Climate Leadership Council

Center for Climate & Trade

ITC Values as the Basis for CBAM Emissions Intensity Defaults:

Positioning U.S. Steel and Aluminum for Better Outcomes under the CBAM

Matthew C. Porterfield
Daniel Hoenig

April 2025

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INTRODUCTION

Beginning in January of 2026, exports of certain products to the European Union—including steel[1] and aluminum—will be subject to charges based on their greenhouse gas (GHG) emissions intensity under the EU's Carbon Border Adjustment Mechanism (CBAM).[2] When sufficient facility-specific data is not available, covered products will be assigned a default value determined by the European Commission (EC). In order to ensure that charges under the CBAM are properly assessed, the CBAM requires the EC to use the most up-to-date and reliable data available in developing default values, including data provided by countries exporting to the EU.

In February, the U.S. International Trade Commission (ITC) released a report assessing the emissions intensities of steel and aluminum products made in the U.S. Their analysis is based on extensive primary data from U.S. producers and can serve as a valuable resource for the European Commission.[3]

The ITC report is particularly timely because it remains unclear which data sources will provide the basis for CBAM default values during the definitive period, which begins in January of 2026. Many observers believe that a 2023 report from the EC's Joint Research Centre (JRC),[4] which served as the primary data source for determination of default values for the CBAM's current transitional period, could play a role.[5] Analysis suggests that the JRC study materially overestimates the emissions intensity of U.S. steel and aluminum operations.

This memo explains why the ITC's emissions intensity estimates for U.S. steel and aluminum align with CBAM standards for its definitive period default values. Section II of this memorandum reviews the CBAM's standards for determining default values. Section III details the ITC's methodology and its alignment with the CBAM's standards for calculating default values. Section IV compares the ITC and JRC findings to illustrate how use of the ITC report for U.S. emissions intensity under the CBAM would result in significantly lower default values for U.S. exporters to the EU.

DEFAULT VALUES FOR EMISSIONS INTENSITY UNDER THE CBAM

The CBAM charge will apply to "embedded emissions," which is defined to cover both "*direct emissions* released during the production of goods and *indirect emissions* from the production of electricity that is consumed during the production processes."[6] Direct and indirect emissions from covered inputs or precursors are included.[7] Embedded emissions for covered products are to be determined based on "actual emissions,"[8] which are defined as "emissions calculated based on primary data from the production processes of goods . . . consumed during those processes."[9] When actual emissions data are not available, however, default values will be used.[10]

The CBAM provides for two levels of default values. First, if actual emissions data is not available, country-level default values will be used based on the average emission intensity of each exporting country for each covered good, increased by a proportionately designed mark-up.[11] Second, when reliable data is not available for an exporting country, default values will be determined based on the emissions intensity of high emitting facilities in the EU or high emitting countries.[12] The CBAM specifies several criteria to be used in determining default values:

1. "Actual values" should be used when they are available, otherwise "literature values" may be used.[13]
2. The "best available data. . . . based on reliable and publicly available information" should be used.[14]
3. The default values must be updated periodically to reflect "the most up-to-date and reliable information, including on the basis of information provided by a third country or group of third countries."[15]

THE ITC METHODOLOGY AND THE CBAM'S STANDARDS FOR DEFAULT VALUES

The ITC report provides estimates of the emissions intensity of steel and aluminum produced in the United States by product category.[16] The general approach taken by the ITC to determine emissions and the methodology prescribed under the CBAM align in many respects—including the scopes of covered emissions, systems boundaries, and units of measurement.[17] Where there is not alignment, the ITC approach generally takes a more comprehensive approach to estimating embodied emissions.

1. *Covered gases*: The ITC report collected data for carbon dioxide, methane, and nitrous oxide for steel, and the same three gases as well as perfluorocarbons for aluminum.[18] The CBAM requires data just for carbon dioxide for steel and carbon dioxide and perfluorocarbons for aluminum.[19] Emissions are reported in tonnes of carbon dioxide equivalent emissions/tonne of product for both the ITC and CBAM estimates.[20]
2. *Emissions scope*: The ITC report collected data according to standard WRI/WBCSD "scopes;" it collected scope 1, scope 2, and precursor-related scope 3 data. The CBAM uses a different taxonomy but collects emissions from the

same categories of emissions under "direct," "indirect," and "precursors."[21]

3. *System boundaries*: The U.S. and EU system boundaries are closely aligned in that they both include the three major baskets of emissions: on-site combustion and process emissions (direct/scope 1), emissions from electricity produced off-site (indirect/scope 2), and a limited set of upstream emissions (precursors/ scope 3). The ITC system boundaries are, however, more expansive in their accounting of upstream emissions.[22] The ITC's study includes emissions from upstream mining and extraction and processing emissions for a greater number of upstream raw materials.[23]
4. *Quantification procedures*: The ITC study and CBAM use similar approaches to allocate emissions from the facility-level to the product-level.[24]

This alignment of methodologies allows for significant interoperability for purposes of determining CBAM default values.

Moreover, the ITC data conforms to the specific requirements for determining default values under the CBAM, including the use of actual values when available and "up-to-date and reliable data" submitted by third countries.[25] The ITC collected publicly available facility-level emissions data submitted under the Environmental Protection Agency's Greenhouse Gas Reporting Program (GHGRP) and responses from producers to a questionnaire that collected supplemental emissions, production pathway, and production data. The study accounts for nearly 100% of U.S. steel, and aluminum production.[26]

COMPARING THE RESULTS OF THE ITC AND JRC REPORTS

If the EU relies on the JRC's analysis rather than the ITC report, it could significantly increase CBAM cost exposure for EU importers of American-made steel and aluminum products.

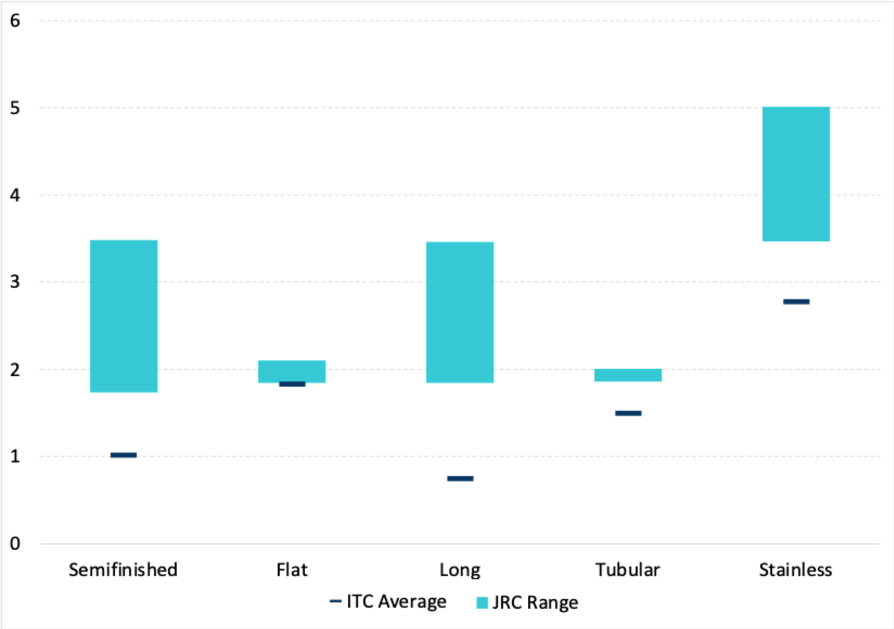
The JRC study, released in 2023, was intended to support implementation of the CBAM by providing estimated emissions intensities for products in four covered industries, including steel, and aluminum, for the EU, the United States, and other major producing countries.[27] An update to the report is scheduled for mid-2026, after the CBAM's definitive period begins. To estimate emissions intensities for products produced outside of the EU, the JRC report relies only on secondary data, citing its lack of access to foreign primary data.[28] In contrast, the ITC analysis relied on facility-level data and primary data reported by American manufacturers.

Treatment of Steel

The JRC report inflates the emissions intensity for U.S. steel by basing its estimates on the highest-emissions production pathway rather than the low-emissions low-carbon electric arc furnace (EAF) pathway that accounts for more than two-thirds of U.S. steel production.[29]

As a result of these key differences in analytical approaches, across steel products, the JRC estimate is greater than the ITC estimate by 55% on average. This includes a broad range of U.S. steel goods, including stainless steel and carbon and alloy products of semifinished, flat, long, and tubular product segments. See Figure 1.

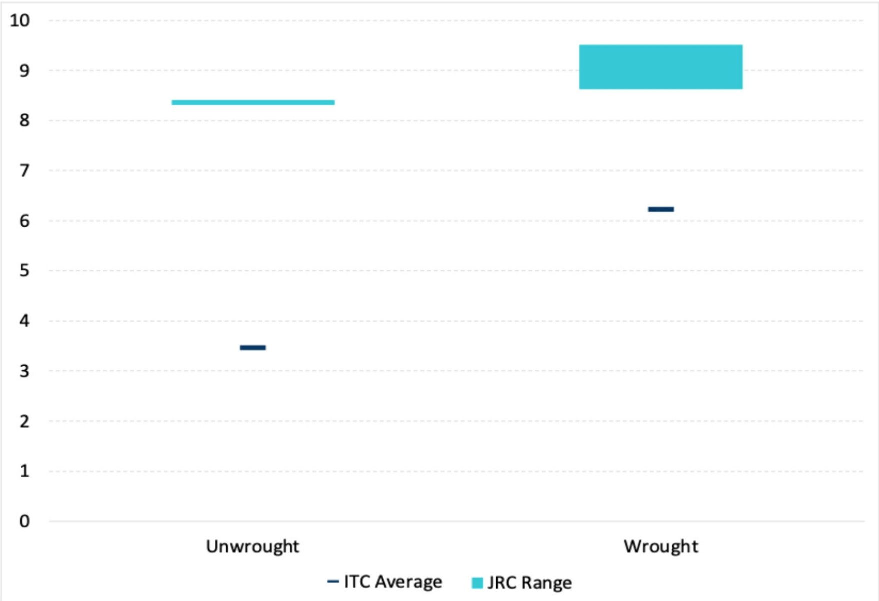
Figure 1: Steel Carbon Intensity Estimates (t CO2e/t product) from the EU Joint Research Center and the U.S. International Trade Commission[30]



Treatment of Aluminum

For unwrought aluminum, the JRC's average emissions intensity estimate for U.S. production is more than double the ITC's estimate. For wrought aluminum, the JRC's emissions intensity estimate for U.S production is greater than the ITC's estimate for every studied product by an average of 34%.[31] See Figure 2.

Figure 2: Aluminum Carbon Intensity Estimates (t CO2e/t product) from the EU Joint Research Center and the U.S. International Trade Commission



CONCLUSION

The CBAM is structured to rely on the most accurate emissions-intensity data available. “Actual emissions” based on facility-specific primary data are to be used when available. When actual emissions data is not available, country-specific default values—based on “actual values” if available—are to be used.

The CBAM’s preference for defaults based on primary data presents a challenge, given the lack of a mechanism for obtaining reliable data from all countries that export covered products to the EU. Accordingly, the EC’s JRC relied exclusively on secondary data in arriving at the default values used by the EC during the CBAM’s transitional period.

The CBAM, however, requires the EC to consider data made available by other countries in developing its default values for the definitive period in order to ensure that the “most up-to-date and reliable information” is used. The U.S. ITC’s recent study of the emissions intensity of U.S. steel and aluminum production provides the most up-to-date and reliable information on the emissions intensity of U.S. steel and aluminum production. The ITC investigation also satisfies the CBAM’s standards for generating default values based on the “best data available” and, if used, could lower the CBAM default values assigned to U.S. products.

[1] Note that the product category referred to here as “steel” also includes iron products such as pig iron that have not been refined or processed into steel.
[2] See Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism (CBAM), Annex IV, Article 3(22), available at https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32023R0956.
[3] United States International Trade Commission, Greenhouse Gas Emissions Intensities of the U.S. Steel and Aluminum Industries at the Product Level, Publication Number 5584, Investigation Number 332-598 (February 2025)(“ITC Report”), https://www.usitc.gov/sites/default/files/publications/332/pub5584_0.pdf.
[4] Vidovic et.al, Greenhouse gas emission intensities of the steel, fertilisers, aluminium and cement industries in the EU and its main trading partners, JRC Technical Report (2023) (“JRC Report”), available at https://publications.jrc.ec.europa.eu/repository/handle/JRC134682.
[5] See Carbon Border Adjustment Mechanism (CBAM) Questions and Answers (updated Dec. 17, 2024) at 38 (“The estimated values of the GHG emission intensities [in the JRC Report] served as an input to for the setting of the default values for the transitional period.”), https://taxation-customs.ec.europa.eu/document/download/013fa763-5dce-4726-a204-69fec04d5ce2_en?filename=CBAM_Questions%20and%20Answers.pdf. But see JRC Report at 3 (“This report does not constitute or anticipate any decision by the Commission on default values to be used for the CBAM from 1 January 2026 onwards.”)
[6] CBAM art. 3 (22).
[7] CBAM Annex IV (3).
[8] CBAM art. 7, para. 2. See also Annex IV, point 4.
[9] CBAM art. 3, para. 28.
[10] CBAM art. 7, para. 2. See also Annex IV, point 4.1 (“When actual emissions cannot be adequately determined by the authorised CBAM declarant, default values shall be used.”)
[11] CBAM Annex IV, point 4.1. The amount of the mark-up will be designated in the implementing acts, and “shall be set at an appropriate level to ensure the environmental integrity of the CBAM . . . .” Id.
[12] The CBAM indicates that the second level of defaults would be “based on the average emission intensity of the X % worst performing EU ETS installations for that type of goods,” with the level of “X%” to be determined in the implementing acts. Annex IV, point 4.1. The recently proposed amendments to the CBAM, however, would base the second level of defaults on the average emission intensity of “the ten exporting countries with the highest emissions intensities for which reliable data can be applied for that type of goods.” See Annexes to the Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2023/956 as regards simplifying and strengthening the carbon border adjustment mechanism, Brussels, 26.2.2025 COM(2025) 87 final, Annex 1, https://commission.europa.eu/document/download/dc72f9cb-2b58-465a-8a33-8c5d6b6efe8b_en?filename=COM_2025_87_annexes_EN.pdf.
[13] CBAM Annex IV, point 4.
[14] Id.
[15] Id.

[16] The ITC investigation provides two different estimates for U.S. product-level emissions intensities: 1) average emissions intensity across industry and 2) high-end estimates that represent the top 10% margin for the most emissions-intensive iron & steel production. For the purpose of this paper, ITC emissions intensity estimates will refer to the calculated average (estimate #1).
[17] See generally Matthew C. Porterfield, Daniel Hoenig, & Holly Rooper, An Approach to Interoperability of U.S. and EU Systems for Determining GHG Emissions Intensity of Steel, Climate Leadership Council Working Paper (April 2024) ("An Approach to Interoperability"), https://clcouncil.org/media/2024/04/Interoperability-of-Carbon-Accounting-for-GASSA_Final-1.pdf. Despite capturing more sources of emissions, the ITC's estimates for U.S. average emissions intensity are lower than the JRC's estimates.
[18] See ITC Report at 132 and 137.
[19] See CBAM Annex II.
[20] See An Approach to Interoperability, supra, at 3, 5.
[21] See id. at 4.
[22] See id. at 6.
[23] See ITC Report at 316 and 320. Differences between the ITC and CBAM coverage of upstream emissions include the following:
1) for steel, ITC system boundaries cover the same processes and material inputs as the CBAM, with the addition of mining and processing of coke, flux materials, carbon electrodes, industrial gases, additional ferroalloys, and coating metals.
2) For aluminum, the ITC system boundaries cover the same processes and material inputs as the CBAM, with the addition of mining of raw materials such as bauxite, alumina, and anode materials. The ITC also extends past the CBAM system boundaries to include alumina refining and production of carbon anodes.
[24] See ITC Report at 317 and 321. Production within a facility is broken down into subprocesses and emissions are distributed to each subprocess based on the output that it produces. The emissions from these subprocesses are then combined with emissions associated with products used within the facility.
[25] CBAM, Annex IV, point 4.
[26] See ITC Report at 36 ("When comparing the 2022 total production data collected in responses to the Commission's questionnaire to that from external data sources, the survey captured nearly 100 percent of production for almost all product categories.") see also id. at 37 (describing the calculation methodology).
[27] See JRC Report at 1 ("This report provides an estimation of GHG emission intensities for products from four energy-intensive industries (iron and steel, fertilisers, aluminium and cement) in the EU and in its main trading partners. The aim of these estimations is to provide scientific support to the implementation of the [CBAM]").
[28] See id. at 100:

> It is not possible to validate the carbon intensities of products produced in third countries as we have done for the EU, where we used the benchmarking curves of the EU ETS. The information in these curves is based on actual data from European facilities reported to Member States, who in turn report to the European Commission. In order to validate our estimation for third countries, we would need access to actual data from their facilities.

See also Commission Staff Working Document Accompanying the document

Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2023/956 as regards simplifying and strengthening the carbon border adjustment mechanism, SWD/2025/58 final (Feb. 26, 2025) ("Commission Staff Working Document") at 20 (noting challenges of collecting actual data from facilities in non-EU countries), https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52025SC0058.

[29] See JRC Report at 16 ("When there are several production pathways possible . . . the final GHG emission intensity corresponds to the production pathway with the highest GHG emission intensity.") This approach fails to account for the over 70% of U.S. iron and steel that is produced via the low-carbon electric arc furnace (EAF) pathway. See "Facts about American Steel Sustainability," American Iron and Steel Institute, https://www.steel.org/wp-content/uploads/2021/11/AISI_FactSheet_SteelSustainability-11-3-21.pdf. The JRC similarly assigned embedded emissions in precursors based on the highest emitting production route of the country where the precursor is used if a precursor can have different embedded emissions depending on the production route. JRC Report at 7 ("for imported precursors that can have very different SEEi depending on the production route, due to the impossibility of identifying that production route, we use the GHG of the country consuming it, using its most carbon-intensive route….")

[30] JRC provides emissions intensity estimates by individual 4- and 6-digit product code, while ITC provides weighted product category averages in addition to more granular product-specific estimates of emissions intensity. To compare the two data sources, we sorted JRC estimates into the ITC's five iron & steel product categories and created a range of JRC estimates within each product category.

[31] Authors' calculation based on the following methodology: ITC HTS and JRC CN codes were matched based on their first 6 digits. The percent difference between the ITC and JRC values was calculated for each product by subtracting the ITC from the JRC value and dividing by the ITC value. Authors then took the average of those percent differences.