
The EU's Carbon Border Adjustment Mechanism: Challenges and Opportunities for the Western Balkan Countries

IMPULSE

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Dear reader,

In July 2021, the European Commission proposed a "Carbon Border Adjustment Mechanism" (CBAM) as part of a comprehensive legislative effort to reduce net domestic greenhouse gas emissions in Europe by at least 55 percent by 2030, based on 1990. The CBAM is seen as key element to avoid carbon leakage risks for European industry. It will create a level playing field between imports of carbon intense products that face little or no carbon costs and domestic production in Europe that is exposed to rising carbon costs under the EU emissions trading system.

This impulse looks into the effects of CBAM on the power sector in the Western Balkan countries. These countries seek to formally join the EU and have the EU as their largest trade partner.

Although numerous studies have highlighted the significant public health and economic benefits of a

clean energy transition in the Western Balkan countries, climate action has been notoriously slow.

The CBAM will add to the pressure for change. This impulse explains the complexities of the CBAM proposal, shows the obligations it will create, and analyses its likely economic impact on power systems in the region.

We hope it will enable decision-makers in the region to clearly understand the opportunities and challenges of the CBAM and also support the EU Commission to understand the level and types of assistance helpful in its neighbourhood.

I wish you a pleasant read!

Yours,

Matthias Buck

Director Europe, Agora Energiewende

Key findings:

1	The EU will establish a Carbon Border Adjustment Mechanism (CBAM) that will apply to power imported from neighbouring countries, including the Western Balkan region. The CBAM is a necessary tool for the EU to prevent carbon leakage; it is not an instrument to force trading partners to adopt similar policies.
2	The Western Balkan countries have the EU as their main trading partner. They should prepare for its entry into force by either adopting internal carbon pricing or establishing clear pathways to enter the EU ETS. Export markets for goods with high carbon intensity will shrink, impacting the region far beyond the power sector. The CBAM will to some extent also reduce opportunities to export carbon free flexible power generation. There is a tight timeline concerning the numerous reforms that must take place before 2030.
3	Plans for new lignite power plants in the Western Balkans should be halted. Such projects will be loss-making in context of the CBAM. Establishing domestic carbon pricing will assist countries in gathering revenues that should be used to fund the transition to clean power systems.
4	The EU should commit to use CBAM revenues for technical assistance and transfer of knowledge to countries developing carbon pricing. Specific support is needed for establishing the data and technical backbone of carbon pricing systems. In addition, the Western Balkan countries should use a larger share of available EU funds for supporting a just transition and socio-economic convergence with the EU.

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Minimising carbon leakage through a CBAM

Emissions allowance trading is the cornerstone of the EU's climate policy. The EU Emissions Trading Scheme (ETS) covers CO₂ emissions from high polluting sectors (energy and industry), putting a price on carbon to facilitate the replacement of fossil fuels with clean energy sources (Table 1). The EU ETS is the world's first major carbon market and its largest.¹ A key challenge for the EU ETS has been to help carbon intensive sectors reduce their emissions while avoiding the risk of shifting production to locations with less stringent carbon policies. This is usually referred to as "carbon leakage".

Until now, carbon leakage has been dealt with through allowances freely allocated to selected EITE² sectors deemed at risk of carbon leakage, notably steel, aluminium, cement and clinker, and basic chemicals. With the EU's new -55 percent GHG reduction target for 2030, emissions in the sectors under the EU ETS will need to fall by 61 percent below 1990 levels by 2030.³ Due to the linear reduction of the allowance cap, the total allowances available for free allocation will, starting around 2028, fall below the levels needed to address carbon leakage risks. At the same time, as of May 2021, EU carbon prices have risen to unprecedented levels: over 50 EUR/tCO₂, versus the 5–10 EUR/tCO₂ average during the previous decade.⁴

The EU's 2030 emission reduction target of -55 percent thus represents a challenge for EU ETS reforms. The reforms must reduce the free allowances to carbon and energy intensive sectors for speeding up the transition to clean fuels while preventing carbon

leakage in view of the fact that most of EU's trading partners do not have ambitious decarbonisation targets.

In response to the challenge, the Commission proposed the introduction of a Carbon Border Adjustment Mechanism (CBAM). This addresses carbon leakage at the border by putting a carbon price on imports equivalent to the price for similar goods produced within the EU and subject to the ETS.

A CBAM would have a direct effect on the EU's immediate neighbours: the Western Balkans. As aspirants to join the EU these countries are in the process of adopting and implementing relevant EU energy acquis, which requires that they follow the 2050 decarbonisation path. However, as non-EU countries they are not subject to the EU ETS. The question is thus: How should the EU create a level playing field in its most polluting sectors, the power sector in particular, while adhering to the pledges of accession and to EU ETS rules?

Sectoral coverage of the carbon border adjustment mechanism

According to the proposal from 14 July 2021, the CBAM is to focus for the time-being focus on limited **industrial sectors** – iron and steel, cement and clinker, fertiliser, aluminium, and electricity. (The trading volume in these sectors are likely to be small: the latest assumptions are that the narrow sectoral scope of the EU CBAM will have little impact on the export value and GDP of trading partners such as China.⁵) The Commission has proposed that the CBAM come into force in 2026. From 2023 to 2025,

1 See EC, Climate Action, https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets_en

2 The EITE industries are iron and steel, smelting and refining, pulp and paper, metal mining, forestry, and chemicals and fertilisers.

3 See https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_3542

4 See Agora Energiewende| EU-China Roundtable on Carbon Border Adjustment Mechanism, June 2021

5 See Kardish, C.; Duan, M.; Tao, Y.; Li, L.; Hellmich, M. (2021). The EU carbon border adjustment mechanism

according to Commissioner Paolo Gentiloni, importers will have to report emissions embedded in their goods but they will not have to pay a financial adjustment. This transitional period is meant to help the exporters adapt to the system and provide certainty.⁶ From 2026 onwards there will be a simultaneous and gradual phasing out of free allowances for CBAM sectors by 10 percent a year. The phase-in of CBAM will be inversely proportion to the phase-out of free allowances: 10 percent a year. As a result, the CBAM will be fully implemented by 2035.

(CBAM) and China: unpacking options on policy design, potential responses, and possible impacts. Berlin: adelphi, 2021

6 See EU Observer, <https://euobserver.com/climate/152460>, accessed on 20.08.2021

Table 1: Key features of the EU ETS

Region	EU
GHG emissions (2019)	3.61 GtCO ₂ eq
CO ₂ emissions (2019)	2.92 Gt
Emissions reduction target	At least 55% below 1990 GHG levels by 2030, climate neutrality by 2050.
ETS jurisdiction	27 EU Member States and three European Economic Area-European Free Trade Association (EEA-EFTA) states, namely Iceland, Liechtenstein, and Norway. It has been linked to the Swiss ETS since January 2020.
GHG covered	CO ₂ , N ₂ O, PFCs
GHG emissions covered	39%
Sectors covered	Power, industry incl. oil refining, coking, iron and steel, cement, glass, lime, bricks, ceramics, pulp, paper, and cardboard, aviation, CCS installations, petrochemicals, ammonia, nonferrous and ferrous metals, gypsum, aluminium, nitric, adipic, and glyoxylic acid, domestic aviation. Possible extension to maritime, buildings and transport under discussion.
Entities covered	10,569 power plants and manufacturing installations, thresholds vary depending on the sector.
Cap	Single EU-wide cap from 2013, with a linear annual reduction. 2021 cap of 1.572 GtCO ₂ eq, linear cap reduction factor 2.2 percent. 2030 cap for existing scope to be around 0.83 GtCO ₂ eq (-65% vs. 1990)
Allowances	Power sector 100 percent auctioning; other sectors: free allowances + auctioning, free allowances given to "energy-intensive trade-exposed (EITE)" industries based on best performance CO ₂ efficiency benchmarks.
Carbon price	Above 50 EUR since 6 May, anticipated avg. price for 2021 ~40 EUR/tCO ₂ ; anticipated price average of ca. 50–80 EUR/tCO ₂ between 2021–2030.

European Commission, EEA, Ember, Agora Energiewende (2021)

One might think that 2026 is quite late for introducing CBAM given the risk of carbon leakage and the risk of missing EU's targets if hard-to-abate industrial sectors do not accelerate their transition. Yet companies need time to adapt to the new data reporting requirements and the EU needs to get the new regulatory system up and running. Moreover,

the instrument has to be fully compliant with WTO regulations. Some countries have already indicated that they might not be WTO compatible (China and Russia, and parts of the US⁷), so operationalising the CBAM will require some time.

7 See Clean Energy Wire, <https://www.cleanenergywire.org/factsheets/emission-reduction-panacea-or-recipe-trade-war-eus-carbon-border-tax-debate>

Table 2: CBAM regulation on scope

Article 2, Paragraph 7

If a third country or territory has an electricity market that is integrated with the internal Union market for electricity through market coupling, and it has not been possible to find a technical solution for the application of the CBAM to the importation of electricity to the Union from that third country or territory, the import of electricity from the country or territory shall be exempt from the application of the CBAM, provided all of the following conditions are satisfied:

- (a) the third country or territory has concluded an agreement with the Union setting out an obligation to apply the Union law in the field of electricity, including legislation on the development of renewable energy sources, as well as other rules in the field of energy, environment and competition;
- (b) the national law in that third country or territory implements the main provisions of the Union electricity market legislation, including those governing the development of renewable energy sources and the coupling of electricity markets;
- (c) the third country or territory has submitted a roadmap to the Commission containing a timetable for the adoption of measures to implement the conditions set out in points (d) and (e);
- (d) the third country or territory has committed to climate neutrality by 2050 and has formally formulated and communicated, where applicable, to the United Nations Framework Convention on Climate Change a mid-century, long-term low greenhouse gas emissions development strategy aligned with that objective, and has implemented that obligation in its domestic legislation;
- (e) the third country or territory has, when implementing the roadmap pursuant to point (c), demonstrated substantial progress towards the alignment of domestic legislation with Union law in the field of climate action on the basis of that roadmap, including towards carbon pricing at an equivalent level of the Union at least insofar as the generation of electricity is concerned;
- (f) the third country or territory has put in place an effective system to prevent the indirect import of electricity in the Union from other third countries not meeting the requirements set out in points (a) to (e).

European Commission (2021)

For the **power sector**, the proposal foresees different rules than for the industry: "Applying a CBAM to the electricity sector requires taking into account its uniqueness that distinguishes it from basic materials, including the methods for its transportation, through constrained, monopoly networks, and the broad set of technologies employed for its production".⁸

Special rules would mainly apply to countries in the Energy Community that are in the process of

becoming part of the integrated European electricity market.

Those rules govern the introduction of a CBAM for power exports by 2030. As the Commission writes: "Once third countries are closely integrated into the Union electricity market via market coupling, technical solutions should be found to ensure the application of the CBAM to electricity exported from such countries into the territory of the Union. If technical solutions cannot be found, third countries that are

⁸ See EC, Carbon Border Adjustment Mechanism, https://ec.europa.eu/info/sites/default/files/carbon_border_adjustment_mechanism_0.pdf

Table 3: Conditions to applying embedded emissions in electricity

Annex III; Point 5

In general, the Commission does not intend to use actual embedded emissions in the power exports as it does with industry products. There are several limited exceptions to this rule, which the declarant of power imports needs to meet cumulatively:

- (a) the declarant has a power purchase agreement with a producer of electricity located in a third country for an amount of electricity that is equivalent to the amount for which the use of a specific value is claimed;
- (b) the plant/unit producing the electricity is either directly connected to the EU transmission system or it can be demonstrated that at the time of export there was no physical network congestion at any point between the installation and the EU transmission system;
- (c) the same amount of electricity for which the declarant uses actual embedded emissions has been firmly assigned to the allocated interconnection capacity by all responsible transmission system operators in both the country of origin, the country of destination and, if applicable, each third country of transit, and the nominated capacity and the power production in the unit referred to in point (b) refer to the same period of time, which shall be no longer than one hour;
- (d) all of the above must be certified by an accredited verifier.

European Commission (2021)

market coupled should benefit from a time limited exemption from the CBAM until at the latest 2030 with regard solely to the export of electricity, provided that certain conditions are satisfied".⁹

Clearly, the issue of market coupling and the considerations of the Commission make it more complicated to assess the effects for the Western Balkan power markets, and the effects of such a delay would need to be further assessed. The Commission, keeping in mind the obligations of the Energy Community members and their aspirations to join the EU one day, has decided to grant the countries additional time to finalise the European market coupling, introduce internal carbon pricing and adjust their plans with EUs 2050 net-zero goal. Table 2 presents in detail Article 2.7 of the CBAM regulation. The countries in the Western Balkans have less than a decade either to enter the EU-ETS, or to implement their own carbon pricing, pledge full decarbonisation

by 2050 and implement the relevant acquis. The CBAM regulation applies directly without countries having to translate it into domestic laws. This indicates that Article 2.7 will trump the Energy Community Treaty.

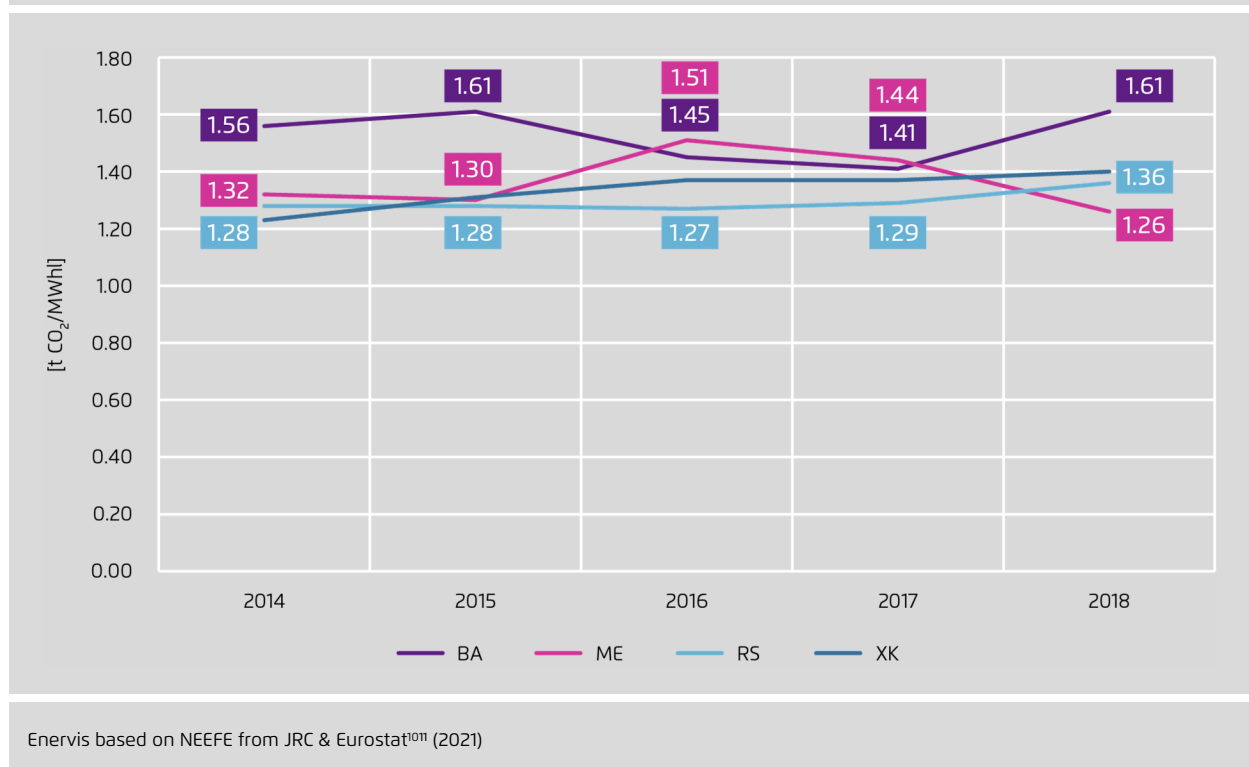
Hence, even though the CBAM as such is meant to stop industries from carbon leakage, it can serve as an instrument to bring the countries of the Western Balkans closer to the EU regarding the clean-energy transition.

Calculating emissions from the power sector under a CBAM

A main element of the proposed CBAM regulation is the calculation of the emissions of power exports to the EU. The Commission differentiates between the carbon content and the calculation of the embedded

9 Ibid.

Figure 1: Estimation of the carbon intensity of fossil power generation



emissions in industrial materials and imported electricity. **Regarding electricity, emissions will be determined based on either the specific default values for a third country, a group of third countries, or a region within a third country. If those values are not available (or not reliable), the Commission will use EU default values for similar electricity production in the EU.** These EU default values are defined as “the weighted average of the CO₂ intensity of electricity produced from fossil fuels in the EU where the weight reflects the production mix of the fossil fuels in the EU”.¹²

As for the specific third country-based values, point 4.2.1. in Annex III states that they “shall be based on the best data available to the Commission determining the average CO₂ emission factor in tonnes of CO₂ per megawatt-hour of price-setting sources”.¹³ It seems that the Commission will hold the right to decide which specific values it will use: the ones for a third country, a group of countries or a region within the third country, or its own power sector default values. A probable assumption is that whatever best reflects the carbon intensity of the power production from a specific third country or a

10 Emission factors were derived according to an estimate of the CBAM definition: the total carbon emissions of electricity sector divided by gross generation of fossil fuels. Comparable data for North Macedonia is unavailable, and is therefore excluded from the graph as well as from the above numbers. The latest data available at EUROSTAT are from 2018.

11 The acronyms stand for: BA=Bosnia and Herzegovina, ME=Montenegro, RS=Republic of Serbia and XK=Kosovo.

12 The method set out for calculating default values for embedded emissions in imported electricity can be found in Annex III, point 4.2 from the CBAM regulation.

13 See EC, Carbon Border Adjustment Mechanism

group of countries will be used as the calculation method.

A closer look at the Commission proposal, however, indicates that it prefers to calculate a default value of the carbon emissions of a country based on the average carbon emission intensity of the fossil power mix ("B.3"). This value is calculated by dividing the total carbon emission of the electricity sector in the third country by the gross electricity generation based on fossil fuels. This approach assumes that exports are caused by fossil generation as the price setting producer. Like any average, it is a blunt instrument and comes with some disadvantages. Adding an average CBAM tax to exports from WB-6 countries on the EU border fails to consider time periods in which renewables are export drivers. This could penalise RES exports in the future.

In the case of the Western Balkans, the countries already report the emissions and CO₂ intensity of their electricity production through the Energy Community. Hence, it would be advisable for the Commission to keep the default values of the Energy Community parties (either separately or as a group) since this reflects the CO₂ intensity of the lignite power production better than the EU default values would. For instance, the average CO₂ intensity of the power production at the EU level in 2019 was 0.255 tCO₂/MWh.¹⁴ By comparison, the available national emission factors range between 1 and 1.1 tCO₂/MWh for the available countries.¹⁵ Clearly, the average carbon emission intensities for the Western Balkan countries are overall higher on average than in the EU (though data is available only for Bosnia & Herzegovina, Montenegro, Serbia & Kosovo) (Figure 1).

If we look at the carbon intensity of fossil generation using the Commission's preferred option for

calculating carbon intensity, the emission intensities of countries are in the range of 1.2–1.6 tCO₂/MWh. The average for the four countries (Bosnia & Herzegovina, Montenegro, Serbia, and Kosovo) is 1.4 tCO₂/MWh for the most recent data available. Figure 1 shows estimates of the carbon intensity of fossil power generation in the Western Balkan countries.

The Commission proposes one exception: If the declarant can prove the electricity they import, based on reliable data, has an average CO₂ emission factor lower than the one in the EU or lower than the specific default value (whatever the price-setting source is in that country or group of countries), an alternative default value based on the average CO₂e emission factor shall be established. The burden of proof falls on the declarant of that import to the EU.

If the declarant claims the CO₂ intensity of the power imports are actually lower than what the Commission says, the Commission puts the burden of proof solely on the declarants themselves. This can make exports more complicated and can consume more time and money. In order not to hinder imports from neighbouring countries, more clarity will be needed for the entire reporting period, as well as calculation, reporting, and monitoring support for the exporting countries. Financial support for establishing such systems would also be required.

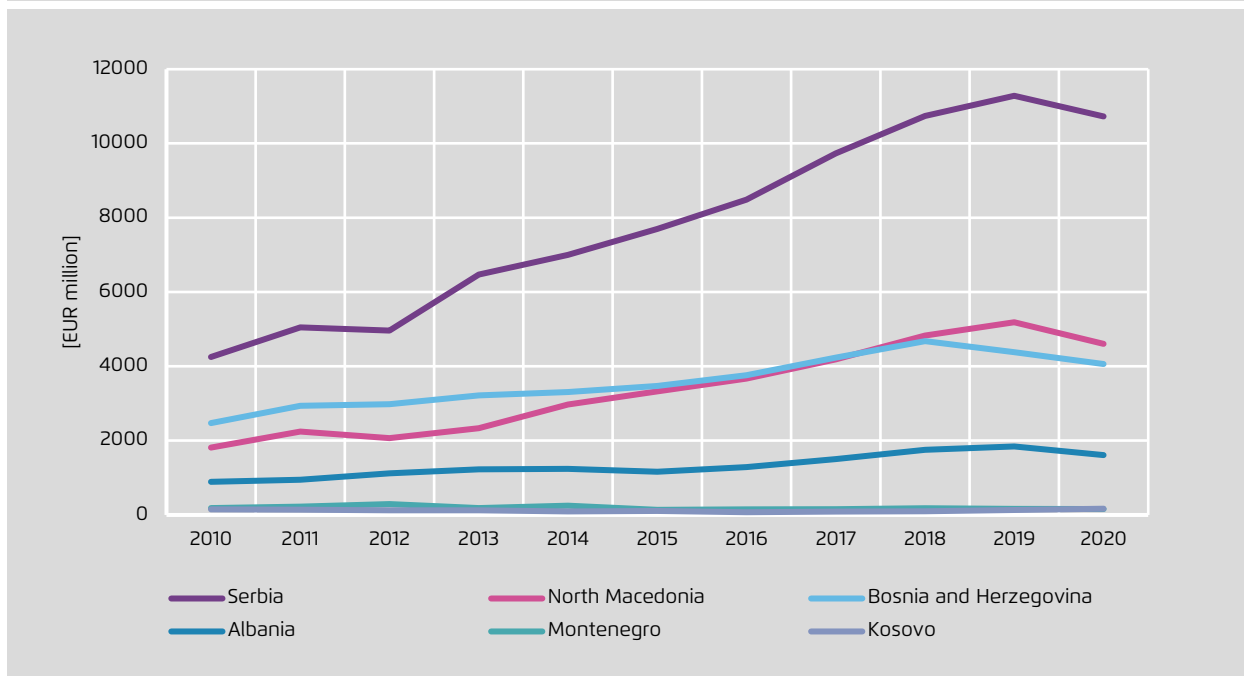
EU revenues from CBAM

As the CBAM will charge imports of products from a limited number of sectors, the initial revenues will not be very high. According to the EU Commission, the expectation is that CBAM revenues will account for 10 billion euros per year. Usage of these revenues is not decided yet, but they will not be available for

14 See European Environmental Agency <https://www.eea.europa.eu/data-and-maps/indicators/overview-of-the-electricity-production-3/assessment-1>, accessed on 19.08.2021

15 This is based on JRC, which depicts the ratio between total emissions of the electricity & CHP generation and the total national electricity consumption. The figure is not available for all countries.

Figure 2: EU imports of goods to the Western Balkans, 2010–2020



Eurostat (2021)

funding climate policies outside the EU, such as in the least developed countries (LDCs) or the EU neighbourhood. For now, the proposal specifies that part of the revenues will contribute to the EU's budget, with the remainder helping member states' governments finance their own climate policies.¹⁶

What also remains to be resolved is if all goes according to plan and the WB-6 join the ETS, would a CBAM be imposed on the border with other non-EU countries such as Turkey and Russia, which are the largest trading partners of the block after the EU and the Western Balkans?¹⁷ Including the Western

Balkans in the CBAM collection and its redistribution afterwards is another issue that eventually needs resolving.

Challenges of a CBAM for the Western Balkans power system

Before looking into the power sector of the Western Balkans and the impact a CBAM can have on its lignite, it is important to show how economic development and trade in the WB-6 depends on the EU. This is because the EU is the leading trade partner for the

16 This is mentioned in the explanatory memorandum in Chapter 4 titled Budgetary Explanations, where the EC states that most revenues generated by CBAM will go to the EU budget. Further, CBAM revenues will be used to refinance the borrowing done under NextGenerationEU. The European Parliament, the Council and the Commission agreed that 'the Institutions will work towards introducing sufficient own resources with a view to covering an amount corresponding to the expected

expenditure related to the repayment' of NextGenerationEU28. One of those resources is the CBAM.

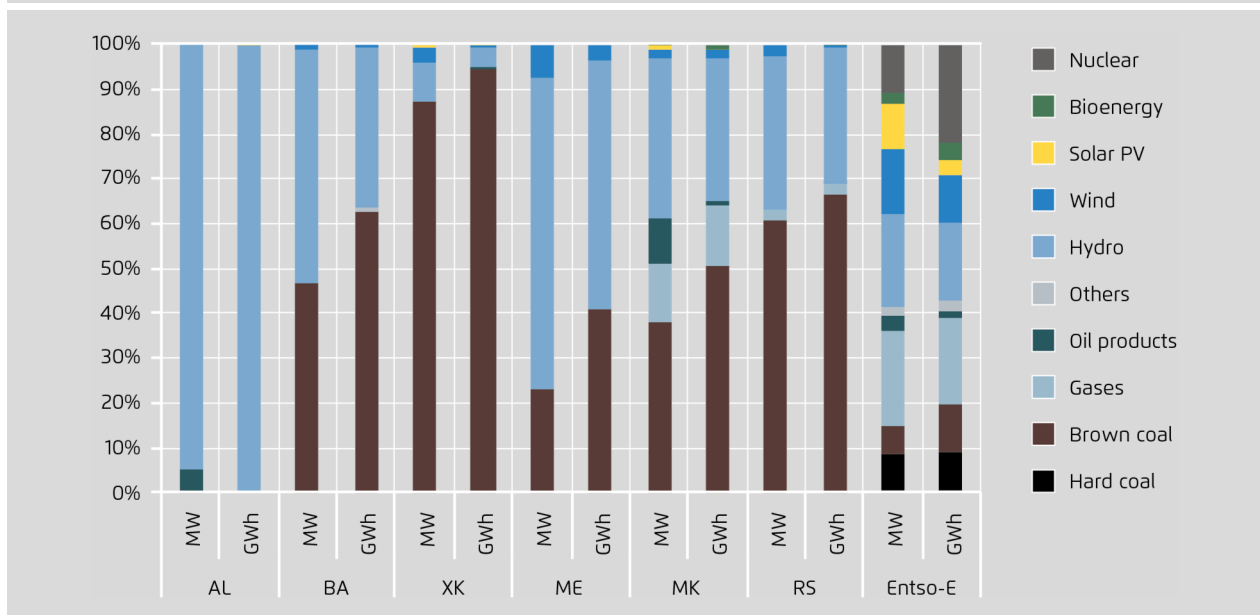
17 See Eurostat, Western Balkans–EU – international trade in goods statistics, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Western_Balkans-EU_-_international_trade_in_goods_statistics&oldid=526493

Western Balkans, accounting for almost 70 percent of the region's total trade in both exports and imports. By comparison, the trade volume among the Western Balkans themselves is significantly smaller, with only 15 percent in exports and 9 percent in imports.¹⁸ Figure 2 provides a look at the individual countries of the WB-6. Serbia and North Macedonia have the largest annual growth, while Serbia due to its size has the largest share of the export volume. In 2019, Serbia's exports totalled 11.3 billion euros. (North Macedonia, the second highest in the region, had some 5 billion euros.) Serbian GDP in 2019 was 46 billion euros,¹⁹ which means that exports to the EU make up 25 percent of its GDP. Given Serbia's

trade value, any additional taxation is bound to have a sensible impact.

The region of the Western Balkans predominantly depends on lignite for power production (Figure 3). Compared with the entire ENTSO-E technology portfolio – in which renewables, gas, and nuclear strongly reduce the relative importance of coal and lignite technologies – the Western Balkans are severely undiversified, and lignite and hydro dominates their power mix.²¹ Moreover, the power system of the region has good interconnections to the EU. The introduction of a carbon border levy will thus

Figure 3: 2018 power mix of WB-6 countries and the ENTSO-E aggregate²⁰



Agora Energiewende adapted from (ENTSO-E, 2020), (Eurostat, 2020)

18 See *ibid.*

19 See European Commission. Directorate for Trade, Serbia Overview.

20 The acronyms stand for: AL=Albania, BA=Bosnia and Herzegovina, XK=Kosovo, ME=Montenegro, MK=North Macedonia; RS=Republic of Serbia.

21 See *enervis (2021): The Future of Lignite in the Western Balkans. Scenarios for a 2040 Lignite Exit. Study on behalf of Agora Energiewende.*

Table 4: CO₂ power sector emissions in Bosnia and Herzegovina and estimations for carbon costs under different allowance prices

2020 CO ₂ emissions power sector in t	Annual CO ₂ costs @ 15 EUR/t CO ₂	Annual CO ₂ costs @ 20 EUR/t CO ₂	Annual CO ₂ costs @ 30 EUR/t CO ₂	Annual CO ₂ costs @ 40 EUR/t CO ₂	Annual CO ₂ costs @ 50 EUR/t CO ₂
113,300,00	169,950,000	226,600,000	339,900,000	453,200,000	566,500,000

Agora Energiewende (2021)

have a significant effect on the Western Balkans' potential for power exports.

The CBAM is not just another tax, however. It has consequences beyond export charges. In 2019, the WB countries exported 6.3 TWh to the EU, placing it third –behind Russia and Ukraine. The largest flows occurred on two borders, North Macedonia/Greece (2.7 TWh) and Bosnia & Herzegovina/Croatia (1.6 TWh).²² Ember estimates that the 6.3 TWh exported to the EU emitted 5.2 MtCO₂, or 20 percent of CO₂ from all electricity imports in the EU. The lack of carbon pricing in the region gives a competitive short-term advantage to high-polluting lignite generation.

For example, in 2020 Bosnia & Herzegovina exported 23 percent of its electricity production, and cashed in approx. 117 million euros without having to pay for sector emissions, which in 2020 were estimated to be 11,330 ktCO₂. A simple calculation shows how even a small carbon price of 15 EUR/t CO₂ can create carbon costs in the amount of 170 million euros for the BiH power sector (Table 4). That price more than triples if the carbon price is at 50 euros per t/CO₂.

Unlike the planned internal carbon pricing system, a CBAM will not be gradually implemented. Once the Green Agenda comes into force on 01.01.2030, the electricity from the region will cost the same after entering the European market as the electricity produced in the EU (more expensive than before the introduction of the CBAM). If the WB-6 do not comply with the Green Agenda, there will inevitably be a negative effect on the trade balance between the Western Balkans and the EU, and the CBAM charges will not be recycled back to the region.

We previously assessed the implications of the CBAM for the WB-6 power generation sector in the study "The Future of Lignite in the Western Balkans: Scenarios for a 2040 Lignite Exit".²³ Most of the Western Balkans' power fleet is older than 40 years. Hence, there is a need to plan for significant replacement investments. At the same time, the EU has increased its 2030 and 2050 climate targets, and wants to reach net-zero emissions by 2050. The EU's policies thus represent important constraints for the region's power sector.

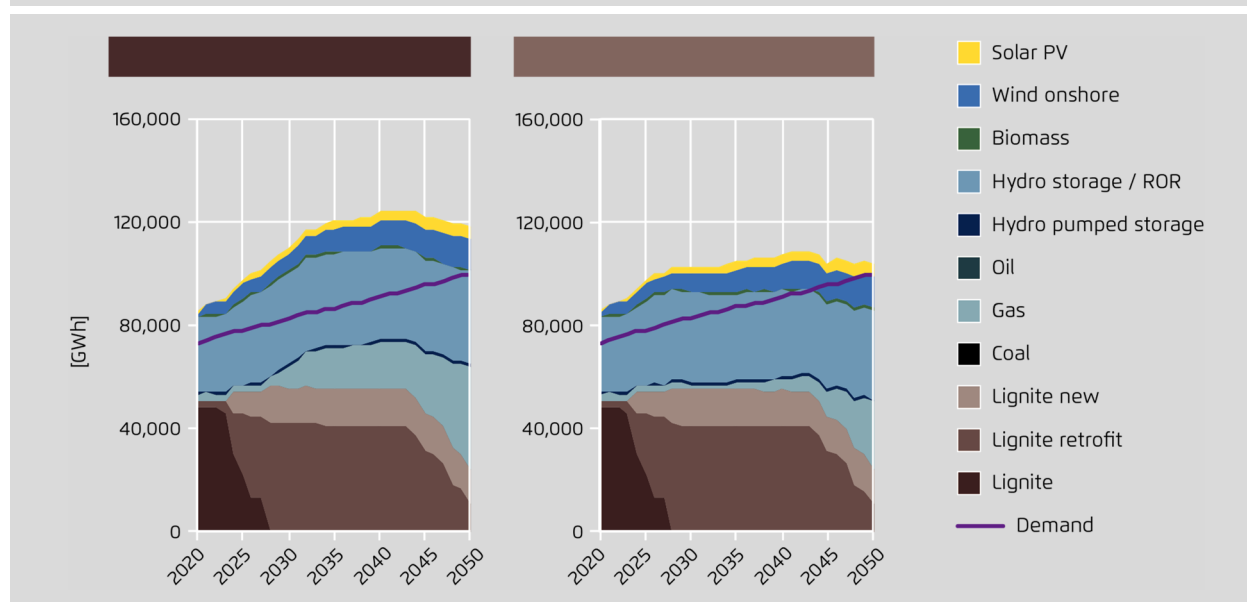
Once a CBAM is introduced, the export countries in WB-6, due to their heavy reliance on carbon-intensive lignite, will see their exports decrease (Figure 4). The decrease will depend on the calculation of the

22 See Ember, The path of least resistance: How electricity generated from coal is leaking into the EU, 2020 [https://ember-climate.org/wp-](https://ember-climate.org/wp-content/uploads/2020/01/2020-SB-Path-of-least-resistance-1.2b_DIGI.pdf)

[content/uploads/2020/01/2020-SB-Path-of-least-resistance-1.2b_DIGI.pdf](https://ember-climate.org/wp-content/uploads/2020/01/2020-SB-Path-of-least-resistance-1.2b_DIGI.pdf)

23 See enervis, 2021

Figure 4: Power market outlook for the WB-6 region across the scenarios (generation without CBAM [left] and with CBAM [right])



enervis (2021)

carbon content of the power exports. Our assessment shows that a CBAM would slash the exports by half in 2040 if the countries keep their lignite fleet and add new lignite units. Accordingly, revenues for lignite units will be heavily impacted. Unlike an ETS regime, where the funds from auctioning emission allowances can be recycled back to the system and utilised for the energy transformation, a CBAM that only imposes an export levy would not recycle EU funds to the Western Balkans. This would result not only in fewer exports and diminishing profits but also less money for the region's energy transition than that generated from domestic carbon pricing.

Likewise, the CBAM has deep financial implications for planned lignite units. The study calculated the net present values (NPV)²⁴ for the units under three alternative scenarios (no carbon pricing, CBAM, and

an ETS regime). If the estimated NPV was positive, the investment was considered viable; by contrast, a negative NPV indicated costs would exceed returns, meaning the project should be abandoned. The analysis was performed for several newly planned units in the Western Balkans: Kakanj G8, Tuzla G7, Gacko 2 in Bosnia and Herzegovina, Kosovo C1 in Kosovo, and Kolubara B1 and Kostolac B3 in Serbia.

Out of all planned projects, two (both of them in BiH) would be making a loss even if built today without any carbon pricing (Figure 5). Once a CBAM is introduced, the economic viability of these plants becomes even worse. If an ETS regime is phased in, all planned lignite power plants turn net negative and are thus unprofitable.

24 The following drivers were considered for the calculation of the net-present values: income based on wholesale prices, lignite and carbon costs (if applicable), fixed operational costs and investment costs. The study also assumed 6 percent cost of capital in real terms for

discounting purposes. The resulting net present value in this case represents the economic viability of a specific new lignite unit, excluding subsidies.

Figure 5: Calculated net-present values for proposed lignite projects in Western Balkans


The NPV for the new units was calculated before the CBAM proposal was out in July 2021, under the assumption that it would be gradually phased-in. As the Commission proposal spells out (Table 2), a CBAM for the power sector will have a full effect (equalling the EU ETS price level) as of 1 January 2030 in the event that the countries are not coupled with the European market and have not established effective carbon pricing with a price equivalent to the EU ETS allowances. The reference carbon intensity will likely be calculated more aggressively than assumed in our study, where it was based on total electricity generation including fossil and renewable production rather than just the fossil share.²⁵ These two findings imply that the effects of CBAM will be even stronger than presented here, which means that any new lignite in the Western Balkans will be even less

feasible than we projected. Further, such calculations show that any form of carbon pricing (even one imposed by a third-party entity at the border via a CBAM or an ETS phase-in) poses a major risk for the economics of new lignite plants in the region. The low efficiency of lignite mining in the region, the costs of complying with tighter air pollution

regulations, and the limited export opportunities in view of a CBAM at the border with the EU indicate that the profitability of the new investments will deteriorate rapidly.

Once an ETS is phased in, these types of investments make lignite an even riskier endeavour.²⁶ Even if the newly planned projects are expedited and finalised by 2025, there are only 5 years before either a CBAM

25 This approach is similar to the proposed “reference carbon emission intensity” (option A) in the EC proposal. All variants of option B (“average CO₂ emission factor”) are based entirely on fossil electricity generation (thus lowering the denominator) in order to account for the fact that these generation options typically produce excess

electricity during hours where the export of electricity occurs based on the merit order.

26 See enervis (2021)

Figure 6: Cumulative (2020–2050) incremental generation costs (left) and scenario differences (Green Deal minus Fossil) (right) in the WB-6 region



kicks-in or domestic carbon pricing is introduced. Given that coal plants have an average lifetime of 46 years,²⁷ building new ones now is very risky, for they are likely to burden government, utility, and financing institutions with unserviceable loans, carbon lock-in, and stranded assets.

From a broader system-cost perspective, it is important to look at the system costs of Western Balkan countries under different forms of carbon pricing. The study assessed incremental generation costs, which include costs that change between scenarios (like CO₂ or fuel costs).²⁸ They are essential if we want to determine in which scenario the generated power is most cost efficient.

The left graph in Figure 6 shows that in the absence of CO₂ pricing, differences in incremental generation costs remain in a relatively tight range between the

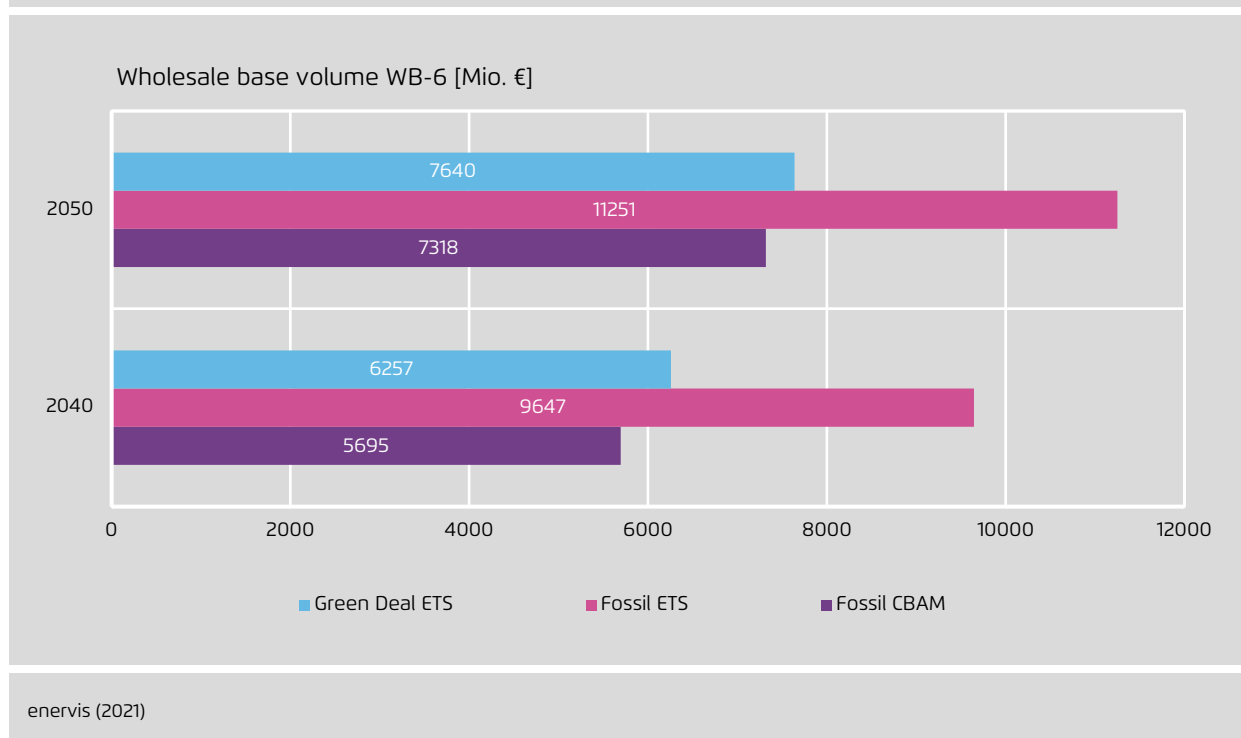
Fossil scenarios (€121 bn) and the Green Deal scenarios (€123 bn). Introducing a CBAM has a rather modest impact on generation costs (Fossil: €125 bn; Green Deal: €124 bn). However, the right graph in Figure 6 shows that the Green Deal scenario (where we assume a lignite phase-out by 2040) reduces costs by €55 bn with an ETS phase-in. This is because of the significant reduction in emissions and the costs for CO₂ certificates.²⁹ Our modelling concludes that **given the introduction of a carbon price either at the EU border or in the region itself, existing lignite units should be closed by 2040 because it will be economically unsound to keep**

27 See Cui, R.Y., Hultman, N., Edwards, M.R. et al. Quantifying operational lifetimes for coal power plants under the Paris goals. *Nat Commun* 10, 4759 (2019). <https://doi.org/10.1038/s41467-019-12618-3>

28 Under incremental costs we included net import costs, CO₂ costs, external effects, CAPEX and OPEX, RES CAPEX and OPEX, and lignite mining costs.

29 See enervis, 2021

Figure 7: Wholesale base volume projections in 2040 and 2050 in the WB region



them running. A lignite exit will thus lower power system costs. Moreover, our modelling indicates that no new lignite plants should be built.

As for wholesale prices, not introducing or entering the ETS does not help the countries prevent price increases. In all scenarios, as power demand and wholesale prices increase, consumer costs rise as well. However, the modelling also shows that renewables contribute to lower wholesale prices, hedge against the effects of carbon pricing if there is an ETS, and reduce power and fuel imports (Figure 7). Therefore, given the inevitability of carbon pricing in the Western Balkans, the sure-fire way to hedge against rising wholesale prices is not a business-as-usual reliance on lignite but rather the acceleration of a coal phase-out.

Hence, Western Balkan countries should redirect their efforts from new lignite to a planned and coordinated lignite phase-out and a just transition to clean energy. At the same time, in order to avoid any

loss of revenues due to the nature of the proposed CBAM regulation, the countries should opt for the delayed CBAM approach and either adopt domestic carbon pricing or enter the EU ETS under the auspices of the Energy Community. The markets for goods with high carbon intensity will continue to shrink as the EU-27, the largest economy in the world, continues to push for decarbonisation. The Western Balkans have to prepare well for what is coming.

Conclusion and way forward

The carbon border adjustment mechanism is an instrument carefully constructed to prevent carbon leakage and replace the free allocation system in the EU ETS. It is designed to support the EU's heavy industries in their efforts to decarbonise. **It is not an instrument designed to punish trading partners. Rather, it aims to create a level-playing field in trade relations with other countries.**

The impact on smaller, more vulnerable countries like the Western Balkans need not be negative. Unlike the larger trading partners of the EU, the Western Balkans have some advantages: the delayed CBAM for the power sector, the prospect of EU membership, interconnected markets, and EU funding for bringing about a clean-energy transformation.

At the latest EU–Western Balkans Summit, which took place in Ljubljana in October of 2021, both parties confirmed their commitment to implementing a Green Agenda for the Western Balkans. That agenda includes the Green Agenda Action Plan for climate action reforms, pollution control, nature and biodiversity protection and regional integration, including the first indicative timeframe for harmonisation with the EU Emissions Trading System (2024).³⁰ By the end of the year, an additional 1.1 billion euros will be made available for the implementation of the Economic and Investment Plan.

To reach the best outcome for the region and the EU, continuous analysis and dialogue on the effects of carbon pricing and on pressing climate and energy issues within EU accession processes (EU ETS, CBAM, carbon leakage, pollution) are essential. **As with its larger trading partners, the EU should engage in good faith with its neighbours on the strengths and weakness of such instruments. They should take into account the necessity of economic convergence and the Western Balkans' reliance on EU assistance.**

Therefore, in order for the WB-6 to avoid costly, unpredictable disruptions of trade with the EU, they should seriously consider accepting EU support to put in place policies that will:

- develop plans for a coal phase-out and territorial plans for a just transition;

- finalise regional power market integration by 2030;
- set targets for renewables and energy efficiency through 2030;
- operationalise carbon pricing on a national and/or regional level by 2030; and
- adopt long-term decarbonisation strategies.

If the Commission is to bring the Western Balkans closer to the 2050 decarbonisation path it should:

- provide technical assistance and funding for market coupling and carbon pricing;
- earmark at least 30 percent of the €9 billion Economic and Investment Plan as well as the €20 billion Western Balkans Guarantee facility (under the EU External Action Guarantee and the European Fund for Sustainable Development Plus) for implementing the first pillar of the Green Agenda in the Western Balkans, which includes decarbonisation, energy transformation, and mobility measures;
- transfer clean technological solutions for the energy and industry sectors;
- assist the countries in breaking down barriers for renewables deployment; and
- establish clear guidelines for each benchmark that needs to enter into force by 2030 and strict rules in the case of non-compliance such as the de-coupling of the markets if the WB-6 does not introduce functional national carbon pricing or the withholding of EU funding if the WB-6 violates CBAM regulation while continuing exports.

30 See Balkan Green Energy News, [https://balkan-greenenergynews.com/adopted-green-agenda-action-plan-for-western-balkans-brings-eur-9-billion-](https://balkan-greenenergynews.com/adopted-green-agenda-action-plan-for-western-balkans-brings-eur-9-billion-in-grants-2024-deadline-to-align-with-eu-ets/)

[in-grants-2024-deadline-to-align-with-eu-ets/](https://balkan-greenenergynews.com/adopted-green-agenda-action-plan-for-western-balkans-brings-eur-9-billion-in-grants-2024-deadline-to-align-with-eu-ets/) accessed 25.10.2021

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