RE: EPA-HQ-OPPT-2022-0924
RFI to Support New IRA Programs for Lower Embodied Greenhouse Gas Emissions Associated with Construction Materials and Products

The Polyisocyanurate Insulation Manufacturers Association (PIMA) appreciates the opportunity to submit this response to the U.S. Environmental Protection Agency’s (EPA) above-captioned request for information (EPA-HQ-OPPT-2022-0924). PIMA is the North American trade association for manufacturers of polyisocyanurate (polyiso) insulation – a high-performance insulation product used in the energy-efficient construction of residential and commercial buildings. The polyiso industry has long been recognized as a leader in environmental stewardship. These efforts include removing ozone depleting and high global warming potential substances from its products as well as joining others in the insulation industry as leaders in the development and publication of environmental product declarations.

Please contact me (jkoscher@pima.org; (703) 224-2289) should additional information be helpful to EPA's programs for low carbon construction materials.

Sincerely,

Justin Koscher
President
Material Prioritization and Data Improvement

A. What construction materials/products should EPA prioritize in implementation of IRA Sections 60112 and 60116?

1. Newly Manufactured Materials.

PIMA Response:

EPA should prioritize its technical assistance in three ways:

- Support the development of environmental product declarations (EPDs) for categories of construction materials where EPDs are currently absent or significantly underrepresented in terms of the category’s importance to the construction industry. To support the growing interest in regulating the embodied carbon or greenhouse gas emissions (GHGs) related to the construction materials, it is imperative that all categories of construction materials are well represented. This will support the further development and adoption of whole-building life cycle assessments (LCAs). Additionally, it removes the bias in regulating only those categories for which information exists. This is a common misstep in current policy development – regulate what we can, rather than regulate what is important. To identify these gaps, EPA should consult with partners such as the General Services Administration (GSA) who may be familiar with these information gaps based on their role as a purchaser of construction materials.

- Align its efforts with other federal programs and agencies, such as the Federal Buy Clean efforts and the GSA. This is no small task; however, both the federal government and product manufacturers will benefit from well-aligned efforts between federal agencies and partners.

- Provide tools such as EPD generators to industries that operate a distributed network of manufacturing facilities and/or produce differentiated products. The drive toward more specific information (i.e., company/product- or facility-specific EPDs) will place a significant burden on individual companies, many of which are not large corporations with extensive resources and expertise. While it is imperative that EPA maintain a high-level of integrity and data quality in the production of EPDs, resources should be provided to industries that will be responsible for producing numerous EPDs. The roofing and insulation product sectors are two examples of industries that would benefit from an infusion of resources as manufacturers operate facilities across the United States and produce a variety of product types.
B. What data accessibility and improvement approaches should EPA consider?

5. Public Accessibility of Data.

PIMA Response:

EPDs for the insulation industry, including EPDs published by PIMA and PIMA members, are publicly available. There are numerous databases that aggregate EPD information. EPD program operators operate databases. Other organizations have developed databases of EPDs organized in formats that integrate with how construction professionals specify materials (i.e., the Construction Specifications Institute’s MasterFormat). Different databases serve different purposes. While a universal database is a laudable goal, can EPA develop a single database that serves the interest of a wide variety of stakeholders (e.g., DIYers versus professional architects)? A better approach may be to develop a listing of available databases and describe the characteristics of each. Furthermore, as the development of whole-building LCAs progress and the need for integrated databases grows, will EPA have the resources over the longer term to continuously maintain and update an EPD database? If EPA decides to develop a standalone database for EPDs, it is imperative that the database only include EPDs that meet recognized standards and processes for LCA and EPD development.


PIMA Response:

The development of more company/product- and facility-specific EPDs is a laudable goal. However, EPA should not equate all “average” or “generic” EPDs as the same. The RFI appears to differentiate between EPDs that rely on “actual” data versus EPDs that are developed from generic or “upstream” datasets. An industry average EPD – such as the ones authored by PIMA – can and do rely significantly on datasets collected directly from manufacturers and raw material suppliers. Arguably, an industry average EPD developed in this manner could be more reliable and representative than a company-specific EPD generated using a significant amount of generic upstream data.

Additionally, industry average EPDs provide useful and accurate measurements of the environmental impacts of materials for which there are few manufacturer-specific differences. For example, 85-90% of the environmental impacts associated with the manufacture of polyiso insulation are associated with the raw materials. Therefore, only 10-15% of the impacts occur during the life cycle stages that cover the manufacture, transportation, use, and end-of-life phases. Will a product- or facility-specific EPD tell you significantly more than the industry-average EPD in this instance? Perhaps if the polyiso manufacturer is purchasing raw materials with significantly lower impacts themselves. In this instance, the manufacturer is incentivized to produce its own EPD to promote the lower environmental impacts.

We suggest that EPA focus its efforts on ensuring that reliable and representative life cycle inventory data is widely available to manufacturers. More data being made available in a more accessible manner will lead to the development of more “specific” EPDs. While EPA may want
to create incentives or provide guidance on when company/product- or facility-specific EPDs may be preferred, we encourage EPA to avoid mandating these EPDs for all product categories.

7. Life Cycle Stages.

**PIMA Response:**

EPA should focus on the LCA modules A1 to A5 (product stage and construction process stage) as well as the LCA modules B1 to B5 (use stage). For these modules, EPA should encourage that the environmental impacts be reported by module in a disaggregated fashion (i.e., not grouping modules A1 to A3 into a single metric). The use stage is important as many products will require maintenance or replacement during the building service life established by the applicable product category rule. However, many EPDs do not make adequate disclosures of the assumptions that inform the product service life description. In terms of the end-of-life modules, EPA correctly points out that this stage is heavily dependent on decisions that are outside the control of the manufacturer. EPA can encourage the development of EPDs that provide adequate disclosure and discussion of the assumptions that inform the reported impacts. For example, EPDs should not simply declare a module as “not applicable” without disclosing the rationale for the conclusion. This can be important for certain foam insulation products that are manufactured with “captive” blowing agents that are characterized as having high global warming potentials. Because the blowing agents are not released (at least at significant rates) during product manufacture, the significant release of these substances will likely not occur until the foam is recycled or otherwise disposed of. If the end-of-life cycle for these products is ignored, the overall environmental impacts will be underestimated.

8. Improving Background Datasets.

**PIMA Response:**

PIMA encourages EPA to work with LCA experts to improve the availability of accurate and current background datasets. As the RFI states, these background datasets are critically important to the development of EPDs. With respect to data uncertainty, the product category rules provide the appropriate forum within which to establish rules that govern the use of background datasets and concerns with, or disclosure of, the degree of data uncertainty.

9. Whole Building Life Cycle Assessment (WBLCA) and similar whole project approaches.

**PIMA Response:**

Yes, EPA's work on EPDs should be viewed through a lens of supporting the further development and adoption of WBLCA approaches. In the end, it is imperative that construction professionals be afforded the flexibility to select products that best meet the unique needs of an individual project. WBLCA approaches are critical in this respect. Short-term policies such as establishing a maximum allowable level of embodied carbon for a product category are inherently flawed and often lead to regrettable substitutions. PIMA encourages EPA to focus its work on increasing the availability of quality EPDs and promoting the benefits of WBLCA.
approaches. In this effort, EPA should consult with LCA practitioners to identify the current barriers or challenges to greater adoption of WBLCA approaches.

10. Other Environmental Impacts.

PIMA Response:

While EPDs do consider other environmental impacts, PIMA cautions EPA on expanding the scope of the envisioned programs. First, other regulatory instruments exist for controlling environmental impacts such as air and water pollutants as well as human health and other ecological concerns. Second, the construction industry and other federal efforts are focused on the carbon intensity of construction projects and products. It is unclear how an expanded scope would support or even be considered within existing frameworks. Third, while EPA may be concerned with regrettable substitutes, we encourage the Agency to rely on other regulatory controls to mitigate these risks.

C. What PCR and EPD Standardization, measurement, verification, and reporting approaches for use in procurement decision-making should EPA consider?


PIMA Response:

PIMA recommends that any grant focused on the development of a conformity assessment/verification program for PCRs be informed by an analysis of the current rules and standards that govern the development of PCRs and the associated deficiencies, if any, of these existing requirements. Currently, PCRs are developed in accordance with standards and requirements promulgated by organizations comprised of experts in the relevant fields. An additional requirement or hurdle for PCRs may yield little benefit. Alternatively, based on this assessment, EPA may identify ways that existing PCRs could be improved to create a more level playing field for manufacturers that are governed by the applicable PCR and/or work to increase the transparency of how environmental impacts are reported. Lastly, EPA could focus resources on supporting the development of PCRs for product categories not currently or adequately covered by existing PCRs.

13. Standardizing EPDs.

PIMA Response:

A common format for EPDs could improve their utility to end users and would allow users to identify differences more easily between EPDs within a specific product category. Harmonizing the format of EPDs could be informed and supported by the organizations that currently operate as EPD program operators. EPA could also consider surveying users of EPDs (e.g., design professionals) for their opinions on how to improve EPD formatting and organization. While there is always a desire to simplify information, any common format for EPDs should not sacrifice accuracy in the name of simplicity. Measuring, analyzing, and reporting the
environmental impacts of manufacturing construction materials is not a simple task. A desire to use the reported information requires a level of commitment to understanding how the information was derived in the first place. We encourage EPA to resist the urge to oversimplify EPDs at the expense of accuracy.

15. Digitizing EPDs.

PIMA Response:

Digitization of EPDs is a necessary “next step” in the progression of whole building/project LCA approaches. In the spirit of PIMA’s response to question #13 above, we encourage EPA to support the digitization of EPDs in a manner that does not sacrifice the accuracy or key details of the reports themselves. While machine-reading technology is beyond the expertise of PIMA, there would appear to be a strong link between a standardized EPD format and the ability to accurately digitize and compare EPDs. A prime example of current limitations is the polyiso roof insulation EPD. Based on industry data and experience, PIMA determined that a low-slope roof assembly (typical of most non-residential buildings) has an expected 40-year service life. Roof insulation (whether polyiso or a substitute product), as an integrated component of the overall roof assembly, would therefore be replaced along with other roofing materials at the end of this 40-year period. This means that the roof insulation will need to be replaced once during the 75-year building service life established under the applicable PCR. In practice, this assumption effectively doubles the reported environmental impacts associated with polyiso roof insulation. To PIMA’s knowledge, EPDs for other products suitable for use as roof insulation do not make the same assumption or otherwise describe why the product is unique in terms of its service life. Current digital tools that “read” EPDs do not account for this difference or otherwise disclose it. This potentially disadvantages polyiso roof insulation when it is compared to alternative products. EPA’s efforts around the digitization of EPDs must account for this type of detail and nuance if the Agency is to be successful in also fostering the development and use of accurate environmental impact information.

16. PCR and EPD Repositories/Data Platforms:

PIMA Response:

To the extent our feedback to question #16 is not covered in the responses above, PIMA believes that the development of any PCR or EPD repository should consider several factors:

- What are the gaps or deficiencies in existing platforms? How can EPA uniquely address those gaps?
- If EPA develops a platform, will it have the resources to update and evolve the platform over time?
- Can a single platform meet the needs of a diverse set of stakeholders who are expected to have an interest in the information? EPA should consider asking platform user groups what functionality or features would be useful in a platform.
- Any platform should ensure that data or information included within the platform meets a threshold standard for accuracy.
• Any platform should provide a user with the ability to identify differences between EPDs that would influence the user’s conclusion as to the relative environmental impacts of two or more products.

Environmental Product Declaration Assistance per Section 60112

D. What factors should EPA consider for the EPD Assistance program?


PIMA Response:

To the extent our feedback to question #19 is not covered in the responses above, PIMA encourages EPA to consider the development of an EPD generator tool that could be used to develop specific EPDs when an established set of criteria is met. The use of “tools” to develop EPDs is not without risk. There is a reason EPDs are currently prepared and reviewed by a team of experts – measuring, analyzing, and reporting the environmental impacts associated with the life cycle stages of construction materials is not a simple task. A tool should not be a shortcut that circumvents the accuracy and validity of the data reported. However, an EPD generator tool could be useful when industry-average EPDs exists and a manufacturer who participated in the development of that average EPD wants to publish information specific to their company and/or products. Currently, in this scenario, the manufacturer would likely need to work with an expert to develop and publish a company- or product-specific EPD. The resources required to do so may not be available to many small- or medium-sized businesses, especially when the manufacturer maintains a significant product portfolio.

Substantially Lower Embodied Carbon Labeling per Section 60116

E. What should be considered for setting thresholds for “substantially lower levels” of embodied greenhouse gas emissions for qualifying materials/products under a labeling program?

24. GWP Threshold/Criteria Development and Update Approach.

PIMA Response:

PIMA is concerned with applying a universal definition of “substantially lower levels” of embodied GHG emissions to all products. Currently, EPA defines substantially lower as the top 20 percent of products. First, the use of any percentage cutoff is inherently arbitrary. Second, a stringent (or aggressive) cutoff might be appropriate where there is a significant difference between the worst and best performers in a product category, but not all categories fit this scenario. Third, a stringent (or aggressive) cutoff may be appropriate where there are significant options within a product category and the products are not highly differentiated in terms of other performance features that may influence a designer’s decision to prefer one product over another.
However, in product categories where products are grouped closely in terms of GHG emissions, where a limited number of product options are available, or where other key performance factors may drive product selection decisions, a stringent (or aggressive) cutoff will create significant problems for construction professionals. Further, a stringent (or aggressive) cutoff assumes that lower GHG emissions is the most important and decisive factor when selecting any product. This assumption ignores a wide range of other factors that must be considered in building design and product selection. Additionally, a stringent (or aggressive) cutoff in these situations could undermine the larger goals by adversely affecting people’s perception of the importance GHG emissions as a factor that should be considered during a more complete evaluation and comparison of material options.

Applying the interim determination definition to the four initially prioritized construction materials may appear straightforward. However, applying the same definition to other categories may be more complex. For example, would EPA’s 20 percent threshold apply to all insulation products as a category? Not all insulation products are suitable for every application. Therefore, would EPA apply the 20 percent threshold to wall insulation products as a distinct category, as an example? Or would EPA apply the 20 percent threshold to a specific insulation technology (i.e., top 20 percent of fiberglass products; top 20 percent of polyiso products)? In the latter scenario, how does this drive the use of lower embodied carbon products if one technology as a class has lower or higher GHG emissions as compared to a different product class? We ask these questions to underscore the inherent weakness in “regulating” GHG emissions by using arbitrary threshold values.

Finally, a material-level assessment is not appropriate for materials that are used as part of larger building systems or assemblies. Building enclosure assemblies are a perfect example. Roof and wall insulation products are not used as standalone products (versus an asphalt product used to pave the building’s parking lot). These insulation products must be considered in relationship to other assembly materials. Selecting one product may eliminate or create the need to use other products. A material-level assessment ignores these considerations and may drive higher GHG emissions associated with the overall building system or assembly. For example, an insulation product with slightly higher GHG emissions may allow you to eliminate or reduce the use of other construction materials that are much more carbon intensive (e.g., a foundation insulation system that reduces the need for concrete use and excavation). This same scenario can be envisioned when an insulation product with slightly lower GHG emissions is selected and the designer is then required to add additional materials to the assembly to achieve weatherproofing requirements in the roof and wall that could have otherwise been met by a single insulation product. To account for these common scenarios, EPA should conclude that material-level assessments alone are not appropriate for product categories that are used as part of larger building systems or assemblies.

As stated previously, EPA has an opportunity with the IRA program funding to increase the number of available EPDs in the marketplace and undertake other important work to advance the prospects for whole building LCA becoming a widely adopted practice. We encourage EPA to carefully consider the utility of adopting a universal definition of “substantially lower levels” of GHG emissions that is based on an inherently arbitrary threshold value or applied at the material level across all product categories.
F. What should EPA consider in meeting the goals of IRA Section 60116, which directs EPA to develop a program to identify and label construction materials/products with substantially lower levels of embodied greenhouse gas emissions?


PIMA Response:

As EPA considers its labeling program, we encourage the Agency to consider how the label could be available to products at varying levels. A tiered approach encourages manufacturers to join the program at the level that is most accessible to them now. Competition between manufacturers will drive continuous improvement for those companies or products that join the labeling program at an “entry” level. We also encourage EPA to consider how the labeling program could be used to encourage manufacturers to take steps towards greater transparency (i.e., EPD publication). We think it would be a missed opportunity to make the labeling program accessible to only manufacturers or products that meet an arbitrary threshold of GHG emissions (i.e., top 20 percent).

29. Verification/Conformity Assessment.

PIMA Response:

While we support the development of a labeling program that is accessible to a broad range of manufacturers, we also support the inclusion of clear and meaningful eligibility criteria. At minimum, where publishing or maintaining EPDs is part of the labeling program, we believe these EPDs should conform to recognized industry standards. The eligibility criteria must be verifiable so the label is trusted by users and the program places manufacturers on a level playing field.

30. Certified Product Registry.

PIMA Response:

PIMA supports the development of a product registry that would include all products covered by the labeling program. We view the development of this product registry as a distinct deliverable from the EPD databases discussed earlier in the RFI. EPA should design the registry in a manner that allows for its continuous update and maintenance. There could be significant complications or lost equity if the Agency is forced to discontinue or otherwise lacks the future funding to maintain the registry. In fact, the larger goal of driving continuous improvement over time in the reduction of GHG emissions associated with product manufacturing could be undermined if there is not confidence that the registry will be maintained and updated as needed.
32. Other Input.

*PIMA Response:*

In summary, PIMA encourages EPA to design its program in a manner that advances the construction industry toward the widespread adoption of whole building LCA approaches. Development of PCRs and EPDs, improving data quality, standardizing the format of EPDs, and incentive-based approaches like the labeling program can be extremely helpful in realizing the potential of whole building LCA. However, we have significant concerns regarding the use of arbitrary threshold values as a “quick and easy” policy for regulating GHG emissions at the material level.