

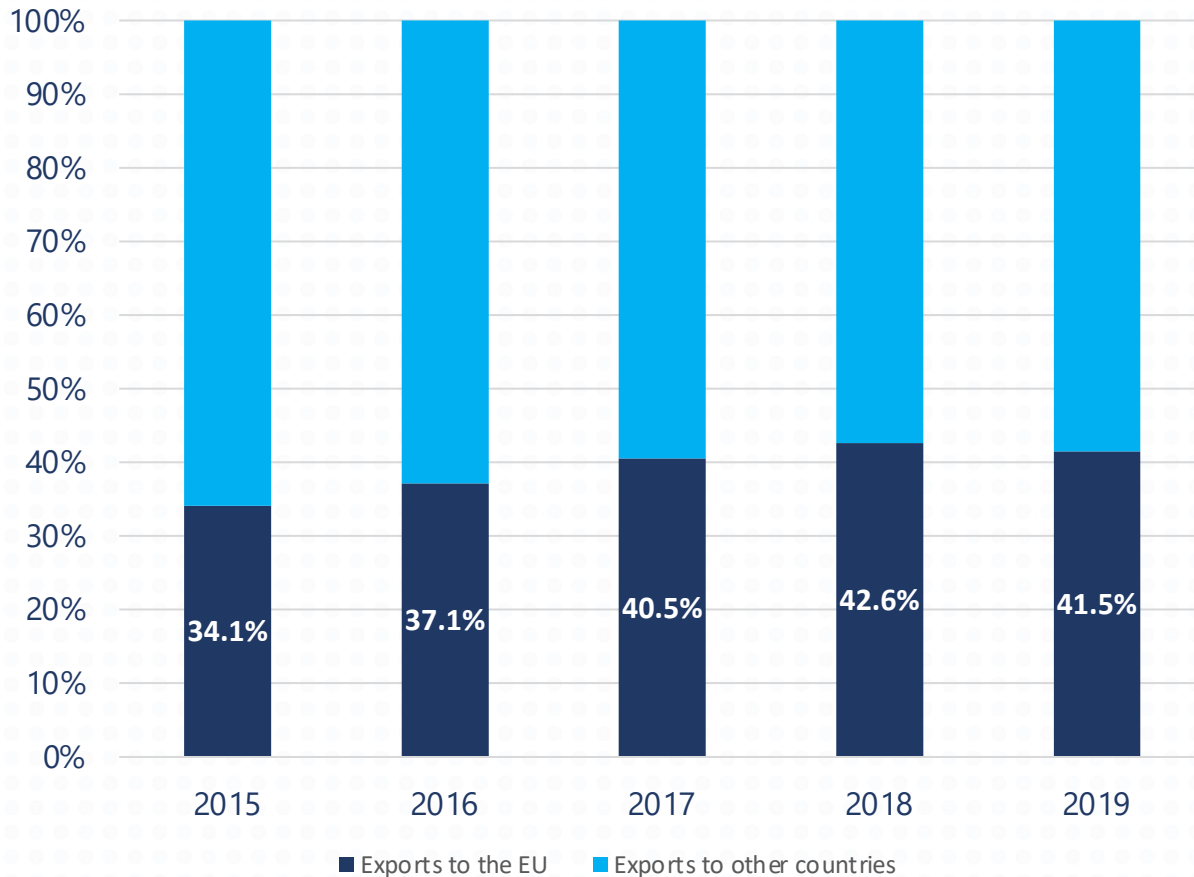
An aerial photograph of a large industrial complex, likely a steel mill or power plant, with several tall smokestacks emitting thick white plumes of smoke. The facility is surrounded by a dense network of pipes and structures. The background shows a forested area and some residential buildings.

**ASSESSED IMPACT
OF THE
CARBON BORDER ADJUSTMENT MECHANISM
ON UKRAINIAN ECONOMY**

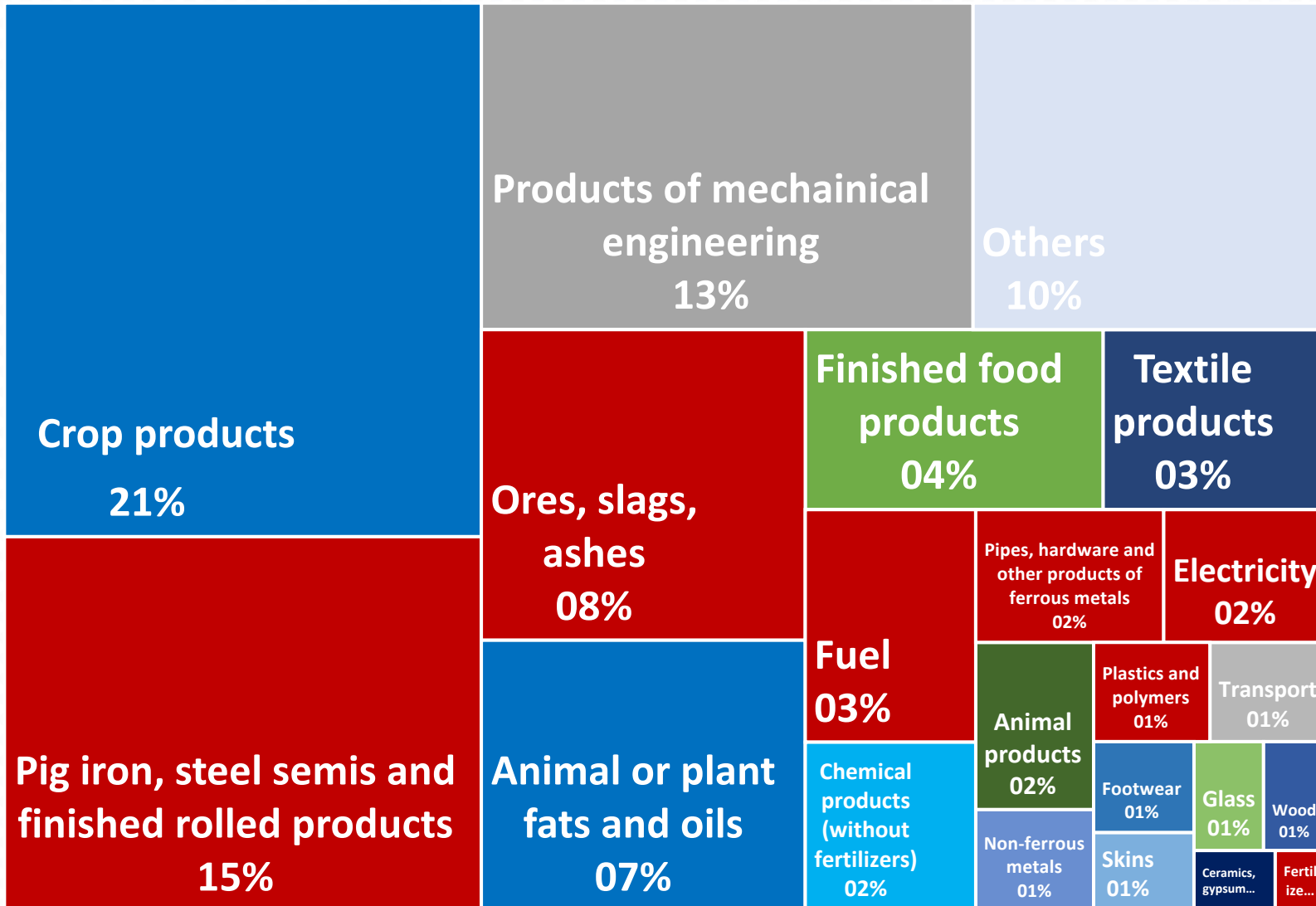
1. **Export analysis, identification of carbon-intensive export from Ukraine to EU**
2. **Assessment of direct CO₂ emission volumes of carbon-intensive products produced in Ukraine**
3. **Assessment of possible CBA payments of Ukrainian companies based on forecasted CO₂ emission prices and direct emission volumes**
4. **Assessment of additional fiscal burden on Ukrainian export from CBA introduction as the share of CBA payments to current product prices**
5. **Assessment of Export losses based on assumption that additional fiscal burden more than 10% could eliminate competitiveness of Ukrainian export to EU**
6. **Assessment of GDP losses based on historical ratio between Export and GDP in Ukraine, that reflects GDP losses through value chains**

Ukraine's economy is highly internationalized — the share of exports in its 2019 GDP reached 32.6%

Ukrainian exports geography

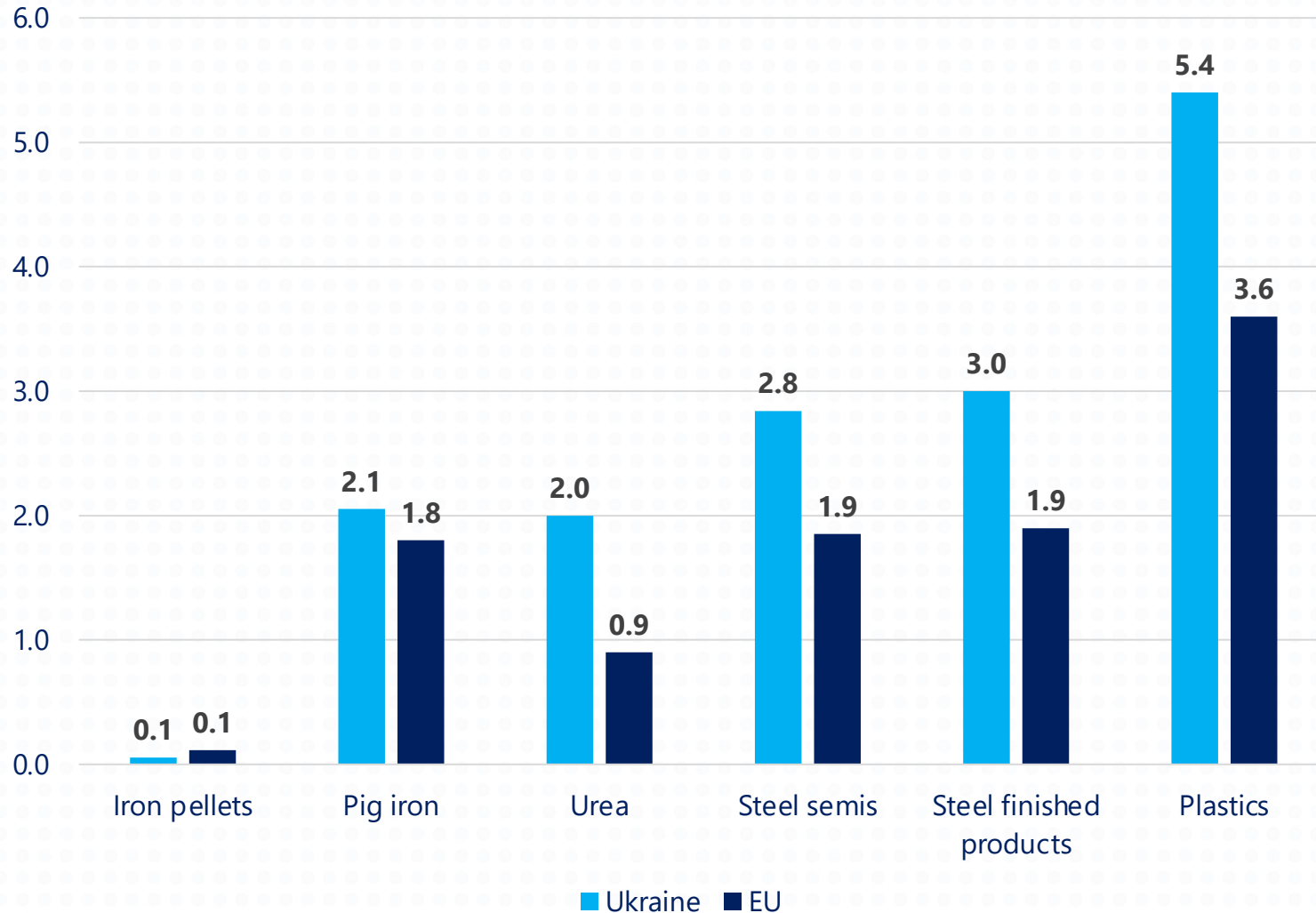


- Ukraine's key trade partner is the EU.
- In 2015–2019, the share of the EU in the structure of Ukraine's exports increased from 34.1% to 41.5%.
- In monetary terms, Ukraine's exports in the same period increased from \$13.0 billion to \$20.8 billion.
- Trade restrictions that the EU imposes on imports create barriers to:
 - production growth in Ukraine;
 - increase in currency earnings and tax revenues;
 - maintaining employment and personal income levels.



- In 2019, Ukraine's exports to the EU amounted to €21.1 billion.
- One third of this amount is potentially subject to CBA.
- The following commodity groups are classified as carbon-intensive:
 - pig iron, steel semi-finished products, rolled products;
 - pipes, metalware and other articles made of ferrous metals;
 - ores;
 - chemical products;
 - fertilizers;
 - plastics and polymers;
 - electricity.

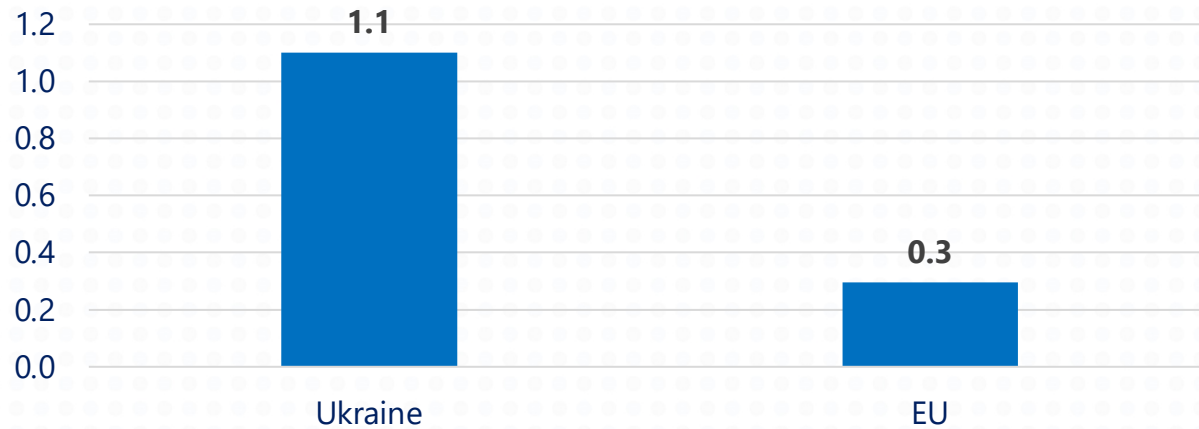
Carbon-intensity of major export commodities, tons of CO2 per ton of product



Almost all Ukrainian export commodities are more carbon-intensive than their European analogues.

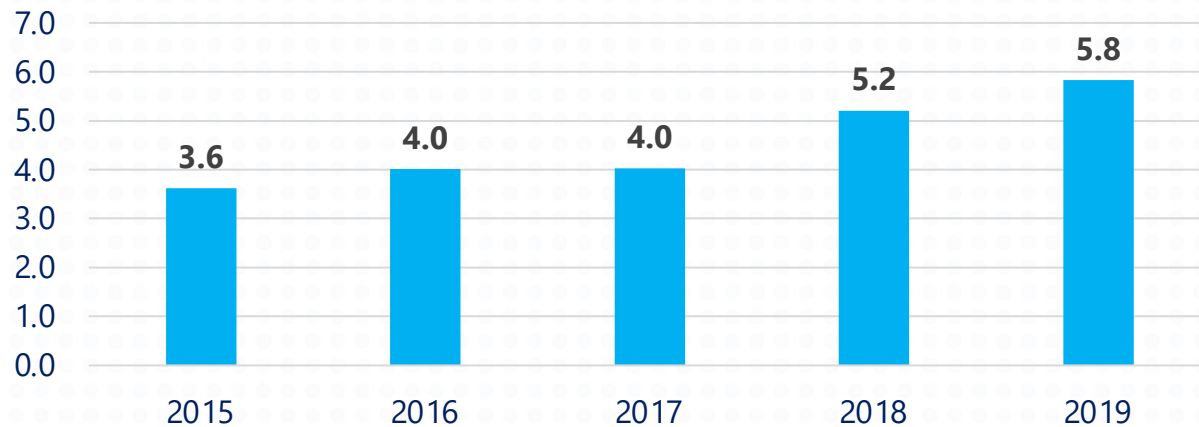
The biggest difference in carbon-intensity is recorded for urea. In Ukraine CO2 emissions per ton of urea 2.2 times exceed the same in the EU.

Carbon-intensity of electricity generation, tons of CO2 per MWh



Source: companies' reports, KPMG

Electricity exports from Ukraine to the EU, billion kWh



Source: Ukrenergo, GMK Center's estimations

In Ukraine, CO2 emissions per MWh of electricity 3.7 times exceed the same in the EU.

In 2016–2019, electricity exports from Ukraine to the EU increased by 61%.

In 2023, Ukrenergo is going to fully synchronize the Ukrainian energy system with the European power grid (ENTSO-e). This step will allow free supplies of electricity both ways (from Ukraine to the EU and vice versa).

This will open opportunities for increasing electricity exports. In 2019, Ukraine exported 5.8 billion kWh of electricity. After the synchronization with ENTSO-e, according to Ukrenergo, annual exports may increase to 18–20 billion kWh.

Presently, Ukraine exports coal-based electricity from Burshtyn Power Island. Full synchronization will make it possible to export electricity from other sources, including CO2-free ones. Average carbon intensity of electricity generation in Ukraine is 0,4 tons CO2 per MWh (2019).

The uncertainty around the CBA calculation methodology may result in this instrument becoming a barrier to increasing electricity exports from Ukraine.

Assessed impact of the CBA introduction on Ukraine's exports

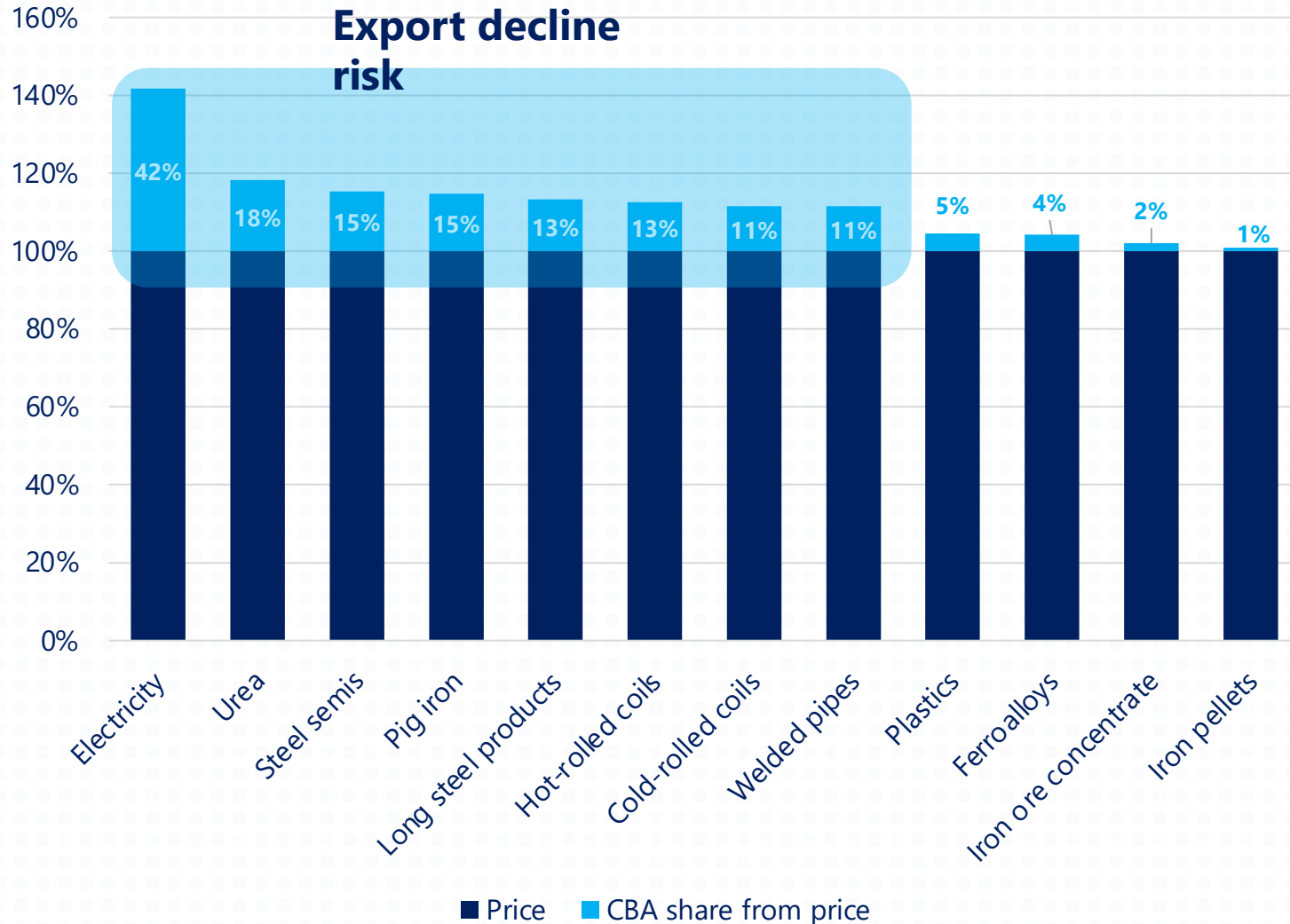
Products	Export volumes 2019	Unit of measurement	CO2 emission rates	Average price of emissions in 2023–2027, € per ton	Tax amount per annum, million €	Tax amount for 2023–2027, million € *
Pig iron	546	thsd t	2.1	22.2	24.8	124
Semi-finished products	3,299	thsd t	2.8	22.2	208.0	1,040
Rolled products	1,835	thsd t	3.0	22.2	122.1	611
Welded pipes	105	thsd t	3.0	22.2	7.0	35
Ferroalloys	404	thsd t	2.1	22.2	18.8	94
Iron pellets	6,258	thsd t	0.1	22.2	7.4	37
Iron ore concentrate	6,465	thsd t	0.1	22.2	9.8	49
Electricity	6,469	MWh	1.1	22.2	157.8	789
Plastic	41	thsd t	5.4	22.2	4.9	25
Carbamide	128	thsd t	2.0	22.2	5.7	28
Total	-	-	-	-	566.3	2,831

Source: GMK Center's estimations

* - **only direct emissions are taxed, CO2 emission rates are based on benchmark companies**

As a result of the CBA introduction, additional payments of Ukrainian companies exporting to the EU may increase by **€566.3 million per annum**. Almost **94%** of that amount be will a burden of steelmaking and power companies.

Additional fiscal burden for Ukrainian exporters resulting from the CBA introduction



The introduction of CBA will most significantly increase the fiscal burden for producers of: electricity (+42% of the final product price); urea (+18%); pig iron, semi-finished products (+15%).

So, this will negatively affect Ukrainian exports, especially for power, chemical and steelmaking companies.

Losses of exports

Potential loss is **\$6.5** bln. It counts for **13.0%** of total Ukrainian exports.

Decreasing GDP

Potential loss connected with CBA is **4.2%** of Ukrainian GDP.

For comparison: COVID-19 will cause decreasing Ukrainian GDP by **5.5%** in 2020 (according forecast of Ukrainian investment bank). War conflict at south-east of Ukraine determined GDP drop by **6.6%** in 2014.

Employment risks

Decreasing exports and GDP will cause employment losses (not only in sectors exporting carbon-intensive goods due to intersectoral linkages).

For example, loss of every job in steel sector will create additional losses of **2.2** jobs in related sectors.

Risks for macroeconomic stability

Losses of exports and GDP mean decreasing tax payments in state budget with increasing its deficit, rising inflation rates, accelerating devaluation of hryvnia. It might create problems in cooperation with international financial organizations. In general, macroeconomic instability is obstacle for attracting foreign investments to Ukraine.

Deterioration of trade relations with EU

Ukrainian export loss in the amount of \$6.5 bln may cause losses in the amount of **\$7.8** bln for European companies, exporting to Ukraine.

Risks of social upheavals in Ukraine.

It could destabilize political situation in Ukraine.



Industrial analytics
Market research
Information services

Contact details

GMK Center LLC

ID number: 42306047

Business address: 42-44 Shovkovychna Street, Kyiv, 01024, Ukraine

Tel.: +38 044 333 76 18

Director

Stanislav Zinchenko

+38 044 333 76 18

s.zinchenko@gmk.center

GMK Center Chief Analyst

Andrii Tarasenko

+38 044 333 76 18

a.tarasenko@gmk.center

GMK Center Analyst, PhD

Andrii Glushchenko

+38 044 333 76 18

a.glushchenko@gmk.center