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EU Carbon Border Adjustment Mechanism and implications for Turkey

EU-Turkey Climate Policy Dialogue

Alexandra Maratou, ERCST

Outline

- Background to EU CBAM
- Implications for Turkey – study results
- Key observations

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Why Are We Discussing BCAs Now?

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- Paris Agreement →
  - Continued asymmetry of climate efforts - NDC nationally determined
  - Paris Agreement objectives
    - Carbon neutrality
    - 1.5/2 ^{0}C
- European Green Deal
    - EU Climate Law and carbon neutrality
    - Increase 2030 level of ambition from -40% to -55%
    - EUA prices --- from EUR 5 to > EUR 50

EU Carbon Border Adjustment Mechanism (CBAM) - What Do We Know So Far?

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- **Political Guidelines of 16 July 2019:**

  *'To complement this work, and to ensure our companies can compete on a level playing field, I will introduce a **Carbon Border Tax** to avoid carbon leakage. This should be **fully compliant** with World Trade Organization rules. It will start with a number of **selected sectors** and be **gradually extended**.'*

EU CBAM - State of Play

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- December 2019: **European Council** endorses work, states that 'facilities in third countries need to adhere to the highest environmental … standards'
- March 2020: **Inception Impact Assessment Roadmap** and public consultation on the elements of the CBAM feedback IA; 219 submissions
- May 2020: European Commission mentions CBAM revenue ('€5 to €14 billion per year') as potential source for EU Recovery Plan **('Next Generation EU')**
- July 2020: CBAM introduction by 2023 confirmed by the historical **European Council** (EU budget 2021-2027, Recovery Package)
- October 2020: **Public consultation** completed**;** 615 submissions
- March 2021: **European Parliament** own initiative
- July 2021: European Commission **proposal for a regulation,** as part of 'Fit for 55' package
- Next steps: **trialogue** negotiations

EU CBAM design elements

- CBAM decomposed into **9 key design elements** as identified in the ERCST report '*Border Carbon Adjustments in the EU Issues and Options*'*:

Nine design elements:

- Coverage of trade flows
- Policy mechanism
- Effect on free allocation
- Geographic scope
- Sector/product scope
- Emissions scope
- Determination of embedded emissions
- Calculation of adjustment
- Use of revenue

Five evaluative criteria

- Environmental benefit
- Competitiveness benefit
- Technical and administrative feasibility
- Legal feasibility
- Political and diplomatic feasibility

* ERCST (2020), Border Carbon Adjustments in the EU: Issues and Options, September 2020, https://ercst.org/border-carbon-adjustments-in-the-eu-issues-and-options/

Design element	Proposed design in EC proposal
Implementation timeline	▪ 2023-2025: transitional CBAM entailing no financial adjustments, but focused on monitoring and reporting ▪ 2026: Full implementation of the CBAM
Trade flow coverage	Only imports to the EU are covered. No export rebates, but free allocation of EU ETS allowances maintained (and gradually phased-out by 2035).
Policy mechanism	'Notional ETS' without a cap, whereby importers of covered products have to surrender CBAM certificates (priced on the basis of EU ETS allowances) equal to the embedded emissions in their imports.
Effect on free allocation of EU ETS allowances	The CBAM is put forward as an alternative to free allocation of EU ETS allowances in the covered sectors, and would thus replace free allocation over time. To allow producers, importers and traders to adjust, the reduction of free allocation will be implemented gradually over a 10-year transition period while the CBAM is phased-in. During the period when free allocation is maintained, the CBAM will only apply to those emissions above the free allocation received by domestic producers.
Geographical scope / exemptions	Countries that are part of or linked to the EU ETS (currently Iceland, Liechtenstein, Norway and Switzerland) are exempted. Additional exemptions may be provided for imports of electricity from countries that fulfill certain conditions.
Sectoral/product scope:	Five sectors are to be covered initially: cement, steel, electricity, aluminium, fertilizers. Covered products within these sectors include both 'simple' goods (i.e. primary materials) and more 'complex' goods (i.e. semi-manufactured goods that use primary materials as inputs). The European Commission can add products /sectors to the list through delegated acts.
Emissions scope	Only direct emissions (Scope 1) are covered, including emissions attributed to covered goods and those embedded in input goods deemed to be within the system boundaries of the production process . Indirect emissions from electricity (Scope 2) are not covered, though a review will make recommendations in 2026 on whether to include these going forward.

Design element	Proposed design in EC proposal	
Determination of embedded emissions	For products: ▪ Based on actual emissions at installation level verified by accredited verifiers, with fallback default values set at the average emission intensity of each exporting country for each good, increased by a mark-up (tbd by implementing acts). ▪ When reliable data for the exporting country cannot be applied for a type of goods, the default values shall be based on the average emission intensity of the 10 per cent worst performing EU installations for that type of goods. ▪ During the initial transitional phase (2023-2025), where importers may not yet be able to produce the data required on actual emissions, default values could also apply.	For electricity: ▪ Based on third country-specific default values that correspond to average CO_2 emission factor in tonnes of CO_2 per MWh of price- setting sources in the third country ▪ Where third country-specific default values have not been determined, the calculation will be based on a default value set at the average CO_2 intensity of electricity produced by fossil fuels in the EU. ▪ A different (lower) default value can be established for a a country that demonstrates, based on reliable data, that the average CO_2e emissions factor of price-setting sources in the country is lower than the default value that represents the CO_2 emissions factor from EU fossil-based generation. ▪ If a set of certain conditions are collectively met (e.g. declarant has concluded a power purchase agreement with a producer of electricity located in a third country), a declarant can opt for declaring actual emissions.
Level of adjustment (CO_2 price):	Level of adjustment to mirror the avg. auction price of EU ETS allowances each week. Crediting of policies in country of origin will recognize explicit carbon pricing policies (a carbon tax or ETS), with prices paid deducted from CBAM.	
Use of revenues	The CBAM will not generate revenue in the transitional period from 2023 to 2025. Revenue generated as of 2026 will be collected nationally by competent authorities, and the intent is that most of it will accrue to the EU budget. No mention of earmarking of revenues for specific purposes (e.g. for climate purposes domestically or abroad).	

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Implications of EU Carbon Border Adjustment Mechanism for Turkey

Study made possible thanks to support from:

European Bank
for Reconstruction and Development

EU CBAM 'near-term' implications

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- Estimate of the additional burden incurred by Turkish exporters to the EU27 of selected products in 2026 (first year of CBAM entailing financial adjustments)
- CBAM cost calculation is based on **3 components**:
  1. The **carbon intensity** value of a product (expressed in tCO_2 /t of product, or tCO_2 /GWh): The additional cost imposed on exports assumed to be based on a default carbon intensity value e.g. the average carbon intensity of EU producers etc.
  2. The **volume of exported products:** Exports quantity (tons, GWh) in 2026 assumed unchanged compared to 2017-2019 annual average.
  3. The **carbon price** (EUR/t CO_2): The level of adjustment (EUR/t CO_2) would mirror the price of emissions allowances under the EU ETS - assumed price of EUR 70/t CO_2 in 2026
- Different CBAM scenarios assess the range of possible impact of CBAM design
- Sectors of interest: Electricity, cement, aluminium, steel

CBAM payments in 2026 - total

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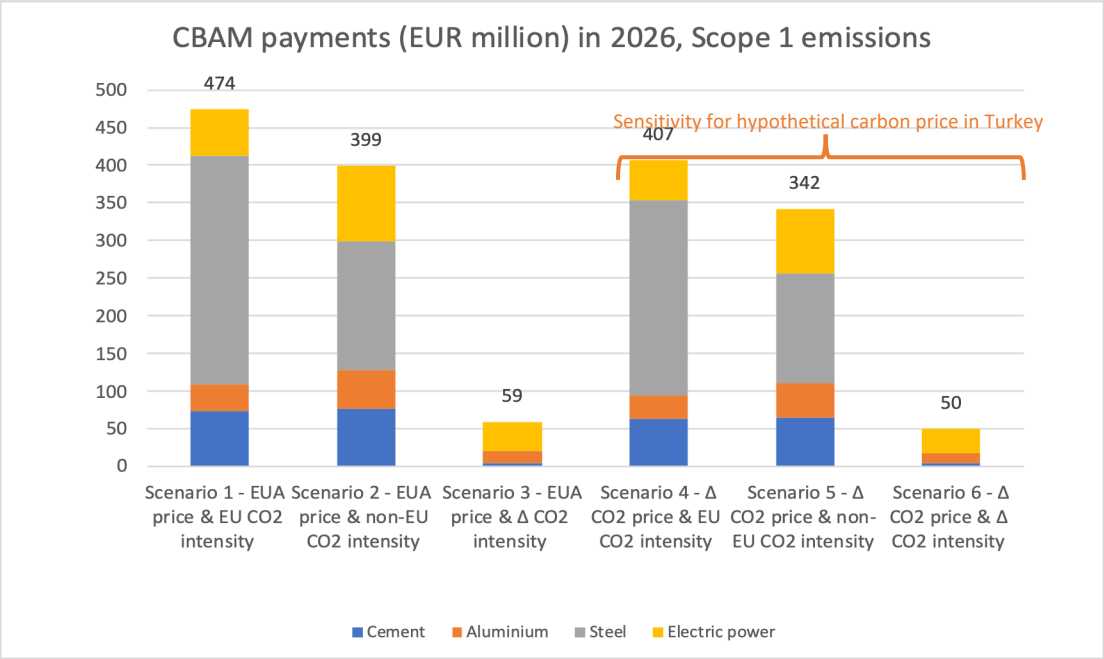
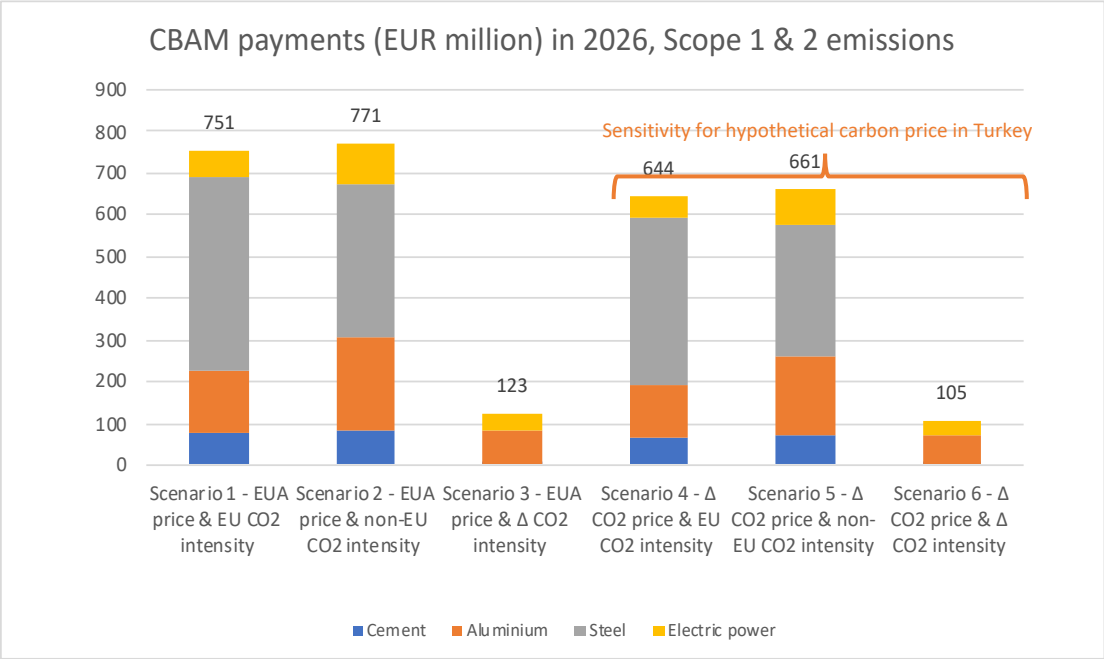




Carbon price assumptions

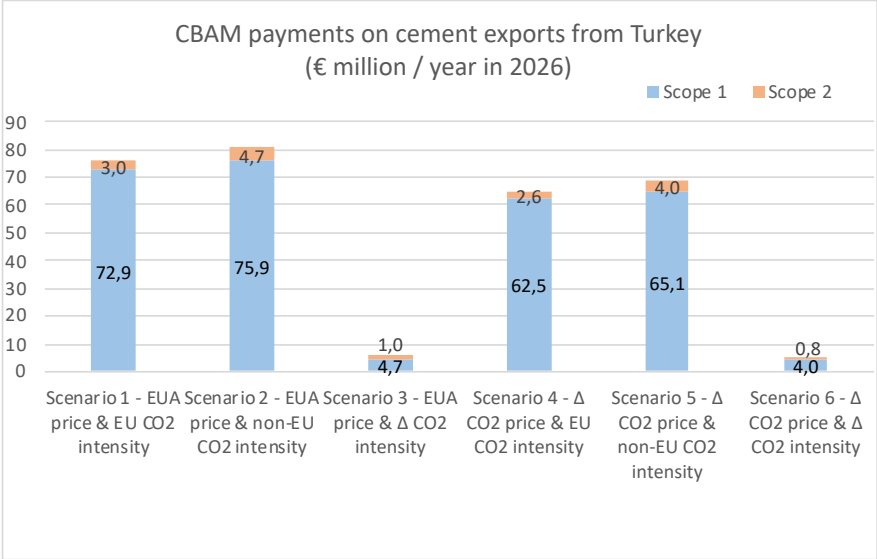
- All scenarios: price of EU ETS allowances of EUR 70/t CO_2 in 2026
- Scenarios 4-6: hypothetical carbon price in Turkey of EUR 10/t CO_2 in 2026

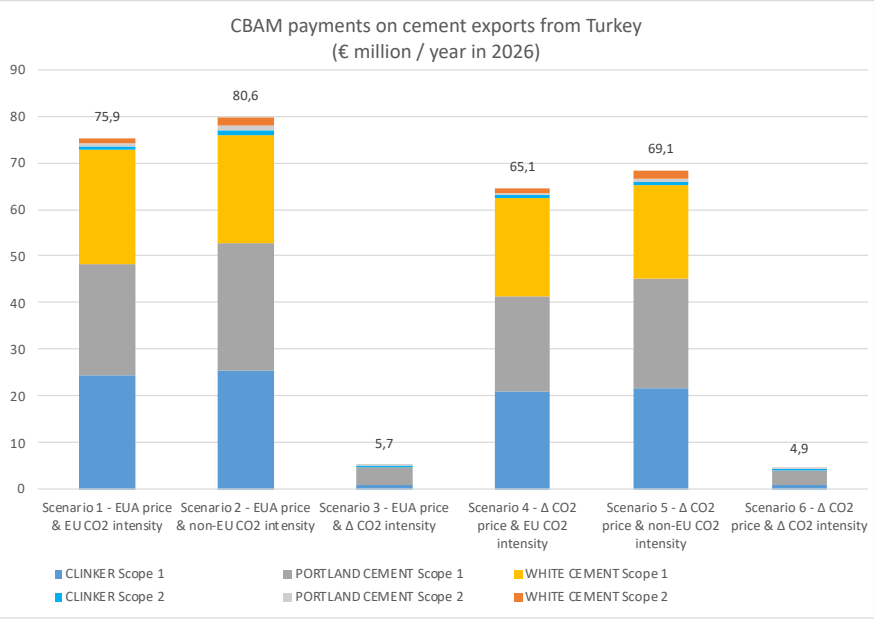
CBAM "bill" at the border for the four sectors of electricity, cement, steel and aluminium:

- EUR 399 million in 2026 if CBAM covers Scope 1 emissions (Scenario 2)
- EUR 771 million in 2026 if CBAM covers Scope 1 & 2 emissions (Scenario 2)

Cement

		CO_2 intensity - tCO_2/ton of clinker	
		Scope 1 emissions	Scope 1 & 2 emissions
Clinker	**EU27**	0,813	0,835
	Turkey	0,843	0,875
Portland cement	**EU27**	0,630	0,664
	Turkey	0,731	0,783
White cement	**EU27**	1,073	1,121
	Turkey	1,001	1,077





Notes:

- Scope 1 intensity values sourced from the Getting the Numbers Right (GNR) database managed by the Global Cement and Concrete Association (GCCA).
- Scope 2 intensities calculated based on electricity intensity data from GNR, and electricity grid emissions factors
- Regional granularity of GNR data: for Turkey clinker and Portland cement data concern the region 'Middle East', white cement data concern 'world'

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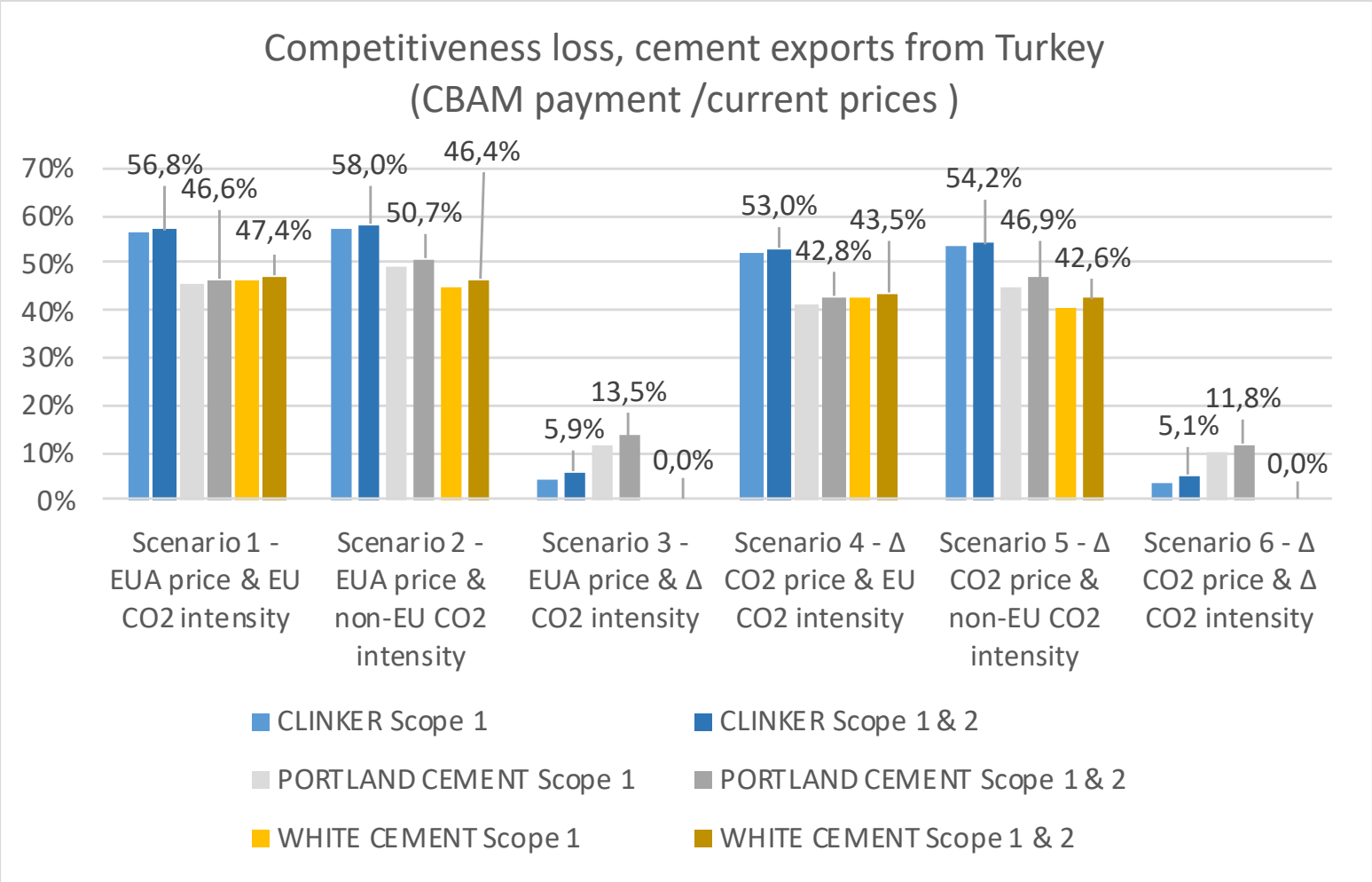
Cement – CBAM payment/current prices



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Key observations

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- EITE sectors like cement, steel, aluminum, as well as electricity are highly likely to be covered by the CBAM in the near/medium-term.
- Turkish exporters of electricity, cement, steel, and aluminum products could face a total CBAM "bill" at the border of EUR 771 million in 2026 million (Scenario 2; Scope 1 & 2 emissions); about 0,07% of Turkey's GDP forecast in 2026.
- If only Scope 1 emissions are covered, CBAM "bill" of EUR 399 million in 2026 (Scenario 2); about 0,04% of Turkey's GDP forecast in 2026.
- CBAM payments can represent a significant share of current prices for some products
  - e.g. ~50% in the cement sector, 18% aluminium, 11% for steel
- CBAM diversified impacts depending on adopted design, e.g. product scope, emissions scope, emissions intensity
- Level of the adjustment (EUR/tCO_2) has an important bearing on the magnitude of the impact
  - Impact would be higher at increasing carbon price levels that may be observed through to 2030.
  - Carbon pricing in exporting countries to be deducted from payable level of adjustment (ΔCO_2 price), reducing CBAM burden.

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Thank you

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Appendix

Turkey's exports to the EU27, 2017-19 avg

SECTOR	CODE	PRODUCT*	Exports quantity (tons or GWh)	Exports value (EUR)
Cement**	**HS 252310, HS 252329, HS 252321**	**Clinker, portland and white cement**	**1.295.797 tons**	**76.325.291**
	HS 252310	Cement clinkers	431.095 tons	19.132.445
	HS 252329	Portland cement (excl. white, whether or not artificially coloured)	535.126 tons	28.462.503
	HS 252321	White portland cement, whether or not artificially coloured	329.496 tons	28.730.344
Aluminium	**HS 7601, 7603-7609**	**Unwrought aluminium and certain semi-processed aluminium products**	**354.746 tons**	**1.020.950.158**
	7601	Unwrought aluminium	35.693 tons	70.215.182
	HS 7604, 7408, 7409	Extrusions	106.084 tons	379.669.799
	HS 7606	Rolled sheet	129.493 tons	336.742.106
	HS 7607	Aluminium foil	70.128 tons	204.658.034
	HS 7603	Powders and flakes	538 tons	1.040.761
	HS 7605	Aluminium wire	12.810 tons	28.624.276
Iron and steel	**HS 7201, 7203, 7205-7229 and 7301-7311**	**Iron and steel and certain artciles thereof**	**6.130.316 tons**	**3.851.629.854**
	HS 72, except 7202 and 7204	Iron and steel (excl. ferro-alloys, ferrous waste and scrap, stainless steel and other alloys)	5.207.499 tons	2.973.865.238
	HS 7301-7311	Articles of iron and steel	922.817 tons	877.764.616
Electricity	**SIEC E7000**	**Electric power**	**3.028 GWh**	**n/a**

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* Products in each sector are those listed in Annex I of EC July 2021 CBAM proposal

** For cement, product 'HS 2523 90 00 – Other hydraulic cements' is also included in the EC CBAM proposal, however, it is not included in the analysis due to low export volumes and lack of data with respect to emissions intensity.

Source: based on Eurostat 'EU trade since 1988 by HS2,4,6 and CN8' [DS-645593], and 'Imports of electricity and derived heat by partner country [nrg_ti_eh]'

Scenarios (1)

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- Six scenarios (see next slide) that reflect possible CBAM design
- Based on options for 2 CBAM design elements:
  1. CO_2 intensity (t CO_2 emissions/ton of product)
     - 1a. Exporting country-specific average (nonEU CO2intensity),
     - 1b. EU average (EU CO2intensity),
     - 1c. Differential between average intensity in the exporting country and the EU (ΔCO2intensity).
  2. Crediting of foreign climate policy:
     - 2a. Yes - CBAM will credit policies in exporting countries entailing a carbon price (ΔCO2 price);
     - 2b. No - the full EU carbon price will apply to exports (EUACO2price)
- For each of the six scenarios, results presented for two cases:
  - I. CBAM will account for direct emissions only (Scope 1)
  - II. CBAM will account for direct emissions (Scope 1) & indirect emissions (Scope 2)

Scenarios (2)

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	Scenario	Approach to calculating CBAM burden	Explanatory notes
No foreign carbon price crediting	(1)	$EUA_{CO2\ price} * EU_{CO2\ intensity}$	• Carbon price for imports to EU equals price of EU ETS allowances ($EUA_{CO2\ price}$) • Exporters emissions determined based on average CO_2 intensity of EU producers ($EU_{CO2\ intensity}$)
	(2)	$EUA_{CO2\ price} * nonEU_{CO2\ intensity}$	• Carbon price for imports to EU equals price of EU ETS allowances ($EUA_{CO2\ price}$) • Exporters emissions determined based on average CO_2 intensity in exporting countries (non$EU_{CO2\ intensity}$)
	(3)	$EUA_{CO2\ price} * \Delta_{CO2\ intensity}$	• Carbon price for imports to EU equals price of EU ETS allowances ($EUA_{CO2\ price}$) • Exporters pay for the part of average CO_2 intensity in exporting countries in excess to the average EU CO_2 intensity ($\Delta_{CO2\ intensity}$)
With foreign carbon price crediting	(4)	$\Delta_{CO2\ price} * EU_{CO2\ intensity}$	• Crediting for foreign carbon pricing policies (carbon tax or ETS), carbon price for imports equals the difference between EU ETS allowance price and carbon prices in exporting countries ($\Delta_{CO2\ price}$) • Exporters emissions determined based on average CO_2 intensity of EU producers ($EU_{CO2\ intensity}$)
	(5)	$\Delta_{CO2\ price} * nonEU_{CO2\ intensity}$	• Crediting for foreign carbon pricing policies (carbon tax or ETS), carbon price for imports equals the difference between EU ETS allowance price and carbon prices in exporting countries ($\Delta_{CO2\ price}$) • Exporters embedded in imports determined based on the average CO_2 intensity in exporting countries (non$EU_{CO2\ intensity}$)
	(6)	$\Delta_{CO2\ price} * \Delta_{CO2\ intensity}$	• Crediting for foreign carbon pricing policies (carbon tax or ETS), carbon price for imports equals the difference between EU ETS allowance price and carbon prices in exporting countries ($\Delta_{CO2\ price}$) • Exporters pay for the part of average CO_2 intensity in exporting countries in excess to the average EU CO_2 intensity ($\Delta_{CO2\ intensity}$)

Electricity

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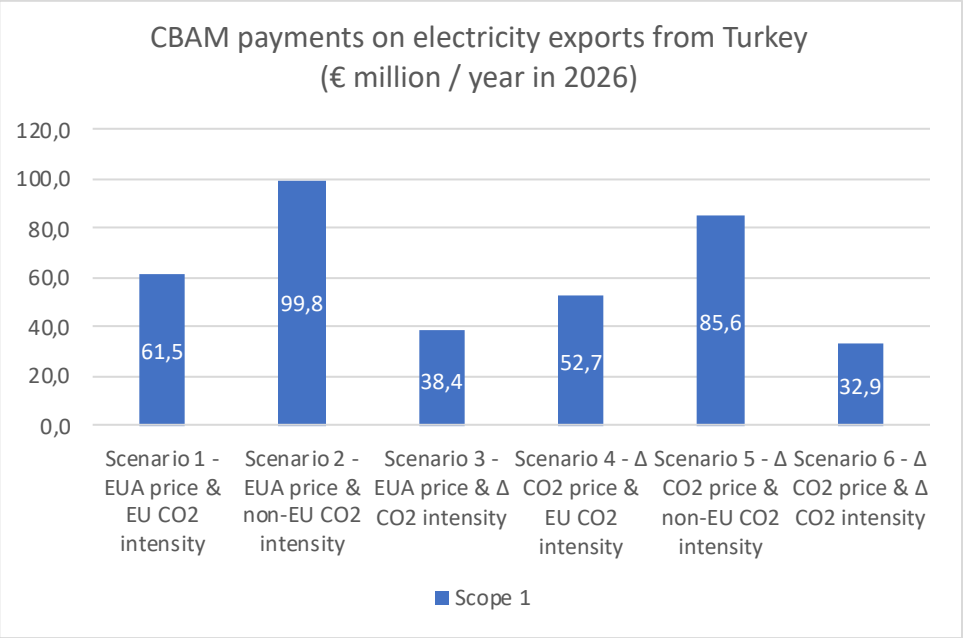
	Grid emissions factor - tCO_2/GWh
EU27	290
Turkey	471



Notes:

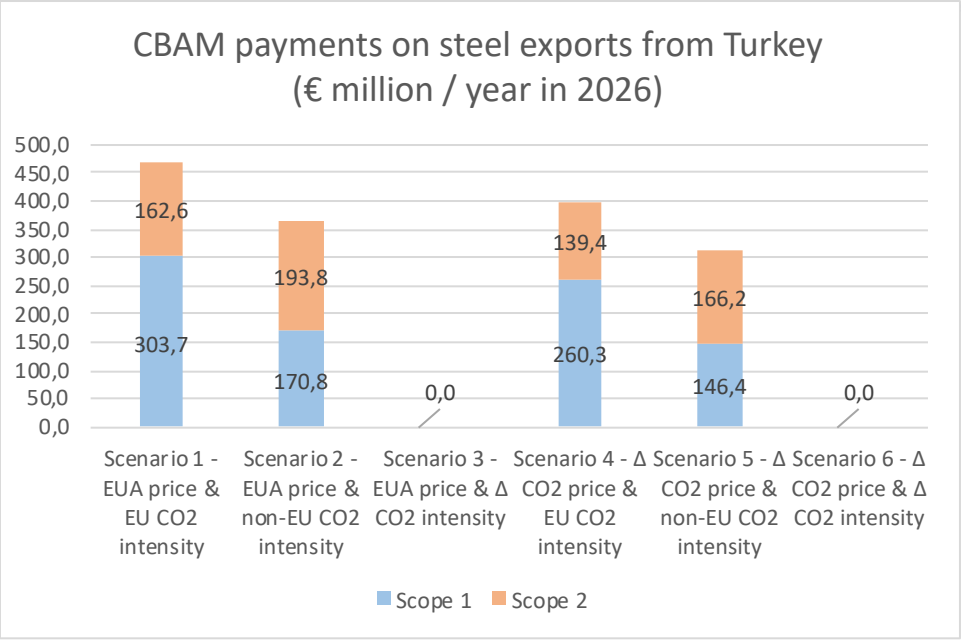
- EU27: grid emissions factor value for year 2018; source: European Environment Agency
- Turkey: grid emissions factor value for year 2018; source: calculated based on UNFCCC GHG inventory and el. production.

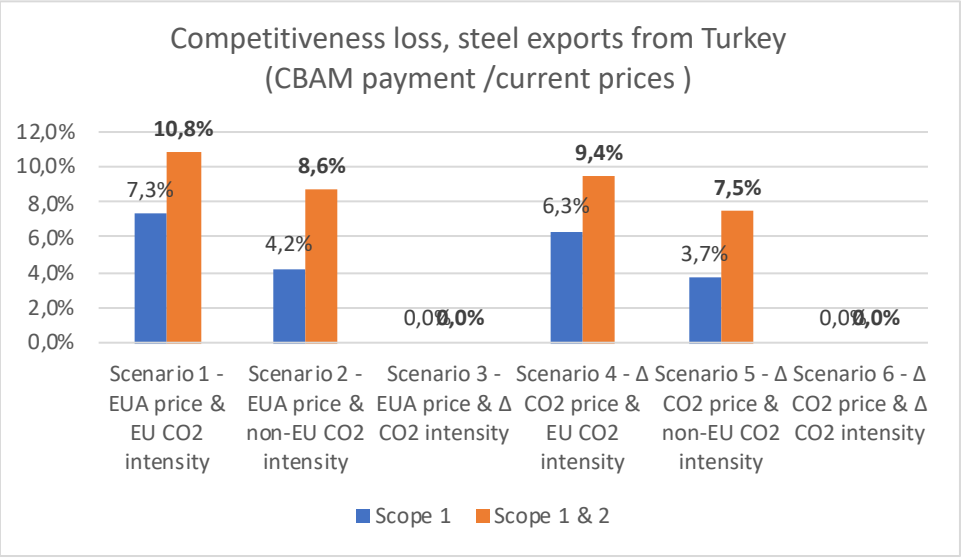
Steel

	CO_2 intensity - tCO_2/ton of crude steel	
	Scope 1 emissions	Scope 1 & 2 emissions
EU27	0,71	1,09
Turkey	0,40	0,85

Notes:

- CO_2 intensities for crude steel calculated based on:
  - Emission intensities associated with specific production routes (BF-BOF, scrap-based EAF) from IEA Iron and Steel Technology Roadmap (2020)
  - Crude steel production mix by process technology based on World Steel Association data



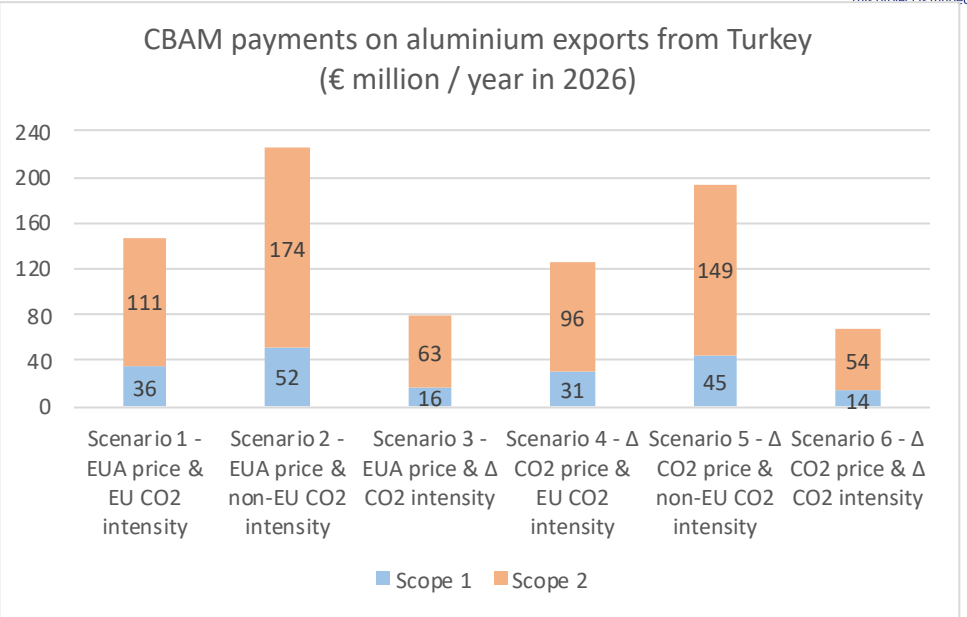


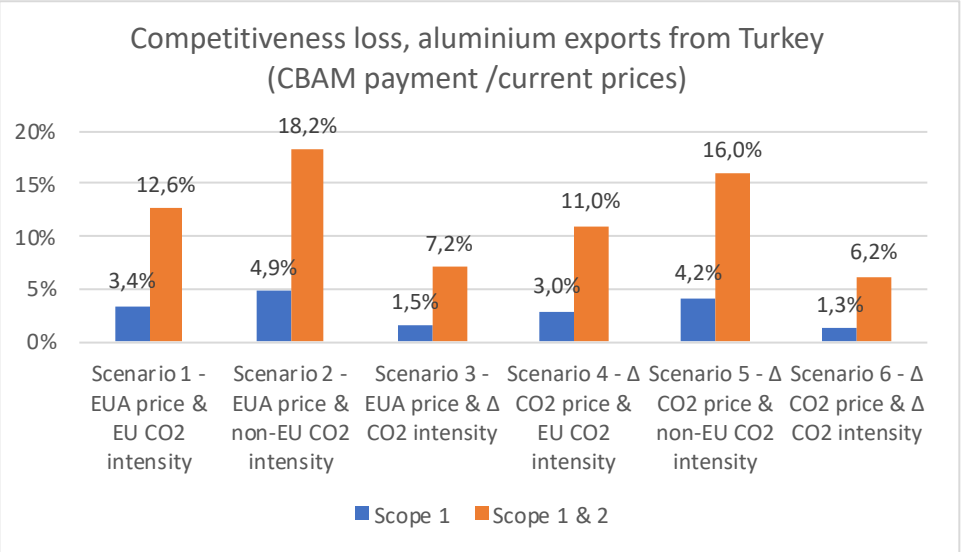
Aluminium (1)

	CO_2 intensity - tCO_2/ton of primary aluminium	
	Scope 1 emissions	Scope 1 & 2 emissions
EU27	1,5	5,95
Turkey	2,1	9,12

Notes:

- Scope 1 intensity
  - EU: equal to the EU ETS benchmark (1,464 tCO_2/ton), which is based on the average emissions of the 10% best performing installations rather than the average of all EU installations
  - Turkey: based on global average data by International Aluminium Institute (IAI).
- Scope 2 intensity:
  - Based on IAI data concerning electricity intensity and electricity grid emissions factors





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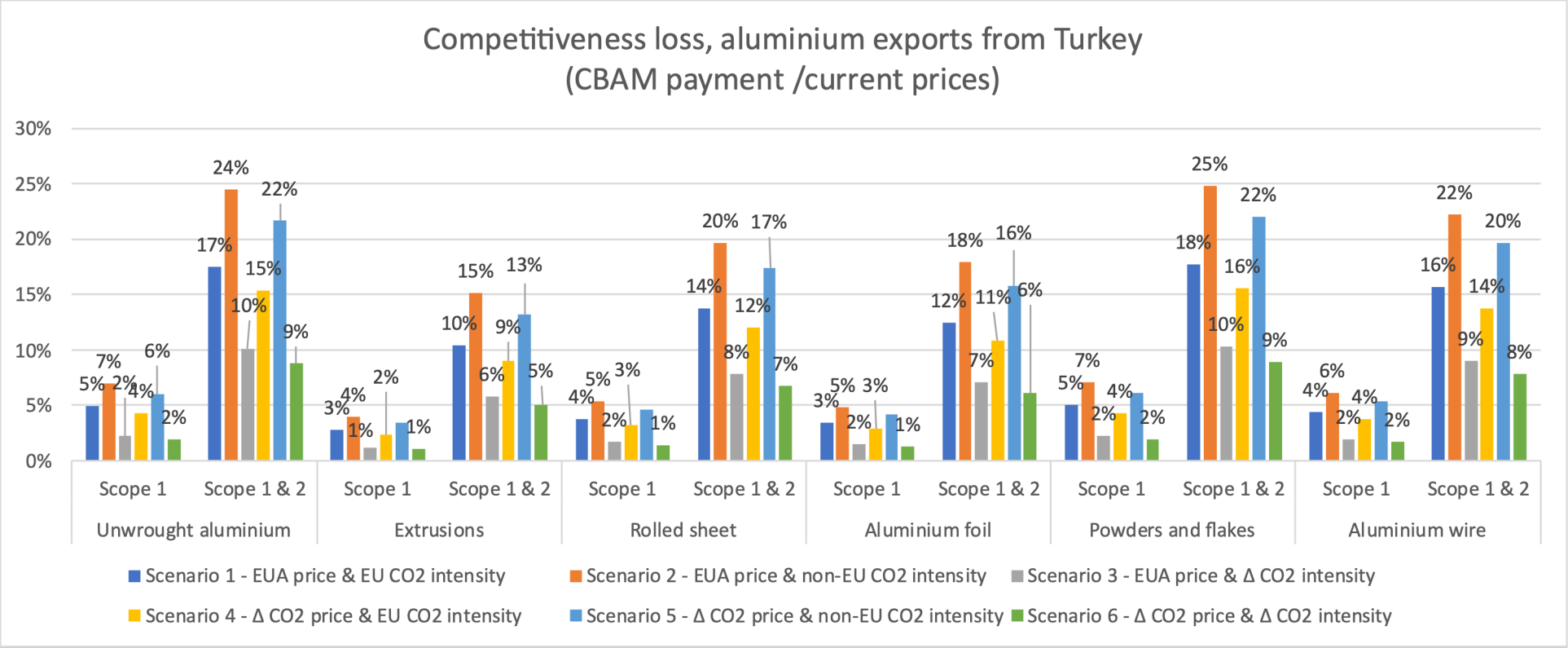
Aluminium (2)



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