COMMENTS OF THE CENTER FOR CLIMATE AND ENERGY SOLUTIONS

This document constitutes the comments of the Center for Climate and Energy Solutions (C2ES) on the request for information to help guide the National Energy Technology Laboratory's study on the effects of the European Union's (EU's) Carbon Border Adjustment Mechanism (CBAM) on U.S. exporters. C2ES is an independent, nonprofit, nonpartisan organization working to secure a safe and stable climate by accelerating the global transition to net-zero greenhouse gas emissions and a thriving, just, and resilient economy. As such, the views expressed here are those of C2ES alone and do not necessarily reflect the views of members of the C2ES Business Environmental Leadership Council (BELC).

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Introduction

C2ES appreciates the opportunity to respond to the National Energy Technology Laboratory's (NETL) Request for Information (RFI) on calculating the emissions intensity of U.S.-produced goods affected by the European Union's Carbon Border Adjustment Mechanism. C2ES supports NETL's development of a robust, transparent, and government-backed dataset on the emissions intensity of U.S.-produced industrial goods. Congress directed NETL to study the average emissions intensity of certain goods produced in the United States, including those implicated by the EU CBAM, compared to those from other countries. The RFI also asks respondents to identify data sources that can inform the emissions intensity of similar goods produced abroad.

This comparative framing is essential. A U.S.-only assessment does not capture the intent of the congressional directive, nor deliver its full potential value. As international markets increasingly distinguish between higher- and lower-emissions intensity products, it will prove important to not only analyze the impact of the EU CBAM on U.S. producers, but also to collect transparent and comparable data to demonstrate that select U.S. producers are more emissions efficient than some foreign competitors. Such data will support continued market access and strengthen the competitiveness of U.S. exports.

U.S. industrial producers benefit from investment in lower-emissions technologies and modern production processes, comparatively cleaner electricity and fuel mixes in some regions, and historically strong environmental standards. The United States therefore has a strong interest in ensuring that its emissions-intensity calculations are based on reliable, objective, and verifiable data rather than statistical modeling, incomplete foreign datasets, or default values that may not accurately reflect U.S. performance.

C2ES recommends that NETL's study produce not only a defensible estimate of U.S. average product emissions intensity, but also meet the intent of the Congressional directive by collecting comparable data for key foreign producers. This should include, at minimum, major producers and exporters of EU CBAM-covered goods, G7 countries, U.S. free trade agreement partners, and countries where available evidence suggests materially different emissions profiles. The study should result in not just a one-time reference point that rapidly becomes outdated. Instead, it ought to construct an associated methodology that can be used to regularly update product emissions intensities.

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3. Curated Datasets and Data Access

See Appendix

4a. Robust, defensible methodology for calculating a national average product emissions intensity

A robust, transparent, and government-backed dataset is essential to producing credible national average product emissions intensities. A federal methodology and dataset would provide a consistent and credible basis for evaluating the emissions performance of U.S.-produced goods across sectors and product categories. It would also improve comparability with foreign products

and reduce reliance on separate academic, industry, or non-governmental studies that may use incompatible data, methodologies, or assumptions.

For emissions estimates to be robust and defensible, the underlying data must be accurate, sufficiently granular, representative of current production practices, and regularly updated. Product emissions intensities can change over time as facilities improve efficiency, shift fuels, deploy new technologies, change production methods, or alter output. Estimates based on outdated or incomplete information may fail to capture these improvements and could understate the performance of U.S. manufacturers. A durable federal framework should therefore support an ongoing data collection system, rather than a one-time study that quickly becomes outdated. To minimize unnecessary administrative burdens and increased compliance costs, NETL should use and integrate with existing federal reporting systems, namely the Environmental Protection Agency's (EPA) Greenhouse Gas Reporting Program (GHGRP), to the greatest extent practicable, implementing supplemental data collection systems only where additional information is necessary to develop accurate product-level emissions intensity estimates.

The GHGRP already collects standardized facility-level emissions and activity data from relevant industrial sectors. The GHGRP is not designed to provide product-level emissions intensity estimates, and therefore, additional data may be necessary. However, maintaining and building on the GHGRP's reporting infrastructure would allow NETL to leverage a substantial body of high-quality data while avoiding unnecessary duplication of reporting requirements or attempting to reconstruct facility emissions from voluntary disclosures, modeled estimates, or other sources that may be less complete or consistent. Where new information is needed, data collection should be designed to complement the GHGRP.

The International Trade Commission's (ITC) report, "Greenhouse Gas Emissions Intensities of the U.S. Steel and Aluminum Industries at the Product Level," provides an approach for using existing data from the GHGRP and establishes a solid methodological foundation for this type of analysis. Furthermore, ITC conducted this study with an eye toward interoperability (i.e., the ability to translate data between policies and jurisdictions) with the EU CBAM.[i]

Interoperability maximizes the methodology's utility by ensuring the ability to use the data collected across current and future policies of a similar nature to the EU CBAM, fostering durability and robustness. Achieving interoperability can reduce compliance costs associated with international trade and further promote U.S. industries by proving their relative advantages.[ii]

NETL should consider building on and refining the ITC's work to construct a robust, defensible product emissions intensity calculation methodology. Beyond the calculation of average emissions intensity, the methodology should analyze additional relevant metrics (e.g., median, range, and margins of error). It should further build on the precedent established by the ITC by considering international interoperability to maximize the benefits conferred to U.S. producers.

4b. Critiques of the EU CBAM methodology

The EU-mandated methodology to measure, report, and verify product-level emissions for the EU CBAM poses some challenges for U.S. producers exporting to the EU. Select elements are worth review, namely default values and verification.

Default values: The European Commission has published default values, or the average emissions intensity of producing a given product within a country, for covered products for those entities unable or unwilling to calculate their products' actual emissions in the manner prescribed by the EU CBAM. However, an opaque calculation methodology and the potential influence of EU

industries in the calculation process raises questions about the default values' validity.[iii] On July 31, 2026, the European Commission publicly released amended default values, which apply retroactively through January 1, 2026.[iv] As a result, exporting firms may be forced to recalculate their emissions for products exported this year, potentially raising compliance costs.

EU CBAM default values are also subject to a markup, equivalent to 10 percent in 2026, 20 percent in 2027, and 30 percent in 2028. Fertilizers receive a carve out, with a 1 percent markup across all years. As such, U.S. producers exporting their products to the EU who are unable to use actual emissions values may face higher CBAM liabilities regardless of their actual level of efficiency. The European Commission states that these markups are in line with the EU CBAM's purpose as a climate measure and intended to incentivize the use of actual emissions data over default values. In combination with the lack of transparency regarding the process used for calculating the default values, these markups could be seen as a protectionist measure that discriminates against producers unable to calculate their products' actual emissions values.

Regulation (EU) 2023/956, Annex IV states, "Default values shall be revised periodically through the implementing acts adopted pursuant to Article 7(7) based on the most up-to-date and reliable information, including on the basis of information provided by a third country or group of third countries."[v] In combination with the revisions released on July 31, 2026, this reinforces the need for the United States to implement an ongoing, robust, and verifiable system/ methodology for calculating verifiable, product average emissions intensities to reinforce U.S. producers' current advantages and to challenge potentially inaccurate EU data. Data collected to support this system could facilitate U.S. producers' use of actual emissions data over default values to further reduce their EU CBAM liability, or the liability created by similar policies in other jurisdictions.

Verification: The EU CBAM's verification requirements may pose a barrier to U.S. exports. The EU CBAM requires non-EU installation operators, including producers in the United States, to have their reported actual emissions verified by EU CBAM accredited verifiers.[vi] Verifiers must conduct in-person site visits in the first year requiring verification and subsequently at least every two years. EU member countries specify the bodies responsible for accrediting these verifiers.

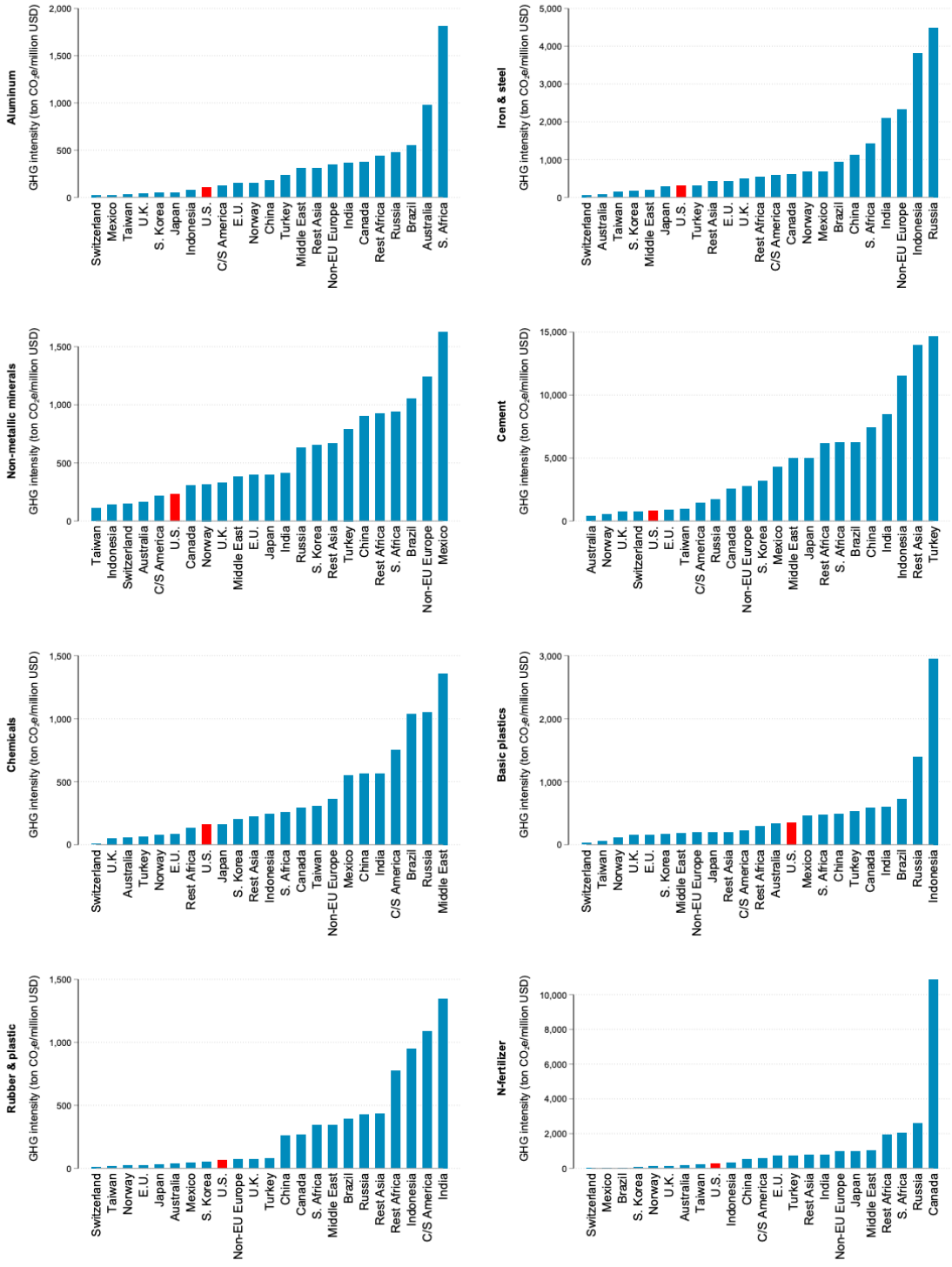
As of July 8, 2026, the European Commission reported that some EU member countries are not yet ready to accept businesses' applications to become accredited verifiers. In short, these delays could result in a lack of accredited verifiers amidst high demand, creating a bottleneck for U.S. firms attempting to comply with the EU CBAM's required processes.[vii] A U.S. system and methodology that collects verified data may provide a basis for engaging the EU on this issue.

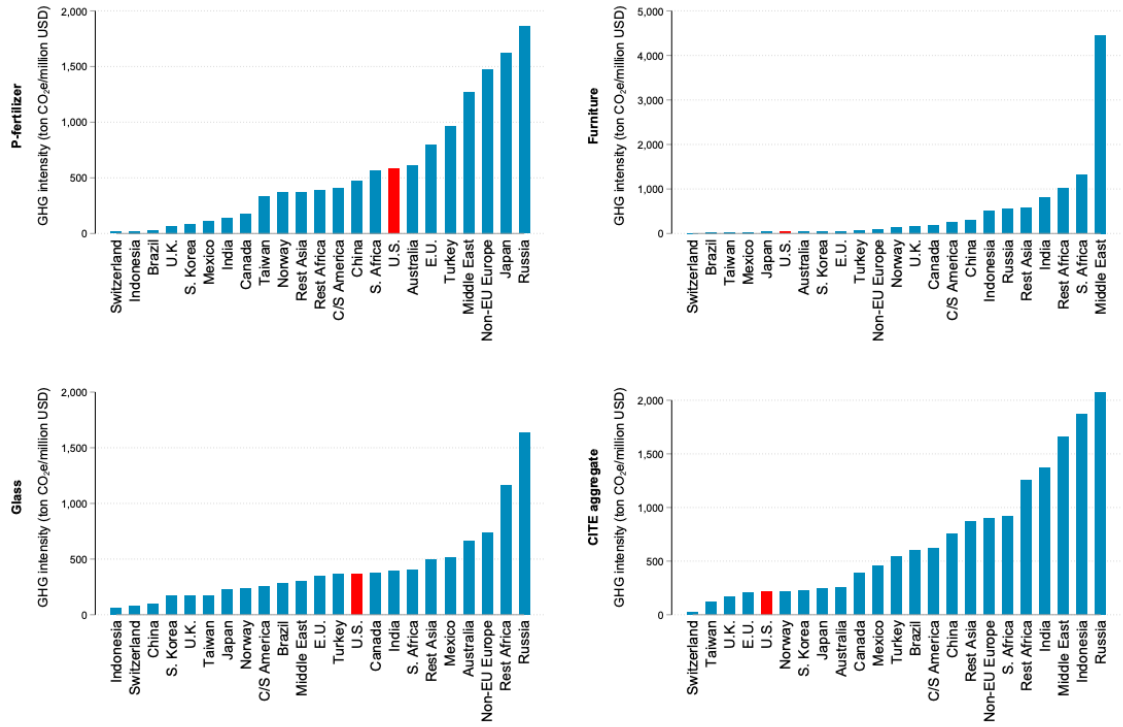
Appendix:

The figures included in this appendix provide examples of existing data on the emissions intensity of U.S. industries. While the sources generally illustrate similar trends, the results are not fully consistent due to differences in datasets, methodologies, industry coverage, and other assumptions. C2ES does not view any one of these sources as a definitive measure of U.S. industrial emissions intensity; rather, C2ES includes them to illustrate the need for a consistent, transparent dataset that enables comparison of the emissions intensity of U.S. industrial products with those produced in other countries.

The figures presented here generally measure emissions intensity in terms of tons of carbon dioxide equivalent (tCO_2e) per unit of economic output. This differs from product-level measures, such as tCO_2e per unit of product, used under the EU CBAM. While economic-output–based measures can provide useful insight into broader trends in industrial emissions intensity and decarbonization, product-level measures may be more appropriate for comparing the emissions intensity of specific traded products.

Figure D.2: GHG intensities by country

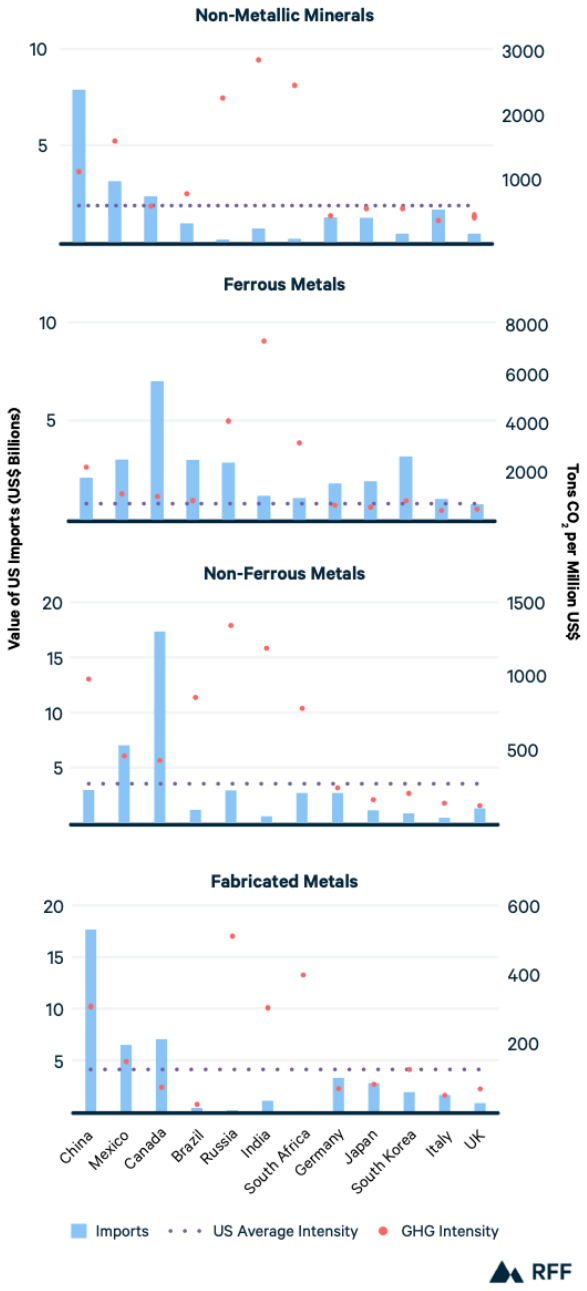




Notes: Each panel (except last) shows country direct GHG intensity (CO_2e per million USD) for a CITE sector. Last panel shows country aggregate CITE GHG intensity (CO_2e per million USD) as ratio of direct emissions summed across CITE sectors to output summed across CITE sectors. Red bar indicates the U.S.

Source: Gregory Casey, Kyle C. Meng, and Ivan Rudik, "Are Carbon Tariffs Climate Policy?," (National Bureau of Economic Research, 2026), https://www.nber.org/papers/w35307.

Figure 2. Carbon Intensity by Country for Covered Sectors and Trade Volume (Billion US$) with the United States



Note: Figure 2 displays the value of US imports (left axis) and the associated carbon intensity of production (right axis) for major trading partners across the four modeled covered sectors. Carbon intensities are benchmarked against the US average (dotted line) for that sector. Countries with both high import values and higher carbon intensities than the US have greater exposure to the FPFA tariffs.

Source: Kevin Rennert, Mun Ho, Katarina Nehrkorn, and Milan Elkerbout, "Projected Effects of the Foreign Pollution Fee Act of 2025," (Resources for the Future, 2025), https://media.rff.org/documents/IB_25-07.pdf.

Table 1: America's carbon efficiency advantage by industrial sector vs. BRIC, EU, & USMCA Countries

	U.S.	Brazil	Canada	China	EU	India	Mexico	Russia	World
Mining and quarrying, energy producing products	1.0	1.2	2.2	1.9	1.5	1.7	1.0	1.6	1.2
Mining and quarrying, non-energy producing products	1.0	0.9	1.2	3.8	1.3	2.3	1.2	0.7	2.2
Mining support service activities	1.0	1.4	2.9	5.7	3.1	2.0	1.8	7.3	3.4
Wood and products of wood and cork	1.0	1.3	2.1	1.6	0.9	1.3	1.8	3.0	1.4
Paper products and printing	1.0	1.8	4.2	2.2	1.0	3.6	1.0	3.3	1.7
Coke and refined petroleum products	1.0	1.2	1.6	1.5	1.1	1.7	0.9	1.7	1.2
Chemical and chemical products	1.0	1.3	1.5	2.4	0.9	1.6	1.0	5.3	1.8
Pharmaceuticals, medicinal chemical and botanical products	1.0	3.7	3.1	6.6	2.0	6.9	8.5	7.3	3.7
Rubber and plastics products	1.0	1.9	1.2	2.7	1.0	2.7	1.5	4.6	1.9
Other non-metallic mineral products	1.0	2.2	1.2	2.1	1.3	3.8	0.9	3.8	2.0
Basic metals	1.0	2.2	1.3	2.7	1.2	3.5	1.3	5.0	2.3
Fabricated metal products	1.0	2.0	1.2	4.0	1.0	3.9	1.9	5.1	2.4
Computer, electronic and optical equipment	1.0	3.7	2.6	7.1	2.7	17.6	4.4	8.5	5.3
Electrical equipment	1.0	2.2	1.4	3.8	1.2	6.7	1.9	6.2	2.8
Machinery and equipment, nec	1.0	1.8	1.2	3.7	1.0	6.2	1.5	5.7	2.4
Motor vehicles, trailers and semi-trailers	1.0	1.8	1.1	2.6	1.0	5.5	1.4	3.2	1.7
Other transport equipment	1.0	2.0	1.3	5.3	1.3	6.2	2.0	7.1	2.7
Manufacturing nec; repair and installation of machinery and equipment	1.0	1.3	1.3	2.6	0.7	2.9	1.4	3.9	1.6
Economy-Wide	**1.0**	**2.3**	**1.5**	**3.6**	**1.0**	**4.4**	**1.7**	**5.4**	**2.2**

Source: Phylleos and author calculations based on data from the OECD.[14]

U.S. Carbon Advantage (foreign competitors less carbon efficient)

U.S. Carbon Disadvantage (foreign competitors more carbon efficient)

U.S. Carbon Efficiency or Equivalent

Source: Source: Catrina Rorke, Scott Nystrom, and Daniel Hoenig, "America's Carbon Advantage 2025," (Climate Leadership Council, 2025), https://clcouncil.org/wp-content/uploads/2025/06/2025-Carbon-Advantage_report-1.pdf.

[i] Caroline Peters, Shova KC, Alexander Melton, Kristin Smyth, "Greenhouse Gas Emissions Intensities of the U.S. Steel and Aluminum Industries at the Product Level," Publication No. 5584, Investigation No. 332-598, (US International Trade Commission, Washington, DC, 2025), https://www.usitc.gov/publications/332/pub5584_0.pdf.

[ii] OECD, "Enhancing the interoperability of policy-mandated emission monitoring, reporting and verification systems: Technical summary report," (OECD Publishing, Paris, 2026), https://doi.org/10.1787/3413255a-en.

[iii] Eklavya Gupte and Irina Breilean, "EU CBAM committee approves revised default, benchmark carbon intensity values," (S&P Global, December 10, 2025), https://www.spglobal.com/energy/en/news-research/latest-news/energy-transition/121025-eu-cbam-committee-approves-revised-default-benchmark-carbon-intensity-values.

[iv] Commission Implementing Regulation (EU) 2026/1740 of 20 July 2026 correcting Implementing Regulation (EU) 2025/2621 as regards Annexes I and IV thereto, OJ L, 2026/1740, 31.7.2026, http://data.europa.eu/eli/reg_impl/2026/1740/oj.

[v] Consolidated text: Regulation (EU) 2023/956 of the European Parliament and of the Council of 10 May 2023 establishing a carbon border adjustment mechanism, OJ L, 2025/2083, 17.10.2025, http://data.europa.eu/eli/reg/2025/2083/oj.

[vi] Commission Implementing Regulation (EU) 2025/2546 of 10 December 2025 on the application of the principles for verification of declared embedded emissions pursuant to Regulation (EU) 2023/956 of the European Parliament and of the Council, OJ L, 2025/2546, 22.12.2025, *http://data.europa.eu/eli/reg_impl/2025/2546/oj*.

[vii] European Commission, "State-of-play CBAM accreditation," (European Commission, July 8 2026), https://taxation-customs.ec.europa.eu/document/download/a782dacf-ab68-44cc-986c-28fd1b4daa94_en?filename=State-of-play%20CBAM%20accreditation.pdf.