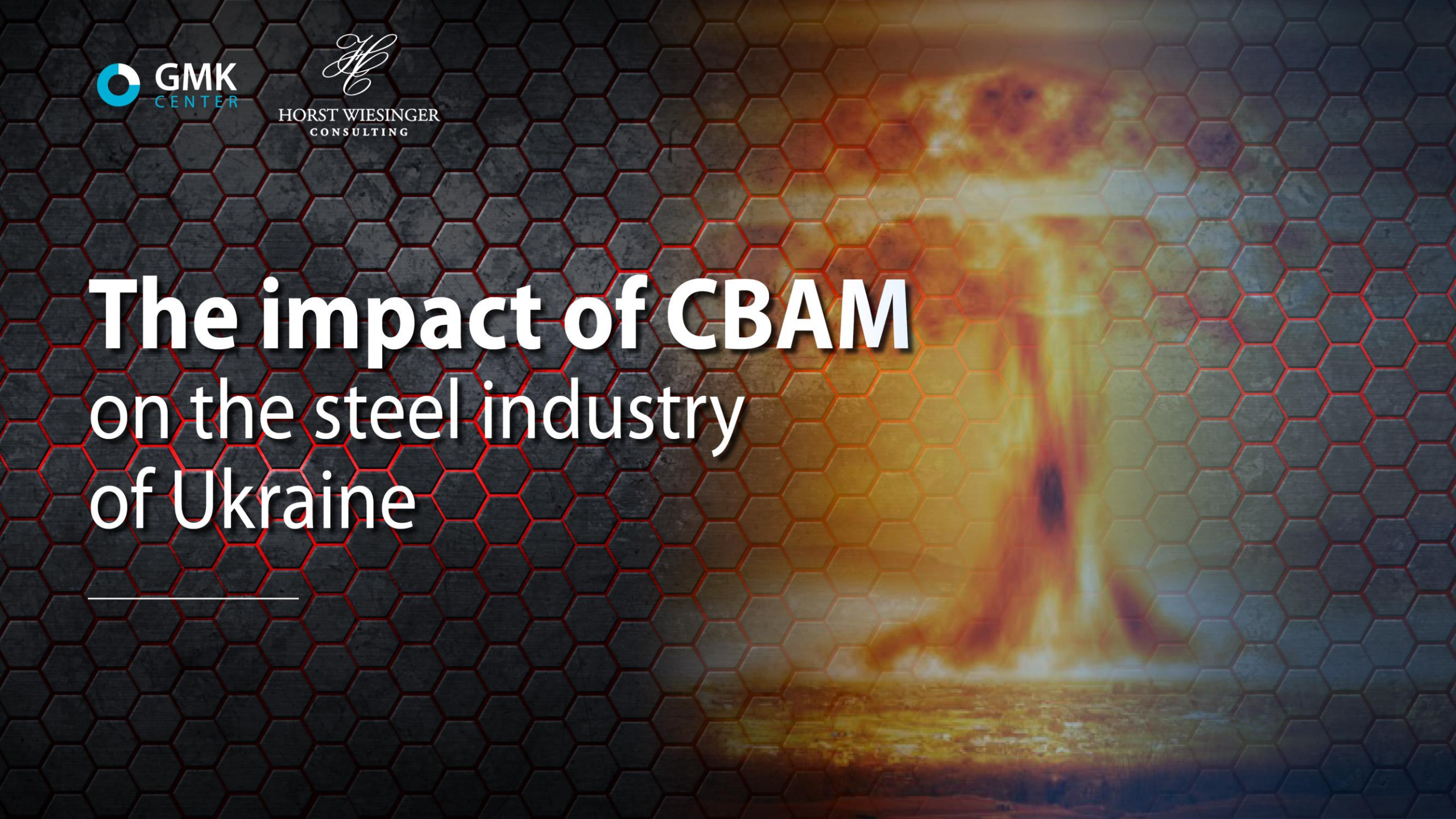
GMK CENTER

HORST WIESINGER CONSULTING

The impact of CBAM on the steel industry of Ukraine



Stanislav Zinchenko,
CEO GMK Center

About the document

This document is the study of the impact of CBAM (carbon border adjustment mechanism) on steel producers and economy of Ukraine.

This document aims to address the risks that CBAM poses to carbon-intensive industries and developing countries. It is aimed at decision-makers, both in Ukraine and in the European Union, at the business level as well as at the state level.

The maximum consideration of the specifics of the steel industry became possible as a result of the involvement of the Austrian-based consulting company Horst Wiesinger Consulting.

We hope that the results of the study of GMK Center and Horst Wiesinger Consulting will be of practical importance for the formation of the CBAM draft proposals, the formation of negotiating position of Ukraine on CBAM, the development of mitigation measures of CBAM-connected risks.

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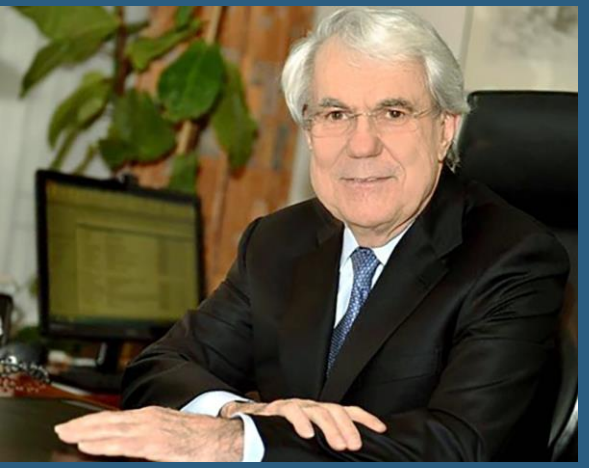


Dr. Horst Wiesinger,
CEO at Horst Wiesinger Consulting,
Chairman of the GMK Center Supervisory Board

Introduction

Carbon border adjustment (CBAM) is an extremely important issue which, undoubtedly, needs keen attention. However, the public debate lacks reasonable answers to logical questions. For example, what would be the consequences of the CBAM introduction, what is the optimal design of this mechanism, how will CBAM affect the interstate agreements that have already been signed?

Therefore, the purpose of this study is to provide a basis for further dialogue on the CBAM implementation both in Ukraine and within the EU.

It is obvious that CBAM will change the existing competitive advantages of producers from different countries and restrict imports to the EU. For example, CBAM is discriminatory to the BOF route, which is a dominant steelmaking process in Ukraine. Development of the BOF route in Ukraine is associated with the advantages of access to iron ore resources. The problem is that the BOF technology does not have a significant potential for reducing CO2 emissions. This means CBAM will deprive Ukraine of competitive advantages.

The risk posed by CBAM for developing countries is associated with the need to quickly adapt to new conditions, changes in technology and supply chains. This is very stressful for business. The industrial decarbonization policy was launched in the EU back in 2000, when the draft EU ETS emission trading system was first presented. This means the European industry had 20 years for adaptation. During that time, Europeans have been actively developing EAF capacities. As a result, EAF assets currently account for 85% of the long rolling segment capacities. But this is not the only possible solution. Other countries have to develop their own decarbonization formulas. Their implementation may take decades and be painful for economies.

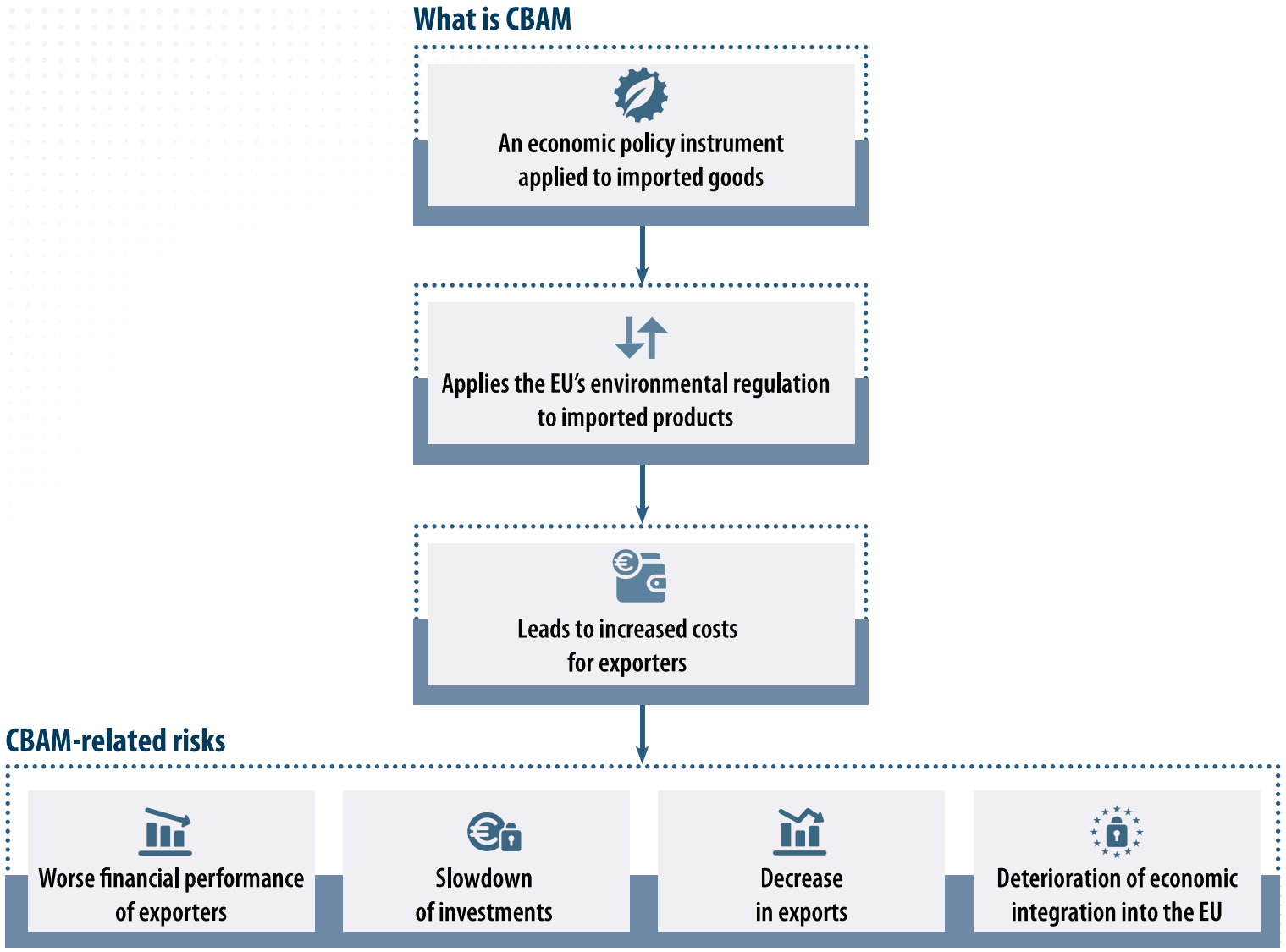
In order to mitigate the negative consequences, Ukraine needs an individual approach within CBAM. As Ukraine has undertook obligations to implement the European environmental legislation and has joined the European Green Deal, synchronization of the climate policy makes it impossible to transfer carbon-intensive industries from the EU to Ukraine. This means that the so-called risk of carbon leakage, which justifies the need to introduce CBAM, does not make sense for Ukraine, as it is virtually neutralized.

In general, the ill-considered decision to introduce CBAM will have hardly predictable consequences. In the long run, CBAM has every chance to become an instrument of discrediting less financially backed countries which will not be able to drastically reduce CO2 emissions over a short period of time, while state support for decarbonization of European producers will only increase (in particular through accumulation of funds from CBAM).

The main goal of CBAM is to contribute to the global CO2 emissions reduction. CBAM could achieve this goal only given the right format in line with the interests of the participating countries. We invite all the stakeholders to participate in the discussion and contribute to designing a well-considered and balanced CBAM which will provide equal opportunities to all countries to move towards decarbonization.

CBAM
as a special fiscal instrument

CBAM poses risks for Ukraine's exports to the EU



The EU considers CBAM as a special fiscal instrument which will make import producers pay the same price for CO2 emissions as European producers.

The goal of CBAM is to include in the prime cost of imported goods the costs which would have been incurred if the production of those goods was under the same greenhouse gas emissions regulation regime as in the EU.

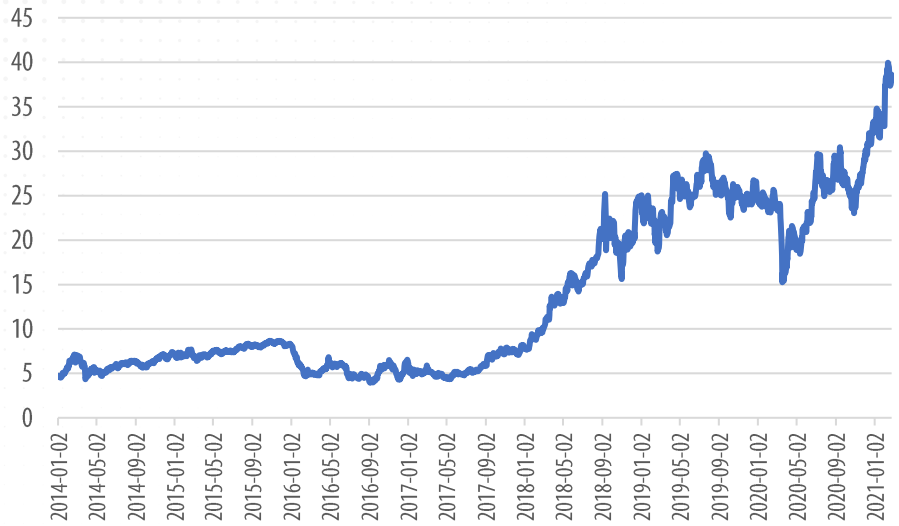
CBAM is a pressing issue for Ukraine, for which the EU is a major trading partner. Moreover, the EU's role as a trading partner has strengthened over the past 5–6 years as a result of Ukraine's economic integration with the EU agenda. The share of Ukraine's exports to the EU increased from 34.1% in 2015 to 41.5% in 2019.

However, one third of Ukraine's exports to the EU are carbon-intensive products (pig iron, steel semi-finished products, rolled products and other products of ferrous metals, metal ores, fertilizers and other chemical products, electricity), which are potentially subject to CBAM.

The introduction of CBAM would affect competitiveness of Ukraine's exports and the domestic economy and create risks of breaking the established production chains between Ukraine and the EU, degradation of trade relations and economic integration.

The most important goal of CBAM is elimination of carbon leakage

Price of CO_2 allowances in the EU, EUR/t



Source: http://energy.instrat.pl/co2_prices

CBAM is aimed at:

Mitigating the risk of carbon leakage

Carbon leakage is an increase in greenhouse gas emissions outside the country, resulting from the relocation of production abroad due to differences in environmental policies of different countries. This means that industrial production will decrease in countries with strict environmental policies and increase in countries with soft environmental policies. CBAM will hinder this process.

Eliminating differences in climate ambitions of different countries

Under the Paris Agreement on Climate Change, countries set their own CO_2 emissions reduction targets. For example, the EU intends to become carbon neutral by 2050. The goals of most of its trading partner countries are less ambitious.

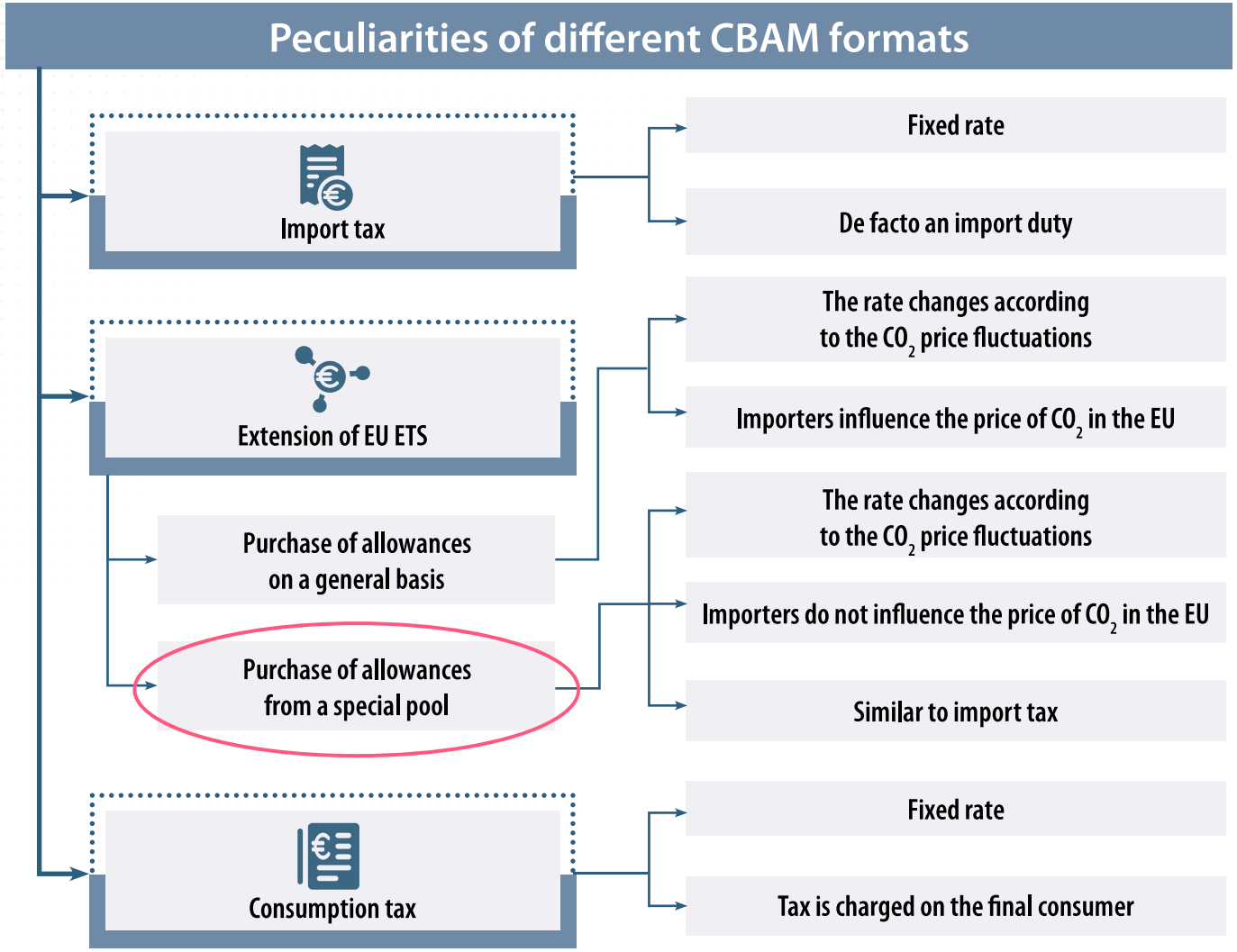
Eliminating the asymmetry of climate policies in different countries

Combating climate change is a global goal. Achieving global goals is possible only through global efforts. The EU has established the greenhouse gas emissions trading system (EU ETS). CO_2 prices rise every year. But not all trading partner countries tax CO_2 emissions. In addition, the rates of the existing CO_2 taxes are lower than in the EU. The EU's trading partners began to consider transition to carbon neutrality only after the EU had announced its plans to introduce the CBAM instrument.

CBAM is a controversial instrument

Effects for the EU	Effects for Ukraine
Equalizing the rules of the game in terms of environmental policy in the EU and partner countries	CBAM implies an increase in costs for Ukrainian producers. The rules of the game will not be equal, as Ukraine's capacity to provide state incentives for the decarbonization process, as well as capacity of the business to raise money are much poorer than in the EU.
Supporting the competitiveness of local producers	CBAM is another trade restriction for Ukraine's exports to the EU
Eliminating carbon leakage	CBAM will provide for the reduction of domestic industrial production. Ukraine is a member of the European Green Deal, so the carbon leakage against Ukraine is neutralized
Filling the EU budget with additional revenue from CBAM	Ukrainian producers will not have access to the funds the EU will accumulate from CBAM. European producers will modernize their own capacities at the expense of Ukrainian enterprises
Creating a market for low-carbon goods	Ukrainian producers will not be able to enter the European market for low-carbon goods, as they will not have the same support for decarbonization as in the EU
Stimulating active decarbonization outside the EU, in particular by setting carbon neutrality targets Reducing CO_2 emissions on a global scale	Reduction of investment resources of Ukrainian producers as a result of CBAM will slow down the process of decarbonization in Ukraine

Format of CBAM may have no decisive influence on payment amounts



Several possible CBAM formats are the topic of ongoing discussion.

Import tax format is unlikely to be used, as it may have negative consequences due to non-compliance with WTO requirements.

The extension of EU ETS to purchase allowances on a general basis is unlikely, as it may unpredictably change the EU allowance market conditions.

The purchase of quotas from a special pool (notional ETS) may be considered as the most likely option and the basic option in this study. Importers will not influence the price, which will be determined by supply and demand in the EU. This means such a system will de facto be a tax.

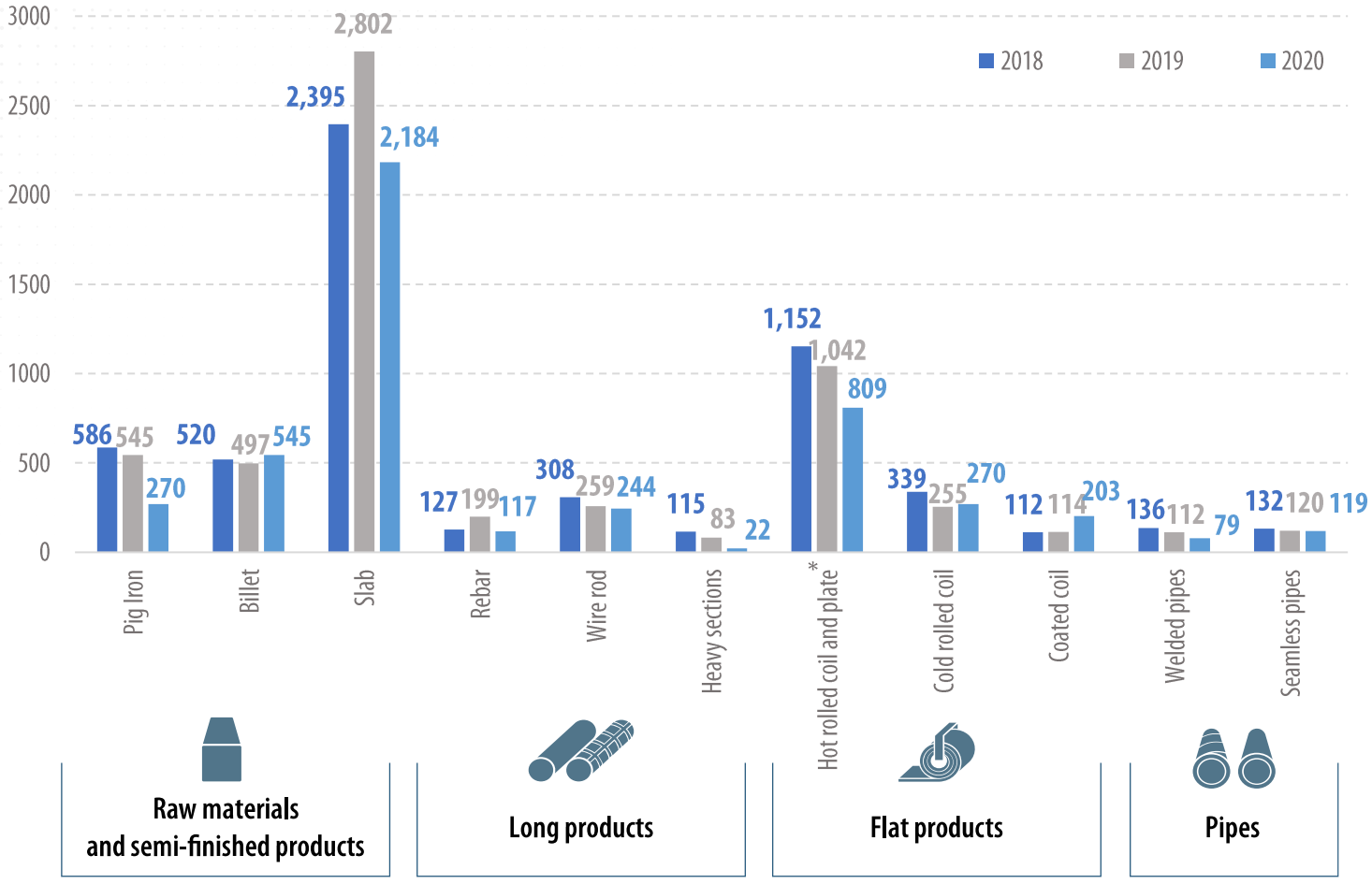
However, the choice of a specific CBA mechanism does not have a decisive influence on the calculation of payment amounts. Whatever the mechanism, specific CBAM parameters will be designed to achieve the necessary results. The key principle in doing so will be to ensure the same level of fiscal pressure on local producers and importers.

The decision on the CBAM format is expected to be taken in Q2 2021. CBAM is planned to be put in force by 2023.

IRON&STEEL
export
from Ukraine to EU

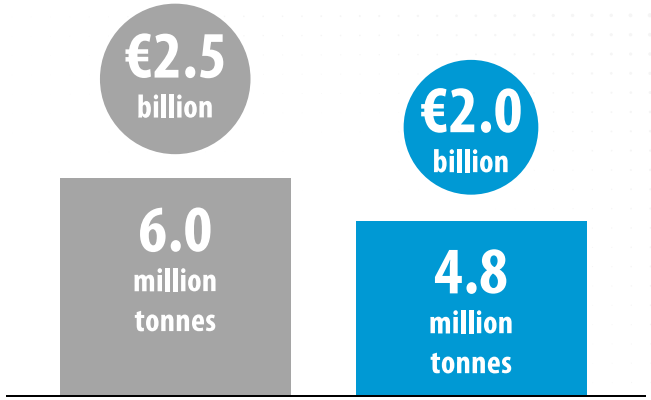
About €2.5 billion of steel export revenues will be subject to CBAM annually

Dynamics of iron & steel products exports from Ukraine to the EU, thousand tonnes



Source: State Statistics Service of Ukraine

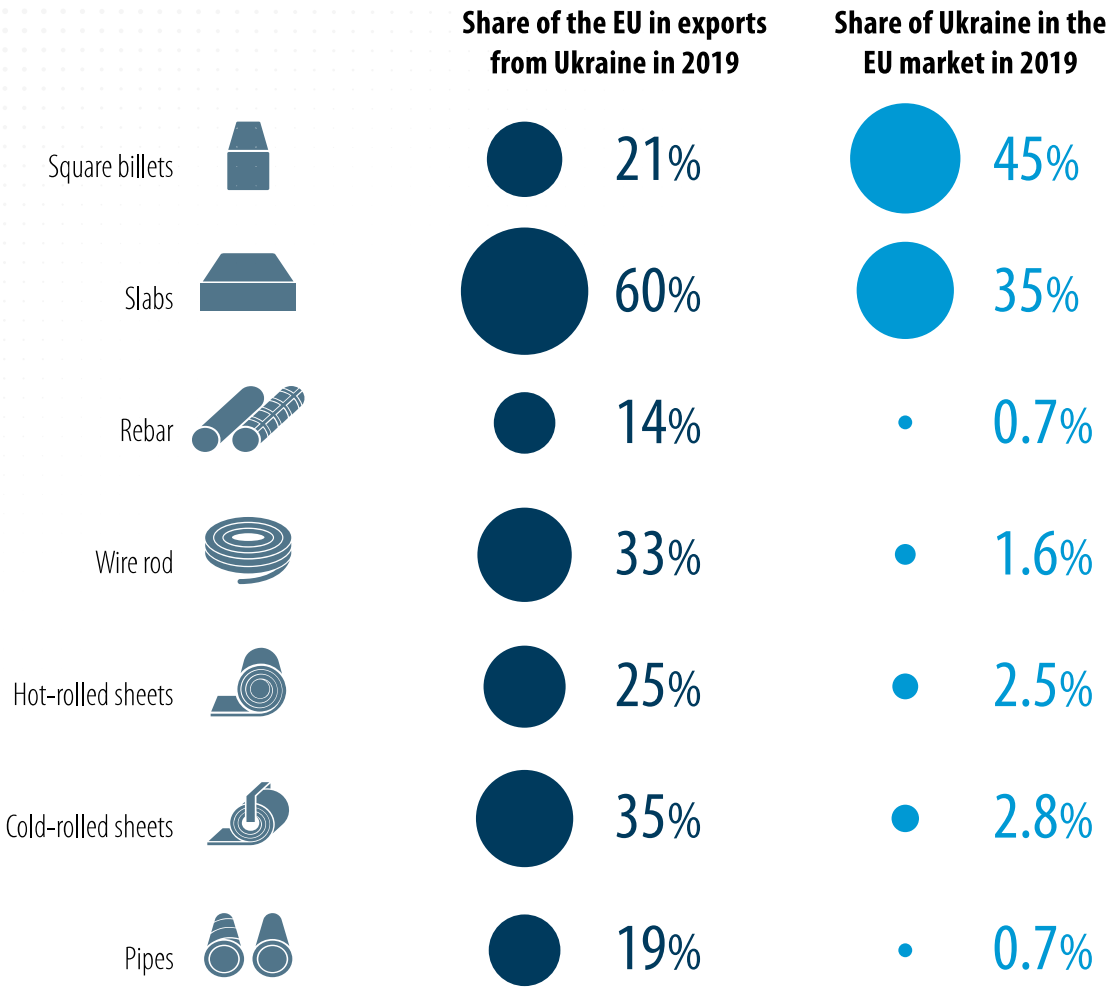
Exports to the EU 2019 **Exports to the EU 2020**



In 2020, the volume of iron & steel exports declined because of the fall in steel consumption in the EU due to COVID-19 lockdowns. In Q4 2020, steel consumption in the EU recovered to the level recorded before the pandemic. Therefore, in 2021 exports are likely to exceed the 2019 figures in terms of both volumes and revenues.

The most exported category of products in the steel industry is semi-finished products, slabs in particular, which is caused by the entry of Ukrainian producers into the unified corporate production chains with the EU's rolling mills. The increase in exports of semi-finished products is explained by the restrictions on imports of finished rolled products and pipes in the form of a system of safeguard tariff quotas. Safeguard quotas were introduced in 2018 and are subject to revision in June 2021.

The EU market is ‘local’ for Ukrainian steelmakers



The EU’s share in Ukraine’s steel products exports in 2020 amounted to 31% (35% in 2019) and 26% of the marketable steel products production.

This means the EU market is in fact basic, that is to say ‘local’, for Ukrainian steel companies. The share of their sales in Ukraine’s domestic market is even smaller, accounting for about 22–23%. Therefore, the issue of CBAM is extremely important for the domestic steel industry.

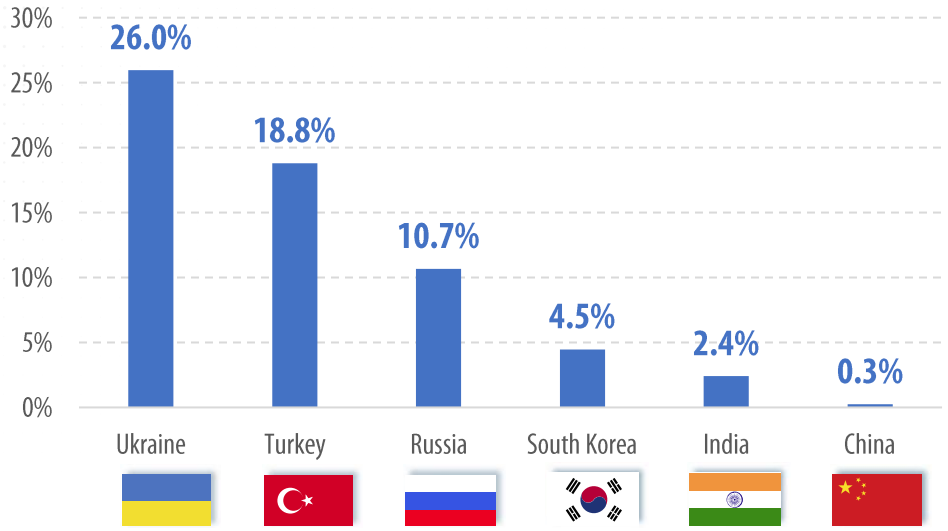
At the same time, the share of Ukrainian products in the EU market is insignificant: in 2019, it was from 0.7% to 2.8% for finished rolled products and pipes.

The large share of Ukraine in the EU semi-finished products market is due to the lack of supply of marketable slabs from local producers within the EU market. The needs of rolling mills are met solely through imports.

Source: Eurofer, UN Comtrade, State Statistics Service of Ukraine, GMK Center estimates

Ukrainian producers will be affected the most from the introduction of CBAM

The share of exports to the EU in the largest exporters' total steel production volume in 2019, crude steel equivalent



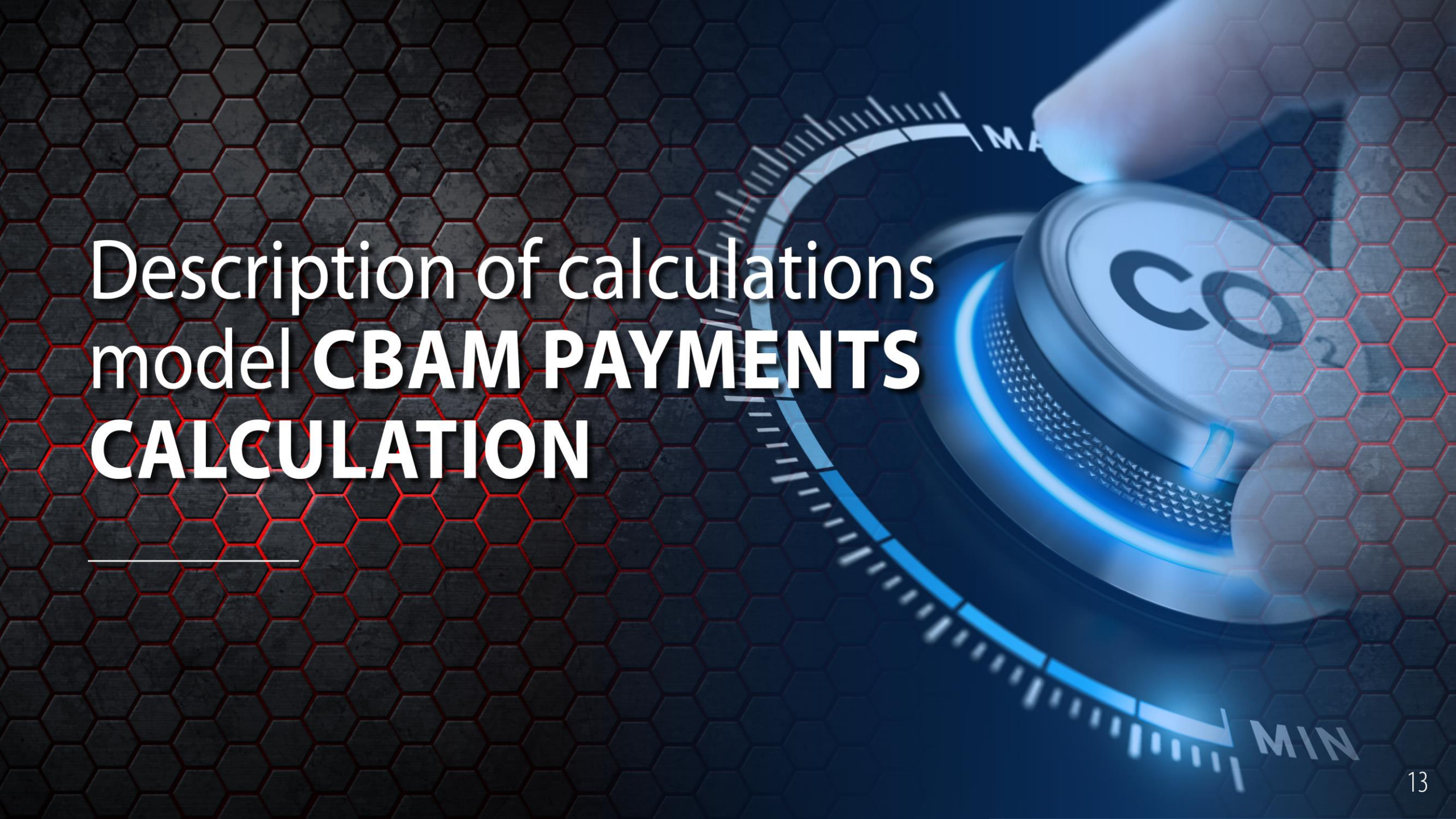
Source: Eurofer, UN Comtrade, World Steel Association, GMK Center estimates

Dependence of Ukrainian steel producers on the EU market is 2.5 times higher than in Russia, or 5.7 times higher than in South Korea, or 11 times higher than in India.

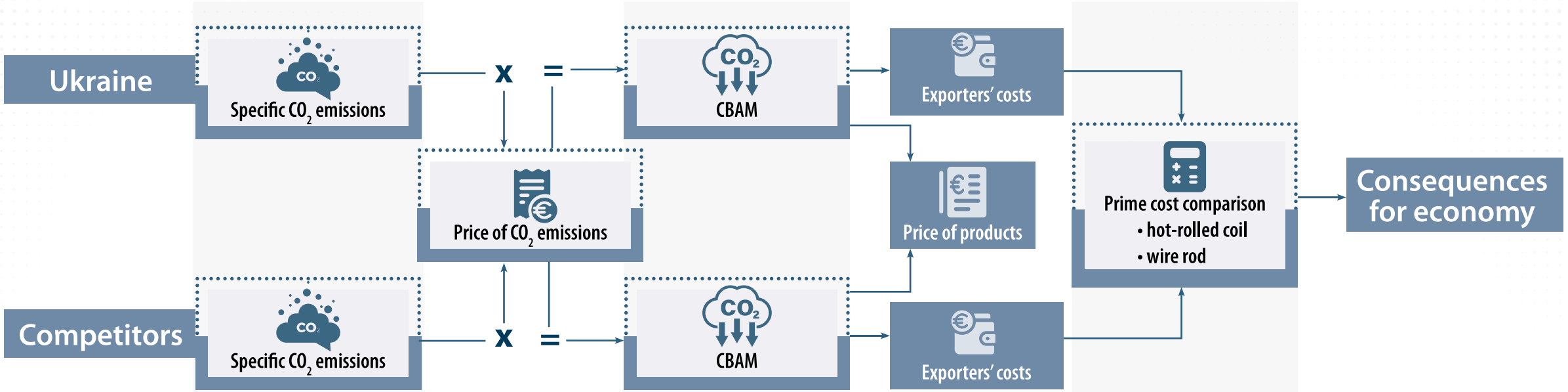
Therefore, the introduction of CBAM will affect Ukrainian producers much more than it will affect our competitors.

Apart from Ukraine, Turkey demonstrates the large share of supplies to the EU — 18.8% of total production. But the effects of CBAM on the Turkish steel industry will be minimal, as 71% of the country's steel is produced by electric-arc furnace plants (EAF), which generate three to four times less greenhouse gas emissions.

Description of calculations model **CBAM PAYMENTS CALCULATION**



Model for estimating negative consequences of CBAM for the steel industry and economy



1 Estimation of specific CO_2 emissions per tonne of steel in Ukraine, in the EU and in key exporting countries, with the break down by steel production technologies.

2 Forecast of the CO_2 price in the EU ETS system in 2023.

3 Estimation of the CBAM amount depending on scenario assumptions.

4 Determining the extent to which CBAM will increase prices and exporters' costs. Drawing a conclusion on reducing the marginality/added value/investment resource.

5 Comparison of Ukrainian producers' costs and competitors' costs under CIF Italy as a result of CBAM in the flat (HRC) and long (wire rod) products markets. Drawing a conclusion on possible loss of competitiveness and export volumes.

6 Estimation of consequences of the CBAM introduction for the steel industry and the economy of Ukraine.

Scenario assumptions differ in terms of the provision of free allocations

Condition	Scenario 1	Scenario 2
Taxable base	**Volume of imports to the EU**	
Geographic coverage	**All countries**	
CBAM for EAF steel	**Yes**	
CBAM for semi-finished products	**Yes**	
Provision of free allocations to EU producers	**Yes**	**No**
Provision of free allocations for imports to the EU	**Yes**	**No**
CBAM compensation for EAF steel imports	**Yes**	**No**
Emissions scope	**Scope 1+2**	
CBAM for downstream products (pipes)	**Scope 1+2 + embedded** (emissions throughout the production chain)	
Calculation of emissions	**National average**	
Safeguard tariff quotas	**No**	

The main differences that distinguish the two scenarios are the provision of free allocations:

- **Scenario 1 'Balanced'** — import producers will receive free allocations according to the EU standards. Local producers are entitled to free allocations.
- **Scenario 2 'Strict'** — import producers will not receive free allocations. Local producers are no longer entitled to free allocations.

This issue is controversial, as the provision of free allocations to EU producers is a tool of carbon leakage prevention. When setting up CBAM, tools therefore may be duplicated.

Scenario 2 implies that the costs of EU producers will also increase, as in 2019 about 90% of emission allowances were obtained free of charge.

Other assumptions relevant to calculating the amount of CBAM payments

1 The amount of CBAM is calculated on the basis of the amount of additional emission allowances to be purchased and the average projected price of emission permits in 2023. The amount of allowances to be purchased differs in the two scenarios. The projected price of permits is calculated based on the consensus of investment banks.

2 Scenario 1 provides for free emission permits for import producers. Free allocations for import producers are calculated using the same methods that apply to EU producers. *Details*

3 It is envisaged that CBAM will also apply to EAF steelmakers. In the EU, in order to avoid discrimination against any production process, there is a system of compensation of electricity costs for EAF steelmakers as a substitute for the system of free allocations. No data on the amounts of such compensations are available. The amount of compensation is calculated on the basis of EAF greenhouse gas emissions in accordance with the share of free allocations in the total emissions of BOF steelmakers in the EU.

Scenario 1 provides for the same compensation system for imported EAF products as for EU producers.

Scenario 2 provides for the loss of free allocations by European BOF steelmakers as well as the loss of compensations by EAF steelmakers.

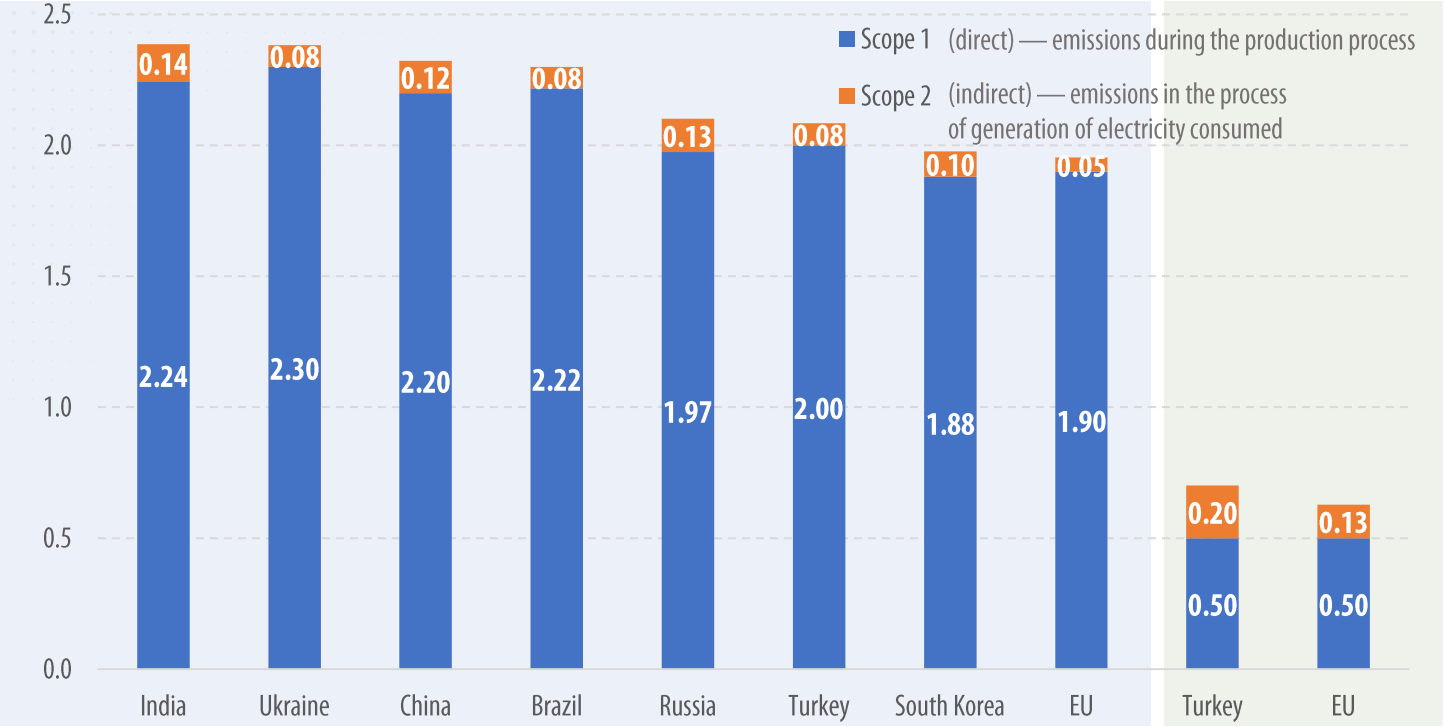
4 For steel products obtained through deeper conversion (downstream), for example, welded pipes, it is envisaged to take into account emissions from the production of strips used in production of welded pipes (embedded), as well as direct (scope 1) and indirect (scope 2) emissions.

5 The amount of emissions that will be a basis for CBAM calculation includes the sum of scope 1 (direct) and scope 2 (indirect). National average emissions of individual countries are used for the calculations. There is an ongoing discussion on the emissions rate to be used for calculating CBAM: individual, company-level, or country average rate.

6 The amount of money paid for emissions in the countries of imports origin is not taken into account when calculating CBAM because it is immaterial.

CBAM will give advantages to EAF steel producers

Average greenhouse gas emissions per tonne of steel, t



Basic oxygen furnace capacities (BOF)

Electric-arc furnace capacities (EAF)

Source: corporate reports, IEA, BCG, media, GMK Center estimates

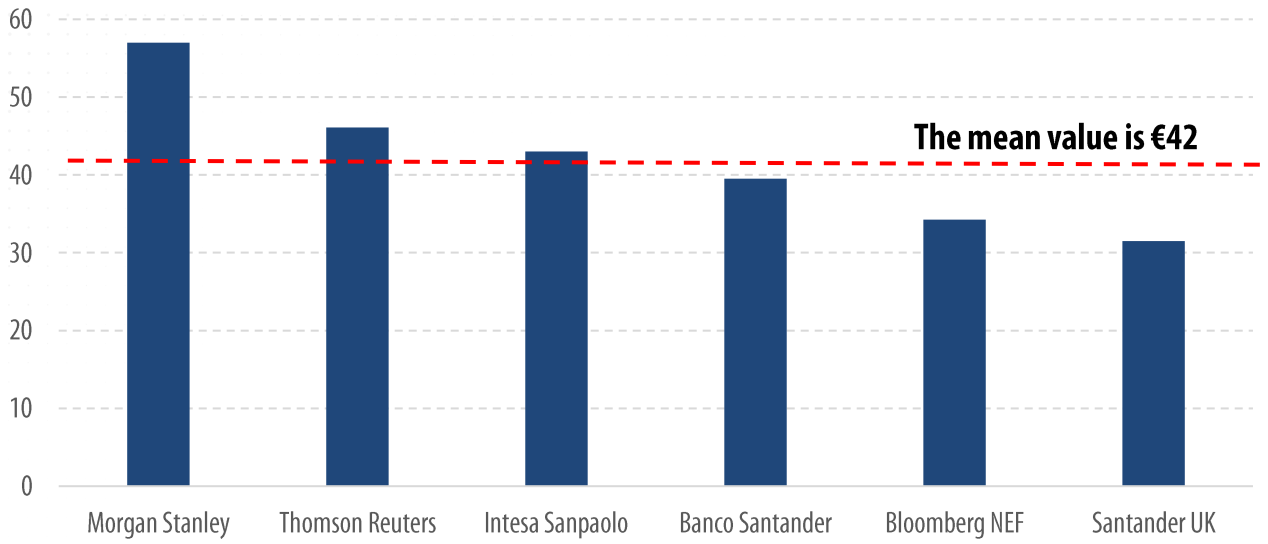
The total emissions (scope 1 + 2) of Ukrainian producers amount to 2.38 tonnes of greenhouse gases per tonne of steel, which exceeds the figure of the nearest competitors from Russia (2.1 tonnes) or Turkey (2.1 tonnes).

Therefore, the CBAM losses for Ukrainian steel producers will be higher than other countries' CBAM-associated losses. Also, the share of BOF assets in Ukraine is higher than in other countries. Therefore, Ukraine will be among the most affected countries at the national level.

Emissions from EAF steel producers (using scrap recycling) are three to four times lower on average. Therefore, EAF steel producers will gain a competitive advantage as a result of the introduction of CBAM.

Prices on CO_2 emission allowances tend to increase steadily

Consensus forecast of the average price of EU ETS emission allowances for 2023, € per tonne



Source: Bloomberg, Thomson Reuters, GMK Center estimates

The consensus forecast of the price of CO2 emission permits for 2023 is €42 per tonne of emissions. These data will be used to estimate the impact of CBAM.

The average price in 2019 was €25, and €32 in 2020. The price rises every year and this trend will continue in the future, as the amount of free allocations decreases every year.

The consensus forecast of the price for 2030 is €71.

Estimation of CBAM payments for Ukrainian steelmakers

Estimation of CBAM payments per tonne of products for Ukraine's producers

	Scenario 1	Scenario 2
Greenhouse gas emissions per tonne of products, tonnes		
Pig iron	**2.14**	
Steel rolled products and welded pipes	**2.38**	
Seamless pipes*	**0.50**	
Free allocations, tonnes		
Pig iron	**1.74**	**0.00**
Steel rolled products and welded pipes	**1.66**	**0.00**
Seamless pipes**	**0.35**	**0.00**
Projected price of emission permits, € per tonne	**41.9**	
CBAM payments, € per tonne		
Pig iron	**17.1**	**89.8**
Semi-finished products, rolled products and welded pipes	**30.4**	**99.8**
Seamless pipes	**6.4**	**20.9**

** production through EAF route (Interpipe)*
*** CBAM compensation based on the amount of greenhouse gas emissions*

Scenario 2 provides for much larger amounts of payments under CBAM and is the least acceptable for import producers, particularly for Ukraine.

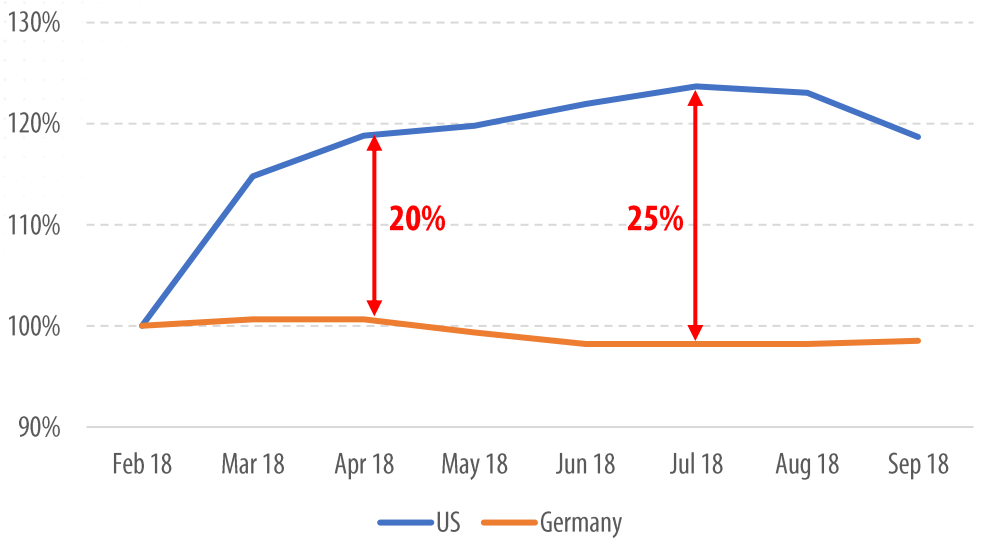
In Scenario 2, the volume of demand for the allowances on EU ETS will increase significantly. This may result in an increase in emission prices and, consequently, an increase in CBAM payments for producers of imported products. Our calculations based on a single emission price forecast for both scenarios, assuming that the parameters of the EU ETS will be revised as a result of the decision under Scenario 2.

CBAM IMPACT on steel products pricing level

44%–80% of the increase in the cost of import may be shifted onto the end buyer

United States' case — the introduction of a 25% import duty on steel in March 2018

Indices of domestic hot-rolled coil prices

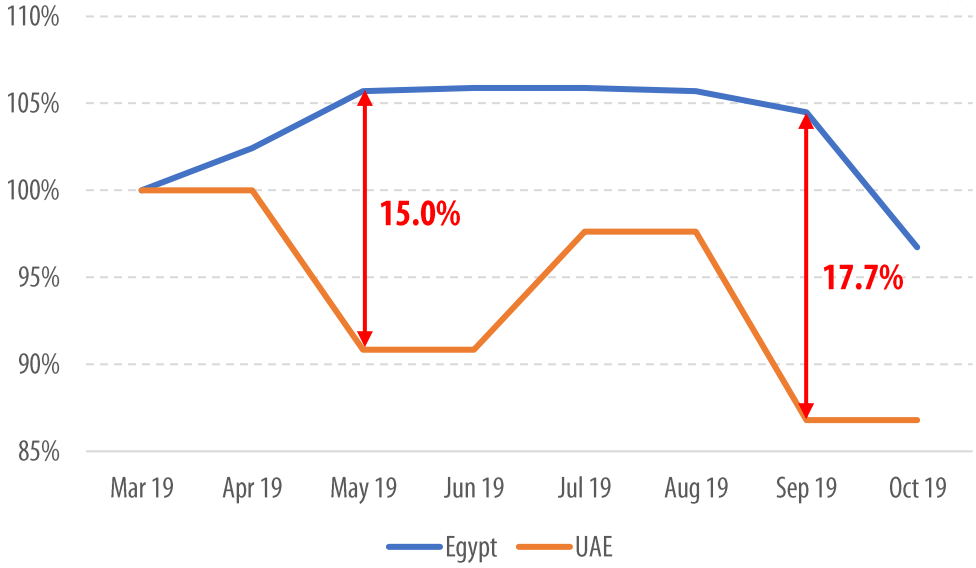


Source: Kallanish Commodities, GMK Center estimates

In the U.S., during certain periods, sellers were able to fully shift the rate of duty on steel (25%) onto buyers. On average, the introduction of import duties increased prices in the United States by **20.1%** compared to other countries, for example, Germany.

Egypt's case — the introduction of a 25% import duty on rebar in April 2019

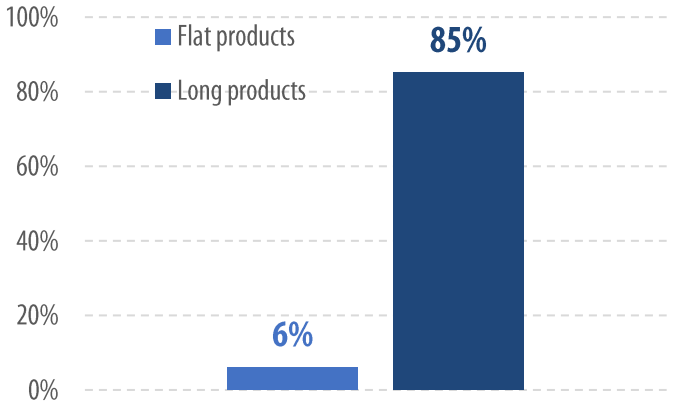
Indices of domestic rebar prices



After the introduction of a 25% import duty in Egypt, sellers of rebar were able to shift the price increase by a maximum of 17.7% onto buyers. The average prices in Egypt were **10.9%** higher than in the UAE.

The impact of CBAM on import producers differs depending on the range of products

The share of EAF capacities in the EU

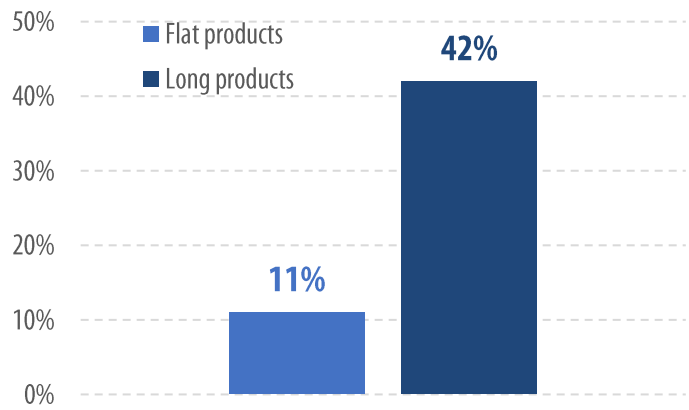


Source: World Steel Dynamics, GMK Center estimates

CBAM will provide competitive advantages to EAF steelmakers, whose emissions are up to 4 times lower than BOF steelmakers' emissions.

In the EU countries, only 6% of production of flat products (HRC) is presented by EAF route. The situation differs in the long products segment, where EAF assets account for 85% of capacities.

The share of import producers' EAF capacities

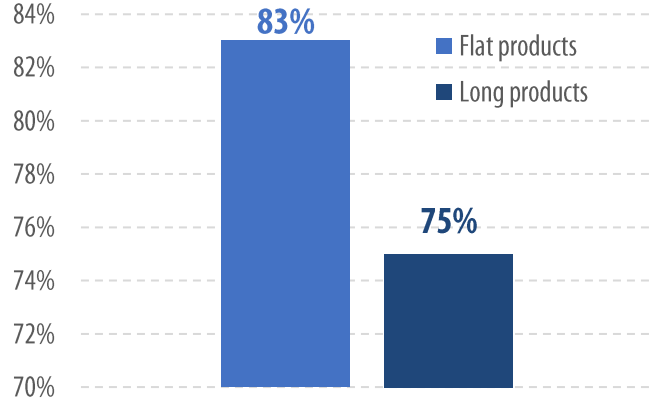


The situation in the imports segment is similar.

Capacity utilization rate in the flat products segment (83%) is much higher than in the long products segment (75%).

Therefore, as a result of the introduction of CBAM, EAF steelmakers in the flat products segment will not have a decisive influence on the market, as their market share is small and sales growth potential is limited by high capacity utilization rate.

Capacity utilization rate in the EU



The situation is different in the long products segment, where the share of EAF steel in the market is high, and the capacity utilization rate allows to increase production by 10%.

Therefore, producers of flat products, unlike producers of long products, are more likely to be able to shift the costs increase deriving from CBAM onto the products price (i.e. the buyer).

A part of CBAM will be included in the price of products, i.e. shifted onto the end buyer

	Scenario 1		Scenario 2	
	Hot-rolled coil	Wire rod	Hot-rolled coil	Wire rod
Average amount of import producers' payments under CBAM **(increased cost of imports)**, € per tonne of steel	28	22	93	66
Rising costs for EU producers due to the introduction of CBAM **(increased cost of local production)**, € per tonne of steel	0	0	73	33
A part of CBAM that may be included in the price, %	50%	0%	78%	50%
A part of CBAM that may be included in the price, € per tonne of steel	14	0	73	33

Scenario 1 envisages that the growth of costs resulting from CBAM concerns only import producers. Based the above analysis, we assume that 50% of the increased cost of HRC imports resulting from the CBAM introduction will be included in the price, that is shifted onto the end buyer.

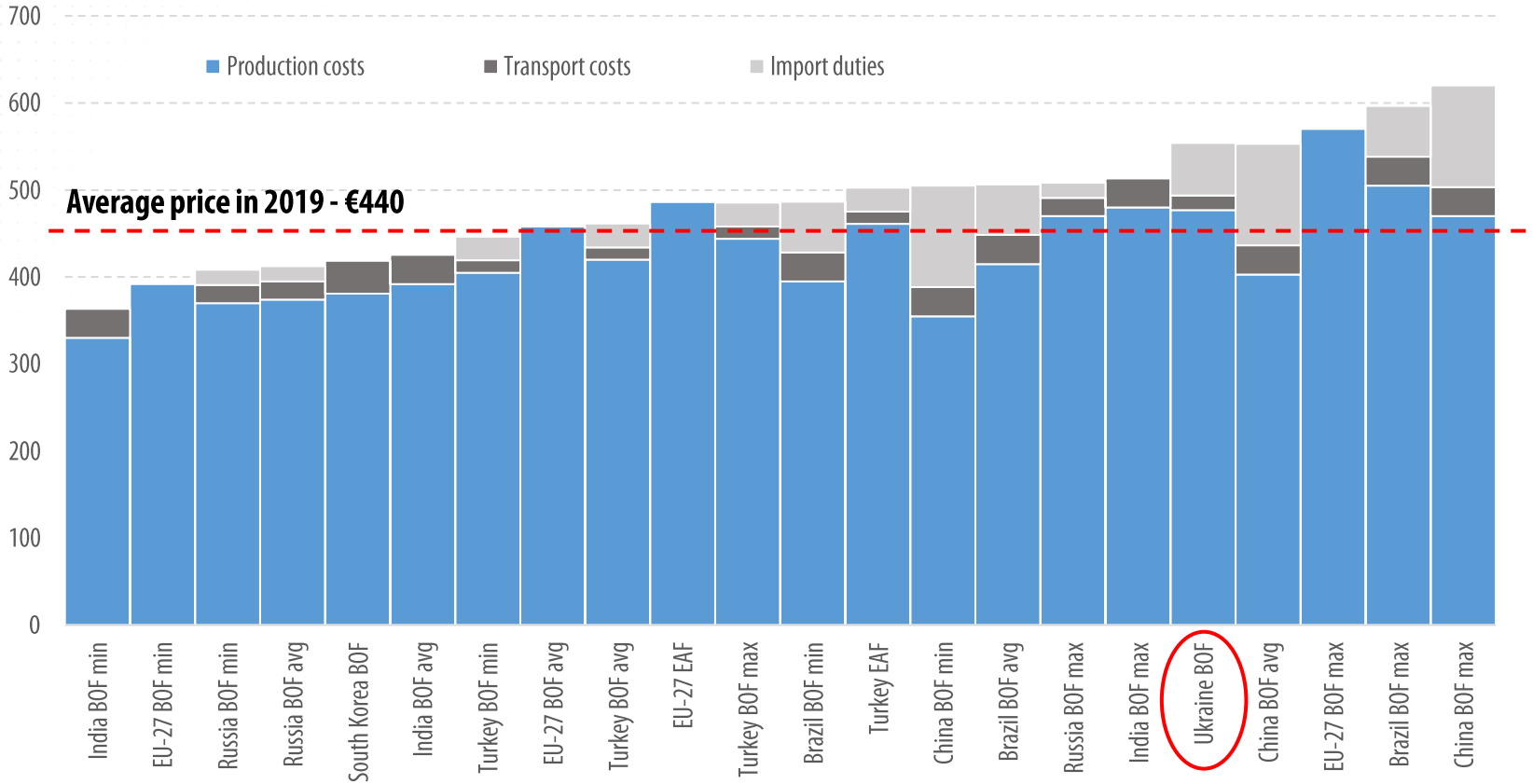
Inclusion of CBAM in the price in the long products segment is unlikely or insignificant due to the leading role of EAF steelmakers in that segment.

Scenario 2 envisages that the growth of costs resulting from CBAM concerns both import producers and EU producers. EU producers' costs will increase by the amount of abolished free allocations that they received before the introduction of CBAM. In order to restore marginality, EU producers will fully shift the growth of their costs onto the buyer. In this case, the increase in price will be more than 50% of the average amount of CBAM for imported products.

CBAM IMPACT
on the competitiveness of Ukrainian steel products on EU market

Ukrainian hot-rolled coil producers are not competitive in the EU market

The prime cost of HRC in the EU market in 2019, € CIF Italy



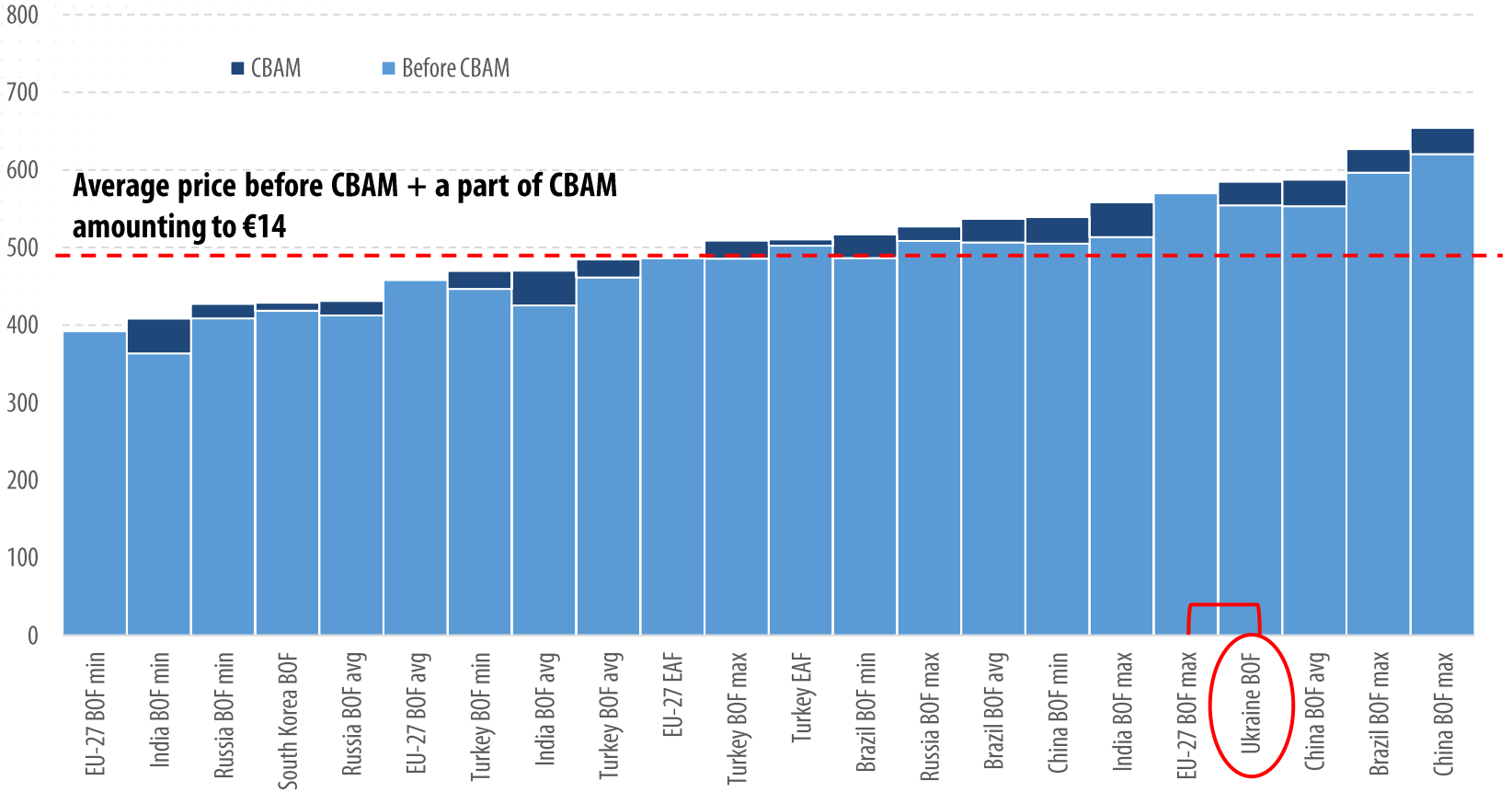
Source: Production costs from iron and steel industry in the EU and third countries, European Commission 2020
GMK Center estimates

Anti-dumping duty in the amount of €60.5 makes HRC produced in Ukraine cost-uncompetitive in the EU market. In 2022, this measure will be revised.

Since the main factor of HRC's uncompetitiveness is the anti-dumping duty, Ukrainian products in other flat products segments, such as hot-rolled plates, cold-rolled sheets, coated sheets, as well as semi-finished products (slabs), may successfully compete with local players and import producers.

The CBAM impact on the competitive position of Ukrainian HRC producers: Scenario 1

Prime cost of HRC resulting from CBAM under the Scenario 1, € CIF Italy



The more balanced CBAM scenario which envisages the provision of free allocations to import producers weakens the competitive position of Ukrainian producers. As a result, the least effective EU producers will win in terms of costs as compared to Ukrainian producers.

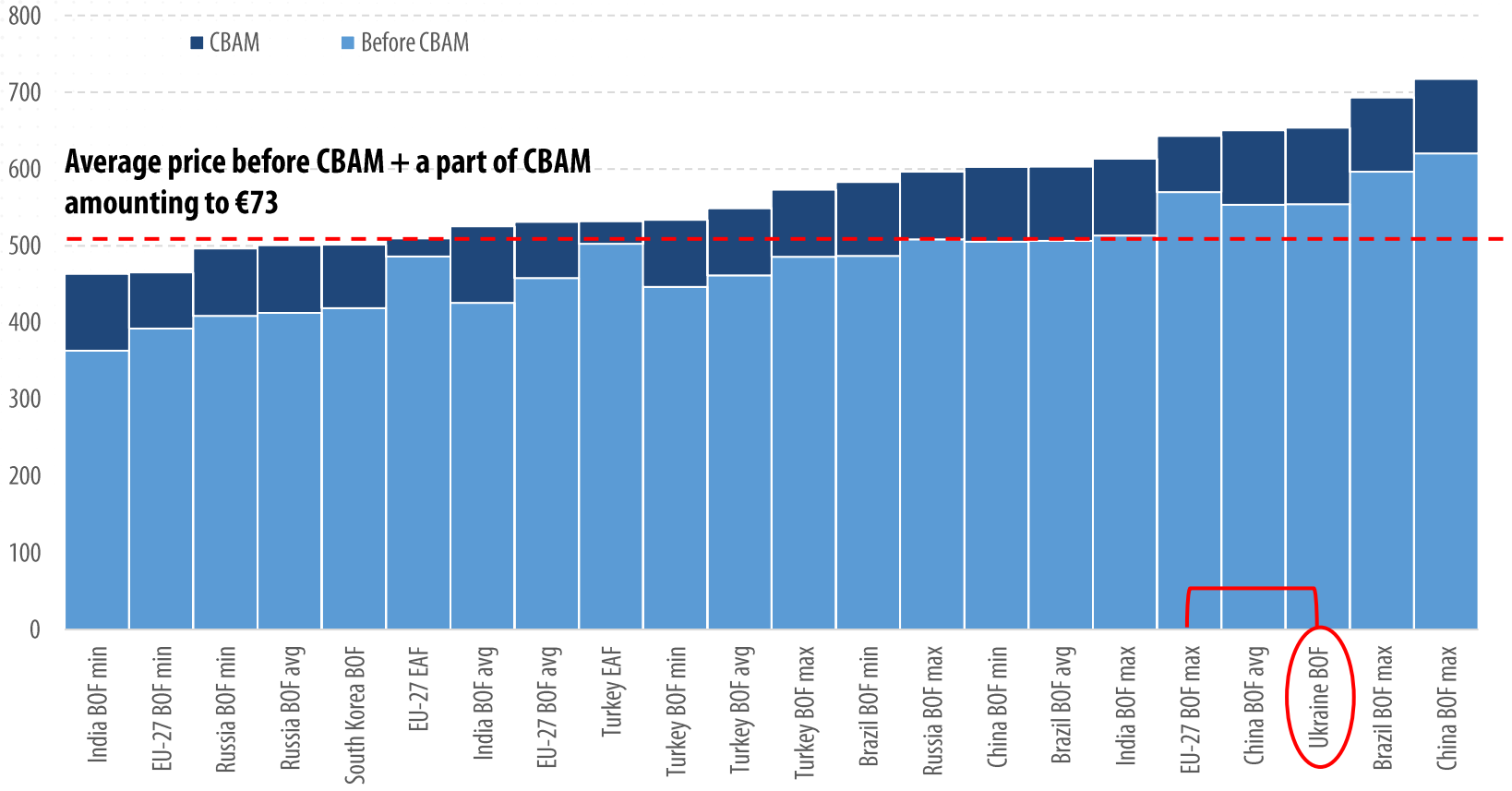
Under that scenario, HRC supplies to the EU would be impossible. Since the competitiveness of other products is higher, HRC exports will be substituted with other products, such as slabs or cold-rolled products. But the risk of reduction in flat products export volumes is worth attention. The outcomes of revision of anti-dumping duties on HRC are an important factor.

In case of other flat products supplies, the margins will be reduced.

Source: Production costs from iron and steel industry in the EU and third countries, European Commission 2020
GMK Center estimates

The CBAM impact on the competitive position of Ukrainian HRC producers: Scenario 2

Prime cost of HRC resulting from CBAM under the Scenario 2, € CIF Italy



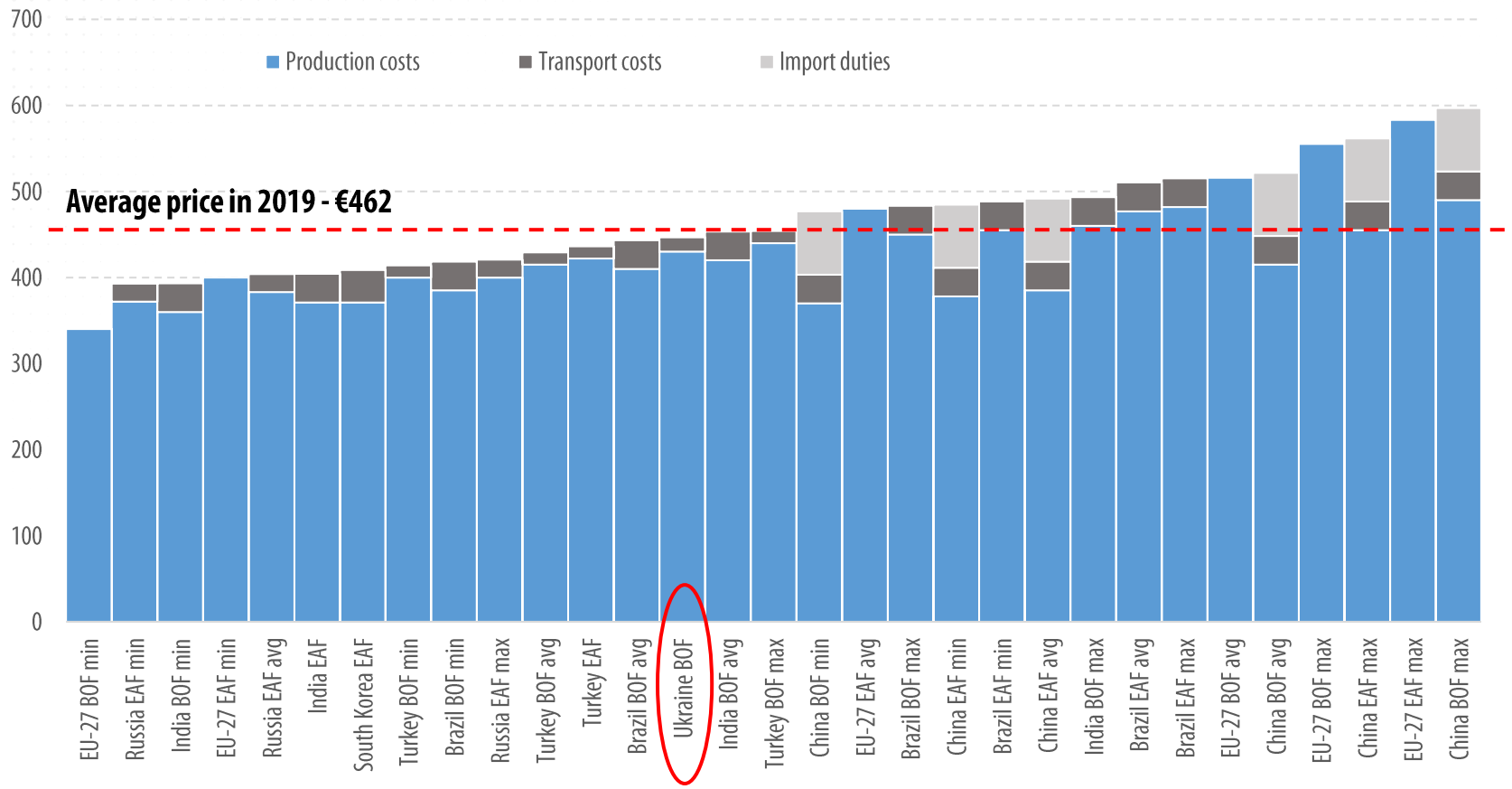
A more strict CBAM scenario which envisages no free allocations for import producers and the abolishment of free allocations for EU producers implies rising costs for both imports and local products. The impact of CBAM on increased prices for the end producer will be greater. But this will still increase Ukrainian producers' lag in costs and weaken their competitive position.

Under that scenario, HRC supplies to the EU would be impossible. The risk of losing export volumes is higher. In case of other flat products supplies, the margins will be reduced.

Source: Production costs from iron and steel industry in the EU and third countries, European Commission 2020
GMK Center estimates

The competitive position of Ukrainian wire rod producers is risky

The prime cost of wire rod in the EU market in 2019, € CIF Italy



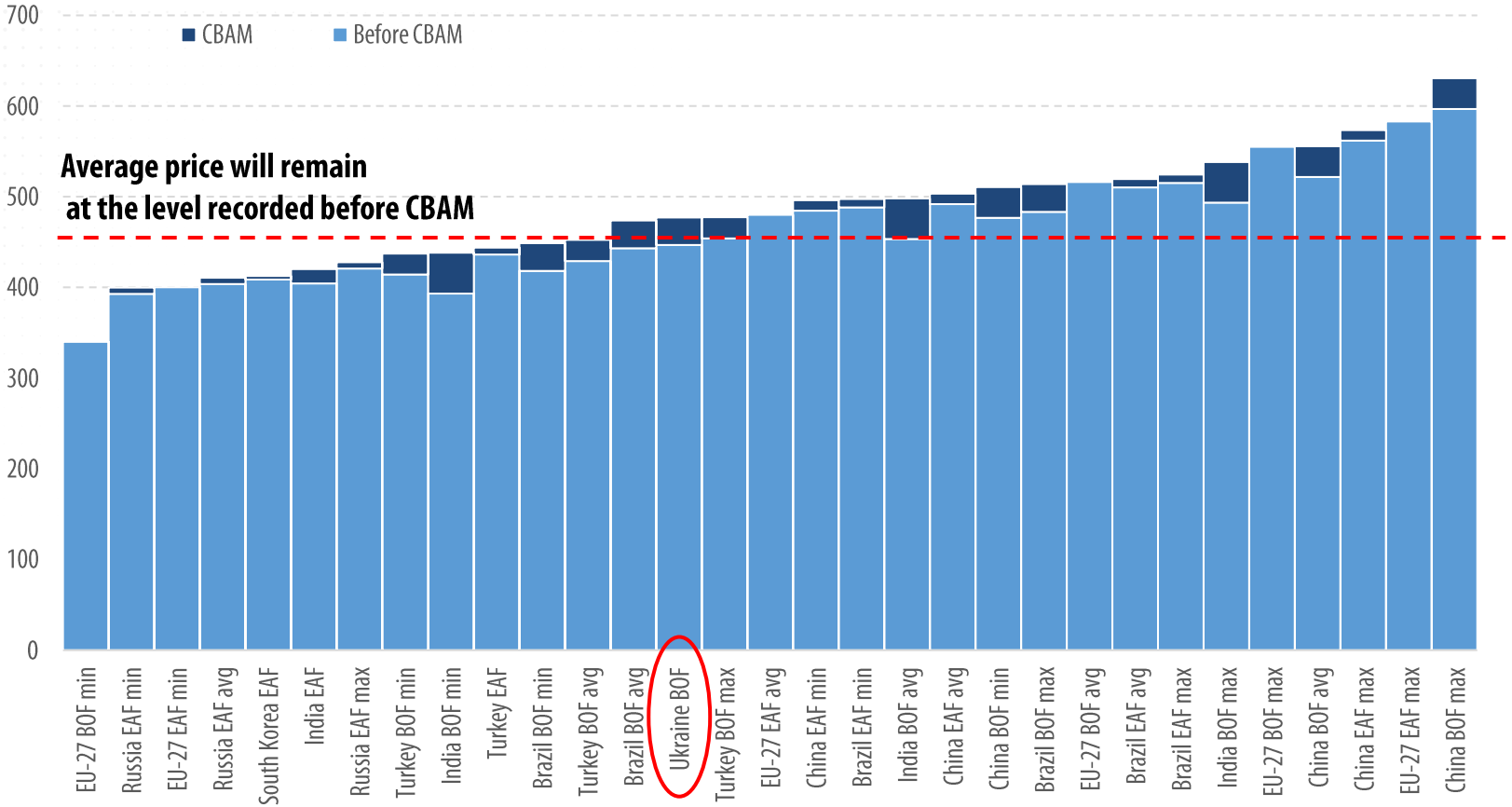
Source: Production costs from iron and steel industry in the EU and third countries, European Commission 2020
GMK Center estimates

In challenging 2019, Ukraine's competitive position in the European wire rod market brought profit. Ukraine has the highest quota for wire rod import to the EU.

But the introduction of CBAM can make a significant difference, since most of the capacities both in the EU and in import producer countries are represented by electric-arc furnaces, while Ukrainian producers use the BF-BOF route associated with more CO_2 emissions.

The CBAM impact on the competitive position of Ukrainian wire rod producers Scenario 1

Prime cost of wire rod resulting from CBAM under the Scenario 1, € CIF Italy



As a result of CBAM, Ukrainian producers of long products will lose their competitiveness: they will get losses instead of profits.

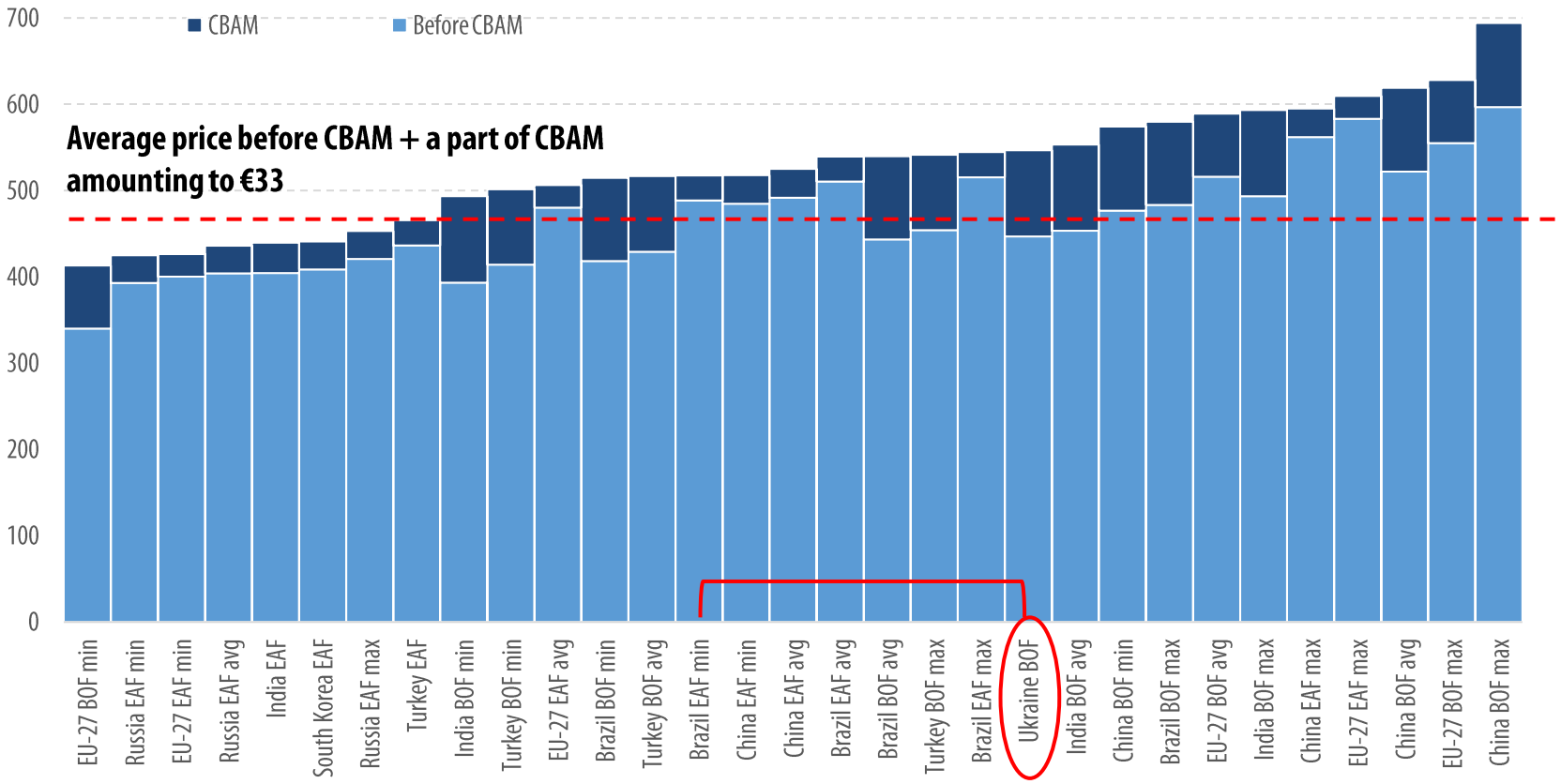
At the same time, the EU EAF steel producers will benefit. A part of CBAM is unlikely to be included in the price, since EAF steel producers account for 85% of the EU market and have idle capacities.

Since sales decisions are based on marginal costs, and the prime cost data presented are based on total costs, the volume of exports is likely to be maintained. But the sales margins will go down.

Source: Production costs from iron and steel industry in the EU and third countries, European Commission 2020
GMK Center estimates

The impact of CBAM on the competitive position of Ukrainian wire rod producers Scenario 2

Prime cost of wire rod resulting from CBAM under the Scenario 2, € CIF Italy



Under the strict scenario, CBAM significantly weakens the competitive position of Ukrainian producers of long products. Ukraine loses out to all its key competitors, including EAF steel producers.

European producers of EAF long products will attempt to benefit from costs advantages to increase supplies, since their capacity utilization rate is 75%. The potential for production increase is estimated at 10%, which will allow to achieve the capacity utilization rate of 83–84%.

This means Ukrainian producers run the risk of losing 10% of the volume of exports within the range of long products. The margins will also be reduced.

Source: Production costs from iron and steel industry in the EU and third countries, European Commission 2020
GMK Center estimates

Estimation of the effects of CBAM on Ukrainian steelmakers

Estimation of the effects of CBAM on Ukraine's producers

	Before CBAM	Scenario 1	Scenario 2
Volume of exports, thousand tonnes			
Pig iron	**545**	**0**	**0**
Flat products, slabs, welded pipes	**4,430**	**4,430**	**4,430**
Long products, square billets	**1,086**	**1,086**	**977**
Seamless pipes	**120**	**120**	**120**
CBAM payments, million €	-	**168**	**542**
A part of CBAM that may be included in the price, million €	-	**74**	**360**
Negative impact of CBAM, million €	-	**250**	**382**
Losses in volume of exports	-	**155**	**200**
Margin reduction	-	**95**	**182**

The introduction of CBAM will lead to a decrease in the volume of steel products exports to the EU. In particular, pig iron exports are likely to be stopped (about 0.5 million tonnes annually), as pig iron is a product with the lowest added value, and therefore it will be most affected by CBAM.

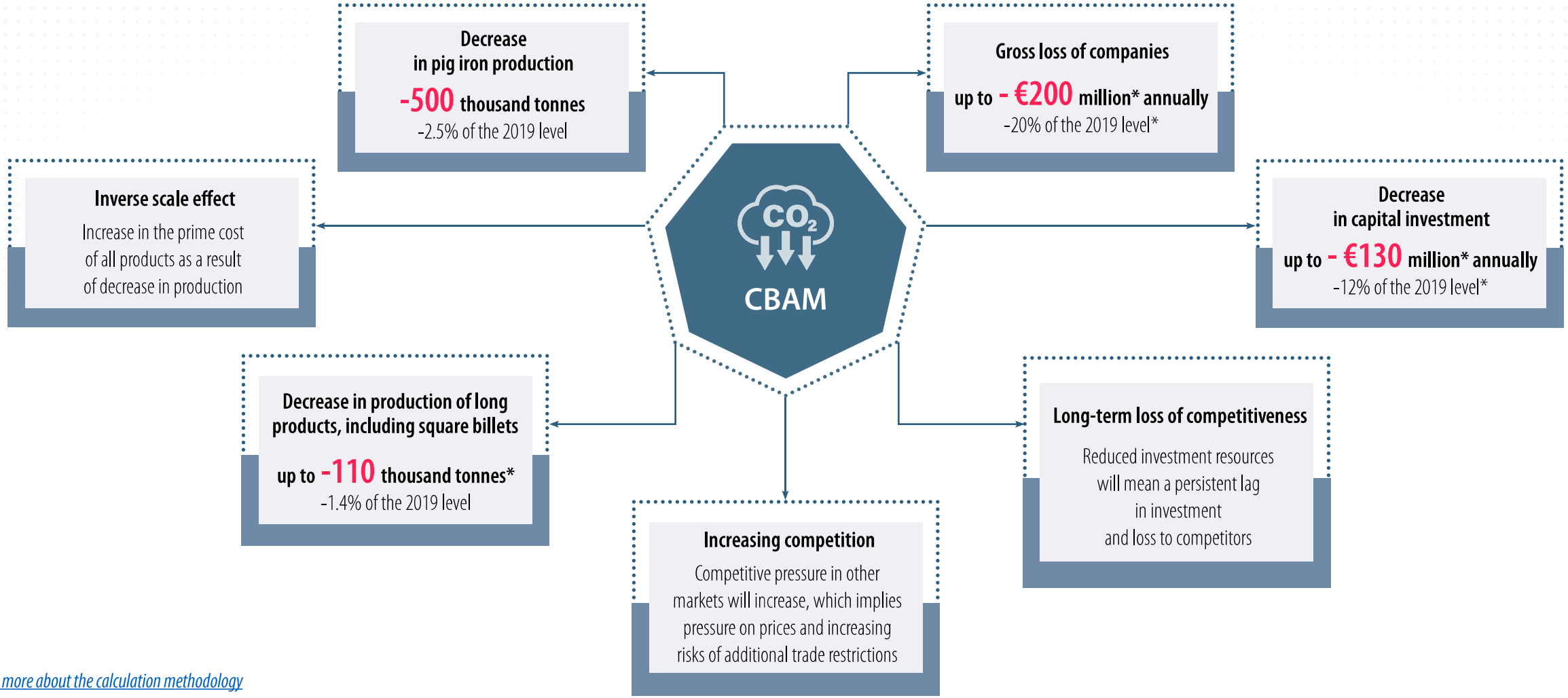
Long products exports will also decrease by 10% (110 thousand tonnes) under the Scenario 2. The structure of the flat products range is likely to change. If the duty on hot-rolled coil exports is extended, the share of hot-rolled coil in total exports will be divided between slabs and cold-rolled products.

The volume of exports is projected to reach the level recorded in 2019 or 2020, whichever turns out to be higher, since in 2021 consumption in the EU is expected to recover to the 2019 level, and in the future the market is expected to stagnate.

When calculating a part of CBAM that may be included in the price, the assumptions for flat products will be valid for welded pipes, and the assumptions for long products will be valid for seamless pipes, based on the corresponding structure of production capacities in the EU.

RESULTS OF THE STUDY

The effects of CBAM on Ukraine's steelmakers



Learn more about the calculation methodology

** according to calculations under Scenario 2*

Consequences for Ukraine's economy resulting from the application of CBAM to steelmakers

Decline in Ukraine's GDP

up to - €700 million*,
including in related sectors
and supply chain
-0.5% of the 2019 level

Decrease in added value in Ukraine's industry

up to - €570 million*,
including in related sectors
and supply chain
-2.1% of the 2019 level

Decrease in national tax revenues

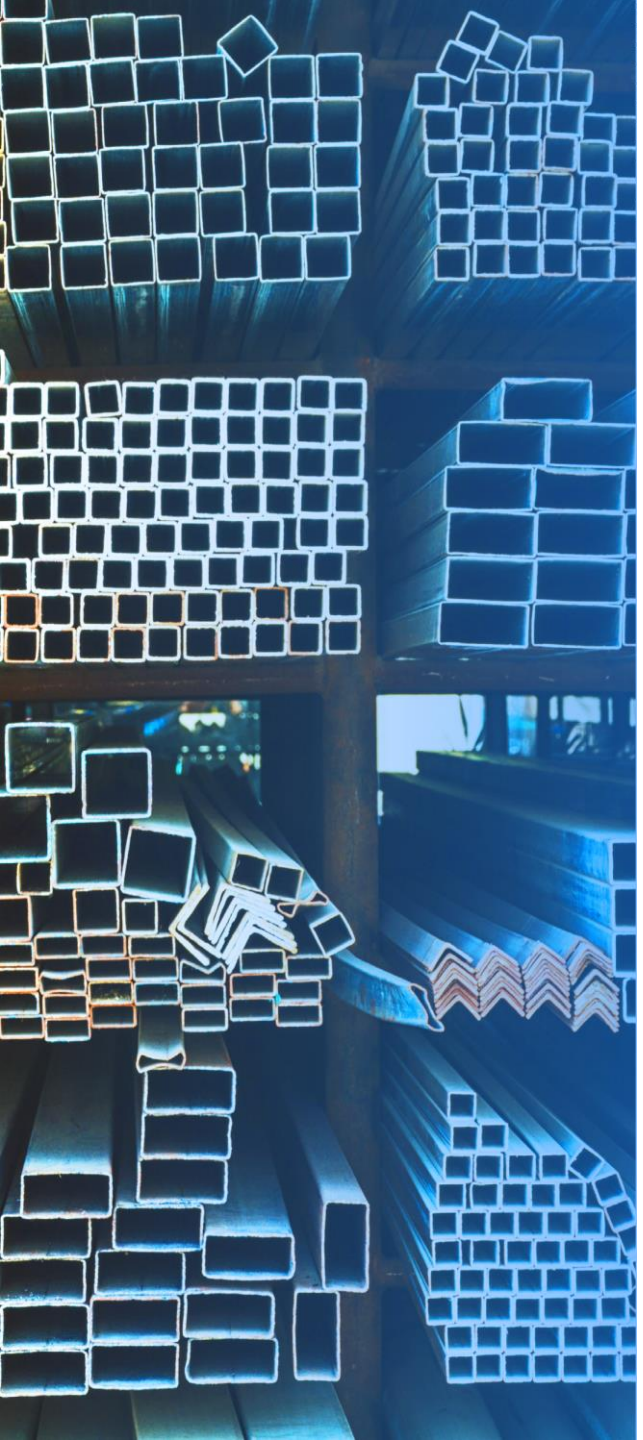
up to - €140 million*,
or more than UAH 4 billion

Deterioration of the trade balance

up to - €380 million*

Learn more about the calculation methodology

** according to calculations under Scenario 2*



CONCLUSIONS. CBAM will have negative impact on production

CBAM will result in reduction in export revenues by €155–200 million annually, depending on the scenario.

Two main CBAM scenarios are currently being considered: the one providing for free emissions allocations for import producers (Scenario 1), and the one providing for no free import allocations with the simultaneous abolishment of free allocations for EU producers (Scenario 2). Scenario 2 provides for much larger amounts of payments under CBAM and is the least acceptable for import producers, particularly for Ukraine.

A part of CBAM payments may be included in the price, i.e. shifted onto the final buyer. This part will amount to 0% to 78%, depending on the scenario and the group of products. EAF assets, which will gain a competitive advantage as a result of CBAM, account for 85% of the EU long products market capacities. European producers' capacity utilization rate allows to increase production by 10%. Therefore, CBAM poses more risks for Ukrainian long products producers (AMKR, DMK, DMZ).

Ukraine's pig iron exports to the EU are likely to be stopped as a result of CBAM (about 0.5 million tonnes annually), as pig iron is a product with the lowest added value, and therefore it will be most affected by CBAM.

CBAM will affect HRC producers' competitive position, and they will become uncompetitive, largely because of the anti-dumping duty in force. If the duty is extended in 2022, hot-rolled coil exports to the EU will be stopped. In 2019, the supplies amounted to 370 thousand tonnes. But the total volume of flat products exports will not change, while its structure is likely to change: the share of hot-rolled coil in total exports will be divided between slabs and cold-rolled products.

As a result of CBAM, the Ukrainian producers' competitive position in the long products market will change, and they will get losses instead of profits. Scenario 2 envisages that domestic producers will lose out in costs to all their major competitors, and EAF steel producers attempting to increase capacity utilization rate and production will take the lead. There is the risk of losing 10% of sales within the range of long products (110 thousand tonnes).

The decline in production will, in turn, also reduce the competitiveness of domestic products due to the inverse scale effect, i.e. the growth of specific semi-fixed costs.

CBAM will reduce the domestic industry resilience in times of crisis. This means any crisis will have more profound consequences for Ukrainian producers, such as temporary capacities and personnel downtime.

CONCLUSIONS. CBAM will slow down investment processes in the industrial sector

Steelmakers' CBAM payments will amount to €168–542 million annually, depending on the scenario, which will reduce the industry's financial performance by €105–200 million. A decrease in financial performance means a decrease in investment resources. As a result, steelmakers' capital investment could decline by 12% or €130 million annually.

CBAM will cause a persistent increasing lag of Ukrainian producers in investment. As a result, Ukrainian producers will lose in efficiency, their competitive position will deteriorate, which will result in a decline in exports and production.

A lack of investment resources is a pressing issue for steelmakers that have an increased need for funding in order to meet the requirements associated with the implementation of BAT (best available technologies).

A deterioration in steel companies' financial performance will reduce their opportunities to attract debt capital, as well as the return on investment projects, which will have a negative impact on investment processes in the steel industry and in industry in general, as the steel industry is a major consumer in other sectors.

Competitor countries apply hidden subsidy instruments to steelmakers. The consequences of CBAM for companies from such countries may be offset by their governments,

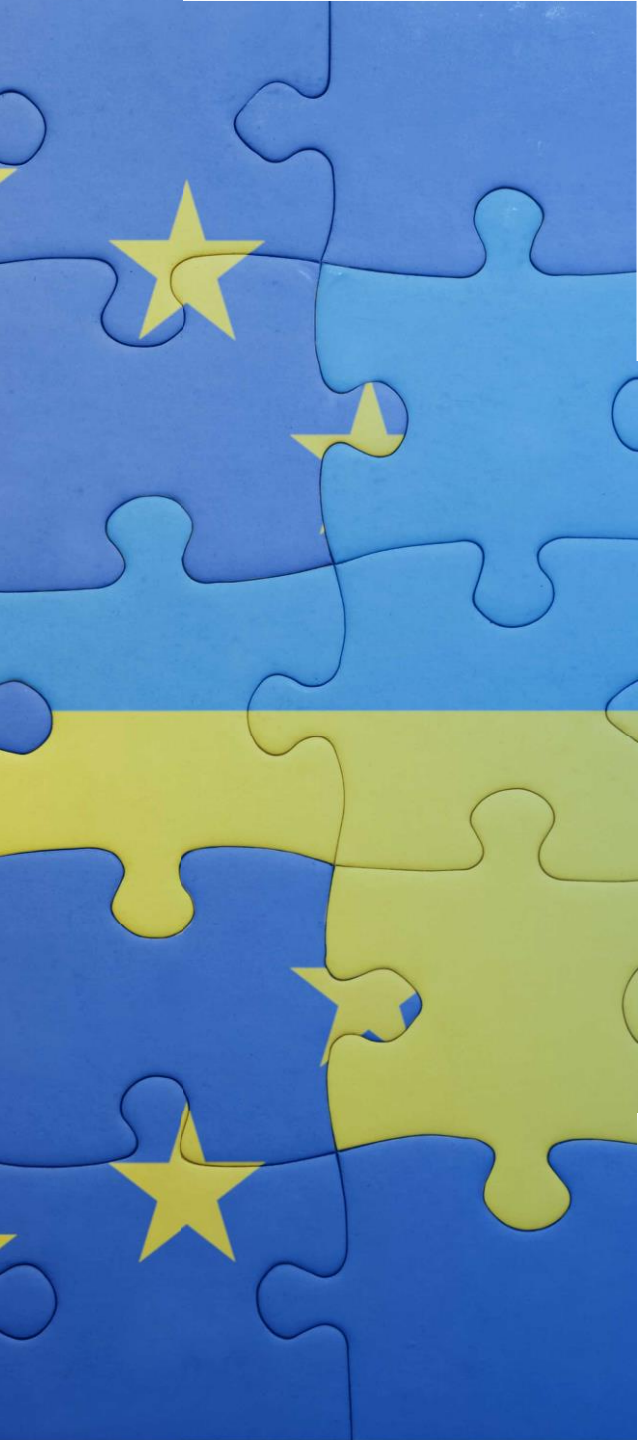
which poses additional risks of Ukrainian steelmakers' lagging behind in investment.

The scale of negative effects of CBAM both for the industry and the whole economy will grow each year, as the price of emissions allowances tends to increase. By 2030, the prices for such permits are expected to increase by 70%. But losses for the economy will grow disproportionately compared to the rate in growth of emissions prices, as larger payments will imply the deterioration of price competitiveness, which will cause an additional decline in the volume of exports and investment resources.

As a result of CBAM Ukrainian companies will be more affected by future crisises, so they will face more cash shortages and difficulties in servicing debt obligations which will restrain investment activities in the industry.

The deterioration of steel companies' financial performance will significantly reduce the possibilities of investment in social projects, funding of ESG activities, including environmental projects.

This means CBAM will not accelerate, but, on the contrary, it will slow down the process of decarbonization due to its negative effects on investment processes in Ukraine.



CONCLUSIONS.
CBAM is discriminatory to Ukraine

Steel exports worth €2.5 billion are subject to CBAM. Ukraine's steel industry will be one of the most affected by the CBAM introduction.

Domestic industry's dependence on the EU market is the highest among other exporters. The share of steel products supplies to the EU (26%) is even higher than their share in Ukraine's domestic market (23%). The share of BOF and OHF capacities in Ukraine's industry is also one of the highest in the world and accounts for about 90%. At the national level, Ukraine will be affected by CBAM more than its competitors.

CBAM is discriminatory to the BF-BOF route of steel production. And the problem is not higher specific emissions of Ukrainian producers: 2.38 tonnes of CO2 compared to the competitors' average of 2.15 tonnes. The problem is that the BF-BOF route does not have a significant potential for reducing CO2 emissions. However, development of the BF-BOF route in Ukraine is associated with the advantages of access to iron ore resources. CBAM will deprive Ukraine of competitive advantages.

CBAM will have negative consequences for Ukraine's economy. Its impact on the steel industry alone will cause up to €700 million, or 0.5%, of losses in GDP. This will lead to a €140 million loss in tax revenues at the national level. The trade balance will decline by €380 million.

In order to mitigate the negative consequences, Ukraine needs an individual approach within CBAM. As Ukraine has undertook obligations to implement the European environmental legislation and has joined the European Green Deal, synchronization of the climate policy makes it impossible to transfer carbon-intensive industries from the EU to our country. This means that the so-called risk of carbon leakage for Ukraine is neutralized.

CBAM format should not affect competitive advantages. But the green transition in fact provides advantages to developed economies. Ukraine does not have such possibilities of state funding for decarbonization projects as the EU, nor does it apply hidden subsidy measures like Russia, Iran or China. This will ultimately lead to pushing domestic producers out of the market.

The EU is the most important trading partner of Ukraine with a 41.5% share in 2019. CBAM will hinder Ukraine's integration into the EU market, i.e. the goals of the Association Agreement. An individual approach, on the contrary, will promote the development of trading relations.

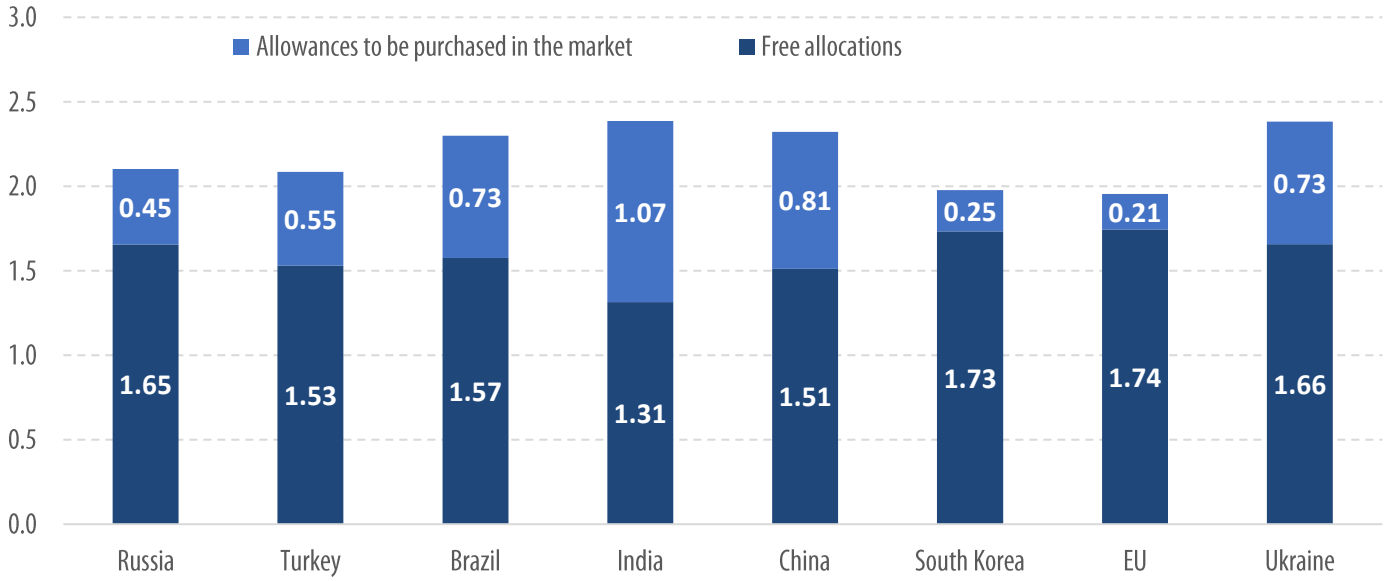
ANNEXES

Annex 1. Description of the methodology for calculating free allocations

Annex 2 Description of the methodology for calculating prime cost

Annex 3. Description of the methodology for estimating the effects of CBAM

Annex 1. Description of the methodology for calculating free allocations



Source: corporate reports, IEA, BCG, media, GMK Center estimates

Provided the availability of free allowances, BOF steel producers will have to purchase additional 10.8% (EU) to 44.9% (India) of the total amount of the needed allowances.

These results are based on the methodology set out in EC COMMISSION DELEGATED REGULATION (EU) 2019/331 of 19 December 2018 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council.

By applying this methodology, the benchmark of CO_2 emissions was obtained on the base of the best available technologies. This indicator reflects the specific CO_2 emissions per median steel production in 2014-2018.

By adjusting for forecast steel production in 2023, this benchmark was further used for calculating additional allowances to be purchased in the market by producers from different countries .

The volumes of needed greenhouse gas emissions allowances are determined taking into account CO_2 emissions under Scope 1 and Scope 2.

Annex 2. Description of the methodology for calculating prime cost

Components of production costs listed in the Report

Components	Cost items
Energy	Purchased electricity, natural gas, coal, all types of associated gases generated in the process of coke, pig iron and steel production
Workforce	Total workforce costs
Raw materials	Iron ore, coal (thermal coal, coking coal, anthracite, coal-dust fuel for injection in blast furnaces), alloying constituents and ferro-alloys, ferrous metals scrap, purchased semi-finished products
Credit (deduction from costs)	Scrap waste, associated gases and steam used as a source of energy, slags
Other items	Fluxes, electrodes, water, oxygen, inert gases, overhead costs, interest on working capital, spare parts, costs associated with greenhouse gas emissions

In order to analyze competitiveness and forecast the impact of CBAM on competitiveness, the data on production costs from the European Commission Report "Production Costs From Iron and Steel Industry in the EU and Third Countries" were used. Download the report. *Download the report*

The report presents the total production costs of HRC producers and wire rod producers under the conditions of EXW, including overhead costs and capital costs, as well as the costs for purchasing greenhouse gas emissions allowances. The report analyzes production costs of 153 producers with the breakdown by production technologies, including producers from Ukraine: a HRC producer using BF-BOF route of steel production and a wire rod producer using BF-BOF route of steel production.

In order to compare the major import producers' competitiveness in the EU market, production costs were additionally adjusted to the conditions of CIF Italy by adding average transport costs and anti-dumping or other import duties. The following amounts of transport costs were taken: Russia — $25 per tonne of rolled products, Turkey — $17, India — $40, South Korea — $45, Brazil — $40, China — $40, Ukraine — $20. If the anti-dumping duties imposed on a particular country were determined as a range of rates, the mean value of anti-dumping duty was added to the production costs amount.

CRU data were used as a source for the report. The data in the report are presented in the form of mean values, as well as a range of minimum and maximum values used in this study as separate rates.

Annex 3. Description of the methodology for estimating the effects of CBAM

on the industry

We consider reduction in pig iron export volumes to be reduction in production volumes, as the EU is the second most important pig iron market for Ukrainian producers after the United States. After the loss of the EU market, the competitive landscape in the U.S. market will deteriorate, and it is impossible to find another market comparable in size.

We consider reduction in long products export volumes to be reduction in production volumes, as the change in long products export markets over the last few years has resulted in reduction in volumes.

Gross loss as a result of CBAM is calculated as the sum of the item 'margin reduction' and reduction in added value due to reduction in production (exports) volumes. The latter is calculated based on the ratio between the total output and the amount under the item 'Gross profit, mixed income' from the 'Costs-Output' table. The 'Gross profit, mixed income' value from the 'Costs-Output' table is taken as the basis for calculating the percentage change of this rate compared to the level of 2019.

Decrease in capital investment in the industry is calculated on the basis of historical ratio of the amount of EBITDA to the amount of capital investment: $2 out of $3 of EBITDA is invested *see GMK Center report*. Decrease in EBITDA was taken in the amount of 'gross loss.'

and on Ukraine's economy

In order to analyze the impact of CBAM on GDP, including related sectors and supply chain and added value in the industrial sector, the data from the 'Costs-Output' table were used. Thus, UAH1 of GDP under the 'Steel production' activity generates UAH2.62 of GDP in other sectors, and UAH1 of added value under the 'Steel production' activity generates UAH1.76 in other industrial sectors.

Decrease in Ukraine's national tax revenues resulting from the introduction of CBAM is calculated based on the share of tax revenues in GDP, amounting to 20% in 2019.

Deterioration of the trade balance includes reduction in export volumes, CBAM payments, as well as increased market prices resulting from CBAM.

The rates of 2019 are taken as a basis for comparison, as this is the last period before the COVID-19 epidemic and the last period for which the information in the 'Costs-Output' table and data on the prime cost of steel products production are available. In addition, 2019 is considered as the basis for the recovery of business activity in 2021.

Calculations are based on projected conditions for 2023.

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