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Administrative Pathways to a Federal Buy Clean Program

Ruth Cox & John Milko

Overview

The United States is facing tremendous challenges due to a confluence of events, including the COVID pandemic, the consequences of climate change and the resulting economic impacts. The Biden Administration has a unique opportunity to leverage the power of public procurement to Build Back Better and strengthen U.S. manufacturers by implementing a Federal Buy Clean Program. This program would require all federally funded infrastructure projects to consider the greenhouse gas (GHG) emissions generated, and where appropriate the energy efficiency of specific plants, in the manufacture of the materials they purchase and preferentially award contracts to manufacturers whose production methodologies yield a lower GHG footprint. Such a program would provide the following benefits:

- Establish a standardized framework for federal procurement of low-carbon construction materials ahead of any major COVID recovery or other infrastructure-focused initiatives
- Support American manufacturers of these materials to become more competitive in a global market that values low-carbon products and sustainability
- Create high wage American jobs across the spectrum of government, materials manufacturing, third-party standards/certification/tool development organizations, and infrastructure project planning and deployment
- Reduce industrial sector GHG emissions in support of the country's climate goals

A Federal Buy Clean Program would provide leadership to state government agencies by requiring compliance with the Buy Clean provisions for federal block grant procurements and delivering a national standard to aid in the acquisition of low-carbon materials for state funded projects.

The purpose of this document is to propose pathways for the Executive Branch of the government to successfully initiate a Federal Buy Clean Program based on existing statutory law and Executive Orders and to provide guidance on creation of new laws or EO's to strengthen Federal Buy Clean efforts. Proposed administrative actions would focus on high-value, high-embodied carbon construction materials used in infrastructure projects such as steel, concrete, asphalt and plate glass. [1]

Five Building Blocks of a Federal Buy Clean Program

Construction materials currently constitute the 4 th largest source of global carbon emissions at 11% according to the UN Environment 2017 Global Status Report. Approximately 32% of construction-related embodied energy and carbon in the US is from government-funded projects. As such, a federal program focused on high-embodied carbon construction materials can use its purchasing power and market influence to have a substantial impact on GHG emissions while boosting the competitiveness of American manufacturers.

The purpose of a Buy Clean Program is to establish a mandate for agencies, such as the Department of Transportation (DOT), the General Services Administration (GSA) and the Department of Defense (DOD) which oversee large construction projects, to address embodied GHG emissions in all relevant federal procurement actions. To achieve this objective, the Biden Administration will need to consistently translate standards and methods into comparable metrics that enable the calculation of the Global Warming Potential (GWP) of emissions along the supply chain. As such, a Federal Buy Clean Program will rely on the following five building blocks:

1. Consistent, Transparent and Accessible GHG Impact Data

In order for the federal government to best assess the embodied carbon associated with manufactured goods, companies will need to submit a third-party verified Environmental Product Declaration (EPD) – an International Standards Organization (ISO) standard conformant report that provides a summary of verifiable life cycle assessment (LCA) data on the life cycle resource use and emissions associated with a company's product (or different "mixes" of a company's product where applicable). The underlying LCA and resulting EPD present information on a cradle-to-grave basis (business to customer), or as is the case for most construction materials, on a cradle-to-gate basis (business to business).

Product Category Rules (PCRs) are industry consensus standards and guidelines, developed by industry experts in conjunction with LCA experts, which are used for developing and reporting EPDs. The PCRs define the impact assessment categories and performance tests for aspects of the manufacturing process for, or attributes of, construction materials. As such, EPDs based on different PCRs are inherently incomparable. Further, comparing EPDs even within the same category can be misleading because of the lack of consistency in underlying background data sources and tools.

Developing and maintaining U.S.-specific open source background and material inventory data and tools would provide the foundation for transparent, reliable and consistent EPDs and could level the playing field for small and medium sized manufacturers, many of which would be otherwise unable to participate in the generation of LCAs and/or EPDs because of the cost-prohibitive nature of proprietary data and tools. To generate EPDs that can be used

consistently in the procurement process, in addition to harmonized PCRs, manufacturers need access to reliable data on the environmental impact of background processes, such as fossil fuel extraction and refinement or power generation, that can be applied to the production of specific materials, and an inventory of environmental attributes of similar materials.

While much of the aforementioned background inventory data is currently published in the open source Federal LCA Commons life cycle inventory (LCI) and life cycle assessment (LCA) databases housed by USDA, manufacturers currently use a wide variety of data sources based on inconsistent access to data and tools, many of which are not based on U.S. activities (i.e., represent foreign geographic scope), are proprietary and require payment to access.

Another measure that can provide an indication of the GHG impact of manufacturing processes is the plant-level Energy Performance Score (EPS) being generated by EPA's ENERGY STAR for Industry Program (ESIP). An EPS measures manufacturing plants on a scale of 1 to 100 based on how energy efficient the plant is in producing a product in comparison to plants of similar characteristics. The steel, cement and glass industries are already participating in the ESIP, and the program will soon be expanding to cover the asphalt industry.

EPSs address the most energy and carbon intensive stage of many products' lifecycles, i.e., the processing of the materials used to manufacture the products. In the case of cement and steel, for example, this can be considerable. In the absence of EPDs, the EPS can be used to assess and compare the energy efficiency of the manufacturing plants producing construction materials and help buyers better understand the embodied energy and carbon of the materials they are purchasing.

The EPS can also be referenced in an EPD and used as an evidence-based assessment of a plant's energy efficiency rather than the use of an industry average, a practice that is permitted by some PCRs and which can allow manufacturers to mask the real energy performance of their plants.

2. Repository for Standardized, Comparable EPDs

EPDs are verifiable, and potentially transparent reports [2] used to communicate the environmental impacts of the processes used to manufacture specific materials as well as material quantity averages required for specific projects. Many manufacturers of infrastructure materials such as steel, concrete, etc., (and/or their industry associations) are already generating EPDs and, in collaboration with several federal agencies, the Carbon Leadership Forum and its group of over 50 industry partners has spent several years

building a platform to digitize and house these EPDs in the Embodied Carbon in Construction Calculator (EC3). The EC3 tool can be used by architects, engineers and contractors in the design process for construction projects to ensure they are using the most sustainable materials while maintaining performance standards.

In 2020, Building Transparency was established as a new Washington State nonprofit to continue the management and development of the EC3 tool, as well as provide the resources and education necessary to ensure its adoption.

Building Transparency is also working on developing a standard and open-access digital format for EPDs called "openEPD" that will enhance the digitization of building material embodied carbon data and EPD accessibility and comparability.

3. Performance Standards

Federal agencies, in collaboration with industry, will need to improve existing standards and ecolabels and establish guidelines for using impact assessment indicators such as the GWP of materials in the procurement process (e.g., requiring both 20-year and 100-year carbon equivalency impact potential assessment to avoid misleading results in supply chains with significant methane emissions). A timeline should be established to further strengthen these standards allowing for implementation of those already available in the near term and requiring manufacturers to improve their GWP performance over time to meet the standards as they evolve. Standards could be as simple as stating that materials below a defined GWP threshold would qualify for consideration in procurement actions.

4. Incentives and Educational Programs to Enlist Voluntary Industry Participation

Industry will need to be engaged and informed about the requirements to participate in a Federal Buy Clean Program. Incentives are likely to be required, such as grants or tax credits, especially to support small and medium sized enterprises to undertake the efforts necessary to establish PCRs and generate facility specific EPDs.

The federal government should consider programs to support manufacturers to adopt different manufacturing processes using new methods or technologies that more significantly lower the GWP of the materials they are producing. A first step would be to invest in R&D programs for new technologies and then evolve to include financial incentives to retool manufacturing plants. This is not a trivial nor inexpensive effort, but creative approaches to incentives could dramatically alter the environmental impact of American manufacturing and increase U.S. industry competitiveness in the global marketplace.

5. Compliance Criteria and Timeline

Education and procurement tools are necessary to ensure that solicitations and bidding processes are consistent with the requirements of a Buy Clean Program. Contracting officers should be able to easily assess compliance with these requirements in their evaluation of proposals. As initial phases of a Buy Clean Program will likely involve voluntary reporting for transparency, a timetable will need to be established for when Buy Clean standards will be set (and strengthened over time), when reporting will become mandatory, and when thresholds will be used as procurement criteria.

Existing Federal Authorities That Can Support a Buy Clean Program

Within the Executive Branch, there already exists a strong framework to implement the five building blocks required for a Buy Clean Program. The framework consists of federal agencies that are acting under the authority of existing Executive Orders and statutory laws and building upon the initiatives undertaken by previous administrations.

Currently, the Biden Administration is considering an Executive Order that would establish guidelines for disclosure and transparency regarding embodied carbon in construction materials used in federally funded projects. Congress is developing legislation, the CLEAN Future Act in the House and the Buy Clean Transparency Act of 2021 in the Senate, which would establish Federal Buy Clean Procurement requirements. These efforts to codify Federal Buy Clean policies complement existing statutes and Executive Orders that are being used in support of leveraging federal procurement to lower the GWP of construction materials.

Energy Information Agency (EIA)

The DOE's Energy Information Administration (EIA) was granted authority to implement a program under Title XVI, Section 1605(b) of the Energy Policy Act of 1992 (EPACT) which directs them to establish a mechanism for the voluntary collection and reporting of information on annual reductions of GHG emissions. In 2002, President Bush directed the Secretary of Energy, in consultation with the Secretary of Commerce, the Secretary of Agriculture, and the Administrator of EPA, to propose program improvements that will enhance measurement accuracy, reliability, and verification, working with and taking into account emerging domestic and international approaches. This program was defunded as part of sequestration during the Obama Administration but its authority remains.

The Section 1605(b) program could provide a platform for establishing the Federal Buy Clean initiative. The EIA authority could be exercised and underwritten by general DOE

funding and scaled-up through subsequent authorizing legislation and appropriations should such a vehicle be required.

Other Federal Agencies

Federal agencies have effectively leveraged existing statutes and Executive Orders during the Trump Administration to continue developing performance standards, platforms and programs that can support a formal Buy Clean initiative. DOE, EPA, FHWA, NIST, GSA, and USDA, in particular, have been collaborating under the auspices of the 2007 **Energy Independence and Security Act (EISA)**, the **1992 Energy Policy Act**, and the **2009 American Recovery and Reinvestment Act** to engage with the steel, asphalt, concrete and plate glass industries to identify the embodied carbon in their products with a goal of reducing energy consumption and GHG emissions. This effort makes the environmental impact of plant operations and the materials they produce transparent to federal agencies as well as other purchasers, and spur manufacturers to reduce the embodied energy in their manufacturing processes. In addition to helping manufacturers identify the areas of plant operations in which they can reduce GHG and other polluting emissions, it also provides them with benchmarks in terms of how they compare to their competitors and enables them to reduce their operating costs.

EPA's Environmentally Preferable Purchasing Program, which plays an important role in efforts to engage with industry in the development of environmental performance standards, and in working with other agencies to integrate environmental considerations in their procurement actions, draws on the following authorities:

Federal Acquisition Regulation (FAR) - [Part 23.703 (b)(1)] *"Maximize the utilization of environmentally preferable products and services (based on EPA-issued guidance.*)."

The **Pollution Prevention (P2) Act** [42 U.S.C.A. §13103(b)(3) and (10)]: "*the Administrator shall...*" (3). *...coordinate with appropriate offices to promote source reduction practices in other Federal agencies* and (10) *identify opportunities to use Federal procurement to encourage source reduction*

National Technology Transfer and Advancement Act (NTTAA) & OMB Circular A-119 direct federal agencies to: Participate in private sector standards development efforts and use private sector standards and conformity assessment (e.g., certification) in procurement, except where inconsistent with law or otherwise impractical.

The USDA relies on several Executive Orders to coordinate and maintain open, public access and version control for the Federal LCA Commons LCI and LCA databases, including the **2011 memo on Transparency and Open Government, the 2012 memo on Building a 21st**

Century Digital Government, and the 2013 memo on Open Data Policy – Managing Information as an Asset.

The Security and Exchange Commission also has the authority to require U.S. based companies to report their GHG emissions, as does the Public Company Accounting Oversight Board, although these Scope 1 and 2 plant-or product-level reporting metrics alone would not be sufficient to define GHG thresholds across supply chains, i.e., life-cycle embodied carbon, as is needed to achieve goals for a Federal Buy Clean Program.

How Existing Agency Initiatives Apply to the 5 Building Blocks of a Federal Buy Clean Program

Consistent, Transparent and Accessible Environmental Impact Data

The Federal LCA Commons LCI and LCA mega-repository project operating under a memorandum of understanding (MOU) linking DOE, EPA, NIST, USDA and FHWA is an effort to increase transparency and consistency of Federal LCA research by developing and maintaining high quality datasets based on public information sources appropriate for a wide range of applications, and making Federal LCA data products available to the public. These background LCI and LCA data are essential to the development of consistent and transparent EPDs. The Federal LCA Commons community of practice has substantial experience and insight into the efforts necessary to compile, clean, curate and format LCI and LCA data into usable products while maintaining their integrity, improving interoperability of these data with the systems operated by the various agencies and industries that feed data into this mega-repository, as well as efficiently maintaining version control and ensuring public access at no charge to downstream users.

There are a number of competitive LCI and LCA databases and tools, many from international sources that do not rely on the same sources of background data. Use of these alternatives by manufacturers are a cause of incomparable EPDs within and across product categories. A formal recommendation to use the Federal LCA Commons LCI and LCA databases in the generation of EPDs by manufacturers who want access to the Federal market would boost EPD validity and comparability.

A foundational Federal LCA Commons repository is dedicated to housing the Commons classification and nomenclature structures and the U.S. Electricity Baseline, which has LCIs of both consumption and generation electricity mixes at plant-level, balancing authority level, and national average level. Many of the Federal LCA Commons repositories are LCIs

managed by specific federal agencies for specific supply chains (e.g., the USFS repository has forestry and forest product LCIs).

The U.S. Life Cycle Inventory (USLCI) Database, another repository of the Federal LCA Commons, is LCI data curated by the National Renewable Energy Laboratory (NREL) and serves as a central repository for information about the total energy and resource requirements for various materials, components and assemblies used in building projects, as well as items such as fuels, chemicals, transport, resins and other materials.

The EPA has developed the TRACI – Tools for Reduction and Assessment of Chemicals and Other Environmental Impacts – life cycle impact assessment (LCIA) method. This assessment tool comprises characterization factors *specific to the North American geographic scope* that quantify the potential impacts that LCI inputs and releases have on specific impact categories in common equivalence units. Impact categories include:

- ozone depletion,
- climate change,
- acidification,
- eutrophication,
- smog formation,
- human health impacts, and
- ecotoxicity.

Resource uses of fossil fuels are also characterized. The TRACI method has been adapted to the Federal LCA Commons nomenclature and the compatible version is available on the Federal LCA Commons.

Applying an LCIA method, such as TRACI to any of the LCIs in the Commons offers a more holistic indicator of specific products' impact on the environment as it enables potential impacts such as GWP, i.e., LCA results to be assessed. Because EPD-related standards (e.g., ISO 21930) typically require reporting in terms of impact categories such as are assessed by the TRACI method, combining the Federal LCA Commons background LCI data with the compatible version of the TRACI LCIA methods plays an essential role in the generation of comparable EPDs.

Overall, along with other compatible Federal LCA Commons LCI and LCIA repositories, the USLCI Database supports manufacturers, building designers and developers in identifying energy efficiency and environmentally friendly materials, products and processes for their projects by enabling benchmarking and comparisons of the life cycle requirements and

potential environmental impacts of various offerings. The USLCI Database is updated quarterly and populated primarily with information that comes from industry, as opposed to most other Federal LCA Commons repositories which are updated and populated based on specific federal agency projects.

Aside from the Federal LCA Commons, there are competitive inventories of life cycle data which may not be as current or geographically valid as that offered in the Electricity Baseline or USLCI Database, for example. Use of alternative life cycle data systems, impacts methods, and tools can and often do lead to inconsistencies in PCR compliance, which manifests in less comparable EPDs. The use of Federal LCA Commons LCI and LCIA data can help generate consistent EPDs specific to the U.S. Geographic scope that can be used to inform procurement uniformly across industries, while encouraging the development of industry specific datasets based on standardized assumptions and models.

Standardized, Comparable Environmental Attribute Tools

The EPA's Environmentally Preferable Purchasing (EPP) Program coordinates Federal participation in the development of and regular updates to of a number of private-sector, multi-attribute life cycle standards and ecolabel criteria and provides "Recommendations of Specifications, Standards, and Ecolabels for Federal Purchasing" across a broad range of product categories. The EPP Program's recommendations include standards and ecolabels that help federal purchasers find low-carbon and more sustainable products and services. The EPP Program could assess and recommend existing international sustainability standards for construction materials for use in federal procurement efforts.

The EPA's ENERGY STAR Industrial Program (ESIP) has developed energy performance scoring tools for nearly 20 manufacturing sectors, including cement, steel and glass. Manufacturing plants in these sectors receive a 1-100 Energy Performance Score (EPS) - 1 being a low performer; 100 being a high performer - that represents how energy efficient an individual plant performs compared to plants with similar characteristics. Processing steps at manufacturing plants are typically the source of most embodied carbon in a product's lifecycle, and energy efficiency often mirrors GHG emissions (at a minimum, it represents close to half of a plants' GHG emissions). ENERGY STAR's EPS tools are developed in cooperation with manufacturers in the sector. EPA could be directed to advance their tools to include measurement of carbon for inclusion in EPDs.

Until then, plant EPSs could easily be included in EPDs' "other" section as an evidence-based comparative metric for carbon associated with energy efficiency. ESIP will be working with stakeholders involved in the development and/or update of PCRs to determine how they can increase the transparency and comprehensiveness of EPDs with ENERGY STAR Energy Performance Scores. [3]

The FHWA, in addition to working with the concrete industry, has been working with the National Asphalt Pavement Association (NAPA) in support of their efforts to develop PCRs and EPDs. The NAPA as a whole subscribes to the tools and services required to develop and validate EPDs on behalf of their membership. The federal government could encourage the replication of this practice in other industry sectors and, if funding is available, consider subsidizing access to EPD tools for companies or through associations. This will accelerate the timeline for implementing a Buy Clean Program.

Performance Standards

The Green Buildings Advisory Committee (GBAC), an independent group of federal and private sector advisers to GSA's Office of Government-wide Policy's Federal High-Performance Green Buildings department, formed an Embodied Energy Task Group to study the energy, pollution and cost savings that may be achieved by reducing the embodied energy and carbon in federal building construction and renovation. In February, 2021 the GBAC issued an Advice Letter based on this work, entitled "Policy Recommendations for Procurement of Low Embodied Energy and Carbon Materials by Federal Agencies." The key policy recommendations from this effort include both a material approach for all projects and a whole building life cycle assessment approach for larger projects. In addition to promoting the use of low embodied energy and carbon construction materials, the GBAC recommendations encourage the use of material efficient design strategies, including the use of salvaged or reclaimed materials, and building reuse. If adopted, these policy recommendations would help meet the Biden administration's GHG reduction goals.

The GBAC Advisory Letter's recommendations are based on an in-depth review of existing Federal programs, data repositories, tools and state-level procurement policies and include recommended levels of performance that can be strengthened over time. This approach can be used to facilitate the implementation of a broader Federal Buy Clean Program.

Incentives and Education

Subject Matter Experts (SMEs) in the EPA and FHWA have been working closely with manufacturers and industry associations to educate them on the economic as well as environmental benefits of generating EPDs. They have also supported industry in using the scoring tool to generate Energy Performance Scores to measure the efficiency of manufacturing facilities. SMEs with knowledge of the manufacturing processes associated with infrastructure materials that will be the focus of a Federal Buy Clean Program also advise industry on the content of PCRs, helping to identify what should be measured in EPDs for specific product categories.

Once a Federal Buy Clean Program is defined, substantial education will be required to ensure federal contracting officers, project contractors and subcontractors know what will be expected of them in terms of potential certifications, reporting requirements, and procurement criteria.

Incentives may be required, especially for small and medium sized enterprises, to support their efforts to generate and validate EPDs. There are internal staff costs, as well as subscription costs for EPD generation tools and EPD validation services. Currently, there are costs associated with generating EPDs based on each product that can vary from $10,000 to $50,000. As open source tools and services evolve, those costs will come down. Blanket service fees for all products manufactured in a plant will likely be in the $10,000 to $15,000 range. As stated earlier, tools and services could also be provided by an industry association so the costs can be spread among all of its membership.

Both the EPA and DOE currently oversee incentive and education programs such as those that will be required in a Federal Buy Clean Program.

The Biden Administration may also wish to consider including compliance with the Federal Buy Clean Program in Agency performance plans providing financial incentives to project managers and contracting officers for meeting or exceeding embodied carbon targets.

Simplifying Product Identification and Compliance Tracking

The GSA has substantial experience in developing contracting vehicles that contain “buy clean” provisions which can be used by other federal agencies. They co-chair the Interagency Sustainability Working Group (ISWG) with DOE’s Federal Energy Management Program (FEMP) which develops technical guidance and tools to support implementation of agency sustainability policies for federal facilities.

The GSA also hosts and continuously updates the Sustainable Facilities Tool (SFTool), a best-in-class guide to high performance buildings and sustainable procurement, featuring the Green Procurement Compilation (GPC). The GPC consolidates and organizes information from Federal environmental programs, including EPA Recommended Specifications, Standards and Ecolabels, in one place. SFTool Product Search further streamlines product discovery, documentation and reporting by linking those searching for compliant products directly to a filtered online product listing created by integrating the GPC category rules with up-to-date data available in product registries. This automation enables contracting officers to make informed and timely procurement decisions.

If the EPA expanded its recommendations to include a broader array of products and services with climate impacts, such as construction materials used in infrastructure projects, the SFTool (and other major catalogs and contracts used by the federal

government) could be adapted to highlight those products certified to these standards, ecolabels, and/or performance specifications. Product identification and reporting are most impactful when paired with clear performance standards and well-maintained product registries.

The GSA is currently conducting a pilot with a Department of Energy National Lab to enable federal contracting officers, as well as private sector contractors and subcontractors on federal projects, to use SFTool to create roll-up reports of product-level data for projects and procurements. These reports will allow all involved to easily track compliant purchases at the product level, rather than relying on contract language alone. Non-compliant product purchases are also tracked, and require an explanation (price, availability, performance). Tracking both compliant and non-compliant purchases creates real-time performance metrics while also indicating where market gaps exist that might be filled.

More broadly, compliance in the procurement process can be assessed through tracking actions of contractors and subcontractors on federal projects by OMB in accordance with the Federal Funding Accountability and Transparency Act of 2006. Currently, only bio-based product procurement actions are being reported to OMB, and only general contractor actions and those of a select set of first-tier subcontractors are being tracked. The system being used to meet the requirements of the FFATA will need modification to accommodate a broader set of products and reporting at all tiers of subcontractors.

Recommendations to Launch a Federal Buy Clean Program

The following steps can be taken to initiate a formal Federal Buy Clean Program:

1. Establish an Interagency Working Group that comprises The White House Council on Environmental Quality, OMB, DOE (Advanced Manufacturing Office), EPA, GSA, DOC (NIST), DOT (FHWA), DOD and USDA (National Agriculture Library). Consideration can be given to also include the National Economic Council, the Office of Domestic Climate Policy and NASA. Consideration should also be given to including a small number of appointed seats for private/non-profit sector Subject Matter Experts to facilitate consistency in private and public sector policy.

The purpose of the Working Group is to ensure that the environmental priorities of the Administration are consistently manifest in the policies and programs of the participating agencies and adequately supported by the appropriations and systems on which they are reliant. This level of oversight and coordination will reinforce the legitimacy and amplify the impact of these efforts.

- The Working Group should define the scope and establish goals for the Buy Clean Program, the methodology used to conduct the program, the list of eligible materials, the PCR standards for EPDs to meet in the qualification process, evaluation of existing alternatives for reporting embodied emissions of eligible materials, the incentives that can be offered to engage the cooperation of industry, and the compliance criteria that will ultimately be used in the procurement process.

2. The Working Group should commence efforts to:

Enhance existing repositories to homogenize background data, industry data and product specific data, which are used to develop PCRs and EPDs, and which will enable more accurate "apples to apples" comparisons.

- Data standardization – standardized nomenclature and file publishing formats for consistency and transparency
- Data enrichment – filling in gaps by creating frameworks for mining and/or formatting existing data bases to be compatible with the Federal LCA Commons
- Data accuracy and consistency – standardized and publicly available, i.e., transparent, verification tools
- Open interfaces – enabling end-users of public data to combine their company-specific foreground data with national-level background data

Evaluate how the USLCI Database, Federal LCA Commons, NIST Census and EC3 databases and tools can interoperate and build upon each other

Make a formal recommendation to use the Federal LCA Commons LCI and LCA databases in the generation of EPDs by manufacturers who want access to the Federal market which would boost EPD validity and comparability.

Establish a phased approach to implementing a Federal Buy Clean Program.

- The State of California has three phases – voluntary disclosure by reporting EPDs; mandatory disclosure by reporting EPDs and publishing standards or thresholds for product performance; and, use of these standards in the procurement process.

Establish a publicly available EPD database (or enhance an existing publicly available EPD database) for materials proposed for and procured in federally funded projects which will disclose the embodied emissions of covered pollutants and which will facilitate analysis of the impact the Federal Buy Clean Program is having on the environment. This database will

facilitate the enrichment of internal LCA tools and programs as well as reporting to the White House, Congress or other interested parties.

3. The Working Group should give consideration to programs that would accelerate the propagation of lower GHG generating processes, materials and products throughout the supply chain.

- For example, Walmart's Project Gigaton is an initiative that is accelerating the adoption of renewable energy throughout its supply chain by supporting efforts to aggregate clean Power Purchase Agreements. The Working Group could investigate the efficacy of the federal government launching a similar initiative for procurement of renewable electricity by its contractors and subcontractors.
- More importantly, the federal government could fund RD&D programs to advance innovation in the manufacturing processes used to generate construction materials.
- Other options for consideration could include tax credits or loans for deployment of advanced technologies to reduce GHGs in the manufacturing process, grants for demonstration projects, and a procurement pilot program that could provide discounts to level the playing field for early adopters of EPDs in bids for federally funded projects.

Staffing and Funding Recommendations

Funding will be required to engage a Program Director, engineers, analysts, and subject matter experts to expand current efforts in the development and execution of the Federal Buy Clean Program. There are also costs associated with housing, enhancing and managing the inventory databases, as well as the continued development of GSA's SFTool, GSA Advantage, and review of major best-in-class contract vehicles for infrastructure projects to ensure they incorporate appropriate clauses directing provision of low embodied carbon building materials. Continued development of EPA's assessment and recommendation of existing private sector specification, standards and ecolabels will also require funding. Additional funding may be required for coordinating with third parties involved in these efforts and in the development of administration and procurement tools, such as the SFTool Product Search, the enhancement of the EPS tool to include carbon, and the EC3 tool.

Support in the form of "transition assistance" funding will be required to develop guidelines, tools, and manufacturer incentives for establishing or improving the PCRs and establishing the EPDs necessary for program participation. Specifically, small and medium enterprises will need these incentives to cover the costs associated with using existing

third-party tools to generate EPDs, and the cost of engaging the program operators who are tasked with providing services to validate the EPDs.

Rather than providing incentives directly to manufacturers, there is the possibility of promoting the model being adopted by NAPA, whereby the association licenses these tools and services on behalf of their membership. An evaluation should be made to determine whether the small and medium sized enterprises that require support are members of these associations and if associations that want to play the role of consolidating tool procurement will require “transition assistance”.

Initial estimates indicate $10 million should be allocated to form and manage the Working Group and undertake efforts to support the Federal LCA Commons community of practice with the capacity to enhance the USLCI and Federal LCA Commons open source databases and tools that facilitate the generation of “apples-to-apples” EPDs. Funding will also be required to create an EPD database or enhance an existing third-party EPD database for use by the federal government. An additional $10 million should be allocated annually for grants to support small and medium sized manufacturers in the generation of EPDs over the next several years.

Monitoring and Measurements Recommendations

Specific emissions goals and targets should be established by the Federal Buy Clean Program Working Group. Currently, OMB requires agencies to report annually on their sustainable acquisition activities. The federal government reports to the U.S. Congress every two years on the results of its sustainable acquisition monitoring. Given the increased focus on GPP (Green Public Procurement) by the Biden Administration, and the importance of expanding beyond the current bio-based product reporting to OMB, the Working Group should explore the efficacy of reporting to Congress on an annual basis with more granular data in terms of product categories reporting Scope III emissions and the GHG, energy efficiency, water efficiency, recycled content and healthy materials impact of GPP. The Working Group may also want to investigate revising the Federal Procurement Data System or other existing reporting tools to allow the capture and aggregation of this data.

The European Union initially set a target of 50% green tendering and will increase this percentage over time. Many European countries have adopted the EU goals and have established committees that review performance on an annual basis.

The UN Sustainable Public Procurement Program will shortly be issuing a report on each countries’ progress towards meeting UN SDG goal 12.7.1 which will provide helpful benchmarking information to further improve our efforts to reduce the climate impacts of federal operations and procurements.

Procurement Tools Recommendations

Training and education programs for contracting officers across government departments and agencies will need to be updated and delivered in time for the adoption of mandatory reporting and procurement criteria. GSA's Office of Acquisition Policy, Federal Acquisition Service and Public Building Service can take the lead in this effort as this is their core competency. The Defense Logistics Agency also has core competence in contracting officer training and education.

Training and education programs for federal contractors and subcontractors, as well as state government contracting officers that will manage federal block grants for infrastructure projects, will also be required.

GSA Office of Federal High-Performance Green Buildings should evaluate the efficacy of integrating the EPD data from the Federal Buy Clean Program into their Sustainable Facilities Tool (SFTool) and SFTool Product Search applications. This may require directing purchasers in construction/infrastructure development projects to procure low embodied carbon building materials as certified by third party ecolabels, potentially including a "carbon ecolabel," as recommended by EPA's EPP Program.

Conclusions

The manufacture of construction materials represents a significant source of greenhouse gas and other harmful emissions. A Federal Buy Clean Program for high-scoring embodied carbon construction materials would promote more efficient and environmentally sound manufacturing processes, create market demand for the resulting products and help U.S. companies be more competitive in global markets. As part of the post-COVID recovery effort, the federal government is planning massive investments in infrastructure projects providing a unique opportunity to accelerate the institutionalization of Green Public Procurement policies for these categories of products. Having a program in place to introduce standards for procuring low embodied carbon construction materials as we pursue economic recovery will stimulate the process of changing supplier practices and government procurement behaviors, thus advancing the ambitious environmental goals of the Biden Administration.

There appears to be a pathway that will enable a Federal Buy Clean Program to be launched relatively quickly which can harness all efforts currently underway and move them forward in a unified direction. Most elements of the program could be working in coordination within 30 days, with considerable results delivered within the first 12 months. To expedite success, the Biden Administration should take these initial actions:

- Establish an Interagency Working Group to define the scope, goals and methodology for implementing a Federal Buy Clean Program, leveraging the existing working groups including the Interagency Sustainability Working Group (ISWG) and the Sustainable Acquisition and Materials Management (SAMM) working group.
- Evaluate the use of existing certifications or ecolabels as a first step in evaluating and providing transparency into the GHG emissions associated with manufacture of specified construction materials.
- Commence strengthening the Federal LCA Commons and platforms and recommend the use of these inventories which are necessary to develop comparable Product Category Rules (PCRs) and Environmental Product Declarations (EPDs) that enable the assessment of the full environmental impact of specified construction materials.
- Engage industry in efforts to develop PCR standards and promote use of comparable EPDs in the procurement process for federally funded construction projects. This could be facilitated by appointing someone to lead on assessing and recommending PCRs for each product category and coordinating across agencies.
- Provide financial incentives to small and medium sized enterprises enabling them to meet the reporting requirements necessary to compete for federally funded projects.
- Specify modifications to existing tools or design new tools for housing data related to high-embodied carbon construction materials, evaluating and comparing the environmental impact of the various offerings on the market, and procuring the most effective materials for federally funded construction projects.
- Engage with third parties, such as Building Transparency, Ecomedes and others to leverage their offerings for use in the Federal Buy Clean Program.
- Commence development of educational materials for federal contracting officers, state contracting officers overseeing Federal Block Grant funded projects and procurement agents in federal contractors and subcontractors to facilitate their participation in the Federal Buy Clean Program.
- Require OMB to enforce and expand FFATA reporting requirements to include high embodied carbon construction materials and track actions of contractors and subcontractors at all tiers for federally funded projects.

ENDNOTES

1. If purchases of glass for buildings is in the form of built windows, accommodation will need to be made for window manufacturers to require that glass suppliers comply with reporting standards for the GHG emissions associated with the glass manufacturing process.

2. Currently, some PCRs permit manufacturers to use industry averages or LCI databases when calculating resource use and emissions related to energy consumption both onsite and for upstream processes. This default practice has the potential to mask the actual energy performance for their plants and plants in their supply chain. An example would be a concrete manufacturer using an industry average for the energy consumption in the manufacture of cement, one of concrete's main ingredients and a carbon-intensive material. For true transparency, actual (e.g., plant-level) energy consumption data should be disclosed and used to assess the GWP of the parts of the supply chain that contribute most to a product's carbon footprint. ENERGY STAR for Industry's Energy Performance Score can be used as a proxy to assess and compare energy efficiency in plants manufacturing construction materials.

3. PCRs are modified on a 5-year cycle and could be adjusted to include an EPS or in some other way ensure that actual energy performance, not industry averages, are used for the energy intensive processes in a product's supply chain when generating EPDs.