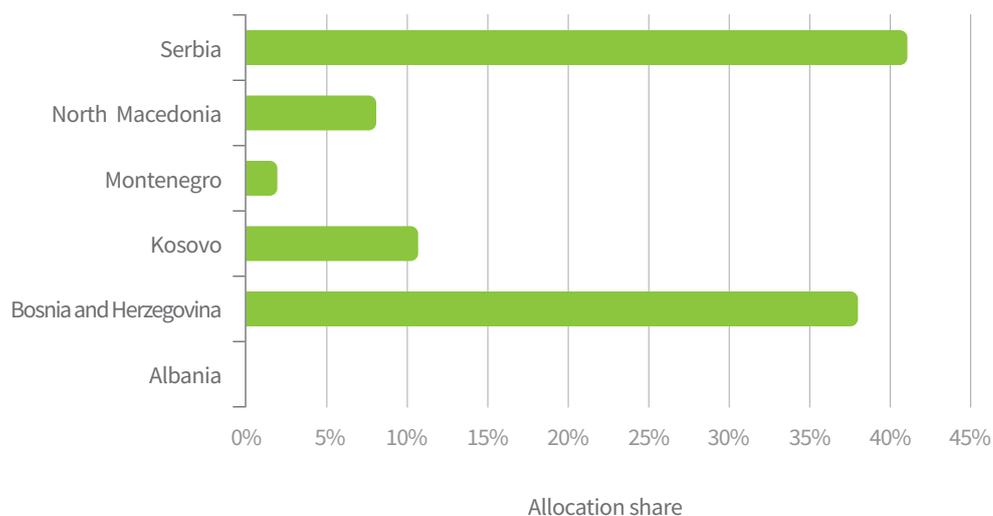


Figure 4: Allocation share based on the coal mining and power plants employee criterion

Applying this criterion, Serbia receives the highest share (41 per cent), followed by BiH (38 per cent), Kosovo (11 per cent), North Macedonia (8 per cent) and Montenegro (2 per cent). Since Albania has no coal power plants, its share in the second allocation criterion is zero.

2.3 Transition speed

The faster a country phases out coal, the more urgently it will require funds in order to support the local communities and shift the local economies towards a sustainable direction.

Moreover, climate ambition as expressed by faster coal phase-out pathways should be rewarded, as it contributes to global mitigation efforts. It is worth noting that such a Green Rewarding Mechanism (GRM) is also included in the regulation for the EU Just Transition Fund. Therefore, a key factor in fairly allocating the JTF among the WB6 countries should be related to the urgency of the transition.

To account for this, a criterion expressing the transition speed away from coal was introduced in the model. Specifically, to describe the speed by which a country reduces its coal use, the criterion is defined as the rate by which the electricity from coal in each country decreases by a certain year in the future compared to a reference year.

The year 2019 was chosen as the reference year, since it is the most recent year for which full electricity production data is available, and 2030 was taken as the end year, since this is the target year for National Energy and Climate Plans as well as the year by which climate policies should have yielded results in order to avoid devastating impacts of climate change, according to the IPCC report.³⁹ If a country has committed to a coal phase-out date that is prior to 2030 – as is the case with North Macedonia – the end year is taken to be the same as the phase-out year.

³⁹ IPCC, *Summary for Policymakers, Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, [Masson-Delmotte, V., P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.)], In Press 2019.

Therefore, the transition speed is defined as follows:

$$S = \frac{El_2 - El_1}{Year_2 - Year_1} \quad (1)$$

Where:

- El_2 : Electricity production from coal in 2030 or 0 if coal phase-out is prior to 2030. In case a country is phasing out coal after 2030, the 2030 coal-based electricity production is estimated assuming a linear trajectory between the reference year and the presumed coal phase-out date.
- El_1 : Electricity production from coal in the reference year (2019). Data obtained from Eurostat.⁴⁰
- $Year_2$: 2030 or coal phase-out date if prior to 2030
- $Year_1$: Reference year (2019)

Two countries have already committed to phase out coal: North Macedonia by 2027⁴¹ and Montenegro – unambitiously, considering that the Pljevlja plant is already operating illegally – by 2035.⁴² However, Bosnia and Herzegovina, Kosovo and Serbia have not set a coal phase-out date yet. To assess the effect that the different policy decisions of these three countries will have on the overall distribution of funds between Western Balkan countries, several scenarios were considered and are summarised in Table 2.

Scenarios	Serbia	BiH	Kosovo ⁴³
Serbia 2030	2030	2050	2040
BiH 2030	2050	2030	2040
Kosovo 2030	2050	2050	2030
Ambitious phase-out	2030	2030	2030
Baseline phase-out	2040	2040	2040
Late phase-out	2050	2050	2040

Table 2: Coal phase-out scenarios

Three scenarios (Serbia 2030, BiH 2030 and Kosovo 2030) assume that one out of the three countries who have not yet committed to phasing out coal will phase out early (in 2030), while the other two will phase it out at the assumed latest date possible. The ‘laggard date’ is assumed to be 2050 for Serbia and BiH, while 2040 for Kosovo, since Kosovo’s newest unit was commissioned in 1984⁴⁴ and is expected to exhaust its lifetime in the 2030s at the very latest. In this way, the effect of different combinations of ambitious and non-ambitious policies is examined in isolation for each country.

The last three scenarios examine common phase-out dates and assume that all three countries (Serbia, BiH and Kosovo) phase out coal together either in 2030 (ambitious scenario), or in 2040 (baseline scenario), or at the latest date possible (2050 for Serbia and BiH, 2040 for Kosovo). The ambitious and late scenarios were included in the analysis to examine the effect that the highest and lowest, respectively, collective climate ambition will have on the distribution of funds among WB6 countries.

⁴⁰ Eurostat, *Production of electricity and derived heat by type of fuel [nrg_bal_peh]*.

⁴¹ Government of the Republic of North Macedonia and GIZ, *National Energy and Climate Plan of North Macedonia (Draft)*, July 2020.

⁴² Ministry of Capital Investments, *Montenegro admitted to Powering Past Coal Alliance (PPCA)*; Government of Montenegro, 1 July 2021.

⁴³ In none of the options does Kosovo have a coal phase-out date later than 2040. This is because it is no longer planning new plants and its youngest coal unit is Kosova B2, opened in 1984, so by 2034 it will already be fifty years old. Under these circumstances, it is highly unlikely it will make it to 2040, let alone 2050.

⁴⁴ Republic of Kosovo Energy Regulatory Office, *Annual Report 2019*, Republic of Kosovo Energy Regulatory Office, March 2020.

A 2040 coal phase-out for the three countries was considered as a realistic date for Bosnia and Herzegovina, which has a new plant that has been operating since 2016 (Stanari);⁴⁵ Serbia, which is currently building the Kostolac B3 plant;⁴⁶ and Kosovo, since its ‘newer’ thermal power plant, as explained above, would exhaust its lifetime in the 2030s.

Because this criterion includes several scenarios, understanding its effect requires a structured sensitivity analysis. Therefore, its effect on the allocation of funds is presented in combination with all the other criteria, in the results section (section 3).

2.4 Crude oil production

Even though Albania is the only country in the WB6 that is not dependent on coal, its economy is still dependent on fossil fuels in the form of crude oil. Therefore, Albania’s economy is also in need of a transition away from fossil fuels towards climate neutrality, an effort which will also require financial support. To account for this, the levels of crude oil production were used as the fourth criterion for the allocation of the JTF among the six countries of the Western Balkans.

Other than Albania, only Serbia has significant oil production. According to Eurostat data on the average crude oil production in the three-year period from 2017 to 2019,⁴⁷ the region’s total oil production is shared almost equally between the two countries (Figure 5). Hence, if this were the only criterion to be applied for the allocation of the Just Transition Fund for the WB6, only these two countries would benefit from it, almost equally.

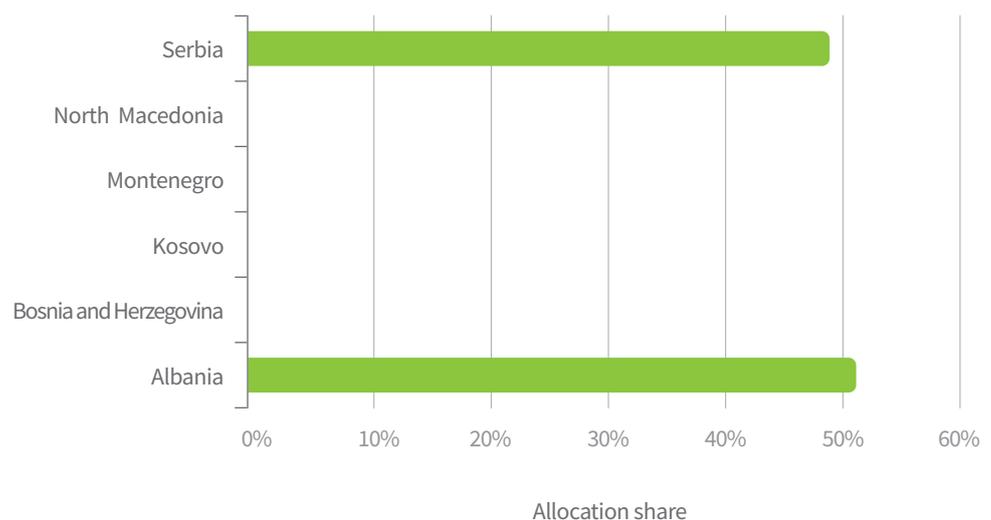


Figure 5: Crude oil production

2.5 GNI per capita

In the hypothetical case where all four of the aforementioned allocation criteria would lead to equal amounts for all Western Balkan countries, the transition will obviously be more challenging for the financially weaker countries.

In the design of the corresponding EU JTF, in order to account for the financial capabilities of each EU Member State, the European Commission applied an additional ‘correction factor’ based on the GNI per capita of each Member State. The aim of this adjustment was to benefit countries with a lower-than-average GNI per capita, by transferring additional funds from the financially stronger Member States. The exact same adjustment was applied for the allocation of the proposed JTF for the Western Balkans as well.

⁴⁵ Maja Zuvela, ‘First Balkans private power plant boosts coal dependence’, Reuters, 20 September 2016.

⁴⁶ Serbia Energy, ‘Serbia: TPP Kostolac B3 one of the most important EPS projects’, Serbia Energy, 28 December 2020.

⁴⁷ Eurostat, Complete energy balances [nrg_bal_c], 2019.

Specifically, following the definition of the GNI per capita correction employed by the European Commission in the case of the EU JTF, the allocation shares resulting from the application of the four criteria were adjusted downwards or upwards by a factor of 1.5 times the difference by which a country's GNI per capita exceeds or falls below the average GNI per capita of the WB6 countries.⁴⁸ The values for the GNI per capita were taken from the World Bank database⁴⁹ and they were calculated as the averages for the years 2017 to 2019, expressed in current international dollars converted by a purchasing power parity (PPP) conversion factor, to eliminate the effects of the differences in price levels between countries (Table 3).

Country	2017	2018	2019	Average (2017-2019)
Albania	12,800	13,530	14,040	13,457
Bosnia and Herzegovina	13,700	14,870	15,810	14,793
Kosovo	10,740	11,340	12,200	11,427
Montenegro	20,090	21,800	23,420	21,770
North Macedonia	15,030	15,970	16,770	15,923
Serbia	15,520	16,830	17,910	16,753

Table 3: GNI per capita, PPP (current international dollars)

3. Results

This section presents the results of our model, applying the criteria presented in the previous section, as well as the results of the additional sensitivity analysis required.

In addition to the data required to define the previously described criteria, the model also requires the determination of their relative impact, which is quantified in the form of weighting factors. To test the impact of various weighting factors, a baseline case was first developed. In this case, it was assumed that the weighting factors for each of the first three criteria related to coal use (i.e. air pollution, number of employees in the coal industry and the transition speed) were equal to 33 per cent. Furthermore, the weight for the crude oil production criterion was taken to be only 1 per cent, to reflect the lower contribution of oil to greenhouse gas emissions, compared to coal and the fact that transition of coal mining regions is more challenging.

Having this baseline case, the aforementioned six coal exit scenarios were applied, in order to generate the baseline results of the model while also assessing the effect of transition speed on the allocation of funds among the WB6. These results are presented in the next subsection. Subsequently, the effect of varied weighting factors as well as the effect of a GNI adjustment are also presented.

⁴⁸ European Commission, *Allocation method for the Just Transition Fund*.

⁴⁹ The World Bank, *GNI per capita, PPP (current international \$) - Bosnia and Herzegovina, Albania, Kosovo, Serbia, Montenegro, North Macedonia*. The World Bank, 2019, accessed 11 November 2021.

3.1 The effect of the coal phase-out date

A key parameter of uncertainty in the model is the combination of coal phase-out dates for Serbia, Bosnia and Herzegovina and Kosovo, which have not yet committed to cease coal use for electricity production by a specific date prior to their overall fossil fuel phase-out by 2050. To assess the impact of this parameter on the allocation of the JTF for the WB6, we applied the model for all six of the scenarios described in section 2.3 and Table 2 using the baseline set of weighting factors. The results are presented in Figure 6.

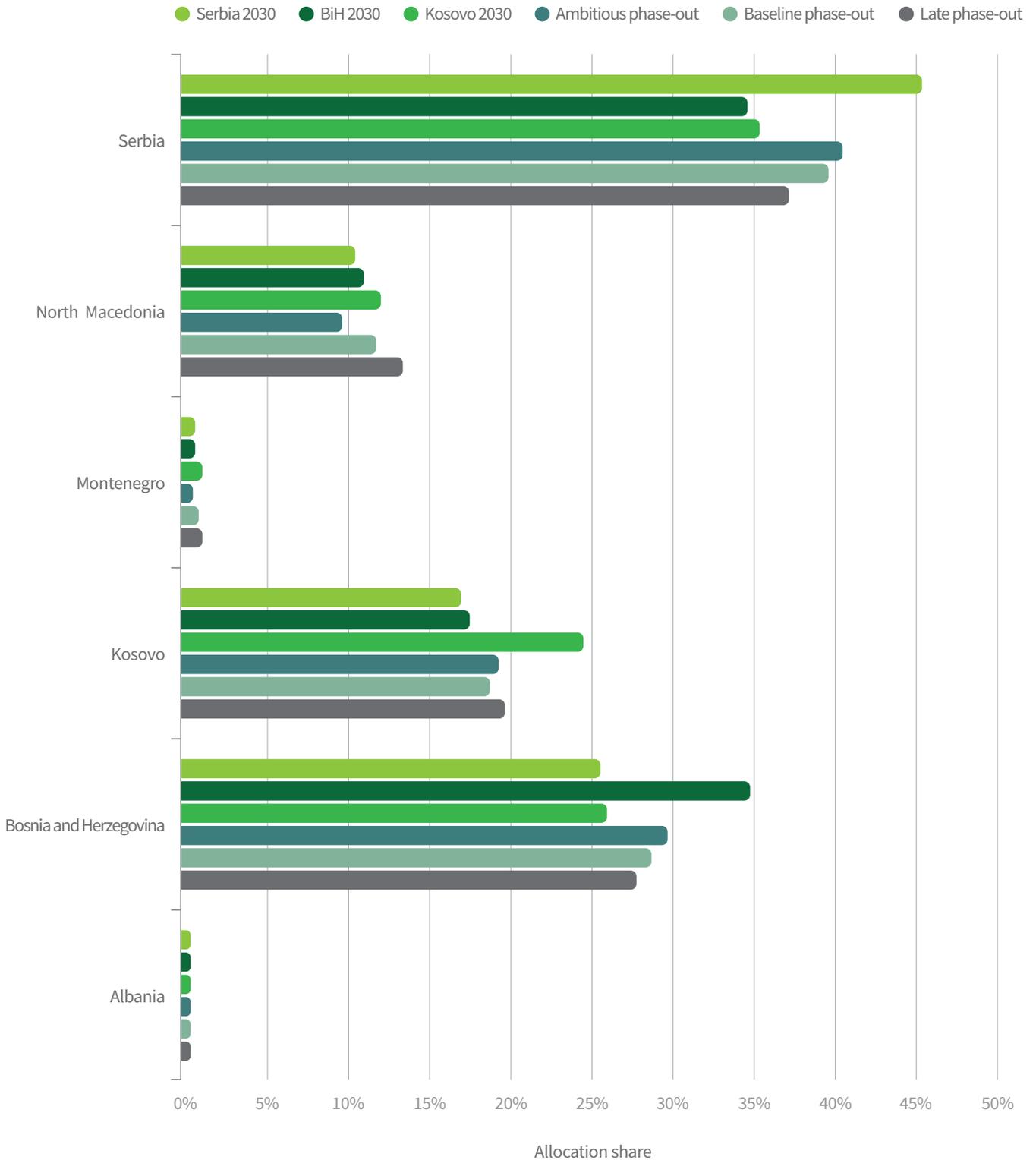


Figure 6: Allocation shares for the different coal phase-out scenarios applying the baseline case weighting factors (i.e. 33 per cent for the three criteria related to coal and 1 per cent for crude oil production)

Serbia receives the highest share in five out of the six scenarios considered. This is attributed to the fact that it receives by far the largest share from the air pollution criterion and the number of employees in the coal industry criterion. In all scenarios except the one where Serbia phases out late (2050) and Bosnia and Herzegovina much earlier (2030), Serbia receives the larger share of the fund.

In the case of a 2050 phase-out, Serbia receives its lowest share (34.24 per cent) among all six scenarios, whereas the largest share (45.43 per cent) corresponds to the scenario in which it phases out by 2030, Kosovo in 2040 and BiH in 2050. In this case, in addition to the highest share in the first criterion (air pollution), and the second largest share in the second criterion (number of employees in the coal industry), it also has by far the highest transition speed (third criterion) among the three countries with undetermined phase-out dates.

In five out of the six scenarios, BiH receives the second largest allocation overall and in one scenario it receives the largest share among all WB6 countries (34.61 per cent), surpassing even Serbia: the scenario where BiH phases out coal early (2030) and Serbia and Kosovo do so late (2050 and 2040, respectively). Its lowest share (25.42 per cent) corresponds to the opposite scenario where BiH phases out the latest (2050) and Serbia by 2030.

For this parameter set, Kosovo is always third, in all six of the coal phase-out scenarios analysed, receiving between 17.03 per cent and 23.78 per cent of the fund. Similar to the effect that the coal phase-out date has on Serbia and BiH, the lowest share Kosovo receives (17.03 per cent) corresponds to the scenario where Kosovo and BiH phase out coal late (2040 and 2050 respectively) and Serbia in 2030, whereas the highest share (23.78 per cent) corresponds to the opposite case where Kosovo phases coal out early (2030) compared to Serbia and BiH (2050).

North Macedonia has the fourth largest share of the Just Transition Fund in all six scenarios considered, despite having the earliest coal phase-out date (2027). This result is due to the fact that North Macedonia has significantly lower overall pollutant emissions (first criterion) and a lower number of coal industry employees than Kosovo while also having a higher GNI per capita. Therefore, it receives a share ranging between 9.16 per cent (when Serbia, BiH and Kosovo phase out coal early in 2030) to 12.99 per cent (when those countries phase out coal late).

It is worth noting, however, that the earlier coal phase-out (2027) significantly increases North Macedonia's share of the fund. In the hypothetical case that North Macedonia does not phase out in 2027, but in 2050, its share could be as low as 7.36 per cent.

Montenegro, a country with only one coal power plant and at the same time the country with the highest GNI per capita in the region, receives a very low share, around 1.5 per cent for all six of the scenarios considered, under the assumption that the retirement of Pljevlja occurs in 2035 according to the official commitment of the government. However, the coal plant is currently operating illegally due to exceedances of emission limit values,⁵⁰ which might in turn lead to decommissioning the coal plant much earlier. In the case where Pljevlja shuts down as early as possible (i.e. 2022), the model predicts a significant benefit for Montenegro which would increase its share from the Just Transition Fund almost three times to 3.95 per cent.

Since Albania has no coal power plants and the weighting factor for crude oil production criterion was assumed to be very small (1 per cent), Albania receives the lowest share among Western Balkan countries in all six scenarios, with shares around 0.60 per cent in each.

⁵⁰ Energy Community, [“Secretariat launches dispute settlement procedure against Montenegro for breaching Large Combustion Plants Directive as TPP Pljevlja exhausts “opt-out”](#); Energy Community, 20 April 2021.

In summary, the simulation results show that:

- Climate ambition expressed in the form of early coal exits significantly increases the share of the fund a country receives.
- Serbia benefits the most from an early coal phase-out date in five out of the six scenarios analysed, receiving as much as 45.43 per cent of the Just Transition Fund.
- Bosnia and Herzegovina may receive up to 34.61 per cent and surpass even Serbia's share in the scenario where it phases out coal by 2030 and Serbia and Kosovo continue with a coal-based electricity model until 2050 and 2040 respectively.
- Kosovo will also receive its highest possible share of the fund (23.78 per cent) if it commits to an early coal phase-out by 2030.
- In the case of North Macedonia, the early coal phase-out date the country has committed to (2027) will enable it to claim up to 12.99 per cent of the fund, almost double the share of 7.36 per cent it would have received had it decided to prolong its dependence on coal until 2050.
- Montenegro could potentially also almost triple its share to 3.95 per cent of the fund if it decides to retire its single coal plant, which is currently operating above the legal emission limit values, by 2022 instead of 2035.



*Banovići coal mine, Bosnia and Herzegovina
Photo by Denis Žiško*

3.2 The effect of the weighting factors

The effect of climate ambition as expressed by the transition speed away from coal becomes more pronounced if the transition speed criterion weighs more in the calculation of the final allocation. Figure 7 provides a glimpse of the sensitivity of the solution to the weighting factor of the transition speed criterion. It depicts the results obtained with a 50 per cent weight on the transition speed while each of the air pollution and coal employment criteria were taken to be equal to 24.5 per cent and the crude oil production criterion remained at 1 per cent.

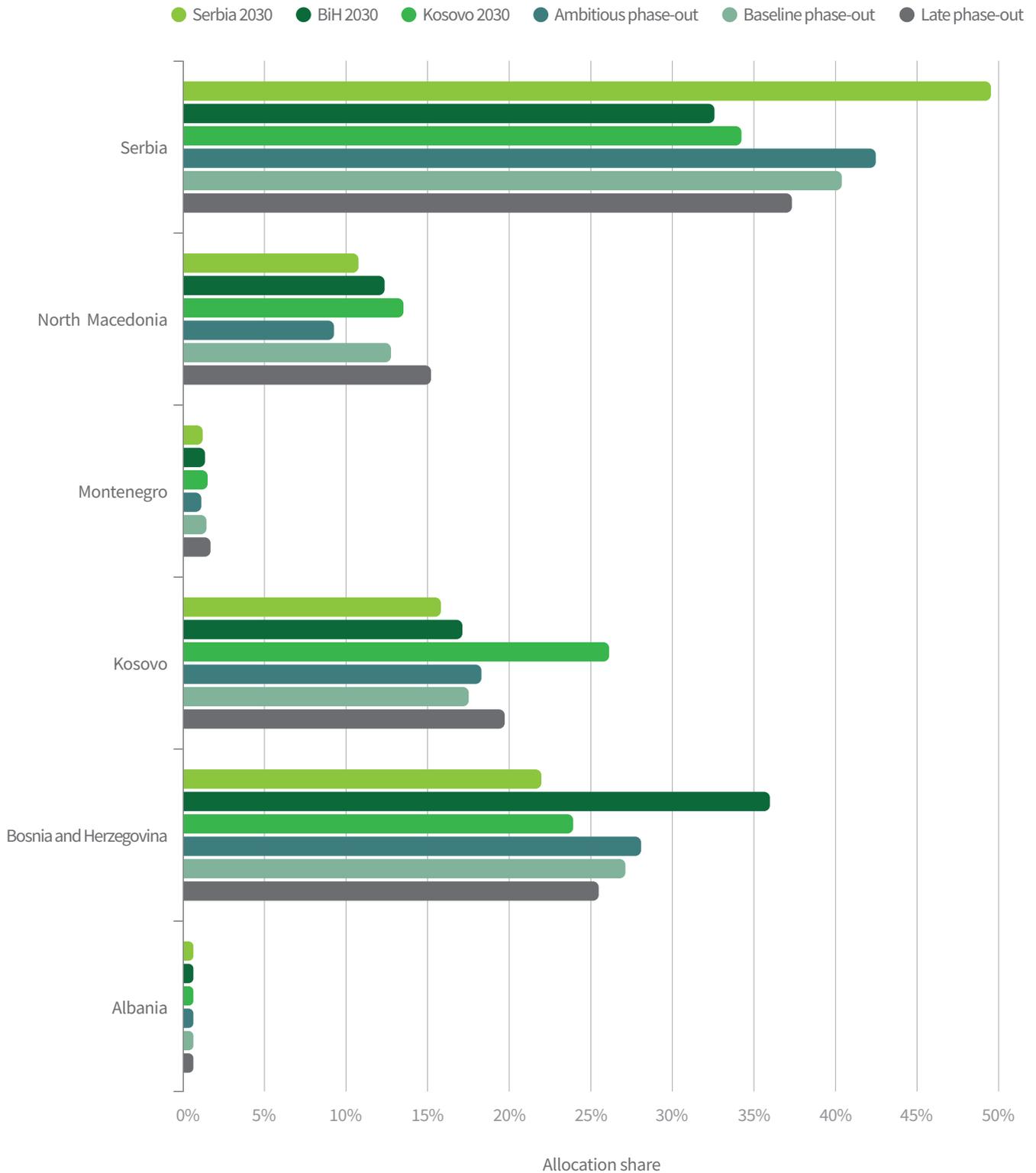


Figure 7: Distribution for higher weighting factor on the transition speed criterion

Although it is qualitatively similar to the results shown in the baseline case, the differences between the smallest and the largest shares each country receives in the six coal phase-out scenarios become significantly larger, with the maximum values of the shares becoming bigger and the minimum smaller compared to the baseline case where the weighting factors for the three main criteria were equal (33 per cent).

In particular, with the highest share corresponding to the earliest coal phase-out date and the lowest to the latest:

- Serbia’s share can increase up to 17 percentage points from 32.54 per cent up to 49.63 per cent (+51 per cent increase)
- BiH’s share can increase up to 14 percentage points from 21.91 per cent up to 35.93 per cent (+62 per cent increase)
- Kosovo’s share can increase up to 10 percentage points from 15.75 per cent up to 25.99 per cent (+64 per cent increase)

Another qualitative change compared to the case of equal weighting factors for each of the three main allocation criteria is that in the case where the transition speed weighs more, two phase-out scenarios exist where the regular order of the countries in terms of the shares they receive from the fund is disrupted. Specifically, BiH receives a higher share of the fund (35.93 per cent) than Serbia (32.54 per cent) in the scenario where BiH phases out by 2030, Kosovo in 2040 and Serbia in 2050, as was also the case when weighting factors were taken to be equal. However, when the transition speed contributes more than the other criteria in the final allocation, Kosovo receives a larger share (25.99 per cent) than BiH (23.87 per cent) if it decides to phase out by 2030 and BiH and Serbia in 2050.

To further investigate the sensitivity of the solution to the relative importance of the transition speed, we varied the weighting factor for this criterion from 10 per cent up to 90 per cent while keeping the weighting factors for the other two coal-related criteria equal to each other and the weighting factor for crude oil production equal to 1 per cent. Figure 8 shows the results of the sensitivity analysis only for the first coal phase-out scenario where Serbia decides to phase out early (2030), and BiH and Kosovo late in 2050 and 2040, respectively.

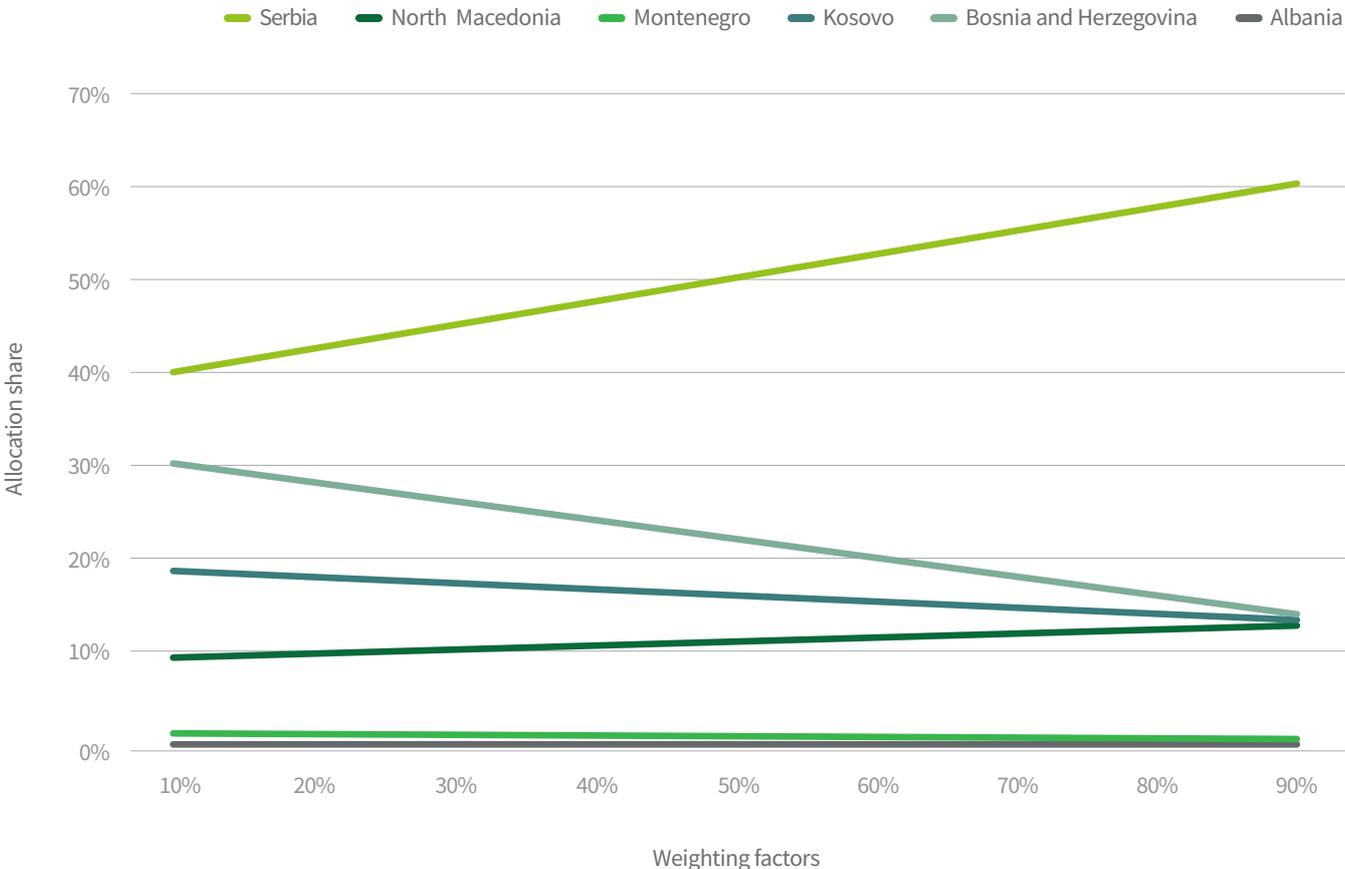


Figure 8: Transition speed weighting factor sensitivity analysis for the Serbia 2030 scenario

The shares of Serbia, BiH and Kosovo are the most sensitive to changes in the transition speed weight, while North Macedonia's share is also affected but to a lesser extent.

More specifically, Serbia's share increases significantly from 39.89 per cent to 59.86 per cent as a function of the transition speed weighting factor, while at the same time, the shares of BiH and Kosovo are affected negatively, following a linear decline, from 30.06 per cent to 13.34 per cent in the case of BiH and 18.71 per cent to 12.65 per cent in the case of Kosovo, as a result of their low ambition that was assumed in the specific coal phase-out scenario.

Lastly, the share of North Macedonia, the first country to phase out coal, also increases linearly from 9.30 per cent to 12.32 per cent, almost reaching the share of Kosovo for high transition speed weighting factors.

Contrary to those of Serbia, BiH, Kosovo and North Macedonia, the shares of Montenegro and Albania are not particularly sensitive to changes in the weighting of the transition speed.

3.3 The effect of the relative economic strength

Finally, the significance of taking into account the relative economic strength of each of the WB6 as expressed by GNI per capita was assessed using our model. Figure 9 shows the difference in the share before and after the application of the GNI per capita adjustment as the average for all six coal phase-out scenarios and for the baseline set of weighting factors.

Positive values mean that the share increased by the application of the GNI per capita adjustments, whereas negative values imply a reduction. The bars on each column represent the range of the different values obtained for each of the six different coal phase-out scenarios considered in this study.

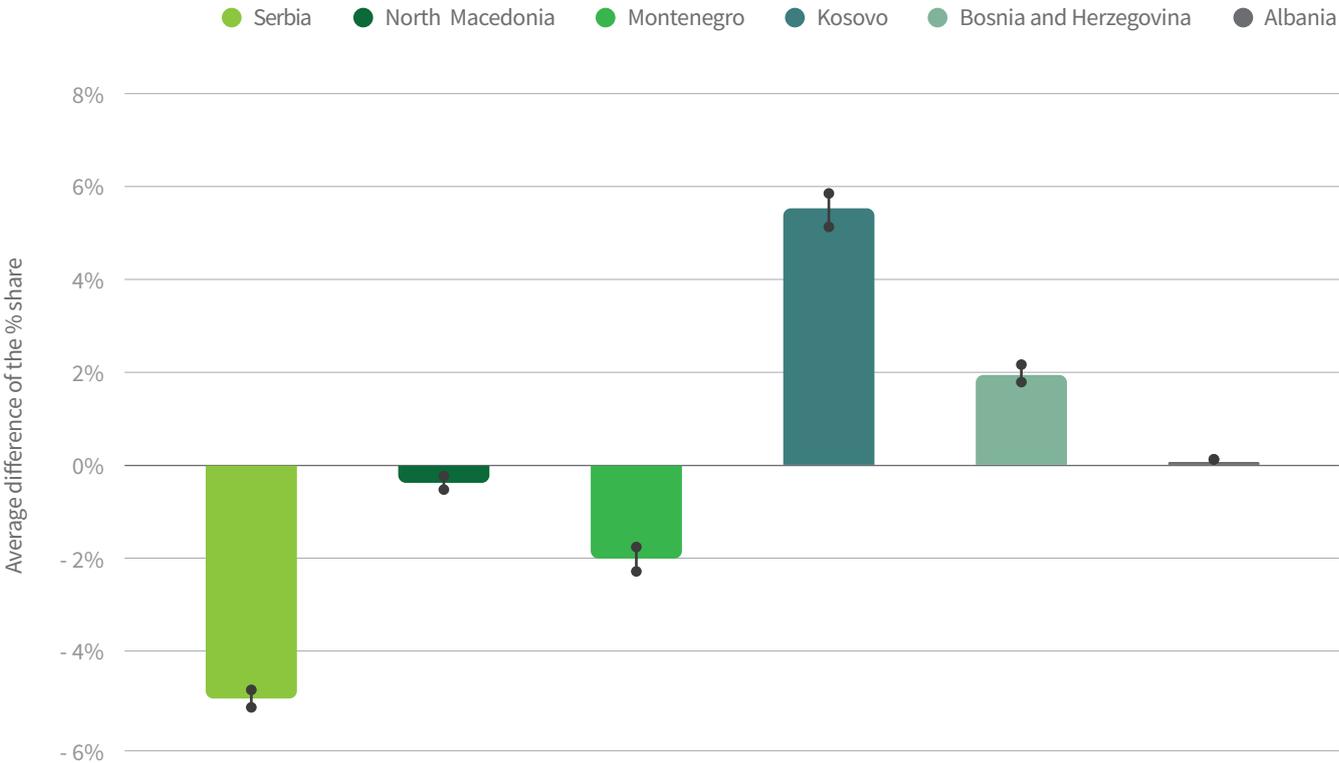


Figure 9: Average difference in percentage shares before and after the implementation of the GNI per capita adjustment for all the coal phase-out scenarios and the baseline set of weighting factors

As seen in the graph, Serbia, North Macedonia and Montenegro are the countries that benefit less from the implementation of the GNI per capita criterion, while Kosovo, BiH and Albania benefit more from it. Since Kosovo is the country with the lowest GNI per capita in the Western Balkans, it benefits the most from the inclusion of the corresponding correction: this raises its share by 5.37 percentage points on average. On the other hand, Serbia, with the second highest GNI per capita after Montenegro, is the country that loses the most, with a reduction of its share by around 4.92 percentage points. Montenegro also loses a very considerable amount, given its already low share of the fund, since it is the country with the highest GNI per capita in the Western Balkans.

As can be seen by the size of the bars in Figure 9, the application of the GNI per capita does not depend highly on the different coal phase-out scenarios. Thus, the effect of the GNI per capita criterion remains almost the same regardless of the coal phase-out scenario considered. The country that is observed to have the highest variance on the effect of applying the GNI per capita criterion among the different coal phase-out scenarios is Kosovo, whose share increases by 6.42 percentage points when assuming the Kosovo 2030 scenario (Kosovo phasing out coal in 2030, and Serbia and BiH in 2050), compared to 4.94 percentage points when assuming the BiH 2030 scenario (BiH phasing out coal in 2030, Serbia in 2050 and Kosovo in 2040).

4. Conclusion and recommendations

This report aimed to design a fair allocation method for a Just Transition Fund dedicated to the Western Balkans, taking into account the magnitude and the urgency of the transition challenge for each of the six countries in the region.

For that reason, a set of criteria was identified, taking into account the dependence of each country on coal and oil, the climate ambition of each country as expressed by the timelines to phase out coal (the most polluting fossil fuel), the air pollution from coal power plants which affects the Western Balkans as well as EU Member States, and the financial ability each country has to cope with the social and economic impacts of a transition towards carbon neutrality. Specifically, the criteria chosen to reflect the above-mentioned characteristics were:

1. The weighted average of the emissions from three main air pollutants (SO₂, NO_x, dust) from coal power plants;
2. The number of employees in coal mining and coal power plants;
3. The speed by which the countries commit to phase out coal (transition speed);
4. The annual crude oil production levels;
5. The gross national income (GNI) per capita for each country.

Using these criteria and data from official sources, a model was developed and implemented in order to calculate the allocation of the fund among the WB6 for different relative contributions for each of the criteria (weighting factors) and six different coal phase-out scenarios. The analysis of the results showed that:

- Climate ambition expressed in the form of early coal exits significantly increases the share of the fund a country receives.
- Serbia benefits the most from an early coal phase-out date in five out of the six scenarios analysed, receiving as much as 45.43 per cent of the Just Transition Fund.
- Bosnia and Herzegovina (BiH) may receive up to 34.61 per cent and surpass even Serbia's share if BiH phases out coal by 2030 and Serbia and Kosovo continue with the coal-based electricity model until 2050 and 2040, respectively.
- Kosovo may receive up to 23.78 per cent provided it commits to a coal phase out by 2030.
- The 2027 coal phase-out date North Macedonia has committed to will enable it to claim up to 13 per cent of the fund, almost double the share of 7.36 per cent it would have received had it decided to prolong its dependence on coal until 2050.
- Montenegro could potentially almost triple its share to 3.95 per cent of the fund if it decides to retire its single coal plant, currently operating above the legal emission limit values, by 2022 instead of its pledged phase-out date of 2035.
- The differences between the lowest and largest shares of each country for the six coal phase-out scenarios increase for larger weights of the transition speed criterion. The shares of Serbia, BiH and Kosovo change considerably, while the shares of Montenegro and Albania are not very sensitive to changes.
- The implementation of the GNI criterion favours the financially weaker countries (Kosovo, BiH and Albania).

Based on the results of the analysis, the main recommendations to the decision makers in the WB6 and the European Commission are to:

- Take into account the transition speed in the design of the Just Transition Fund, in order to accurately and fairly assess the urgency of the transition for each of the countries.
- Account for the coal-related air pollution in the region, which not only affects WB6 but also EU Member States.
- Plan the transition immediately rather than wait until the funding is available. Early starters would definitely receive additional financial benefits as well as the guaranteed environmental benefits and drastic improvement in their climate performance.

