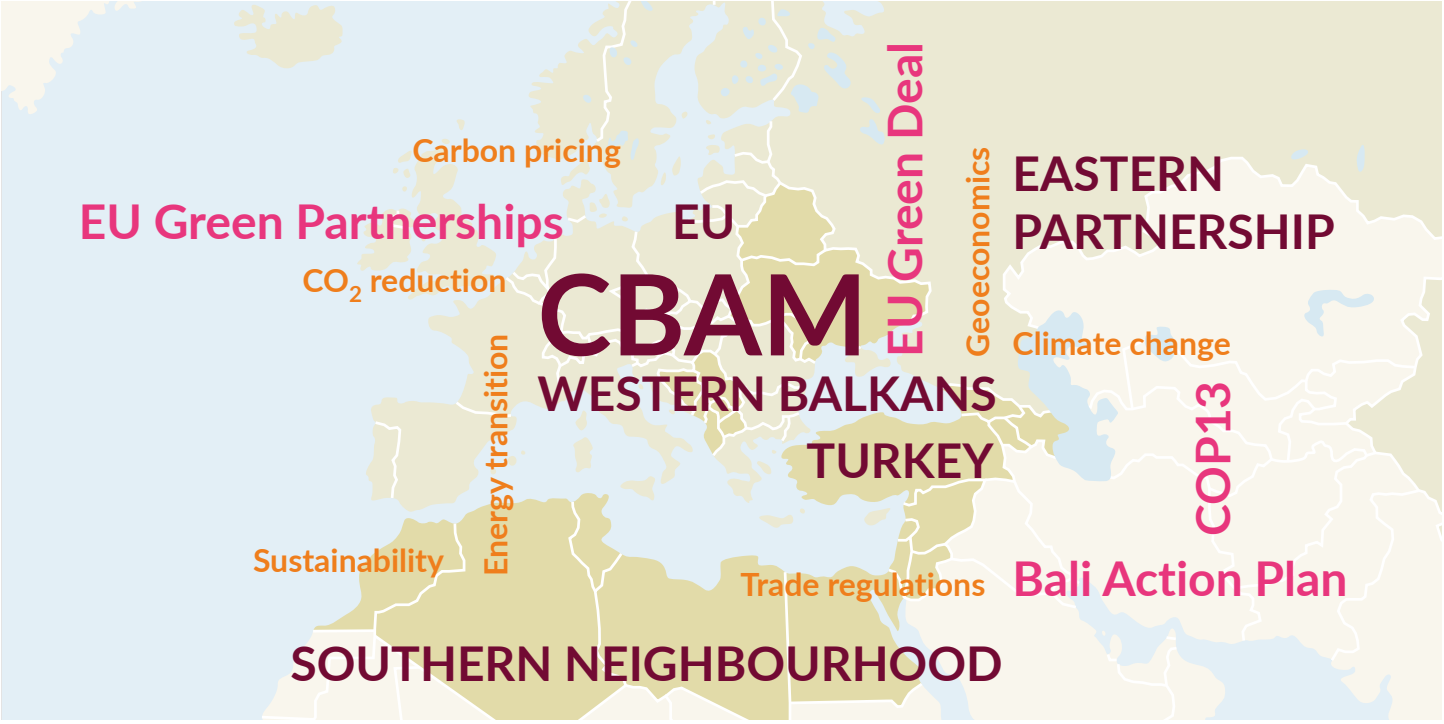

The Carbon Border Adjustment Mechanism (CBAM) and Its Border Effects: How Can Europe Become a Better Neighbour?

In late 2022, the European Union reached an agreement on the introduction of a carbon cap and trade mechanism known as the Carbon Border Adjustment Mechanism (CBAM). The CBAM is part of the European Commission's Fit for 55 package of legislation and is meant to incentivise decarbonisation efforts. Via this mechanism, the EU will charge foreign producers with a tariff at its border for carbon-intensive imports. As much as the CBAM can help to minimise carbon leakages and protect European producers from facing competitive disadvantages on the global market, one cannot overlook the fact that the EU is unilaterally placing a burden on its trading partners.

This policy paper will explore how countries in the EU's neighbourhood are being impacted by the CBAM as well as how the EU can design and introduce measures to support these countries in their efforts to implement adjustment policies to mitigate the CBAM's negative consequences on their trade and welfare. Ultimately, the aim of EU policies should be to bind the countries in its neighbourhood more closely to it and to seek partnerships that can boost economic and environmental performance while also managing threats to security and peace.

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1. How the CBAM works

The CBAM will impose a levy on certain carbon-intensive imports from countries with a different carbon-cost policy. The aim is to avoid a situation in which a higher cost of carbon in Europe prompts a reallocation of production away from Europe – and one which is then substituted by imports.

While a classic border-adjustment mechanism (e.g. VAT) adjusts both imports and exports, the CBAM is better described as a levy on certain imports. Certain measures to counter carbon leakage already exist in the EU, including the free allocation of EU Emissions Trading System (ETS) allowances and financial measures to compensate for indirect emission costs resulting from ETS-related increases in electricity prices. The CBAM will replace these measures over time, as all free allocations will be phased out by 2034.

To start off with, the European Commission selected five emissions-intensive trade-exposed (EITE) industries to be covered by the mechanism – cement; fertilizers; iron and steel; aluminium; and electricity – owing to the high risk of carbon leakage in these sectors.[1] In addition, the CBAM has been extended to hydrogen and indirect emissions[2] under certain conditions.[3] The CBAM will enter a transitional phase by 1 October 2023, and full implementation will begin on 1 January 2026. EU importers will then be required to purchase certificates for the carbon content of the covered goods they import – at a price equivalent to the weekly EU carbon price.[4] The CBAM levy will cover imports of these goods from all third (i.e. non-EU) countries except those included in the ETS or a linked mechanism. In the coming years, the EU will review the need to expand the CBAM to more sectors, to other products downstream in the supply chain, and to indirect emissions, such as those generated from electricity used for manufacturing as well as heating or cooling during the production process.

Since the CBAM will effectively function as a tax on imports, Europe's trade with the rest of the world will be affected. The exports of third countries to the EU will become more expensive, which will likely reduce the volumes of CBAM-covered goods sold to the EU. At the same time, it is possible that some countries will be fully or partially excluded from the levy. For example, some countries may eventually align their climate policy with the EU and its ETS and therefore be exempted from paying the CBAM levy. And some other third countries whose producers already pay a domestic levy for their carbon emissions (albeit not in an equivalent system to the ETS) may be exempted from paying the CBAM levy or at least have a smaller levy imposed on them. In any case, the exact technical operation of the CBAM will be worked out in the years ahead.

While trade effects are inevitable, it is also possible to prevent the CBAM becoming a major source of friction for Europe's relation with its partners. Of course, countries that are exporting CBAM-covered goods to the EU will naturally be concerned if they lose competitiveness because their products become more expensive. This paper starts from the assumption that the EU has strong reasons to manage this trade and CBAM effects in a way that is cooperative and constructive, and that signals good faith on the EU's part to maintain good relations while improving international policies to mitigate climate change.

Furthermore, it is particularly important for the EU to strive to defuse potential CBAM-related tensions with its neighbours, as these are the countries that the EU is seeking to forge partnerships with so as to improve economic and environmental performance as well as to manage threats to security and peace. The CBAM will be implemented in parallel with other signature EU policies to enhance economic security, to improve access to critical raw materials, and to better manage economic coercion and other threats. Europe's efforts to support Ukraine and ambitions to improve regional security have already given a whole new meaning to European Neighbourhood Policy (ENP). And efforts to make the CBAM a good neighbourhood policy is of strategic importance.[5]

Similarly, the CBAM should not be divorced from general climate and economic policy. Indeed, it is an established principle that global climate agreements build on common but differentiated responsibilities. Moreover, it is acknowl-

1 European Parliament (2023). EU carbon adjustment mechanism: Implications for climate and competitiveness (www.europarl.europa.eu/RegData/etudes/BRIE/2022/698889/EPRS_BRI(2022)698889_EN.pdf).

2 The EU defines direct emissions as those released "during the production process of the goods", while indirect emissions are those "generated from electricity used for manufacturing, heating or cooling during the production process". See document listed in the preceding footnote.

3 European Parliament (2022). Deal reached on new carbon leakage instrument to raise global climate ambition (www.europarl.europa.eu/news/en/press-room/20221212IPR64509/deal-reached-on-new-carbon-leakage-instrument-to-raise-global-climate-ambition).

4 The EU ETS's free emission allowances are to be replaced by the CBAM between 2026 and 2034 at the following rate of reduction: 2026: 2.5 %; 2027: 5 %; 2028: 10 %; 2029: 22.5 %; 2030: 48.5 %; 2031: 61 %; 2032: 73.5 %; 2033: 86 %; 2034: 100 %). See: www.europarl.europa.eu/legislative-train/package-fit-for-55/file-carbon-border-adjustment-mechanism

5 The reader will notice that we refer to the "EU neighbourhood" and "EU neighbouring countries" throughout this paper. The European Neighbourhood (written with a capital "n") naturally refers to the Eastern Partnership and the Southern Neighbourhood. However, since we also include the Western Balkan countries and Turkey in the EU's "neighbourhood" in this paper, we lowercase "neighbourhood" and "neighbouring" unless we are specifically referring to the European Neighbourhood.

edged that the history of emissions should be considered when countries make their climate targets, as industrial economies should assume greater responsibility given the fact that they have emitted more carbon per capita over the years. However, the CBAM risks violating both principles because many of the countries that will be affected already have lower emissions per capita than the EU, even if the emission intensity in specific export goods is higher.

2. How the CBAM impacts trade

The European Commission's impact assessment clearly states that its objective is to analyse how to successfully reduce greenhouse gas (GHG) emissions in the EU and to avoid a situation in which "these emissions reduction efforts are offset by emissions increases outside the EU".[6] The report mainly evaluates which sectors and/or products are more prone to carbon leakage. Therefore, the assessment of different policy options focuses on emission reduction targets, changes in import volumes to the EU of the previously identified carbon-intensive products, the effects that the CBAM will have on downstream import sectors, and other scenarios that consider different rates of phasing in the CBAM.

Although the impact assessment presents some macroeconomic modelling, the potential trade effects are almost ignored in the quantitative assessment. Granted, it is mentioned that "trade flows are analysed both from the view of the EU and with regards to our main trading partners".[7] But the findings do not reveal an in-depth analysis of the CBAM's impact on the EU's trading partners. For exale, the European Commission's impact assessment falls short in terms of measuring the disaggregated effect of CBAM-covered goods for imports to the EU from selected trading partners. In addition, the report does not analyse the effect on developing countries and, importantly, it neither includes a detailed focus on the EU's neighbouring countries nor says much about the EU's trade with its neighbouring countries.

Others have made efforts to estimate the trade effects, and one important observation made in several studies is that developing economies which heavily rely on carbon-intensive exports are estimated to be net losers and disproportionally impacted by spillover effects.[8] Here, it is important to draw on the concepts of country exposure and vulnerability. The United Nations Conference on Trade and Development (UNCTAD) found that a carbon border adjustment measure of $88 per metric tonne of carbon content could lead to a significant decline of relevant exports in Serbia, Bosnia and Herzegovina, and Ukraine. The latter, which has less stringent climate regulations than the EU, could face particularly adverse impacts as a result of the CBAM's implementation. In 2019, the EU accounted for more than 41 % of Ukraine's total commodity exports, including energy-intensive goods such as metals, mineral products and aluminium. This could make Ukrainian exporters especially vulnerable.[9]

3. How the CBAM will impact trade with the EU's neighbouring countries

This chapter analyses which countries in the EU neighbourhood are likely to be negatively impacted by the CBAM and in which ways. Most of this analysis is based on the most recent trade data, but the chapter also includes important points made in various assessments of the CBAM.

It is difficult to provide a full analysis of how the CBAM will affect Europe's trade because it is not yet known what the CBAM levy will look like for individual countries and individual export firms. Globally, the biggest exporters to the EU of products that will be affected by the CBAM are Russia, China and the United Kingdom. In the case of Russia, 16.7 % of total exports to the EU are comprised of CBAM-covered products, while the same figures for China and the UK are 10.1% and 8.5 %, respectively. In total, five of the EU's neighbouring countries covered in our analysis are among the top 20 exporters of goods covered by the CBAM (see TABLE 1).[10]

TABLES 2 to 7 provide insights into the contribution of CBAM-covered products to the overall exports of various countries. Naturally, the countries for which CBAM-covered exports represent a significant part of the country's overall trade are likely to be more affected by and sensitive

6 European Commission (2021). Impact assessment report: Proposal for a regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021SC0643).

7 Ibid.

8 He, Xiaobei, Zhai Fan and Ma Jun (2022). The Global Impact of a Carbon Border Adjustment Mechanism: A Quantitative Assessment. Tasks Force on Climate, Development and the International Monetary Fund (TCDIMF) (www.bu.edu/gdp/files/2022/03/TF-WP-001-FIN.pdf).

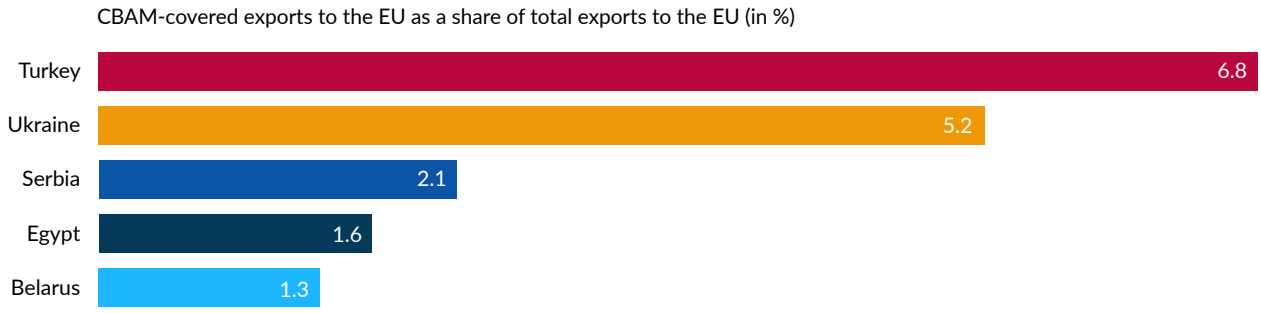
9 Chepeliev, Maksym (2021). Possible Implications of the European Carbon Border Adjustment Mechanism for Ukraine and Other EU Trading Partners. *Energy RESEARCH LETTERS* (2) 1: 1–6 (https://EconPapers.repec.org/RePEc:ayb:jrnerl:3).

10 Kardish, Chris, Mattia Mäder, Mary Hellmich and Maia Hall (2021). Which countries are most exposed to the EU's proposed carbon tariffs. Resource Trade.Earth. Chatham House (https://resourcetrade.earth/publications/which-countries-are-most-exposed-to-the-eus-proposed-carbon-tariffs).

to the CBAM. However, even though these countries are the to exporters of CBAM-covered goods to the EU, this does not mean that they will be the countries most affected by the mechanism. Other factors to be considered when measuring a country's degree of vulnerability to the mechanism are, first, the overall size of its economy and, second, how much its economy is dependent on exports to the EU.

Given these circumstances, examining the impact of the CBAM on third countries also requires an analysis of this second factor. Accordingly, TABLES 2 to 7 also shed light on the importance of the EU as a trade partner in CBAM-covered industries. The data highlights the significant percentage shares that the EU holds in the exports of various countries. TABLES 2 to 7 each cover one of the product groups covered by the CBAM, while the countries most likely to be affected based on their trade profile are highlighted in blue. Note, however, that countries with a share of CBAM-covered exports to the EU that is zero or close to zero (within the margin of error) have been excluded from the analysis.

TABLE 1: **EU-27 imports of goods covered by the CBAM, top 20 exporters, annual average 2015–2019**[11]



Sources: UNCTAD and ECIPE calculations

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In TABLE 2, we see that Ukraine, Moldova, and Bosnia and Herzegovina each demonstrate a strong trade relationship with the EU in the export of cement, with values above 90 % for each, as does Morocco, with a percentage share of above 40 %. Out of these countries, Ukraine and Morocco have the relatively highest values of exports to the EU, but cement exports are of relatively high importance for the global export profile of all of them. While Turkey only displays a relatively lower dependence on the EU, the overall export value is much higher than those of the other countries.

Fertilizer comprises a substantial portion of Morocco's and Jordan's exports, or around 15 % of their total export volumes. In addition, the Maghreb region holds prominent positions in fertilizer exports to the EU, with Algeria ranking in second place. Other countries with a strong dependence on the EU and high values of fertilizer exports to the EU are Serbia, Georgia and Egypt (see TABLE 3).

11 These are the five of the EU's neighbouring countries that are among the top 20 exporters of CBAM-covered products. Norway and Switzerland are also among the top 20 countries, but the CBAM will not apply to them because they are part of the ETS.

TABLE 2: **Top cement traders to the EU and third countries**

	Share of cement exports to the EU as a percentage of total cement exports (in % and millions of current USD)		Share of cement exports as a percentage of total exports (in % and millions of current USD)	
Country	Percentage share	Export value	Percentage share	Export value
Moldova	92.85	3.30	0.15	3.60
Ukraine	91.22	41.20	0.07	45.10
Bosnia and Herzegovina	90.54	21.50	0.28	23.80
Morocco	40.44	24.00	0.16	59.40
Belarus	37.90	38.10	0.25	100.60
Serbia	25.57	2.20	0.03	8.60
Turkey	16.58	226.80	0.61	1,367.90
Tunisia	11.97	16.00	0.80	133.90
Egypt	2.19	8.60	0.97	393.80

Note: Data is from the latest available year (2021) except for Algeria (2017) and Albania (2020).
The following HS codes are used: 2523, 2716, 31, 72, 76, 2804, 2806 and 2847.

Sources: WITS and ECIPE calculations

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TABLE 3: **Top fertilizer traders to the EU and third countries**

	Share of fertilizer exports to the EU as a percentage of total fertilizer exports (in % and millions of current USD)		Share of fertilizer exports as a percentage of total exports (in % and millions of current USD)	
Country	Percentage share	Export value	Percentage share	Export value
Serbia	66.71	143.10	0.84	214.50
Algeria	51.57	168.70	0.93	327.00
Bosnia and Herzegovina	46.18	1.70	0.04	3.70
Georgia	42.83	51.40	3.83	119.90
Moldova	39.58	0.10	0.01	0.20
Ukraine	39.07	247.20	0.96	632.70
Egypt	36.79	541.30	3.61	1,471.30
Turkey	28.59	135.40	0.21	473.50
Israel	18.70	300.50	2.67	1,607.40
Tunisia	18.47	66.60	2.16	360.40
Azerbaijan	17.32	21.00	0.55	121.30
Belarus	14.55	423.50	9.97	2,909.60
Morocco	13.23	756.40	15.62	5,715.90
North Macedonia	4.23	0.10	0.03	2.50
Jordan	3.47	45.90	15.54	1,321.80
Lebanon	1.99	1.40	1.84	71.50

Note: Data is from the latest available year (2021) except for Belarus (2020), Algeria (2017) and Albania (2020).
The following HS codes are used: 2523, 2716, 31, 72, 76, 2804, 2806 and 2847.

Sources: WITS and ECIPE calculations

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In TABLE 4, we see that Ukraine and Georgia heavily rely on iron and steel exports, which together account for approximately 17 % to 20 % of their total exports. North Macedonia, Turkey and Armenia also rely on significant shares of iron and steel exports in their total export volumes. Armenia, Tunisia and Serbia show a particularly high degree of dependence on exports of iron and steel to the EU, and they also show significant export values to the EU.

TABLE 4: **Top iron and steel traders to the EU and third countries**

	Share of iron and steel exports to the EU as a percentage of total iron and steel exports (in % and millions of current USD)		Share of iron and steel exports as a percentage of total exports (in % and millions of current USD)	
Country	Percentage share	Export value	Percentage share	Export value
Armenia	88.50	178.00	7.23	201.10
Tunisia	74.73	239.60	1.92	320.70
Serbia	71.09	866.10	4.76	1,218.20
Belarus	57.51	769.10	3.35	1,337.40
Egypt	56.29	970.00	4.23	1,723.30
Algeria	56.21	5.30	0.03	9.40
Morocco	50.64	87.20	0.47	172.10
North Macedonia	50.14	375.80	9.16	749.50
Bosnia and Herzegovina	49.92	255.70	5.95	512.10
Turkey	40.05	6,833.10	7.58	17,062.50
Ukraine	39.62	5,204.30	19.94	13,137.30
Lebanon	33.45	55.30	4.25	165.30
Montenegro	24.55	8.10	6.37	32.90
Albania	20.34	39.80	8.11	195.80
Israel	18.31	53.90	0.49	294.20
Azerbaijan	16.82	14.90	0.40	88.80
Moldova	6.73	2.90	1.77	43.10
Georgia	5.15	28.50	17.72	554.10
Jordan	0.07	0.10	1.98	168.30

Note: Data is from the latest available year (2021) except for Algeria (2017) and Albania (2020). The following HS codes are used: 2523, 2716, 31, 72, 76, 2804, 2806 and 2847.

Sources: WITS and ECIPE calculations

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When it comes to aluminium, one can see in TABLE 5 that Montenegro as well as Bosnia and Herzegovina have CBAM-covered industries in place that play a significant role in their export portfolios. Serbia, Armenia and Turkey also show a high dependence on these exports to the EU. In addition, the Maghreb region holds prominent positions in hydrogen exports, with Algeria ranking first. Other dependent exporters to the EU include Bosnia, Jordan, Moldova and Serbia (see TABLE 6).

TABLE 5: **Top aluminium traders to the EU and third countries**

	Share of aluminium exports to the EU as a percentage of total aluminium exports (in % and millions of current USD)		Share of aluminium exports as a percentage of total exports (in % and millions of current USD)	
Country	Percentage share	Export value	Percentage share	Export value
Bosnia and Herzegovina	90.53	511.10	6.55	564.50
Serbia	81.78	426.80	2.04	521.90
Armenia	76.99	103.00	4.81	133.80
Turkey	63.91	3,306.00	2.30	5,173.30
Egypt	63.53	495.80	1.92	780.40
Albania	59.93	34.90	2.41	58.20
Ukraine	53.56	88.00	0.25	164.30
Tunisia	50.70	65.30	0.77	128.80
Morocco	45.64	99.50	0.60	218.10
North Macedonia	37.19	10.00	0.33	27.00
Belarus	34.97	115.70	0.83	330.80
Montenegro	33.64	35.10	20.22	104.30
Israel	32.72	81.00	0.41	247.50
Lebanon	15.20	11.40	1.93	75.20
Moldova	14.32	2.30	0.65	15.80
Azerbaijan	7.62	14.40	0.85	188.50
Jordan	7.57	14.50	2.25	191.50
Georgia	0.56	0.20	0.94	29.40

Note: Data is from the latest available year (2021) except for Algeria (2017) and Albania (2020). The following HS codes are used: 2523, 2716, 31, 72, 76, 2804, 2806 and 2847.

Sources: WITS and ECIPE calculations

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TABLE 6: **Top hydrogen traders to the EU and third countries**

	Share of hydrogen exports to the EU as a percentage of total hydrogen exports (in % and millions of current USD)		Share of hydrogen exports as a percentage of total exports (in % and millions of current USD)	
Country	Percentage share	Export value	Percentage share	Export value
Algeria	99.30	39.80	0.11	40.00
Bosnia and Herzegovina	92.96	82.50	1.03	88.70
Jordan	68.44	1.40	0.02	2.10
Moldova	67.38	0.30	0.02	0.40
Serbia	58.90	8.80	0.06	15.00
North Macedonia	44.01	2.90	0.08	6.70
Israel	29.66	1.60	0.01	5.30
Turkey	16.62	4.10	0.01	24.70
Ukraine	14.40	8.00	0.08	55.70
Belarus	4.78	0.20	0.01	3.90

Note: Data is from the latest available year (2021) except for Algeria (2017) and Albania (2020). The following HS codes are used: 2523, 2716, 31, 72, 76, 2804, 2806 and 2847.

Sources: WITS and ECIPE calculations

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In TABLE 7, we can see that Montenegro as well as Bosnia and Herzegovina, in particular, have CBAM-covered industries in electricity that play a significant role in their export portfolios. Morocco and Ukraine, but also Turkey, show especially high degrees of dependence on the EU market.

Overall, several countries in the EU neighbourhood – including Montenegro, Bosnia and Herzegovina, Serbia, Moldova and North Macedonia – heavily rely on CBAM-covered exports to the EU, which account for up to 92 % of their respective industries. Ukraine also demonstrates a strong trade relationship with Europe, particularly in the export of electricity and cement. In addition, the Maghreb region holds prominent positions in exports of hydrogen and fertilizer to the EU, with Algeria ranking in first and second place, respectively.

While Turkey may not consistently rank among the top three in terms of relative shares, it is important to acknowledge the substantial absolute export values of this country. Turkey's large economy and geographical proximity to the EU naturally make it a major trading partner with the bloc. Given Turkey's wealth of natural resources and its customs union with the EU, it is natural that trade in CBAM-covered goods is going to be substantial. Furthermore, Armenia and Georgia (the two countries representing the Caucasus region here) emerge as significant partners of the EU in the iron/steel and aluminium sectors, respectively. Overall, the EU serves as a significant market for its neighbouring countries in the Eastern Partnership and the Maghreb in CBAM-covered industries.

It is also important to note that, for most of its neighbouring countries, Europe's share of CBAM-covered exports tend to be concentrated in one or two sectors. In other words, their dependency on exports to the EU does not include all sectors covered by the CBAM. The significance of the dependence also depends on the character of production and trade in this sector. Some sectors have a high degree of variation and fungibility, which means that production of some goods is more carbon-intensive than production of others, and that they can reallocate some of the current CBAM-covered exports to other countries. However, other sectors are less capable of such diversion. For instance, the export of electricity is highly dependent on the transmission infrastructure and cannot be easily diverted.

Other studies show similar findings. For example, a 2022 study Eastern plotted countries' CBAM-covered exports

TABLE 7: **Top electricity traders to the EU and third countries**

	Share of electricity exports to the EU as a percentage of total electricity exports (in % and millions of current USD)		Share of electricity exports as a percentage of total exports (in % and millions of current USD)	
Country	Percentage share	Export value	Percentage share	Export value
Morocco	100.00	44.80	0.12	44.80
Ukraine	96.87	233.90	0.37	241.50
Turkey	69.27	172.00	0.11	248.40
North Macedonia	55.14	26.40	0.59	47.90
Bosnia and Herzegovina	39.93	199.50	5.80	499.70
Serbia	36.22	56.50	0.61	155.90
Albania	35.86	5.60	0.65	15.70
Montenegro	29.67	22.50	14.71	75.90

Note: Data is from the latest available year (2021) except for Algeria (2017) and Albania (2020). The following HS codes are used: 2523, 2716, 31, 72, 76, 2804, 2806 and 2847.

Sources: WITS and ECIPE calculations

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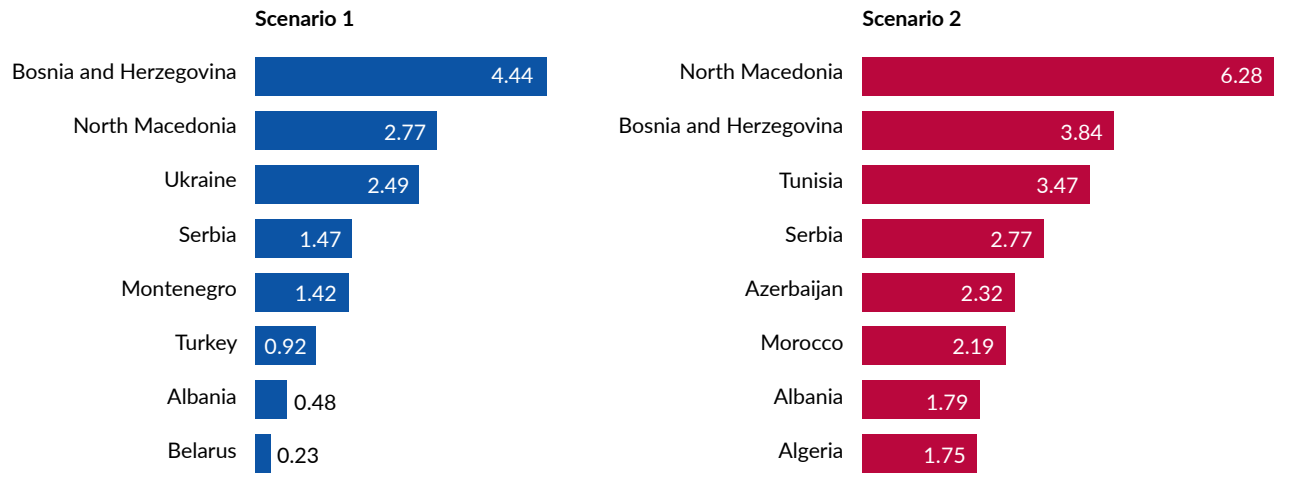
to the EU as a share of their total exports to the EU against their carbon intensities identified Bosnia and Herzegovina, Ukraine and Serbia as being among the most carbon-intensive economies in 2019. In the case of Ukraine and Serbia, in addition to having high degrees of carbon intensities, they are also more dependent on their exports to the EU.[12] Similarly, the Institute for Advanced Sustainability Studies (IASS) assessed two scenarios depicting the most likely short-term EU plans. In the first scenario, the CBAM only targets the emissions-intensive trade-exposed (EITE) goods cement, steel and aluminium. And in the second scenario, the CBAM is applied to all goods imported to the EU in keeping with the EU's plans to expand the CBAM to more sectors in the long term.[13] The study found that the EU neighbourhood countries most affected in both scenarios would be Bosnia and Herzegovina as well as North Macedonia (see TABLE 8).

The IASS analysis shows that economic risks related to an EU's CBAM are distributed unequally.[14] In the South-Eastern European region, risk is relatively high in both scenarios due to high-emission energy systems and low export diversification. According to this study, Bosnia and Herzegovina's export strategy, which is based on a strong EU orientation, becomes a problem if it is heavily based on EITE-sector goods. Similar patterns of vulnerability are visible in other countries in the region, including Albania, Montenegro, North Macedonia, Serbia and Ukraine.

Lastly, a 2022 study conducted by the French Development Agency examined those countries where the socioeconomic impact of falling production caused by the CBAM would most likely lead to unemployment and/or reduced wages. The study found that Bosnia and Herzegovina, Serbia, North Macedonia, Ukraine, Montenegro and Albania are among the countries with significant levels of exposure in terms of job losses, and that Armenia, Georgia and Turkey are among the countries with significant levels of exposure in terms of wages.[15] These results are in line with the aforementioned UNCTAD study, which identified Serbia, Bosnia and Herzegovina, and Ukraine as the countries in which the application of the CBAM could raise the unemployment level.[16] In any case, any impact analysis should definitely take into consideration the internal dynamics of third countries, such as their levels of decarbonisation, their energy and climate policies, and their institutional capacities while focusing on the monitoring, reporting and verification (MRV) of carbon emissions.

TABLE 8: **Top values of the relative risk index for EU neighbourhood countries**



Source: Institute for Advanced Sustainability Studies (IASS)

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12 Overland, Indra, and Rahat Sabyrbekov (2022). "Know your opponent: Which countries might fight the European carbon adjustment mechanism?" *Energy Policy* (169) 4: 113–175 (www.sciencedirect.com/science/article/pii/S0301421522003974?via%3Dihub).

13 Eicke, Laima, Silvia Weko, Maria Apergi and Adela Marian (2021). "Pulling up the carbon ladder? Decarbonization, dependence, and third country risks from the European carbon border adjustment mechanism." *Energy Research & Social Science* 80: 102–240 (www.sciencedirect.com/science/article/pii/S2214629621003339#s9005).

14 Note that the indices indicate a country's risk level *relative* to others as outlined in the IASS study. For more information on the methodology and data for other countries see: www.sciencedirect.com/science/article/pii/S2214629621003339#fn10; https://ars.els-cdn.com/content/image/1-s2.0-S2214629621003339-mmc1.pdf

15 Agence Française de Développement (2022). Impacts of CBAM on EU trade partners: Consequences for developing countries (www.afd.fr/en/ressources/impacts-cbam-eu-trade-partners-consequences-developing-countries).

16 UNCTAD (2021). European Union Carbon Border Adjustment Mechanism: Implications for developing countries (https://unctad.org/publication/european-union-carbon-border-adjustment-mechanism-implications-developing-countries).

4. Which mitigation measures could the EU pursue to alleviate the negative effects of the CBAM?

The previous section of our report identified which of the EU's neighbouring countries are likely to be most affected by the CBAM and in what ways this will be the case. This section provides a discussion of potential mitigating measures that the EU could implement to cushion the negative effects of the CBAM. While the CBAM is considered a "first-of-its-kind" measure,[17] the debate surrounding trade measures to correct environmental imbalances is anything but new. Indeed, there is an extensive and well-established body of literature that addresses the intersection between climate change and trade policy. Because of its multidisciplinary scope, in addition to being centred around trade, economic and environmental effects, the debate around the CBAM also extends to other disciplines, such as development ethics.[18] In fact, what makes the debate on the CBAM complex is not only a price formula to calculate the embedded amount of CO_2 on exports, but also the various perceptions of justice and equity. Regarding the latter, it is also difficult to square the CBAM with the principle of common but differentiated responsibilities and, more broadly, the principle of climate justice.[19]

Therefore, when designing mitigating measures, the EU should consider different patterns of country exposure and vulnerability. For valid reasons, third countries have been very critical of the CBAM proposal. After all, the countries most vulnerable to the CBAM have historically contributed less to global warming and benefited less from the industrialisation associated with emissions than the EU member states. In addition, the EU's neighbouring countries have voiced concerns regarding whether the measure is compatible with WTO principles. For example, Ukraine's steel industry has highlighted the national commitment to EU standards under the EU-Ukraine Association Agreement, calling for an exemption for its steel industry. Likewise, the Turkish Industry and Business Association has called for EU funding to support Turkey's alignment with the CBAM. Green partnership agreements (see Boxout) could support these mitigating measures and include elements tailored to the specific domestic dynamics of each country with which they are concluded.

In terms of mitigating measures of the CBAM's impact on the EU's neighbouring countries, several options could be discussed. Note that these options are not mutually exclusive. Observing that most of the effects will impact developing countries, it is crucial for the EU to provide help to these countries so as to ensure that they know how to comply with the CBAM and prevent the CBAM deterring significant amounts of trade.

Boxout: The EU-Morocco Green Partnership

The cooperation agreement EU-Morocco Green Partnership (europa.eu) aims to bolster the European Green Deal's external dimension with neighbouring countries, focusing on green energy transition. It seeks to restructure supply chains in various sectors, enhancing the EU's energy diversification. A case in point: efficient local production of EU-outsourced textiles and automotive in Morocco benefits both parties.[20] Ideally, North African industries would increasingly adopt eco-friendly practices, supplying green exports to Europe.

The partnership emphasizes early policy dialogue on topics like energy transition and decarbonisation across government, private sectors, and civil society.[21] Discussions will revolve around three main themes: climate and energy, the environment, and the green economy. A comprehensive dialogue network will ensure continuous stakeholder engagement.

Morocco, a green transformation leader in North Africa, stands to gain significantly from this EU initiative. With renewables constituting a substantial part of its electricity[22] and hosting the world's largest concentrated solar plant,[23] Morocco's progress might influence neighbouring countries. However, the Maghreb's minimal regional integration,[24] and political instability pose challenges for broader North African collaborations.

17 Belletti, Elena, and Nuomin Han (n.d.) Debut of the first EU carbon border tax. (www.woodmac.com/news/Debut-of-the-first-EU-carbon-border-tax/#:~:text=Nuomin%20Han,-Managing%20Consultant%2C%20Carbon&text=In%20December%202022%2C%20the%20EU,of%201990%20levels%20by%202030).

18 Development ethics focuses on the normative questions posed by development and entails ethical reflection on the ends and means of socioeconomic change in poor countries and regions. See: Brandi, Clara (2013). "Trade and Climate Change: Environmental, Economic and Ethical Perspectives on Border Carbon Adjustments." *Ethics Policy & Environment* (16) 1: 79–93 (www.researchgate.net/publication/271673834_Trade_and_Climate_Change_Environmental_Economic_and_Ethical_Perspectives_on_Border_Carbon_Adjustments).

19 Knight, Carl (2011). "Climate change and the duties of the disadvantaged: reply to Caney." *Critical Review of International Social and Political Philosophy* (14) 4: 531–542 (www.tandfonline.com/doi/abs/10.1080/13698230.2011.597244).

20 Grosskreutz, Anneke, and Christian Hanelt (2023). Green Partnership Agreements – How They Advance the EU Green Deal and Strengthen EU Relations with its Southern Neighborhood. Bertelsmann Stiftung. 3 March 2023 (https://globaleurope.eu/europes-future/green-partnership-agreements-how-they-advance-the-eu-green-deal-and-strengthen-eu-relations-with-its-southern-neighborhood).

21 Kingdom of Morocco Ministry of Foreign Affairs, African Cooperation and Moroccan Expatriates (2022). The Signing of a Memorandum of Understanding on the Establishment of a Morocco-EU Green Partnership. 18 October 2022 (www.diplomatie.ma/en/signing-memorandum-understanding-establishment-morocco-eu-green-partnership).

22 Alami, Aida (2021). "Morocco went big on solar energy." *BBC* 18 November 2021 (www.bbc.com/future/article/20211115-how-morocco-led-the-world-on-clean-solar-energy).

23 Birnbaum, Michael (2023). Europe needs energy. Moroccan solar may be a clean solution. *The Washington Post* 13 April 2023 (www.washingtonpost.com/climate-solutions/2023/04/13/morocco-europe-solar-desert/).

24 Ibid.

OPTION 1

Offering support and capacity-building to reduce vulnerability on various ends

Regardless of emissions levels, exporters will need to be able to monitor, report and verify emissions so as to reduce their vulnerabilities. Companies in countries with effective emissions-reporting schemes and standards as well as publicly available data on sectoral emissions will not need to build such systems from the ground up. Higher national statistical capacities would allow for a quicker, less cost-intensive adaptation to the new EU CBAM requirements and make exporters less vulnerable.

The complexity of sector-specific MRV poses serious challenges to countries that have insufficient MRV capacities for emissions in place. Differences in the financial, technical and time-related assets needed to establish sector-specific emissions inventory procedures may represent a larger burden for some countries. A lack of adequate national infrastructure, poor data ecosystems, weak statistical capacities, and a low number of people trained in data processing and reporting are common challenges in least developed countries (LDCs). This dimension of the CBAM will therefore have a disproportionate impact on emergent economies. Specifically, when the scope of the CBAM expands to cover other sectors as well as indirect emissions,[25] countries that do not have low-carbon energy systems and are not investing in the energy transition will be particularly affected. In this regard, the European Commission proposes that the declarant would report its embedded emissions corresponding to the previous quarter's imports while detailing direct and indirect emission as well as any carbon price already paid abroad. However, one of the major challenges would result from reporting indirect emissions coming from other sources than the reporting entity. This is tantamount to establishing a complex rule-of-origin system, which would cause significant frustration in supply chains.

Mitigating efforts:

- Building the CBAM on existing international emissions reporting obligations would minimise administrative costs.

- There could be different reporting obligations based on country capabilities, with less developed countries reporting less frequently and in less detail, as has been practiced under the United Nations Framework Convention on Climate Change (UNFCCC). Consistent with their capabilities, developing countries could be asked to provide biennial update reports (BURs). At COP13, through the Bali Action Plan, parties agreed to the principle of applying MRV for developing countries. MRVs occur on the international level, but they can also be voluntary on the national level. Likewise, developing countries could submit national communications (NCs) every four years. This could be a promising approach to ensure that a lack of MRV capacities does not increase risk. A differentiation regarding reporting periods and the level of detail – reflecting institutional capabilities as under the UNFCCC – could be one approach to increasing policy acceptance and compliance.

- The EU should engage in providing international finance, technology transfer and capacity-building to developing countries in the EU neighbourhood. Possible means are training programs for MRV and best practice exchanges on emissions reductions in the EITE industries, such as the Nitric Acid Climate Action Group (NACAG) initiative in the chemicals industry. The NACAG offers technical support at both the government and firm level on how to install, operate and maintain the respective abatement technologies. At the government level, it provides support on general technical aspects related to implementing abatement activities in the nitric acid sector as well as on how to integrate these into national policies. At the firm level, the NACAG provides technical support with the physical implementation of abatement activities (e.g. feasibility, technical evaluation, monitoring technologies, etc.). This would be especially important if the CBAM were to be extended to indirect emissions under certain conditions, which should be accompanied by additional support and capacity-building.

- The implementation of the CBAM should include bilateral, country-specific dialogues and forums for fostering cooperation with the most affected countries. Green partnership agreements could function as a format for building these structures as well as for supporting the design and implementation of such capacity-building measures.

- The EU could also introduce differentiated carbon pricing depending on the development level of the exporting country. Less developed countries naturally have capital and firm structures with lower financial means than those of countries with higher GDPs. While the CBAM levy will be set based on the price of an ETS emission allowance, the price of this levy is disproportionate for less developed economies with fewer resources to reallocate production and invest in greener production technology. For this reason, a differentiated carbon price would provide

25 The EU defines direct emissions are those released "during the production process of the goods", while indirect emissions are those "generated from electricity used for manufacturing, heating or cooling during the production process". See: European Parliament (2023). EU carbon adjustment mechanism: Implications for climate and competitiveness (www.europarl.europa.eu/RegData/etudes/BRIE/2022/698889/EPRS_BRI(2022)698889_EN.pdf).

better opportunities for less developed exporting countries to respond to the incentive for greener production that the CBAM creates.

- These mitigating measures would also require targeted research and expertise tailored to the specific countries that will be affected most by the CBAM. The European Commission's impact assessments should be adjusted to include a specific analysis on the EU's neighbouring countries as a key priority group. These efforts could include identifying strategies that less developed countries in the EU's neighbourhood could adopt to reallocate their global trade with the purpose of concentrating the less carbon-intensive exports in a CBAM-covered sector to the EU.

OPTION 2
Returning the funds collected as CBAM fees

The need for support mechanisms also links to the current EU discussion on what should be done with CBAM revenues. The CBAM regulation estimates that the mechanism could generate € 1.5–3.1 billion in potential additional revenue, depending on the value of the EU allowance.[26] According to the regulation, these fees would go into member state coffers and not, as in the case of the ETS, to those selling the carbon permission.

How to allocate these funds is part of a boarder discussion and a political bottleneck. For instance, it has been suggested that this revenue could be retained within the EU as a contribution to the bloc's own resources, such as those used to finance the Covid-19 recovery. However, using the funds in this manner would go against global recommendations stating that those countries which have historically been responsible for the largest share of emissions – and, therefore, the effects of climate change – should use these funds to transfer innovations to those sectors in which larger decarbonisation efforts are needed (e.g. energy-intensive industries).

At present, the geographic distribution of low-carbon finance is highly unequal.[27] Developed regions are by far the largest recipients, while developing economies (particularly those in Africa) only receive a small proportion. This disparity in terms of access to green finance will determine the winners and losers resulting from the adjustment to CBAM. Countries with more access to funding schemes are likely to accelerate their own green transitions. Hence, the reallocation of CBAM funding is also necessary to address the shortcomings of global green finance. Using at least part of the CBAM revenues for climate finance could not only promote mitigation policies to reduce climate risks, but also foster broader acceptance of and compliance with the emissions-reporting obligations needed for the CBAM.

Mitigating effort:

- The EU should create an accompanying instrument that redistributes the revenue generated by the CBAM to the EU's trading partners. This is necessary to address the negative economic impact that the mechanism will have on the welfare of the rest of the world. The design of a revenue reallocation policy should consist of a mix of conditional and unconditional transfers. Unconditional transfers should target smaller economies whose CBAM-covered exports to the EU represent only a small share, while conditional transfers should be geared towards midsize economies as well as towards redistributions of revenue to the impacted countries.

OPTION 3
Helping to make default values that are company-specific rather than country-based

When the Commission resolves to expand the CBAM coverage, it should also define and publicise beforehand the methodology it is using to calculate the embedded emissions as well as provide system boundaries. A core concern is whether foreign emissions will be benchmarked against the best-performing countries in the EU or against predetermined default values, which can be calculated when sufficient data on actual GHG emissions are not available.[28]

Still, it remains a high risk that imports could shift into product categories that are not covered by the CBAM or that third-country producers could engage in 'resource reshuffling'. This refers to the practice of only exporting to the EU products with a lower carbon footprint while diverting other (higher-carbon) products to other markets. The EU is trying to prevent its measures to reduce CO_2 emissions being counteracted by these kinds of deviations of trade or the outsourcing of production facilities to non-EU countries with less stringent carbon-neutrality standards. A possible solution could be having an even wider coverage of product categories, specifically downstream the supply chain.

26 European Commission (2021). Impact Assessment Report: Proposal for a regulation of the European Parliament and of the Council establishing a carbon border adjustment mechanism (https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021SC0643).

27 Ameli, Nadia, Olivier Dessens, Matthew Winning et. al. (2021). "Higher cost of finance exacerbates a climate investment trap in developing economies." *Nature Communications* (12) 40–46 (www.nature.com/articles/s41467-021-24305-3).

28 European Parliament (2022). 'Fit for 55' package: Carbon border adjustment Mechanism (www.europarl.europa.eu/RegData/etudes/BRIE/2022/699473/EPRS_BRI(2022)699473_EN.pdf).

Mitigating effort:

- The CBAM fee is most often based on default values for a country, but carbon emissions are very firm-specific and there is significant variation among firms. It would be useful to assist the exporting countries in determining which firms have exports to the EU that would be less exposed to a high fee for carbon emissions. However, only 9% of companies are able to measure their total greenhouse gas emissions comprehensively.[29] Therefore, early implementations of mechanisms that accurately determine levels of exposition may result in cost reductions.

OPTION 4
Increasing the range of CBAM exemptions

A tax on EITE-sector goods seems most likely in the short term. However, the sectoral coverage could be broadened to include additional sectors, such as energy or agriculture. Although this will have an impact on the relative risks, it could also increase the likelihood of carbon leakage and therefore global emissions. This potential caveat needs to be kept in mind.

Mitigating effort:

- One of the EU's policy priorities should be to expand the scope of countries exempted from the mechanism beyond those with ambitious carbon-mitigation targets. This category of exemptions should be made compatible with the multilateral trading regime and WTO rules, in particular the organisation's most favoured nation (MFN) principle, which forbids discriminatory practices.

OPTION 5
Encouraging the adoption of carbon pricing schemes in third countries

The EU is not alone in its efforts to establish a market to price carbon. According to a recent World Bank report, there were as many as 73 carbon taxes or ETSs in operation[30] in other countries in April 2023, such as in the US (California)[31] and China.[32] The EU should make its ETS more attractive to non-EU countries, forge ties between the EU ETS and other carbon markets, and work on initiatives to set a global carbon price for industries in which the leading countries have similar policies and objectives regarding the reduction of emissions.[33] International policies can serve as an effective mechanism to reform the domestic economic and political landscape, which is often gridlocked by diverging local interests.

Mitigating effort:

- The EU's trading partners could reduce their exposure to the CBAM by adopting a carbon pricing scheme of their own as part of a development that the EU should support.

OPTION 6
Being more generous in accommodating the carbon costs of exporters from other countries as well as finding structures for individual firms to voluntarily price carbon in accordance with their markets

The underlying philosophy of the CBAM is that the price of carbon in other countries should be the same as it is in the EU. There is a logic to this – but there are also conceptual problems, especially in light of the "common but differentiated" approach of the Paris Agreement and the fact that carbon intensities per capita vary. For example, why should the cost of carbon (per unit of carbon) in Morocco, Algeria and Ukraine be equal to the cost in the EU? After all, carbon costs per unit of output will be vastly higher in these countries than in the EU. The alternative is to allow for a price differential and use localised carbon exchanges for voluntary participation for firms that want to export to the EU and make them count in the EU's methodology.

The complexity of energy systems, their intertwining with socioeconomic systems, and the difficulties of transforming these systems owing to path dependency will require international mechanisms to help these states – especially those in the Global South – to mitigate the negative long-term impacts of the CBAM.

Mitigating effort:

- The EU should find ways to make it easier for some countries to keep exporting to the EU and not redirect exports to other parts of the world with no or low carbon standards.

29 Boston Consulting Group (2021). New BCG GAMMA Survey Reveals That Only 9% of Organizations Are Able to Measure Their Total Greenhouse Gas Emissions Comprehensively (www.bcg.com/press/13october2021-only-nine-percent-of-organizations-measure-emissions-comprehensively).

30 World Bank (2023). State and Trends of Carbon Pricing 2023 (https://openknowledge.worldbank.org/handle/10986/39796).

31 California Air Resources Board (2022). Cap-and-Trade Program (ww2.arb.ca.gov/our-work/programs/cap-and-trade-program).

32 Nakano, Jane, and Scott Kennedy (2021). China's New National Carbon Trading Market: Between Promise and Pessimism. Center for Strategic & International Studies (www.csis.org/analysis/chinas-new-national-carbon-trading-market-between-promiseand-pessimism).

33 Erixon, Fredrik, Oscar Guinea, Philipp Lamprecht et al. (2022). A Compass to Guide EU Policy in Support of Business Competitiveness. EPICE Occasional Paper 06/2022 (https://ecipe.org/wp-content/uploads/2022/11/COMPCompass_OP062022FV3_changed.pdf).

5. Concluding remarks

The EU has publicly voiced its desire to become a more geopolitical union. Beyond the economic and environmental considerations that have led to the CBAM, the EU should also assess the CBAM's global impact from a geopolitical angle. This is especially the case in the wake of Russia's war in Ukraine, which has only accelerated the development of a new geoeconomic paradigm. Europe is in need of friends.

However, the CBAM and other recent and current EU policy efforts are likely to come at a cost to other countries and threaten to push countries in the EU's neighbourhood away. At the same time, competition from other geoeconomic actors, such as China and Russia, is growing and some of them have built closer ties with countries in the EU's neighbourhood. While many of these countries have been in Europe's economic and political slipstream for a long time, they also have more economic agency and strategic options now.

European policymakers should also soberly re-assess to what extent they want to rely on the Brussels effect when designing policy instruments like the CBAM. A model of development based on increasing one's orientation towards the EU becomes less and less attractive to many of these neighbouring countries. Indeed, the effect could be to distance countries from Europe and make them less interested in economic and political integration with the bloc.

Given the significant size of its economy and high degree of economic interconnectedness, the EU should have the capability to play the role of a true geoeconomic actor at the very least in its immediate vicinity of neighbouring countries, and it should be able to keep its neighbouring countries close. Reforming the CBAM by focusing more on its global and developmental impacts should therefore be a priority not only from the standpoint of climate justice, but also as a result of broader geopolitical considerations that have been brought to the fore by the war in Ukraine. The policy recommendations put forward in this report can serve as a starting point for efforts headed in this direction.

Epilogue

With this paper on CBAM, we initiate a sequence of five papers, culminating in a Briefing Book. Our aim is to provide a sharper perspective on the implications of the "Brussels Effect" on the EU's neighbourhood during this era of escalating geopolitical tensions. The countries analysed include the Western Balkans (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, Kosovo) and Turkey, the Eastern Partnership (Armenia, Azerbaijan, Belarus, Georgia, Moldova, and Ukraine), and the Southern Neighbourhood (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria, and Tunisia). We will evaluate the costs arising from the extra-territorial impact of EU internal market regulations on neighbouring regions engaging in trade with the EU. Central to our exploration is the proposition of means to alleviate this regulatory burden for the neighbourhood. This endeavor is vital, especially as the EU strives to uphold its regional stature amidst intensifying competition, particularly from China.

This series is part of the Bertelsmann Stiftung's "Sovereign Europe: Strategic Management of Global Interdependence" under its Europe Programme. It extends a study by the Bertelsmann Stiftung on the EU's economic ties with neighboring countries across areas such as goods, services, finance, technology, knowledge exchange, infrastructure, and labor mobility. For more, visit Bertelsmann Stiftung's publication.

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