

# Effects of the Border Tax Adjustment in the EU until 2030

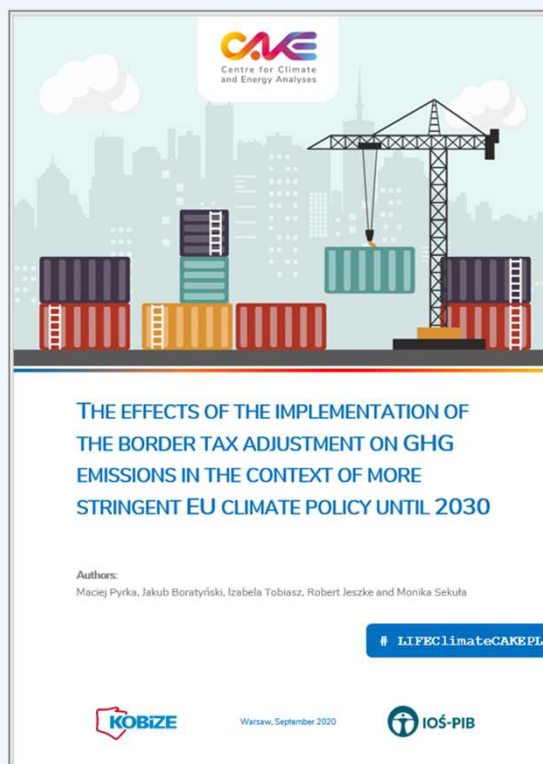
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# REPORT ON CARBON BORDER TAX



## The outcomes of the Report were used in:

- ▶ public consultations of the European Commission on carbon border adjustment mechanism (CBAM) - Contribution ID: 6b870e04-420b-4647-8511-623c30775984 ; 28/10/2020.

## Scenarios:

- ▶ **Baseline GECO 11/2018** - prepared by the JRC EC in 2018,
- ▶ **GHG55** - 55% reduction target in the EU in 2030. (approx. 57% in EU ETS and 48% in non-ETS in 2030, in relations to 2005),
- ▶ **BTA** - implementation of the GHG emission border tax (border tax adjustment).

## Sectors covered by border tax in the report:

- ▶ **Oil products** (refined petroleum products and coke),
- ▶ **Chemical**,
- ▶ **Non-metallic minerals** (cement, lime, gypsum and glass),
- ▶ **Paper**,
- ▶ **Iron and steel**,
- ▶ **Non-ferrous metals** (aluminium).

# METHODOLOGY

## CarbonPIE

- **Carbon Policy Implementation Evaluation Tool (CarbonPIE)** - EU ETS simulation model, including the supply of allowances (auctioned and free), funds (MF, IF) and operation of the MSR. Part of the model reflects hedging behaviour of the EU ETS participants.

## CGE model CREAM

- **Carbon Regulation Emission Assessment Model (CREAM)** – static CGE model,
- Multiregional (35) and multisectoral (31) approach,
- The results of the modeling include changes in international trade, outputs and prices, household consumption, GDP etc.

**BTA:**

$$BTA_{i,r} = Tax\_rate_{i,r} \cdot Imp_{i,r}$$

where:  $i$  – sectors,  $r$  – regions outside the EU,  $Tax\_rate_{i,r}$  – border tax adjustment,  $Imp_{i,r}$  – imports.

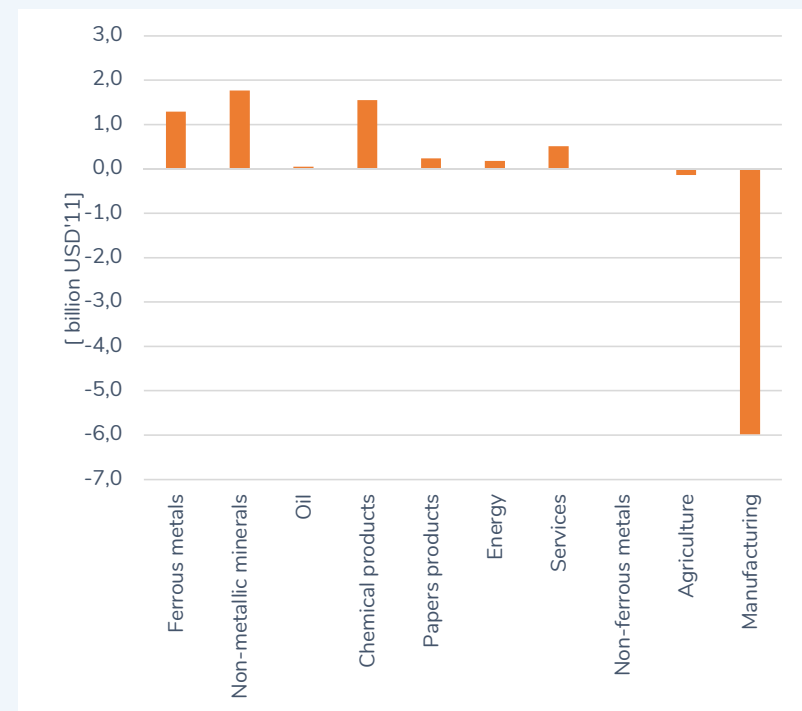
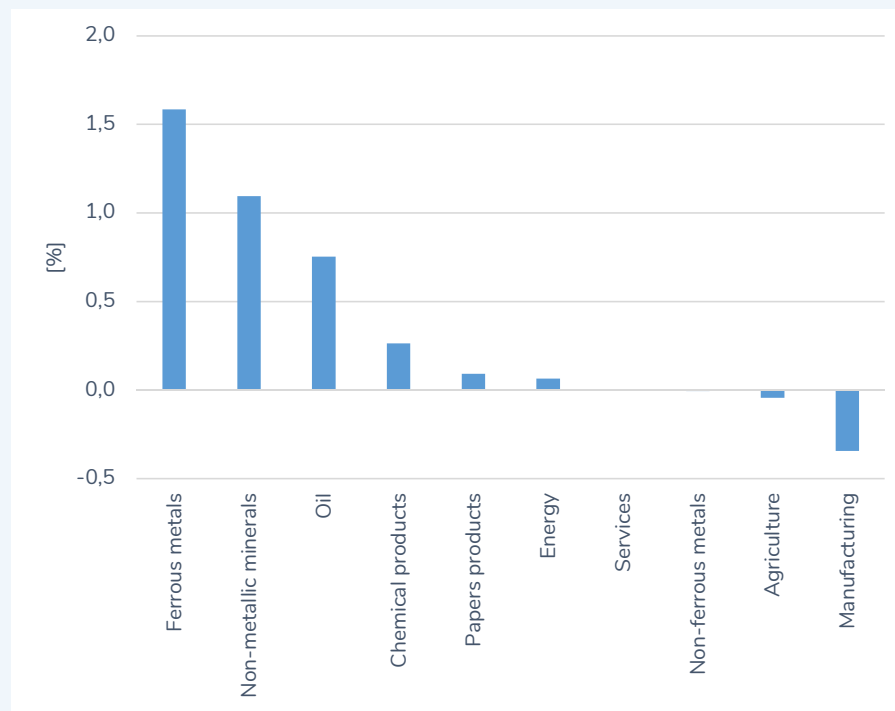
**Tax rate on imports from region  $r$ :**

$$Tax\_rate_{i,r} = \frac{GHG\_dir_{i,r} + GHG\_ind_{i,r}}{Prod_{i,r}} \cdot (PGHG_{EU\ ETS} - PGHG_{i,r})$$

where:  $GHG\_dir_{i,r}$  – the direct GHG emission,  $GHG\_ind_{i,r}$  – indirect GHG emission (related to electricity consumption),  $Prod_{i,r}$  – output,  $PGHG_{EU\ ETS}$  – price in the EU ETS,  $PGHG_{i,r}$  – carbon price outside the EU.

# IMPACT ON PRODUCTION

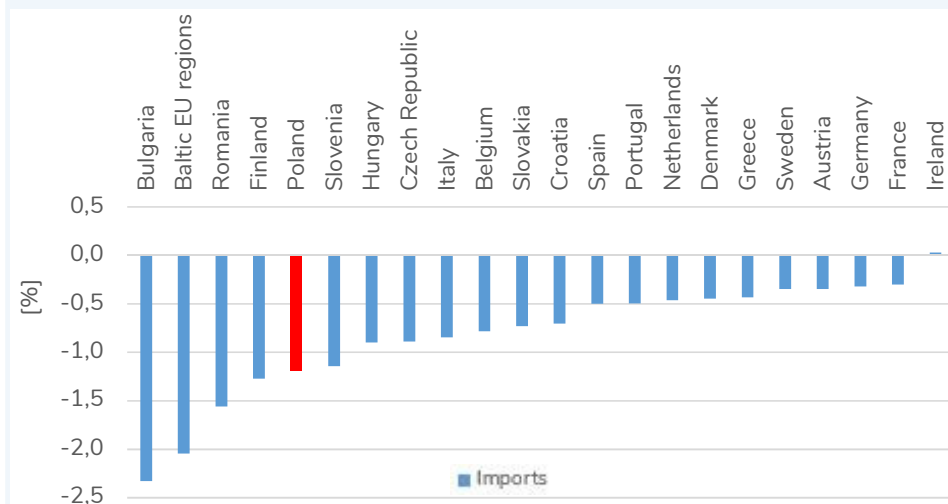
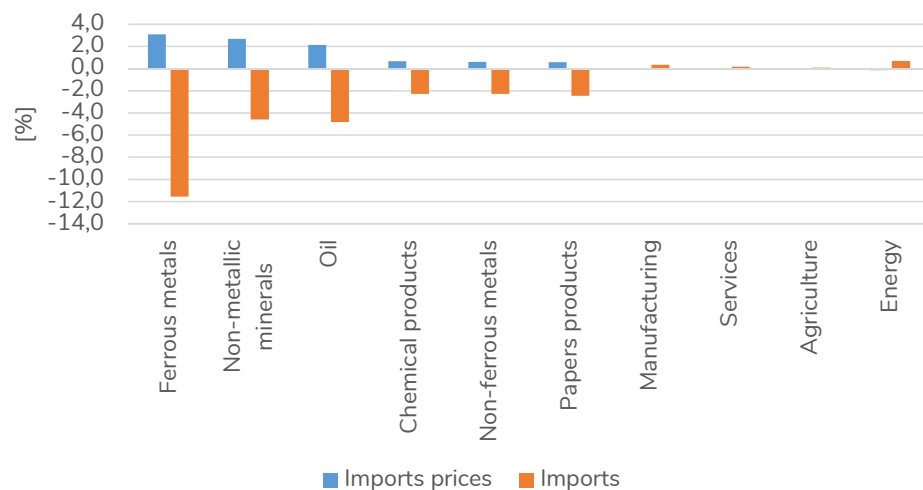
- ▶ **The increase in production in the EU** in the sectors covered by border tax (except for non-ferrous metals), which was mainly the result of replacing imports with domestic production.



Source: own study by CAKE/KOBiZE

# IMPACT ON PRICES AND VOLUMES OF IMPORTS TO THE EU

- ▶ The largest **declines in imports** to the EU: iron and steel – by **11.6%**, petroleum products (oil refining) – by 4.8%, and non-metallic minerals (e.g. glass production) – by 4.6%.
- ▶ The total decline in imports to the EU amounts to approx. **0.5%** and is quite diversified between EU Member States, the largest decrease is observed in Bulgaria (**2.3%**).



Source: own study by CAKE/KOBiZE

# MODELING EXERCISE SUMMARY

- ▶ Marginal costs of emission reductions in the EU (carbon prices) is crucial for results and associated with uncertainty (carbon price is the component of the tax rate).
- ▶ **Marginal costs of emission** reductions outside of the EU apply to all sectors of the economy (rather than energy-intensive sectors).
- ▶ Border tax adjustment covers **direct emissions and indirect emissions** caused by the **electricity consumption** in production (scope 1 & 2).
- ▶ **Constant labour** and **capital resources**.
- ▶ The parameters of the CGE model of key importance for the assessment of the effects of the introduction of the border tax adjustment are the **substitution elasticities** which describe:
  - ▶ the degree to which the national production can substitute for imported goods,
  - ▶ the degree to which the products imported from different sources (countries) can be substituted for.



# Thank you!

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