U.S. EPA C-MORE Draft EPD Criteria for Data Quality and Transparency

(Draft—December 2024)

Status and Intended Use

The U.S. Environmental Protection Agency is providing this document as an in-progress update. EPA intends this document to be released for formal public comment in the coming months. As an interim stakeholder feedback phase, EPA welcomes comments on this draft document by emailing embodiedcarbon@epa.gov. Please include the title of this document in the email.

When finalized, a selection of the EPD Criteria for Data Quality and Transparency will be required for EPDs submitted for products seeking the EPA Label for Low Embodied Carbon Construction Materials, and for EPDs used by the General Services Administration and Federal Highway Administration for implementing sections 60503 and 60506 of the Inflation Reduction Act of 2022. It is important to note that EPDs will not be required to meet this series of criteria until this document is finalized.

Contents

1. Introduction

Environmental product declarations are condensed life cycle assessment reports that commonly report product-level environmental impacts. EPA has identified a need to outline the expectations for what constitutes a robust, high-quality EPD and to address the comparability and consistency aspects outlined within ISO 21930:2017 Section 5.5 and ISO 14025:2006 Section 6.7.2. In parallel with the U.S. EPA Criteria for Product Category Rules (PCRs) to Support the Label Program for Low Embodied Carbon Construction Materials (EPA's PCR Criteria), the EPD Criteria for Data Quality and Transparency aims to provide specifying entities and other users of EPDs with a single set of requirements to convey when requesting high-quality EPDs for construction. While the criteria are currently drafted as a single set of requirements, future stakeholder input may result in an approach similar to EPA's PCR Criteria, with requirements divided into Baseline and Leadership criteria.

2. Draft EPD Criteria for Data Quality and Transparency

This section outlines the criteria for a high quality EPD with the following categories:

- EPD type and format
- EPD product information
- EPD scope
- EPD validity
- EPD life cycle assessment information

2.1 EPD Type and Format

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
1.	The EPD shall be a Type III Environmental Declaration.	ISO 14025:2006; PCR Criteria 1.1.E (B)	EPD Type

[1] Any standards, guidance or other references used to construct the relevant requirements have been included. For references to EPA's PCR Criteria, indication of a baseline criterion is denoted with a "(B)," while leadership criterion is denoted with an "(L)."

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
2.	The EPD shall clearly state the type of EPD it represents and should use the following nomenclature: • Industry-average and Product-average EPD • Industry-average and Product-specific EPD • Manufacturer-average and Product-average EPD • Manufacturer-average and Product-specific EPD • Facility-specific and Product-average EPD • Facility-specific and Product-specific EPD	ACLCA Data Specificity in EPDs (2024 draft)	EPD Type
3.	When used for construction procurement, the EPD shall be a product- and facility-specific EPD. In other words, an EPD reflective of one product from one facility.	PCR Criteria 1.1.E (B)	EPD Type
4.	The EPD shall be able to be transferred into an electronic PDF copy. Whenever possible, EPDs should be digitally formatted for transferring EPD data.	U.S. EPA C-MORE Interim Digital Data Format for EPDs	Not applicable

2.2 EPD Product Information

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
5.	The EPD shall state the product name(s) that are covered by the EPD.	ISO 21930:2017, Clause 9.2.C	Product Name
6.	The EPD shall include a description of the product that clearly outlines its material and performance characteristics to distinguish the named product(s) on the EPD from similar products.	ISO 14025:2006, Clause 7.2.1.B; ISO 21930:2017, Clause 9.2.B	Product Description
7.	The EPD shall provide the unit of measure associated with the EPD (i.e., a declared unit or a functional unit depending on the scope). Whenever possible, the EPD should list the product service life.	ISO 21930:2017, Clause 9.3; PCR Criteria 1.1.B (B)	Functional Unit Declared Unit Product Lifespan
8.	The EPD shall include a description of the main product components or materials that make up the product being declared, given in percentage.	ISO 21930:2017, Clause 9.2.d	Material Content Component/Material Material Content Weight Percent
9.	The EPD shall provide the facility name(s) and address(es) associated with the facility or facilities at which the product is produced and reflected in the EPD (i.e., not the corporate office address of the parent company).	ISO 21930:2017, Clause 9.2.A; PCR Criteria 1.1.E (B)	Name and Location of Production Site
10.	The EPD shall provide the manufacturer's name.	ISO 21930:2017, Clause 9.2.A	EPD Owner

2.3 EPD Scope

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
11.	The EPD shall list the name of the entity that has developed the EPD and, if applicable, the associated EPD generator tool and the tool's version number.	ISO 21930:2017, Clause 9.2.F	EPD Developer EPD Generator and Version

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
12.	The EPD shall include an indication of covered LCA information modules, including a minimum of A1, A2 and A3 modules. Results should/shall be disaggregated by life cycle stage.	ISO 21930:2017, Clause 5.2.1, 5.2.2; PCR Criteria 1.1.C (B), 1.1.G (B)	LCA System Boundary
13.	The EPD shall contain impact reporting per Table 5 of ISO 21930:2017, specifically Global Warming Potential[2] acidification potential, ozone depletion potential, eutrophication potential and photochemical ozone creation potential, for all LCA information modules covered.[3]	ISO 21930:2017, Section 7.3, Table 5; PCR Criteria 2.1.D (B)	LCIA Methodology and Version
14.	The EPD should disclose the percentage of the A1–A3 GWP indicator that originates from primary data.	ACLCA Data Specificity in EPDs (2024 draft) Using specific rather than generic data helps increase the accuracy of the estimated environmental impacts being disclosed by the EPD.	Supply Chain Specificity
15.	If an ENERGY STAR Energy Performance Indicator is available for the sector that is publishing EPDs, the EPD should disclose the ENERGY STAR Energy Performance Score (EPS) associated with the facility that produced the material being declared on the EPD.	PCR Criteria 1.1.I (L), 3.3C (L)	ENERGY STAR Energy Performance Score

[2] The term "GWP" is used in EPDs, PCRs and Buy Clean policies for construction products as an impact category to report on embodied GHG emissions (per ISO 21930:2017, Section 7.3, Table 5). In the ISO context, "GWP" is conveyed in CO_2e/unit of product to denote the product level GHG emission intensities. We note this usage is inconsistent with how GWP is defined by the Intergovernmental Panel on Climate Change (IPCC) and in other GHG accounting efforts, including national reporting by Parties to the Paris Agreement. Per IPCC, GWP is an index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO_2). For more information on the definition and use of the term "GWP" (Global Warming Potential), please see https://www.epa.gov/ghgemissions/understanding-global-warming-potentials.

[3] The EPD should use the life cycle impact assessment (LCIA) indicator list outlined by EPA (please visit EPA's website for the most recent file) until an update to the Tool for Reduction and Assessment of Chemicals and Other Environmental Impacts (TRACI 3.0) is released. Once TRACI 3.0 is published, EPA encourages all PCRs to switch to TRACI 3.0 for LCIA indicators outlined in Table 5 of ISO 21930:2017, in lieu of TRACI 2.1.

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
16.	When the EPD factors the procurement of Renewable Energy Certificates and other Energy Attribute Certificates (EACs) into the life cycle impact results (market-based accounting of impact indicators), the EPD should list the market-based results as the primary impact results and separately disclose the results in absence of applying Renewable Energy Certificates (RECs) and other EACs (location-based accounting). The impact indicator results shall be clearly labelled as using either a market-based or a location-based version of accounting.	PCR Criteria 1.1.J (L)	EACs
17.	The EPD should report impacts from biogenic carbon, Module D, book and claim systems, and other carbon dioxide removal mechanisms separately, in line with the requirements from the relevant PCRs.[4]	PCR Criteria 1.1.I (L)	Are additional result variations included?
18.	The EPD shall clearly disclose limitations to comparability.	ISO 14025:2006, Clauses 5.6 and 6.7.2; ISO 21930:2017, Clause 9.2J; PCR Criteria 2.1.N (B)	Comparability Statement
19.	For EPDs that include EACs: When the EPD factors the procurement of renewable energy certificates (RECs) and other energy attribute certificates (EACs) into the lifecycle impact results (market-based accounting of impact indicators), the following requirements around EAC procurement should be met: • EACs may only be sourced from generators in the United States when being applied to manufacturing plants in the United States. • EACs accounted in the LCA must be the same reporting period as the reporting period for other energy data. • EACs must come from generators that were placed into service within the past 15 years.	PCR Criteria 3.3.F (L)	EACs

[4] EPA is aware that there may be emerging methodologies that may seek to be added to PCRs, such as alternative chain of custody methodologies. While EPA is not endorsing the use of emerging methods, the inclusion of this text is intended to drive consistent and reliable reporting. As such, if a PCR committee outlines the use of emerging methodologies that may result in shifts in the environmental impacts of a product, the PCR should disclose the use of such mechanism and include a detailed description of the alternative chain of custody approach, including the specific methodology used to attribute GHG emissions and any impact to the product GHG emissions reported in the EPD. Such emerging methodologies must not conflict with the existing requirements of ISO 14025:2006 and ISO 21930:2017.

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD

	• The electricity accounting methodology (location-based versus market-based) must be disclosed on the EPD when presenting the LCA results.
	• A manufacturer must attest in writing that EACs allocated to a particular facility or product have and will not be sold or transferred after a claim has been made. A manufacturer must document controls it has put in place to manage EAC allocation within its operating boundary.
	• In cases where EACs are retired on behalf a specific facility or for a manufacturing process within a facility, an EAC retirement report, which references the manufacturing facility's name, must be produced which references the manufacturer's name in the retirement report and documentation related to the EAC allocation within the manufacturers operational footprint must be produced and verified.
	• EAC-based electricity must use life cycle inventory (LCI) data based on the same LCI models used for grid electricity. Facility-specific generation models should be employed to match the carbon intensity of the EAC electricity generators. If facility-specific models are not available, regional models of the same energy source generation type may be used. The same values for grid line losses used in the electricity grid LCI shall be applied to EAC-based electricity LCIs.
	• The EPD verifier must verify that the manufacturer owns the EACs and has not sold or transferred them after a claim against them has been made.
	• EACs with Green-e certification (or another EPA-approved EAC certification) must be used when EACs are included in the calculation of life cycle impacts. In the event a company may wish to use non-Green-e certified EACs, those EACs must:
	  ○ Meet the resource eligibility standards identified through Green-e, including solar electric, wind, geothermal, eligible hydropower, eligible biomass and fuel cells powered by eligible fuels.
	  ○ Be verified to be retired for the consumer and that the EAC supplier has provided an attestation indicating a clear chain of custody where the energy attributes or EACs were not used, sold, or claimed by other parties.		

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
	○ Be incremental to mandatory requirements (e.g., regulatory surplus) including but not limited to state RPS requirements, legislation, or settlement agreements. ○ Originate from generating sources located in the US, the District of Columbia, and its territories and applied to electricity consumption within the same locations. *EPA recognizes the emerging practice of incorporating EACs into LCAs and the ongoing efforts by external stakeholders to augment guidance for doing so. This criterion may be refined as developments are made in this field.		

2.4 EPD Validity

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
20.	The EPD shall be third-party verified (against the relevant PCR, ISO 21930:2017, ISO 14025:2006 and ISO 14044:2006).	PCR Criteria 1.1.E (B)	EPD Verifier Standards Conformity
21.	The EPD shall provide the third-party verifier's name, firm and contact email.	ISO 14025:2006, Clause 7.2.1; ISO 21930: 2017, Clause 9.2; PCR Criteria 1.1.E (B), 1.2E (L)	EPD Verifier
22.	The EPD verifier shall be a competent, independent and external third-party that is not associated with the EPD owner or program operator (e.g., a member of the firm's board). For example, the EPD verifier may have a signed self-declaration of verifier independence and competencies as outlined in Appendix E of EPA's PCR Criteria, available upon request.	PCR Criteria 1.2.E (L) and Appendix E	EPD Verifier

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
23.	The EPD shall list the dates of validity (no more than a five-year period).	ISO 14025:2006, Clause 6.7.2.K; ISO 21930:2017, Clauses 7.1.9, 9.2.H, 9.2.I, 11; PCR Criteria 1.1.K (L)	Date of Issue Date of Expiration
24.	The EPD shall list the relevant valid PCR(s) and PCR version number with which the EPD complies at time of publishing.	ISO 14025:2006, Clause 7.2.1.E; ISO 21930:2017, Clause 9.2.F; PCR Criteria 1.1.K	Core PCR and Version Sub-Category PCR and Version
25.	The EPD shall be associated with a PCR that conforms to EPA's PCR Criteria.[5]	EPA's PCR Criteria This association will ensure that a consistent level of data quality is being met across the construction sector.	Core PCR and Version Sub-Category PCR and Version

[5] For products sourced outside of North America and imported for use, the EPD shall conform to relevant North American PCRs, which will ensure the same PCR is being used within a given material category.

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
26.	The EPD shall include a unique EPD identifier that shall contain the version number of the EPD. The EPD may include the additional following information within the EPD unique identifier: • Entity producing the EPD (not the EPD owner) • EPD owner • PCR name • PCR version • Year of EPD publishing • EPD numeric count • Version number of the EPD Entities that produce EPD reports are encouraged to use the following Unique Identifier naming convention: [Name of Entity Producing EPD]_[EPD Owner]_[PCR Name and Version]_[year of EPD publishing]_[numeric count]_[version number]	PCR Criteria 1.1.K (L)	Program Operator EPD Owner Core PCR and Version Sub-Category PCR and Version Date of Issue EPD Registration Number

2.5 EPD LCA Information

Criterion	Specific Requirement	Reference/Rationale[1]	Example Data Field in EPD
27.	The EPD shall list the LCA software name, model and version number. Where applicable, the EPD shall provide the name of the practitioner/organization that conducted the LCA and the name of the practitioner/organization that completed the critical review of the LCA.	PCR Criteria 2.1.A (B) Listing the LCA software, model and version number will improve EPD comparability aspects.	LCA Software and Version LCA Practitioner LCA Verifier
28.	The EPD shall disclose, where applicable, the following in alignment with the PCR with which the EPD states it is in conformance: • Background LCI data source(s), including data source name and version number. The EPD shall use the specific LCI process data sets prescribed by the PCR with which the EPD states it is in conformance. Appendix G.2 in EPA's PCR Criteria provides an example data disclosure chart for EPDs. • Foreground LCI data source(s), including data source name and version number. Appendix G.2 in EPA's PCR Criteria provides an example data disclosure chart for EPDs. • Primary data collection method. • Allocation procedures. • Cut-off procedures. • Data quality assessment approach.	ISO 14025: 2006, Clause 6.8.1; PCR Criteria 2.1.E (B), PCR Criteria 2.1.J (B), PCR Criteria 3.1.A (B), PCR Criteria 3.2.I (L), Appendix G	LCI Database(s) and Version Data Collection Method Allocation Approach LCI Cut-Off Criteria LCA Software and Version

3. References

ACLCA (American Center for Life Cycle Assessment). (2024). Guidance for Determining EPD Types and Calculating/Communicating Data Specificity Through the Supply Chain. Draft. https://aclca.org/pcr/.

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U.S. Environmental Protection Agency. (2024). U.S. EPA C-MORE Interim Digital Data Format for EPDs. https://www.epa.gov/system/files/documents/2024-12/c-more_interim_digital_data_format_epds.xlsx

4. Terminology

Background data: Data contained within the process(es) supporting the foreground system. Background data constitute the "background system" in a product system.

Biogenic carbon: Carbon derived from biomass. This definition is consistent with the one in ISO 21930:2017.

Biomass: Material of biological origin, excluding material embedded in geological formations or transformed to fossilized material and excluding peat. Biomass includes organic material (both living and dead) from above and below ground, e.g., trees, crops, grasses, tree litter, algae, animals and waste of biological origin, e.g. manure. This definition is consistent with the one in ISO 21930:2017.

Book and claim model: A chain of custody model in which the administrative record flow is not necessarily connected to the physical flow of material or product throughout the supply chain. This chain of custody model is also referred to as "certificate trading model" or "credit trading." This definition is consistent with the one in ISO 22095:2020.

Carbon dioxide removal (CDR) mechanisms: "Carbon dioxide removal" refers to approaches that remove carbon dioxide from the atmosphere. CDR encompasses a wide array of approaches, including direct air capture (DAC) coupled to durable storage, soil carbon sequestration, biomass carbon removal and storage, enhanced mineralization, ocean-based CDR, and afforestation/reforestation. CDR does not refer to point source carbon capture for the fossil fuel or industrial sector. This definition is consistent with the one at https://www.energy.gov/fecm/carbon-dioxide-removal.

Declared unit: Quantity of a construction material used as a reference unit in an EPD based on an LCA for the expression of environmental information needed in information modules. This definition is based on the one in ISO 21930:2017.

Energy Attribute Certificate (EAC): An EAC is a contractual instrument that conveys information (attributes) about a unit of energy, including the resource used to create the energy and the emissions associated with its production and use. For more information, see https://www.epa.gov/green-power-markets/energy-attribute-certificates-eacs and https://www.epa.gov/system/files/documents/2024-02/energy_attribute_certificates.pdf.

Environmental product declaration (EPD): An environmental claim providing quantified environmental data using predetermined parameters and, where relevant, additional environmental information. An EPD also includes additional product and company information. This definition is consistent with the one in ISO 14025:2006.

Environmental product declaration generator (EPD generator): When referring to software, a tool that "generates" EPDs using input from manufacturers and an LCA template. EPD consultants can also generate EPDs without use of software generator tools.

Environmental product declaration owner (EPD owner): The manufacturer, or group of manufacturers, of the construction product is the sole owner of the EPD and is responsible for developing the EPD of the construction product according to the PCR. Only the manufacturer or group of manufacturers is authorized to declare the environmental performance of the construction product using an EPD.

Environmental product declaration verifier (EPD verifier): Competent and independent person or persons with responsibility for performing and reporting on a verification process for an EPD according to ISO 14025:2006 and ISO 21930:2017.

Functional unit: The unit of comparison that assures that the products being compared provide an equivalent level of function or service.

Global warming potential (GWP): The term "GWP" is used in EPDs, PCRs and Buy Clean policies for construction products as an impact category to report on embodied GHG emissions (per ISO 21930:2017, Section 7.3, Table 5). In the ISO context, "GWP" is conveyed in CO_2e/unit of product/material to denote the product level GHG emission intensities. We note this usage is inconsistent with how GWP is defined by the Intergovernmental Panel on Climate Change (IPCC) and in other GHG accounting efforts, including national reporting by Parties to the Paris Agreement. Per IPCC, GWP is an index measuring the radiative forcing following an emission of a unit mass of a given substance, accumulated over a chosen time horizon, relative to that of the reference substance, carbon dioxide (CO_2). For more information on the definition and use of the term "GWP" (Global Warming Potential), please see https://www.epa.gov/ghgemissions/understanding-global-warming-potentials.

Greenhouse gas (GHG): The air pollutants carbon dioxide, hydrofluorocarbons, methane, nitrous oxide, perfluorocarbons and sulfur hexafluoride.

Life cycle assessment (LCA): The compilation and evaluation of the inputs, outputs and potential environmental impacts of a product system throughout its life cycle. This definition is consistent with the one in ISO 14044:2006.

Module D: An optional supplementary life cycle information module for reporting potential net benefits from reuse, recycling and/or energy recovery beyond the system boundary. This definition is based on ISO 21930:2017.

North American product category rule (North American PCR): A PCR that covers the geographic region of North America including Canada, Mexico and the United States.

Product category rules (PCRs): A set of specific rules, requirements and guidelines for developing EPDs for one or more product categories. This definition is consistent with the one in ISO 14025:2006.

Renewable Energy Certificate (REC): A tradable, contractual instrument that represents a proof that a certain amount of electricity (or other type of energy) was generated from a renewable energy source. This definition is consistent with the one in ISO/IEC 30134-3:2016.

Type III environmental product declaration (Type III EPD): An environmental claim that provides quantified environmental data using predetermined parameters and, where relevant, additional environmental information. This definition is consistent with the one in ISO 14025:2006.

5. List of Abbreviations

Abbreviation	Full Description
ACLCA	American Center for Life Cycle Assessment
EAC	Energy Attribute Certificate
EPA	U.S. Environmental Protection Agency
EPD	environmental product declaration
EPS	ENERGY STAR Energy Performance Score
GHG	greenhouse gas
GWP	global warming potential
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
LCA	life cycle assessment
LCI	life cycle inventory
LCIA	life cycle impact assessment
PCR	product category rule
REC	Renewable Energy Certificate