`

CESD | CENTER FOR ECONOMIC & SOCIAL DEVELOPMENT

Better research, better policy, better reform

The European Green Deal: Assessing the Potential Economic Impacts of a Carbon Border Adjustment Mechanism

Murad Agayev

CESD Press

Center for Economic and Social Development (CESD)

Jafar Jabbarli 44, Baku, Az 1065, Azerbaijan

Phone; (99412) 597-06-91 Email; info@cesd.az

URL; www.cesd.az

Baku, December, 2024

`

Table of Contents

2024

Keywords: the European Green Deal, Climate Change, European Union, Sustainability, International Trade, Economic Diversification, Green Economy

Jel codes: Q20, Q27, Q51, Q58, R11, R58

Abstract

The research of this article is important in terms of determining the potential economic consequences of the “Carbon Border Adjustment Mechanism”, which was accepted in 2019 and is accepted as the main mechanism of the “Fit for 55” package of the “European Green Deal” strategic goal, which aims to make the European Union the world's first zero-carbon continent by 2050. Within the scope of this mechanism, it is planned to include a total of 6 sectors in the certification of carbon emissions, thus protecting the EU's internal market from foreign competition and preventing carbon leakage. The mechanism, which is currently in the transition

`

phase, is expected to be fully implemented from 2026 and the emission certification to be determined according to weekly evaluation. Although taxation is not currently applied, a downward trend is observed in trade statistics in 2023 across 6 sectors requiring high carbon emissions in EU production. The fact that most of the countries exporting to the EU in these sectors are developing countries (mostly Asian countries) and that the EU has a significant share in their exports further increases the risk of countries suffering economic losses in the short term due to increased export expenditures with the implementation of this mechanism. There are also a number of threats to the EU market, including the fact that access to raw materials becomes more expensive for EU importers. In addition to these threats and economic losses, serious economic opportunities are also created for companies that can adapt to the mechanism more quickly in the short term, that is, can ensure a faster and more efficient transition to green.

Introduction

The fight against climate change, which is considered one of the main global phenomena of recent times, is already a topic that forms the main problem agenda of countries. The damage caused by climate change to nature not only threatens the existence of the ecosystem, but also causes countries to face economic losses. In this context that factors such as rising sea levels against the background of increasing temperatures, problems with water supply, increasing diseases, increased potential for political conflict in the use of limited resources, the displacement of cities, a decrease in productivity, a decrease in productivity in the agricultural sector and rising prices against this background, etc., make it even more necessary to increase the fight against climate

`

(YeşilBüyüme, 2024). According to statistics, the amount of carbon emissions in the world increased by almost 2 times (88%) in 2023 compared to 1990, reaching a record level (37.6 billion metric tons), and the share of China, the USA, India, Russia and Japan in these emissions was 60.3% (Hannah, Pablo, & Max, 2024). The European Green Deal (EGD), considered the EU's largest contribution to the Paris Climate Agreement, adopted in 2015 and entered into force in 2016, plans to achieve significant achievements in the fight against climate change on the continent by implementing a number of serious measures against this backdrop (UN, 2024). This strategic goal aims to reduce carbon emissions by 55% and 100% by 2030 and 2050, respectively, and to make the continent the first zero-carbon continent in the world (EuropeanCommission, The European Green Deal Striving to be the first climate-neutral continent, 2024). Especially in the context of the political conflicts taking place in the world and the impact they have had on supply chains, the reforms within the framework of the ETS have been deepened and a new “Fit for 55” package has been introduced. This package envisages further improvement of the EU ETS, the establishment of a Social Climate Fund (SCF) and the implementation of the Carbon Border Adjustment Mechanism (CBAM). In particular, the implementation of the CBAM is considered the most serious and unambiguous reform undertaken within this package (ConsiliumEuropa, 2024). Thus, within the framework of this mechanism, in the first stage, it is planned to apply taxation in accordance with the carbon emissions generated as a result of their production to cement, iron and steel, aluminum, fertilizers, electricity and hydrogen products imported into the EU market. By doing so, the EU, which wants to protect the internal market from foreign competition, also aims to prevent "carbon leakage". Thus, this system, which is currently in the testing phase, is planned to be fully implemented from 2026 and to involve these products in carbon emission certification, which is assessed weekly. According to statistical indicators, a decline in trade indicators for these products has already observed in 2023. It has a great importance not only from the EU perspective, but also from the context of developing countries, especially those exporting these products to the EU and in whose exports the EU plays a high role.

Part 1 of the article will provide information about the EGD and its goals. Part 2 of the article will provide information about the amount of carbon emissions in the world, the EU's share in these emissions, and the goals of the CBAM, which is considered one of the main parts of this strategic goal. In the 3rd and final part of the article, the statistical indicators of the sectors where this mechanism will be applied will be analyzed and their potential economic impacts will be analyzed.

`

Definition and objectives of the European Green Deal

The European Union (EU)'s new development strategy, the "European Green Deal(EGD)", was established in 2019, aims to achieve climate neutrality by transitioning to a green transformation in the Union by 2050. The reforms to be implemented within the framework of this project, which is considered the EU's greatest contribution to the Paris Agreement, are expected to achieve a maximum of 1.5 degrees. The main thrust of the project, which is considered the flagship initiative of the European Commission and includes a number of initiatives, strategies and legal acts, is to achieve a sustainable and inclusive transformation for European society and economy by making serious returns in the field of climate. In addition to the increasing concerns about future life against the background of the negative impacts of human on the environment, the impact of climate change on the economy is also in the spotlight. According to statistical calculations between 2013 and 2023, the global average temperature increased by 1.22 degrees. In addition, 80% of the population in the EU lives in poor conditions against this background. Also, according to investigations, if the current rate of use of natural resources does not change, the existence of 3 planets will become necessary for life by 2050. For the EU, which considers global warming and nature protection a priority, such measures are considered essential for the well-being of its citizens and the future functioning of the Union. According to calculations, this activity, which requires high investment for its financing on the one hand, and on the other hand, if no financial resources are spent, will threaten to damage up to 12% of global GDP by the end of the century. The main goals of the EU are to achieve tasks such as climate change neutrality, circular economy, clean industry, a healthier environment, more sustainable agriculture and climate justice by 2050. The EU, which aims to reduce greenhouse gas emissions to zero by 2050 and make the continent the first in this context, already targeted a 20% reduction in these emissions by 2020 compared to 1990 during the global financial crisis (2008). This target was achieved by exceeding it with the special impact of the pandemic, and a 30% reduction was observed in the EU's emissions. In 2014, the EU, which aimed to reduce emissions by 40% by 2030, increased this rate to 55% in 2023 against the backdrop of energy supply disruptions resulting from the start of the Russia-Ukraine war. In order to achieve this goal, the "Fit For 55" package, which includes 14 legislative acts, was adopted by the Commission (EU, 2023). Within the framework of this package, a number of broad reforms are aimed at achieving the goal. Within the framework of this system:

`

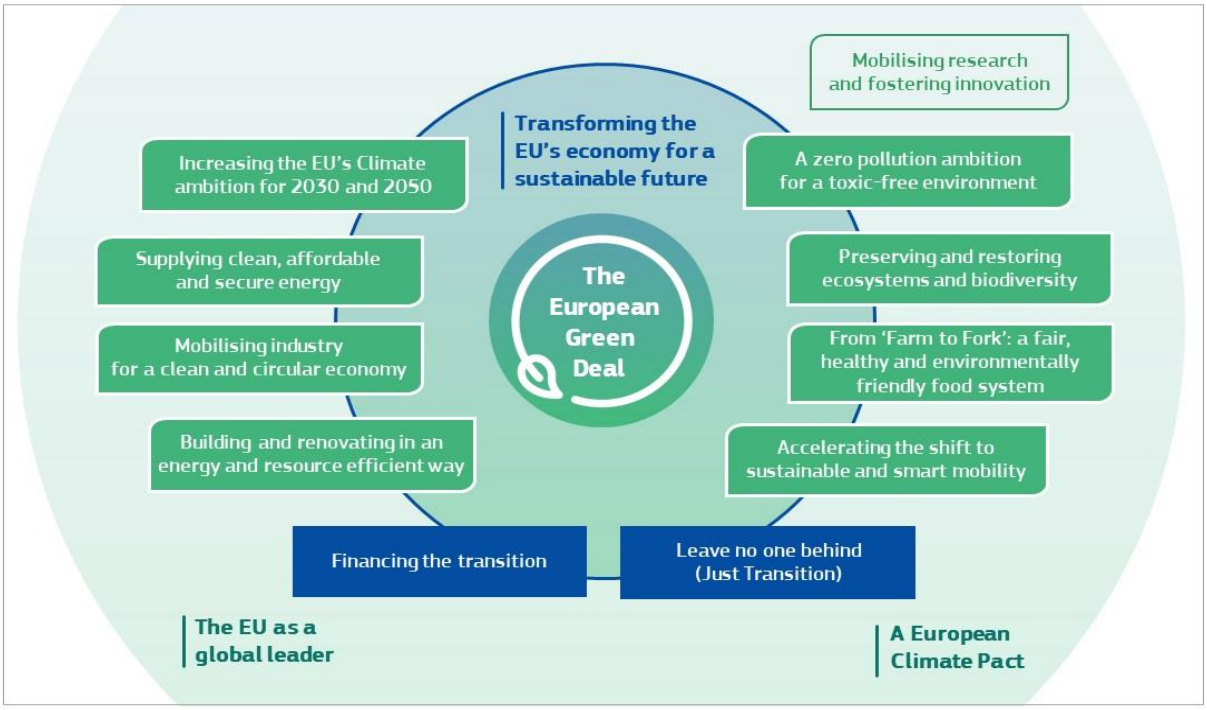
-The Emissions Trading System (ETS), which was created by the EU in 2005 to reduce carbon emissions in energy-intensive sectors, has been further improved and tightened. Thanks to the EU ETS, the emission reduction has been achieved by 41% since 2005. The current targets set include a 62% reduction in emissions in the sectors covered by the ETS (energy-intensive industries, power generation and aviation) by 2030 compared to 2005. Another sensational moment in the context of the improvement of the ETS was related to shipping. Thus, for the first time, logistics companies will have to pay 40%, 70% and 100% emission allowances in stages for the years 2024, 2025 and 2025, respectively. Not only sea and land transport, but also air transport will be affected by this new system. As the emission allowance system introduced for them will be phased out, this is a rather important point, especially in terms of what can happen in the supply chain, given the increase in costs in the short term of the global supply chain.

-In the adaptation package to 55, the creation of the "Social Climate Fund (SCF)" and the collection of the funds collected from the emission trading system into this fund are envisaged.

- The most serious reform to be implemented within this package and the one expected to affect international trade, the “Carbon Border Adjustment Mechanism”, will be analyzed in the following part of the article. **Figure 1** shows the EGD and its main areas of activity.

Figure 1. EGD and its key areas

`



Source: Republic of Türkiye Ministry of Foreign Affairs, Directorate for EU Affairs

As can be seen from the figure, increasing the EU's climate ambition by 2030 and 2050, ensuring clean, accessible and secure energy supply, mobilizing industry for a clean and circular economy, carrying out construction and reconstruction in an energy and resource efficient manner, implementing the zero waste ambition for a non-toxic environment, protecting and restoring ecosystems and biodiversity, creating a healthier food system through the application of the F2F system, i.e. are the main tasks to be carried out for the success of the program. A number of tools will be used to provide financial resources, which are of key interest and vital importance to this implemented climate strategy. Thus, the main financing instrument of this project, which is expected to require a financial requirement of 1 trillion euros for the implementation of the project in the next 10 years, is the EGD Investment Plan. According to this plan, it is noted that investments cannot be made solely by public institutions, and the need to involve private institutions is also emphasized. According to the plan, 503 billion euros will be allocated directly from the EU budget and used to meet financial needs. The remaining part will be provided through collections under the "Invest EU" guarantee. According to this plan, which is the EU's sustainable investment plan, investments will be made in 4 main areas: sustainable infrastructure; research, innovation and digitalization; small and medium-sized enterprises and social investment and skills (Fetting, 2020). On the one hand, these reforms will contribute significantly to combating climate change and ensuring sustainability, but on the other hand, this transition poses a number of

`

challenges for the economies of countries with particularly high carbon emissions in the EU. In order to address this issue and ensure that no EU country is left behind in this transition, the “Just Transition Mechanism” initiative was implemented in the context of the EU. The main objective of this mechanism is to support EU countries whose main source of income is mineral resources (especially those working in coal mines) to diversify their economies by investing at least 100 billion euros in order to combat the challenges they will face in the transition to green energy (Commission, The Just Transition Mechanism: Making Sure No One Is Left Behind, 2020). By implementing this policy, the EU, which is working not only in the economic field but also in the social field in the transition to a kind of new economy and wants to reduce social inequality in this context, is particularly interested in ensuring public support with the EGD. Because sudden decisions and restrictions can create unrest in the country, as an example of which is the rally of the "Yellow Vests" in France in 2018 against the increase in diesel prices in the name of green energy (Cigainero, 2018). In conclusion, on the one hand, the EU, which is promoting the EGD strategy in order to achieve sustainable development, on the other hand, is trying to take steps to maintain economic and social balance for the implementation of this strategy, which are not considered trustworthy and reliable by every individual and country. Adaptation to 55, that is, “Fit for 55”, which has caused the most discussion and controversy at both the micro and macro levels, and the CBAM, which is a new mechanism for the future of international trade, creates new opportunities and threats in the international economic arena. In the second part of the article, more detailed information will be provided about this mechanism.

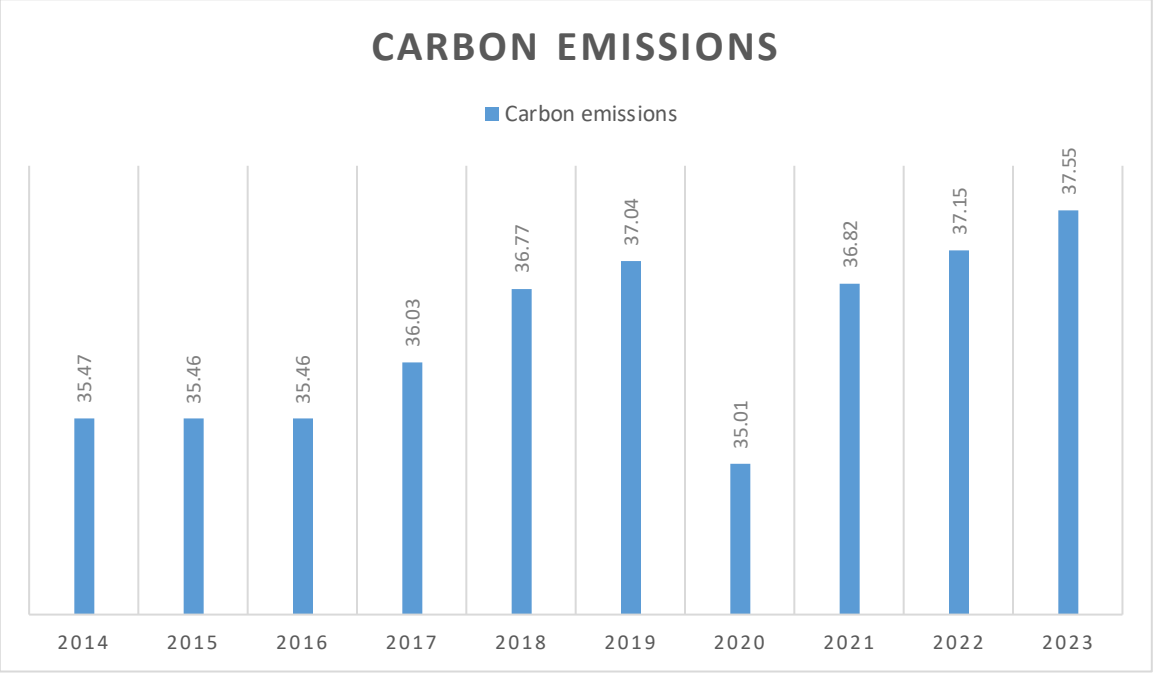
Carbon Border Adjustment Mechanism

The most controversial mechanism of the EGD, the “Carbon Border Adjustment Mechanism (CBAM)” proposed in 2021, is intended to prevent “carbon leakage” in these sectors and ensure a fair price against the backdrop of reforms and restrictions. This mechanism, which is intended to be regulated in accordance with World Trade Organization (WTO) rules, will be in the review phase between 2023-2025 and will be fully operational from 2026. Under this mechanism, EU importers will receive “CBAM” certificates by paying an amount assessed in euros/ton for each tonne of carbon emissions (CO2) from official authorities based on the average weekly auction valuation of the “ETS”. Importers must provide the number of certificates corresponding to this

`

number by calculating the emission amount according to the products they import in accordance with the relevant procedure (Commision, 2024). The transition period will be applied to the electricity, cement, fertilizer, steel and iron, aluminum and hydrogen sectors, which have particularly high carbon emissions, and other sectors considered to be at risk will be added to this list in the future (Sun, Mi, Cheng, Coffman, & Liu, 2024). During the transition period, importers are only required to calculate and submit the relevant carbon emissions of the products they import, and certificates are not required to be obtained during this period. At this stage, the emission calculation method is based on the newly introduced method by the EU, the equivalent method (3 methods) and the default reference value, which was discontinued in July of this year. From 2025, emissions will only be calculated based on the system developed by the EU. Importers will be able to access the single portal created and submit reports with the permission of the relevant competent authority of the member state. The role of sectors to which restrictions will be applied within the framework of the CBAM is quite high in the growth and creation of the carbon footprint, and in this context, the role of this mechanism may be significant. **Table 1** shows the rate of change in carbon emissions in the world over the last 10 years.

Table 1. Carbon emissions in the world (2014-2023, billion metric tons)



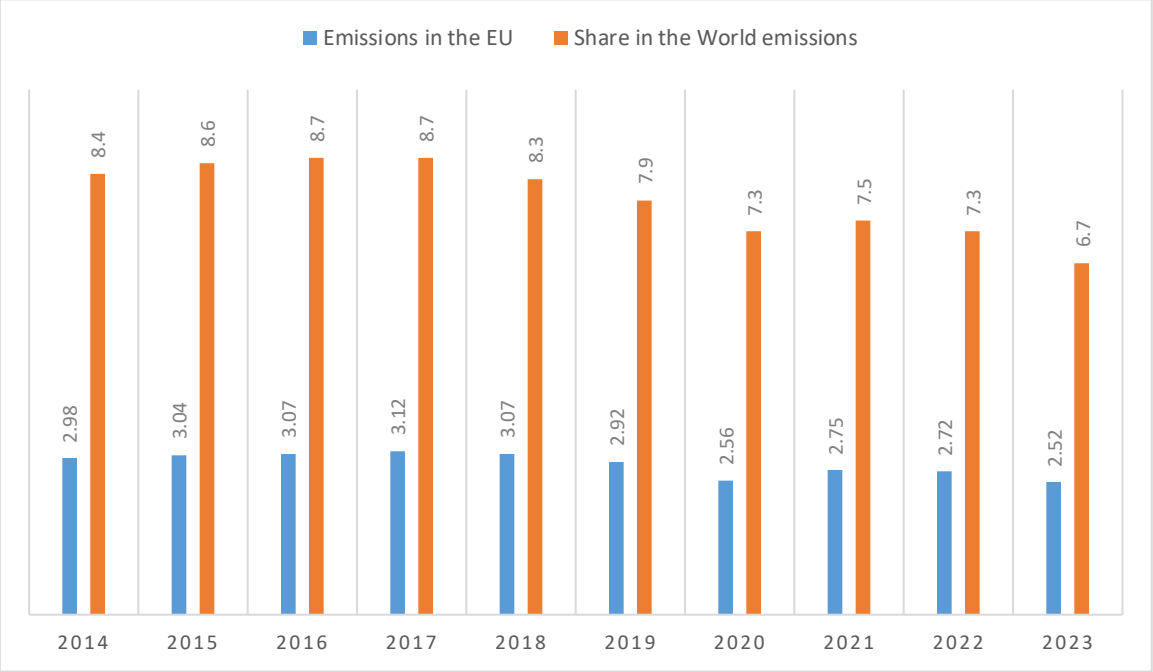
Source: Our World in Data

Accordingly to the table, emissions remained almost at the same pace in 2014, 15, 16, but increased by 1.6%, 2.1% and 0.7% respectively starting from 2017, reaching a record level (37.04 billion metric tons) in 2019. During the pandemic, due to the implementation of restrictions, emissions decreased by 5.5% to 35.01 billion metric tons. However, after this period, emissions increased by

`

5.2%, 0.9%, 1.1% annually between 2021-23, respectively, reached a record level of 10 years. The share of China, the USA, India, Russia and Japan in this emission volume was 31.7%, 13.1%, 8.1%, 4.8% and 2.6%, respectively. As can be seen, only 5 countries accounted for 60.3% of the world's total carbon emissions. The fact that these countries are particularly prominent in heavy industry highlights the importance of the ETS mechanism. **Table 2** illustrates the carbon emissions of EU countries in the period 2014-2023.

Table 2. carbon emissions of the EU countries (2014-2023, billion metric tons)



Source:Statista

In accordance with the statistics, the EU's emissions continued to increase until 2017, reaching 3.12 billion metric tons in 2017, accounting for 8.7% of global emissions. However, the emissions continued to decrease in the following period, and, especially due to the impact of the pandemic, it fell to 2.56 billion metric tons in 2020, accounting for 7.3% of global emissions. In the post-pandemic period, although an increase in emissions was observed in 2021, a decrease was recorded in 2022 and 2023, and the EU's share in global carbon emissions fell to 6.7%. In 2023, the main countries in the EU in terms of emissions were Germany (23.1%), Italy (11.9%), Poland (10.7%), France (9.9%) and Spain (9.5%) (Statista, 2024).

In addition, the EU is implementing a number of support programs to help developing countries adapt to this transition process, and the following cooperation programs exist with neighboring countries:

`

- Clima-Med- Cooperation is being carried out with 8 countries within the Southern Neighborhood for sustainable development, low carbon emissions and climate-friendly development.

- MED-GEM- Supporting the development of green electrons and molecules (GEM) within the Southern Mediterranean Neighborhood.

- EU4Green- Supporting the greening of the Western Balkan countries.

- EU4Energy- Empowering consumers and promoting the transition to clean energy in the Eastern Partnership countries.

- EU4Climate- This program also aims to assist the Eastern Partnership countries in building a low-emission and climate-resilient economy by encouraging them to fight climate change.

- Energy Community- Assisting Energy Union member countries in their transition to the CBAM (Commission, 2024).

These listed programs and several others are tasked with ensuring the transition within the framework of the CBAM, especially for developing countries whose economies depend on mineral raw materials.

In particular, the EU is developing separate support mechanisms for EU and non-EU importers of products affected by the EU-CBAM, and raising their awareness by organizing webinars, info sessions and online learning modules (EuropeanCommission, 2024).

Potential economic effects of the mechanism

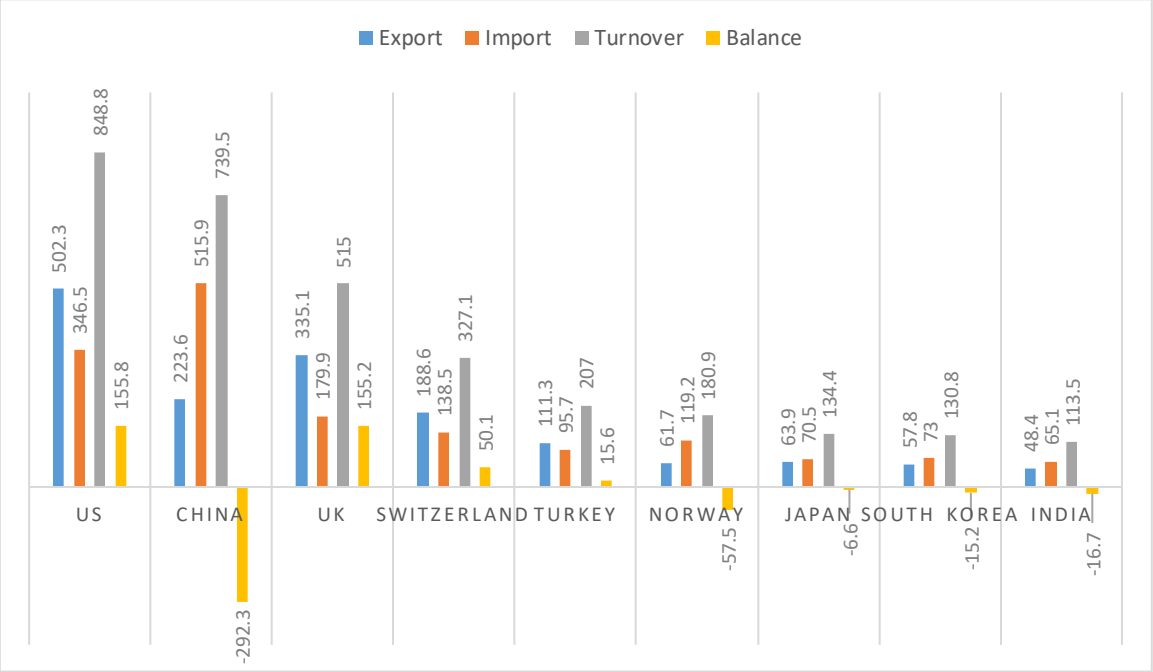
The potential economic impact of the mechanism, which is the most interesting and researched aspect, is almost the most important element influencing the formation of the perspective on it. When we look at the areas where the mechanism will be initially applied, it raises serious concerns, especially in terms of export potential for developing countries.

According to statistical indicators, the countries that currently impose the highest and lowest taxation per ton of carbon in the European region are Switzerland (120.16 euros), Liechtenstein (120.16 euros), Sweden (115.34 euros), Norway (83.47 euros) and Poland (0.09 euros), Ukraine (0.72 euros) respectively (Mengden, 2024). Statistics show that the current differential approaches in the taxation system pose a threat to carbon leakage even between intra-continental countries. In this regard, the most important country that stands out and holds significant opportunities is Poland, which applies the lowest taxation.

`

Table 3 shows the main trading partners and statistics of EU countries in 2023.

Table 3. Main trading partners of the EU (2023, million euros)

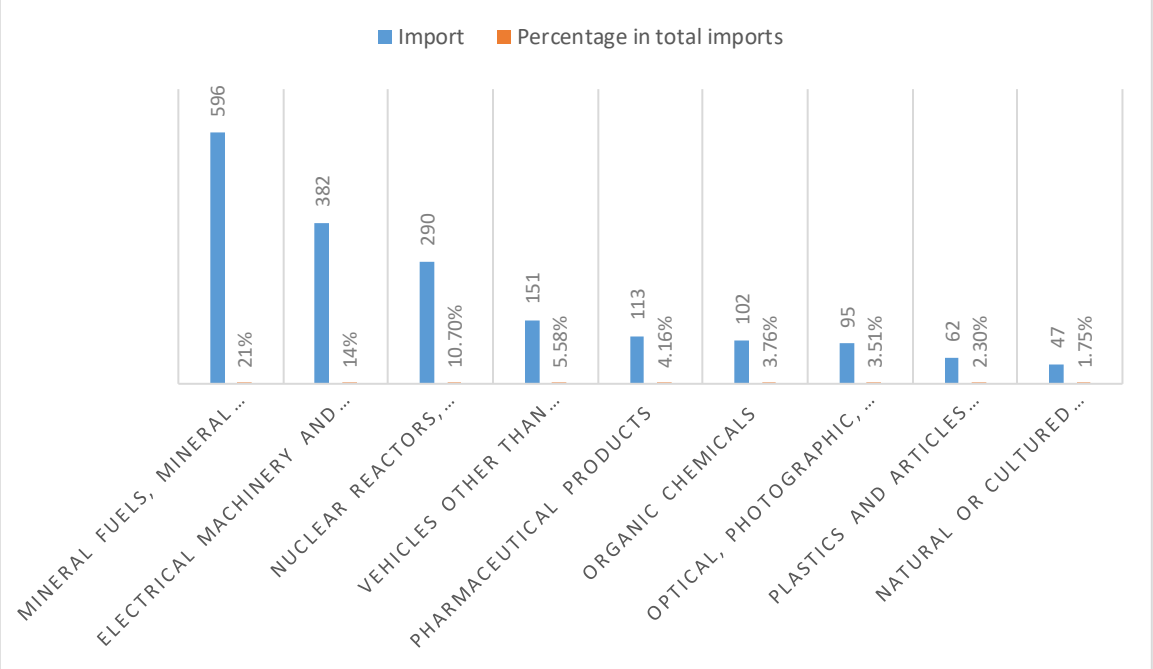


Source:Statista

Accordingly to the statistics, the EU's main trading partners have been countries that have played a major role in the formation of the world economic system, and the EU has had a positive trade balance with all countries except China, Norway, South Korea and India. One of the main points of interest in this trade is that the share of the top 10 countries that shape the EU's trade in global carbon emissions is quite high (59.2%). The fact that the main part of the exports of many countries is dominated by carbon emission-based products raises questions about the future of trade relations in the light of the carbon tariffs to be applied. **Table 4** shows the commodity-product category of EU imports.

`

Table 4. Commodity-product category of EU imports (2023, billion euros)

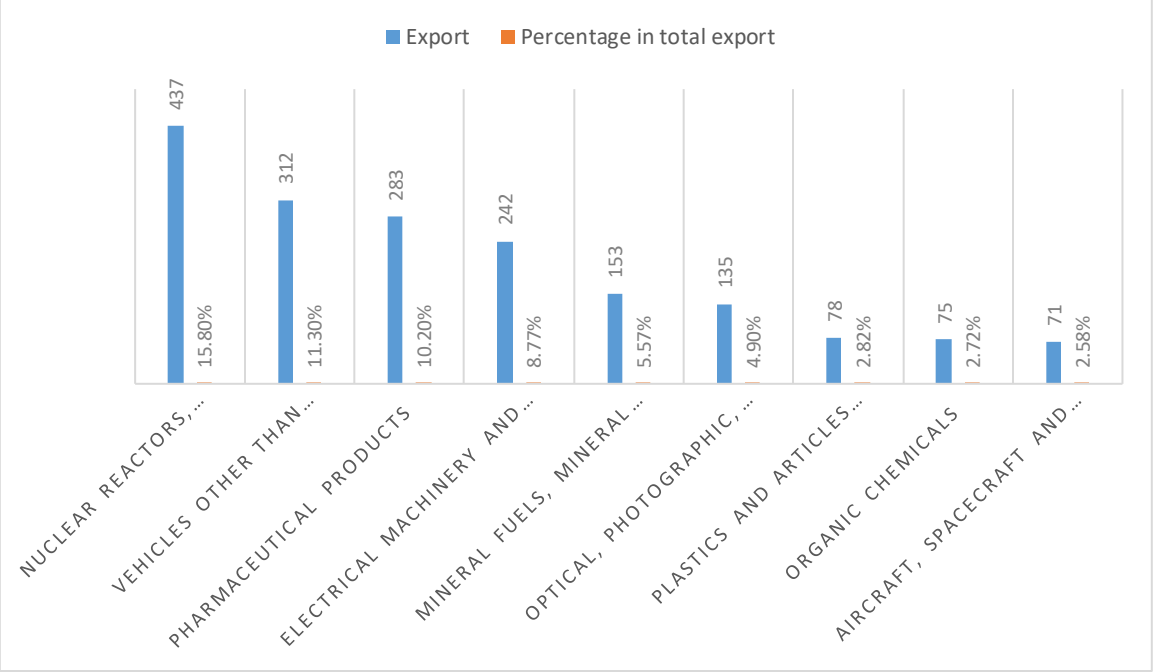


Source: Trend Economy

If we look at the commodity structure of imports, we will see that the main part of the products are products that undergo a production process that requires carbon emissions. In particular, the fact that the first 4 imported goods have a 51% share in total imports and the high level of dependence on imports of products to be subject to certification is expected to affect the EU import market in a short period of time from the year the mechanism is applied. With the increase in value in imports in a short period of time, the import efficiency will decrease for importers who will have to face additional costs. This, in turn, will lead to an increase in production prices and price increases in the areas where the sectors involved in the CBAM play a role in production (Chen, 2024). However, on the other hand, EU companies that receive more financial and technical support within the framework of this mechanism, which is a kind of "protectionism" trade policy, will have the opportunity to adapt to this transformation more quickly in a short period of time and gain economic benefits against the backdrop of weakening foreign competition. **Table 5** shows the main export products of the EU in 2023.

`

Table 5. Main export products of the EU (2023, billion dollars)



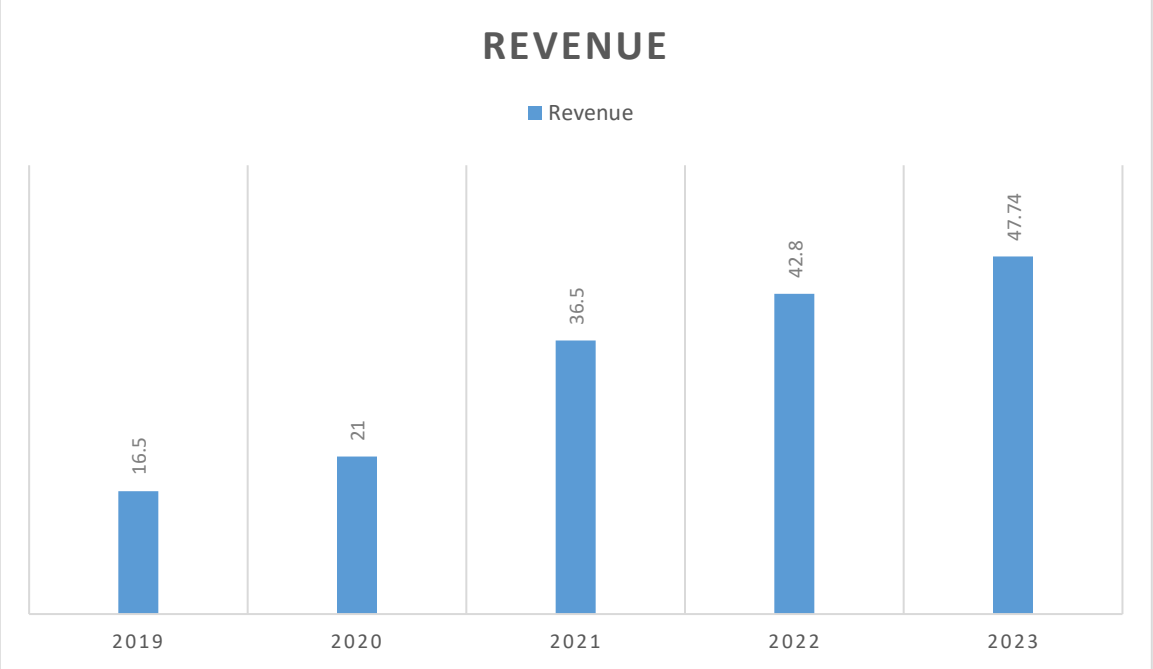
Source: Trend Economy

As in imports, it is possible to observe that the main products in exports are products requiring high emissions. This may lead to disruptions in the supply of raw materials and price increases for EU producers, whose imports are more expensive due to taxation. This may ultimately lead to a decrease in export potential and economic losses. In this scenario, domestic producers have a great importance in adapting to the transformation. In the context of faster adaptation to the mechanism, domestic producers can gain serious opportunities in the market.

As the EU's climate-related programs expand, their revenues increase against the background of the taxation system they apply in relation to emissions. Thus, the EU's revenue from the ETS continues to have an increasing trend. **Table 6** provides statistics on the EU's revenue from the ETS.

`

Table 6. The EU's revenue from the ETS (2019-2023, billion dollars)



Source: Statista

As can be seen from the table, the EU's ETS revenues have continued to grow at an increasing pace, with a sharp increase in revenues observed especially after 2020. Between 2020 and 2023, ETS revenues increased by 27.3%, 73.8%, 17.3% and 10.3%, respectively, compared to previous years, reached to $47.74 billion. The statistical indicators of the sectors to which the CBAM mechanism will be applied are provided separately in the next section of the article.

Aluminium

The aluminum sector, which is one of the main sectors to be restricted under the CBAM and has more than 600 plants operating in 30 countries in the European region, is one of the sectors that has a key role in the implementation of the EGD. The annual demand of this sector, which attracts 2.1 billion euros of investment and includes more than 100 “European Aluminum Members”, is estimated at 9 million tons in Europe. In 2050, Europe’s total demand for aluminum is predicted to be 18 million tons. The region, which cannot meet the demand with domestic resources, especially against the backdrop of increasing demand for aluminum in Europe and has lost its competitiveness in this field, especially against the backdrop of high energy prices, has recently increased the importance it attaches to “recycling” in order to create serious development in this field. “Recycling” is considered the only effective way for Europe, which believes that this is the only way to protect domestic market demand from predatory competition from foreign companies (Aluminium, 2024). According to statistical data, the EU's aluminum trade indicators decreased in 2023, especially in terms of imports (Eurostat, 2024). Thus, the EU's unprocessed aluminum

`

exports increased by 15.4%, 55.6% and 7.1% respectively compared to previous years between 2019 and 2022, and reached a record level ($1.5 billion) in 2022. In addition, although the EU's unprocessed aluminum imports decreased by 14.3% during the pandemic period, they increased by 52.9% and 40.4% respectively in other years and reached a record level ($21.9 billion) in 2022. Against this background, total unprocessed aluminum trade in 2022 increased by 37.6% compared to 2021, reached to $23.4 billion. However, in 2023, EU aluminum exports, imports and total aluminum trade turnover decreased by 13.3% ($0.2 billion), 21.9% ($4.8 billion) and 21.4% ($5 billion) respectively compared to 2022. With these decline statistics, EU unprocessed aluminum exports decreased to $1.3 billion, imports to $17.1 billion and total turnover to $18.4 billion. As can be seen from the statistics, although the SKDM is still in the transition phase, there is already a decline in the statistics of the aluminum sector, one of the sectors to be involved. The EU's main unwrought aluminium export countries in 2023 were Switzerland (37%), the US (10.3%), Serbia (8.21%), Japan (7.72%), Turkey (6.57%), Norway (6.03%), the UK (3.32%), Brazil (2.18%), Bosnia and Herzegovina (2.04%) and Malaysia (1.95%). The main import countries were Norway (22%), Iceland (12.1%), the UAE (10.5%), India (8.83%), Russia (7.88%), Mozambique (6.69%), Bahrain (5.4%), the UK (3.02%), South Africa (2.59%) and Malaysia (2.4%) (TrendEconomy, European Union | Imports and Exports | World | Raw aluminium | Value (US$) and Value Growth, YoY (%) | 2012 - 2023, 2024). Looking at the statistics of the countries, especially developing countries, which have a high share in the EU's aluminum imports, it is expected that the exports of these countries will be affected, especially in the short term, by the decreasing economic benefits of exports in the context of carbon taxes to be applied to imports. Not only in imports, but also in the context of tariffs applied, countries that import aluminum from the EU will also face increasing import prices in the short term. Increases in export and import prices will cause damage to the supply chain in the aluminum trade, especially in the short term, against the background of decreasing marginal benefits.

Cement

Another sector that requires high carbon emissions in production and is subject to taxation under the CBAM is the cement sector. As part of the decarbonization process, a target has been set for this sector to reduce emissions in production by 37% and in the value chain by 50% by 2030. In addition, by accelerating the decarbonization process, it is planned to reduce emissions in production and in the value chain by 78% and 93% respectively in 2040, and to reduce carbon emissions to zero in 2050 (CEMBUREAU, 2024). Overall, 35.8% of the EU's 9.3 billion tonnes of cement imports in 2023 were supplied by Turkey, 19.2% by Algeria, 8.4% by Tunisia, 4.4% by Egypt, 4% by Morocco, 3.5% by Bosnia and Herzegovina, 1.7% by Vietnam, 1.5% by Saudi

`

Arabia, 1.4% by Switzerland, 1.2% by the UK and Norway, and 5.1% by other countries. Here too, the majority of aluminium imports, especially from developing countries, are supplied without being certified under the CBAM, which inevitably harms the sectoral exports of these countries. In particular, the volume of cement exported by the EU in 2023 was 10.9 million tonnes. 40.1% of exports went to the UK, 25% to the US, 4.4% to Israel, 3.9% to Switzerland, 3.7% to Bosnia and Herzegovina, 3.5% to Cameroon, 3.3% to Norway, 2.9% to Serbia and 13.2% to other countries. (CEMBUREAU, EU CEMENT INDUSTRY TRADE STATISTICS, 2024). Finally, a decreasing trade trend prevailed in this sector in 2023, which was reflected not only in cement but also in trade statistics for products made from cement, concrete and artificial stones. Thus, EU exports and imports of these types of products decreased by 2.3% and 25.4% respectively in 2023 (TrendEconomy, 2024).

Hydrogen

This sector, which operates with over 600 members and over 30 national associations, is characterized by high carbon emissions. Another sector to be taxed, hydrogen trade, also showed a downward trend in 2023 (HydrogenEurope, 2024).

According to statistics for 2022, the EU's total hydrogen imports were $4.12 billion, mainly from the UK, Serbia, Montenegro, Switzerland and Japan. The EU's hydrogen exports in the same year were $6.27 billion, with the UK, Switzerland, Israel, Australia and Norway as its main export partners. The main importers of hydrogen in the EU in the domestic market were the Netherlands (19,568 tonnes), France (2,967 tonnes), Germany (1,724 tonnes), Denmark (1,296 tonnes) and Austria (617 tonnes) as of 2023. The main domestic exporters were Belgium (21,161 tonnes), the Netherlands (3,165 tonnes), France (1,416 tonnes), Sweden (1,302 tonnes) and Germany (1,145 tonnes), respectively (Observatory, 2024).

Overall, in 2022, EU exports of hydrogen, rare gases and other non-metals increased by 29.6%, imports by 56.4% and turnover by 41.7% to $2.58 billion, $2.55 billion and $5.13 billion respectively, which are record levels. However, like other sectors to be subject to taxation, this sector also experienced declines in 2023. In 2023, exports, imports and turnover decreased by 26.7%, 19.2% and 23% respectively compared to 2022 (TrendEconomy, 2024).

Iron and Steel

This sector, which creates 306,000 direct jobs in the EU, supports a total of 2.578 million jobs and has an annual turnover of 130 billion euros and a production of 152 million tons, is one of the sectors that will be subject to taxation under the CBAM. In general, this sector, where the number of employees has continued to decrease in recent years, has a special role in the jobs creation

`

mainly in 5 countries. Thus, the countries selected based on the number of employees in the steel sector are Germany (80,820), France (25,317), Italy (30,714), Poland (23,950) and Romania (21,474), respectively. According to statistics for 2023, the EU's imports of steel and iron from non-member countries decreased by 18.8% (10.97 billion dollars at today's exchange rate) compared to 2022, to 47.57 billion dollars (TrandingEconomics, European Union Imports of iron and steel, 2024) EU exports, on the contrary of imports, increased by 10.3% ($4 billion at today's exchange rate) to $42.72 billion (TrandingEconomics, 2024). The main country for imports was China (10.5%) and for exports the USA (21.6%). As can be seen from the statistics, the sector is particularly witnessing a decline in imports.

Fertilizer

Fertilizer trade, which plays a major role in meeting the growing food demand, especially against the backdrop of a growing world population, is also one of the sectors to be included in the CBAM certification framework. Mineral fertilizers, which play a direct role in the nutrition of more than 50% of the world's population, have a great importance, including for the EU market. The EU fertilizer sector, which has a turnover of 12.3 billion euros and attracts 1.2 billion investments, employs 76,000 people (EuropeanCommission, 2024). In 2023, the EU's exports of nitrogenous mineral or chemical fertilizers decreased by 28.99% compared to 2022, to $ 2.09 billion. The main export countries were the UK (23%), Ukraine (12.6%), Brazil (7.63%), USA (6.54%), Norway (5.94), Canada (4.14%), Switzerland (3.79), Mexico (2.78%), Colombia (2.76%) and Morocco (2.3%). In the same year, imports decreased more significantly (49.98%) compared to 2022, falling to $3.9 billion. The main countries of import were Egypt (25%), Russia (19.4%), Algeria (10.6%), USA (8.52%), China (6.32%), Turkmenistan (3.31%), Nigeria (3.13%), Trinidad and Tobago (2.91%), Uzbekistan (2.54%) and Turkey (2.53%) (TrendEconomy, 2024). When looking at the distribution of imports by country, it can be observed that, unlike exports, developing countries dominate. This slightly increases the chances of these countries suffering economic losses due to the increase in export costs due to the certification to be applied. The fact that exports become more inefficient against the background of increasing export costs puts countries that provide fertilizer exports to the EU in a difficult situation. This makes an increase in fertilizer prices inevitable, which may pose threats not only to this sector, but also to the functioning of the food sector.

`

Conclusion

As the economic losses caused by climate change continue to increase and climate-related problems deepen, the steps taken by states to combat it are becoming increasingly profound. Factors such as the increase in carbon emissions by 88% in 2023 compared to 1990, reaching 37.55 billion metric tons, and the increase in temperature by 1.22 degrees Celsius in the last 10 years have also brought natural disasters. These disasters, in turn, have created and continue to create serious socio-economic problems for countries. This has forced countries to allocate funds from their budgets in this direction and take concrete steps to solve the problem. The Paris Climate Agreement signed in 2015 launched a new stage in the fight against climate change, and the EU made a fairly high contribution to this agreement and presented the European Union Green Deal in 2019. Within the framework of this strategy, which aims to gradually reduce carbon emissions on the continent by 55% and 100% in 2030 and 2050, respectively, and to turn the continent into the first zero-carbon continent in the world, a number of serious programs have been developed in recent times, especially in the context of geopolitical processes taking place in the world. The EU, which set a target of reducing emissions by 20% in 2020 in 2008, achieved a 30% reduction in emissions with the contrubiton of the pandemic. The EU, which aimed to reduce emissions by 40% by 2030 within the framework of the ETS, later, in 2023, adopted the "Fit for 55" package and raised this indicator to at least 55%. The main steps taken within the framework of the Fit for 55 package were the establishment of the Social Climate Fund (SIF), the further strengthening of the Emissions Trading System (ETS), and the implementation of the Carbon Border Adjustment Mechanism (CBAM).

In the context of the improvement of the ETS, a target of reducing emissions in the sectors covered by it by 62% in 2030 compared to 2005 has been set, and against this background, it is planned to phase out emission allowances in air transport and gradually subject maritime transport to 40%, 70% and 100% carbon taxation between 2024 and 2026. Although this decision will undoubtedly contribute to reducing carbon emissions, on the other hand, it is inevitable that it will increase transportation costs and cause disruptions in the supply chain.

Sensitive to the potential intra-continental social problems that will occur in the sectors affected by the EGD, the EU has established the SIF in this fund, aiming to attract and appropriately channel the revenues of the ETS, the revenue of which has recently increased significantly (increased to $47.74 billion in 2023), and to mobilize at least €86.7 billion between 2026 and 2032.

The EU, which introduced the most discussed and expected to affect global trade package, the CBAM, aims to protect the EU internal market from foreign competition and prevent carbon leakage. Although this mechanism, which is currently in the transitional phase, is expected to be

`

fully implemented in 2026, a downward trend in trade is already observed in the sectors where it will be implemented (aluminum, steel and iron, hydrogen, cement, electricity and fertilizers). In this transitional phase, importers are currently only required to calculate their emissions and post them on the relevant EU portal. According to statistical data, in 2023, compared to 2022, the EU's exports of aluminum, reinforced or non-reinforced cement, concrete or artificial stone products, hydrogen, rare gases and other non-metals, and nitrogenous mineral or chemical fertilizers decreased by 13.3%, 2.3%, 26.7% and 28.99%, respectively. In particular, the import of these goods decreased by 21.9%, 25.4%, 19.2% and 49.98% respectively in 2023 compared to 2022. As can be seen from the statistical indicators, although the mechanism has not yet been fully implemented, there is a downward trend in trade indicators in the sectors that will be subject to certification within the framework of the mechanism, especially with a heavy emphasis on imports. When we look at the geography of product imports, we can see that imports are mainly concentrated from the east and that the countries exporting these products to the EU are mainly developing countries. This creates a strong basis for the following negative effects:

Developing countries, especially those with high carbon emissions and a high share of exports of products included in the CBAM as a part of decarbonization, will face price increases caused by tariffs in the short term. This will reduce the efficiency of exports and affect their competitiveness, which will cause companies to suffer losses. This will inevitably lead to their "downsizing", which will lead to a reduction in the number of employees, especially against the background of cost reductions, and will pose a threat to the growth of unemployment in these countries. The mechanism poses some threats not only in terms of exporting countries, but also in terms of the EU market. In particular, for countries such as Germany, Italy, Poland, France, Spain and France, which are distinguished by high emission levels in the EU, this mechanism may have a short-term shock effect, which may seriously damage the economies of the countries that are the main economic engines of the EU, and ultimately the EU economy.

This mechanism also offers a number of opportunities. Companies (especially those operating in Asia) that do not want to lose their competitiveness in trade with products that will be subject to certification under the EU-CBAM framework can strengthen the green transformation, which, although it will entail significant costs in the short term, will bring economic benefits in the long term.

EU companies, which are better equipped than other countries in the region, can gain a significant competitive advantage by integrating into the new system more quickly, especially in the short term. This can lead to increased intra-EU trade, significant increases in profits, and ultimately, the EU economy.

`

Although the transition to this mechanism, which requires high material and technical support, can be financed by large companies, it especially endangers the activities of small and medium-sized businesses. This makes it necessary to provide institutional support. In particular, the EU can provide support not only in the form of info sessions and webinars, but also in the form of financial assistance to companies operating in non-EU countries and whose activities are under risk in the frame of the mechanism, which will accelerate their transformation. In particular, it is important to integrate EU support programs (EU4Green, EU4Climate, etc.) to the east, that is, to the countries that will be affected under the CBAM, and to provide support, and not to limit it to EU countries. This once again proves the need to increase the budget of 1 trillion euros planned for 10 years.

Failure to provide support, increasing the competitiveness of EU countries at the expense of other countries, will indicate that the EU is implementing a kind of trade "protectionism" trade policy. This means that countries that are developing and have a special role in exporting products to the EU that are subject to certification within the framework of the CBAM may develop adequate policies and mechanisms against this policy, which may lead to trade wars. Considering that the main suppliers of these products to the EU are China and Russia, the likelihood of an adequate response to the EU's protectionism policy increases somewhat.

In conclusion, against the backdrop of a kind of "crisis" that this transformation will create, SMEs, distinguished by their more elastic structures, can play an important role in this transition process. SMEs, which were more resistant to the crisis during the oil crisis (1973) than large business entities, can also achieve serious benefits by taking advantage of the opportunities arising during this "green transition". This is important in terms of both their development and the acceleration of the countries' adaptation to this transition.

`

References

Aluminium, E. (2024). *A Strong, Sustainable & Complete European Value Chain.* European Aluminium.

Bayramov, Vugar and Islamli, Nigar and Mammadov, Emin, Assessment of Gender Equality & Women's Empowerment in the Post-Soviet Space (January 13, 2023). Available at SSRN: https://ssrn.com/abstract=4323803 or http://dx.doi.org/10.2139/ssrn.4323803

Bayramov, V., Hasanov, R., Gasimova, N. (2021). Perspectives on the Analysis and Development of Social Policies in Azerbaijan. In: Tajmazinani, A.A. (eds) Social Policy in the Islamic World. International Series on Public Policy . Palgrave Macmillan, Cham. https://doi.org/10.1007/978-3-030-57753-7_10

CEMBUREAU. (2024). *CEMBUREAU's Net Zero Roadmap.* CEMBUREAU.

CEMBUREAU. (2024). *EU CEMENT INDUSTRY TRADE STATISTICS.* The European Cement Assosiation.

Chen, Z. (2024). The Impact of the EU Carbon Border Adjustment Mechanism on Chinas Exports and Suggestions on Countermeasures. *ResearchGate*.

Cigainero, J. (2018, December 3). *NPR*. Retrieved from npr.org: https://www.npr.org/2018/12/03/672862353/who-are-frances-yellow-vest-protesters-and-what-do-they-want

Commision, E. (2024). *Carbon Border Adjustment Mechanism.* European Commision.

Commission, E. (2020). *The Just Transition Mechanism: Making Sure No One Is Left Behind.* European Commission.

Commission, E. (2024). *CBAM and developing countries/LDCs.* European Commission.

ConsiliumEuropa. (2024). *Fit for 55.* ConsiliumEuropa.

EU, C. o. (2023). *'Fit for 55': Council adopts key pieces of legislation delivering on 2030 climate targets.* Council of the EU.

EuropeanCommission. (2024). *Carbon Border Adjustment Mechanism.* European Commission.

EuropeanCommission. (2024). *EU Fertiliser Market analysis.* European Commission.

EuropeanCommission. (2024). *The European Green Deal Striving to be the first climate-neutral continent.* EuropeanCommission.

Eurostat. (2024). *International trade in goods by type of good.* Eurostat.

Fetting, C. (2020). *The European Green Deal.* Viena: ESDN.

Hannah, R., Pablo, R., & Max, R. (2024). *Per capita, national, historical: how do countries compare on CO2 metrics?* Our World in Data.

HydrogenEurope. (2024). *European Hydrogen Week 2024 concludes.* HydrogenEurope.

Mengden, A. (2024). *Carbon Taxes in Europe, 2024.* Tax Foundation.

Observatory, E. H. (2024). *Hydrogen Trade.* European Hydrogen Observatory.

Statista. (2024). *Carbon dioxide emissions from energy in the European Union in 2000, 2010 and 2023, by country.* Statista.

`

Sun, X., Mi, Z., Cheng, L., Coffman, D., & Liu, Y. (2024). The carbon border adjustment mechanism is inefficient in addressing carbon leakage and results in unfair welfare losses. *ScienceDirect*.

Vugar Bayramov, "A comparative analysis of CIS countries' WTO accession; ways to European integration", 2008

Vugar Bayramov, Nigar Islamli, Emin Mammadov (2023), Gender Equality & Women's Empowerment in the Post-Soviet Space: Challenges and Perspectives, https://cesd.az/y/panel/uploads/24358920936-CESDGenderEqualityWomenEmpowermentPaper.pdf

Vugar Bayramov, Nigar Islamli (2022),
Global Oil Price Shocks and Sustainability: The Case of Post-Soviet Resources-Rich Countries,
DOI: 10.4018/978-1-6684-5580-7.ch003

TradingEconomics. (2023). *European Union Exports of fertilizers.* TradingEconomics.

TrandingEconomics. (2024). *European Union Exports of iron and steel.* TrandingEconomics.

TrandingEconomics. (2024). *European Union Imports of iron and steel.* TrandingEconomics.

TrendEconomy. (2024). *European Union | Imports and Exports | World | Articles of cement, of concrete or of artificial stone, whether or not reinforced | Value (US$) and Value Growth, YoY (%) | 2012 - 2023.* Trend Economy.

TrendEconomy. (2024). *European Union | Imports and Exports | World | Hydrogen, rare gases, other non-metals | Value (US$) and Value Growth, YoY (%) | 2012 - 2023.* Trend Economy.

TrendEconomy. (2024). *European Union | Imports and Exports | World | Mineral or chemical fertilisers, nitrogenous | Value (US$) and Value Growth, YoY (%) | 2012 - 2023.* TrendEconomy.

TrendEconomy. (2024). *European Union | Imports and Exports | World | Raw aluminium | Value (US$) and Value Growth, YoY (%) | 2012 - 2023.* Trend Economy.

UN. (2024). *What is the Paris Agreement?* United Nations Climate Change.

YeşilBüyüme. (2024). *Avrupa Yeşil Mutabakatı.* YeşilBüyüme.