Buy Clean and Buy Fair Low-carbon manufacturing plan

RCW 39.116.050 (Buy Clean and Buy Fair — Technical Work Group)

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Report to the Legislature

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Table of contents

Executive summary

Overview

The Washington State Legislature enacted the state's Buy Clean and Buy Fair (BCBF) law under Revised Code of Washington Section 39.116 (RCW 39.116).[1] The law requires the disclosure of environmental and manufacturing workforce data for concrete, wood and steel products purchased and installed for the construction of new state agency and higher education buildings larger than 50,000 square feet.

In addition to these reporting requirements, BCBF requires Washington State Department of Commerce (Commerce) to establish a reporting database, provide guidance on embodied carbon measurement and reporting standards, convene a Technical Work Group and submit reports to the Legislature. Stated in RCW 39.116.050, the purpose of the work group is to "identify opportunities for and barriers to growth and the use and production of low-carbon materials, promote high labor standards in manufacturing and preserve and expand low-carbon materials manufacturing in Washington."[2]

Technical working group role and 2025 reporting requirements

The Technical Work Group (TWG) is made up of representatives from Washington concrete, steel and wood manufacturers; state agencies; environmental groups; labor unions; architecture, engineering and construction businesses; and the Carbon Leadership Forum.

To meet the 2025 legislative requirement, Commerce worked with TWG members and subgroups to develop this low-carbon materials manufacturing plan. This low-carbon materials manufacturing plan addresses the following considerations:

- Barriers and opportunities to maintain and grow a robust in-state supply of low-carbon building materials
- Opportunities to encourage the use of lower carbon cement products, including the use of performance-based specifications and Type 1-L cement in public agency projects
- Recommendations for consistent treatment of covered products in reporting
- Consideration of other strategies to reduce embodied carbon

Recommendations

Embodied carbon — or greenhouse gas emissions associated with the manufacturing, transportation, installation, maintenance and disposal of construction materials throughout the life cycle of a building — is an emerging area of focus as we work to reduce greenhouse gas (GHG) emissions from the built environment. A more detailed description can be found in Appendix D. Recent research shows that embodied carbon emissions are roughly equivalent to the emissions from operating the building over its lifetime, so it is urgent to address these emissions to reach statewide climate goals and targets. By focusing on state-funded projects, Washington's BCBF law takes the first step to understanding and addressing embodied carbon.

Alongside the manufacturing plan elements, this report includes sector-specific strategies to grow low-carbon manufacturing and support workforce development—see Appendix E for Workforce Development, Appendix F for Steel, Appendix G for Concrete, and Appendix H for Wood.

The following key cross-industry recommendations support overall growth in low-carbon manufacturing:

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[1] Washington State Legislature, "RCW 39.116.050: Technical Work Group,"
[2] Washington State Legislature, "RCW 39.116.050: Technical Work Group,"

- Expand the scope of BCBF requirements to include transportation infrastructure, other covered products and to enact global warming potential (GWP) limits.
- Develop whole-building life cycle carbon standards.
- Support industrial growth with clean energy access.
- Gather project-level embodied carbon data.
- Fund environmental product declaration (EPD) development for small manufacturers.

The low-carbon manufacturing plan includes a more detailed summary of barriers, opportunities and recommendations developed by the TWG. For additional background on other embodied carbon policy proposals, building code proposals, and related climate and manufacturing policies, see Appendix I.

Introduction

RCW 39.116.050 compliance statement

This report fulfills the requirements of RCW 39.116.050, which directs the Washington State Department of Commerce to convene a technical work group to identify opportunities and barriers to growing in-state low-carbon materials manufacturing, promoting high labor standards and preserving and expanding low-carbon production.

Pursuant to the statute, this report provides:

- A Low-Carbon Materials Manufacturing Plan outlining barriers, opportunities and sector-specific strategies for steel, concrete, wood and the manufacturing workforce.
- Recommendations for consistent treatment in reporting for covered products under the Buy Clean and Buy Fair (BCBF) program.
- Consideration of additional embodied-carbon reduction strategies that may inform future program updates and reporting.

Background

Buy Clean and Buy Fair is Washington's first policy to address the embodied carbon associated with manufacturing building materials. Buy Clean and Buy Fair was signed into law in March of 2024 — an important step toward preserving and growing low-carbon materials manufacturing in Washington. Buy Clean and Buy Fair will be referred to as BCBF throughout the report.[3]

Embodied Carbon and Environmental Product Declarations

Embodied carbon refers to the greenhouse gas emissions associated with a material's life cycle from raw material extraction through transportation, production, manufacturing and installation. It excludes operational carbon (emissions from energy use during a building's occupancy) and captures the carbon impacts that occur before a structure is even occupied. Measuring these emissions helps the state understand how construction choices affect climate goals.

Environmental Product Declarations (EPDs) are third-party verified reports that summarize a product's environmental impact across its life cycle, much like a nutrition label for materials. They allow builders, manufacturers and policymakers to compare products using consistent data.

Reducing embodied carbon emissions is one essential component to meeting Washington's climate goals and improving public health. These emissions can account for nearly half of a building's total greenhouse gas footprint

[3] Buy Clean and Buy Fair (HB 1282) was signed into law in March 2024 and the requirements are now established in RCW 39.116.

over its lifetime. Life cycle assessment (LCA) is the primary method used to measure embodied carbon, either at the product level — informing Environmental Product Declarations (EPDs) — or at the whole-building level. LCAs are informed by product category rules (PCRs) that provide standardized guidelines for specific product types.

- For definitions associated with embodied carbon and EPDs, see Appendix A.
- A detailed explanation of embodied carbon emissions, life cycle stages and LCA methodologies is provided in Appendix B.
- Additional information on EPDs and PCRs is available in Appendix C.

Embodied carbon policy in Washington

Buy Clean and Buy Fair is intended to reduce embodied carbon in state government buildings, improve human and environmental health, promote growth in low-carbon manufacturing and support the manufacturing workforce. The policy includes reporting requirements for the procurement of concrete, steel and wood products used in the construction of large new state agency building construction projects. Starting in July 2025, covered projects must submit EPDs and workforce data to Commerce. Commerce is developing a reporting database and has provided guidance and educational materials to support state agency project teams, designers, builders and manufacturers.

Policy landscape for embodied carbon

Appendix I highlights policies that support Washington's low-carbon goals. These include proposals to address embodied carbon in building codes, as well as enacted policies like the Climate Commitment Act, which is Washington's cap-and-invest program that supports investment in programs like BCBF.[4] Additional initiatives—including the BEST Act, Clean Manufacturing Leadership Act and HEAL—promote equitable outcomes and sustainable growth in manufacturing and construction.[5][6][7]

Reducing embodied carbon was identified as a priority in the 2021 Washington State Energy Strategy to meet the state's greenhouse gas emissions limits, as well as in former Governor Jay Inslee's Executive Order 20-01 (State Efficiency and Environmental Performance) and in the Vision and Action Plan developed by the Pacific Coast Collaborative's Task Force on Low-carbon Construction.[8][9][10]

Buy Clean policies use government agencies' purchasing power to reduce embodied carbon in infrastructure projects. They also give an edge to manufacturers who produce greener materials by encouraging investment in the state's clean energy industry. Washington is one of eight states with a Buy Clean policy, and similar policies are under development in six other states. While Washington's BCBF law does not mandate reductions in embodied carbon, the measurement, reporting, and educational components will provide information and help build awareness to inform future actions.

Overview of low-carbon manufacturing plan

This low-carbon manufacturing plan is informed by the findings of the Technical Work Group (TWG), which examined shared challenges and opportunities across Washington's steel, concrete, wood and workforce sectors.

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[4] Washington State Department of Ecology, "Climate Commitment Act,"
[5] Washington State Department of Commerce, "BEST Act - Washington State - Where the Next Big Thing Begins,"
[6] Washington State Legislature, "RCW 43.330.780: Manufacturing—Independent Assessment and Industrial Strategy,"
[7] Washington State Legislature, "RCW 70A.02: Healthy Environment for All Act,"
[8] Washington State Department of Commerce, "State Energy Strategy,"
[9] Office of the Governor, State of Washington, "Executive Order 20-01: State Efficiency and Environmental Performance,"
[10] Pacific Coast Collaborative, "Low-Carbon Construction: Vision and Action Plan,"

It presents a strategic framework for decarbonizing the state's building materials industry, with a focus on integrated solutions that cut across traditional sector boundaries.

RCW 39.116.050 requires the TWG to "examine barriers and opportunities to maintain and grow a robust in-state supply of low-carbon building materials including, but not limited to, state and domestic supply of raw materials and other supply chain challenges, regulatory barriers, competitiveness of local and domestic manufacturers, cost and data availability from local, state, national and foreign product suppliers."

The statute also requires the TWG to:

- Identify opportunities to encourage the continued conversion to lower carbon cements, including the use of performance-based specifications and allowing Type 1-L cement in specifications for public projects.
- Develop recommendations for consistent treatment in reporting for covered products.
- Consider how additional information relevant to embodied carbon reduction strategies, like product life-cycle emissions, could be incorporated into future reporting.

By leveraging Washington's procurement power, this plan aligns industrial policy with climate and economic resilience goals, advancing a fair, sustainable and competitive manufacturing ecosystem.

Technical Work Group and material industry analysis

Appendix D summarizes the work of the Technical Work Group (TWG) on barriers and opportunities for low-carbon materials manufacturing under Washington's Buy Clean Buy Fair (BCBF) policy.

The TWG found three main barriers that limit the policy's full potential. First, the expansion and decarbonization of materials manufacturing depends on reliable access to affordable low-carbon electricity. Second, Washington's ambitious climate policies can increase production costs for in-state manufacturers; without similar standards elsewhere, there is the risk of carbon and job leakage to jurisdictions with weaker environmental and labor protections. Third, low-carbon materials manufacturing is a rapidly evolving and highly technical field that could benefit from clearer, more accessible communication and outreach to accelerate adoption.

The TWG also identified cross-cutting opportunities. BCBF presents a chance to position Washington as a national leader in clean industrial innovation by elevating local manufacturers as essential partners in the clean energy transition. Opportunities to support decarbonization of building and transportation infrastructure include improved data transparency through shared Environmental Product Declaration tools, pilot projects, the creation of a regional low-carbon materials guide, and advancing circularity by exploring markets for reused building materials. The pace of innovation could be increased through demonstration projects, applied research, and by recognizing leadership through incentives, awards, or certification programs. Expanded education, outreach roadshows and better carbon accounting across sectors can help more stakeholders participate and track progress.

Low-carbon manufacturing plan recommendations from the TWG are organized into policy, funding, or program actions. Policy recommendations include expanding the scope of BCBF procurement; developing whole-building life cycle carbon standards; setting consumption-based emissions reduction targets; and strengthening industrial energy infrastructure through coordinated policy, including the creation of a state transmission authority. Funding and program recommendations include supporting industrial growth with clean energy access; gathering project-level embodied carbon data; creating voluntary reporting incentives for deeper supply chain and labor disclosures; and advancing collaborative platforms such as forums and roadshows to connect manufacturers, designers, builders and government stakeholders.

Appendix D provides a more detailed breakdown of these barriers, opportunities and recommendations, as well as sector-specific insights from TWG subgroups for workforce development, steel, concrete and wood.

Overview of sector-specific recommendations, opportunities and barriers

This 2025 Buy Clean and Buy Fair TWG report outlines key barriers, opportunities and recommended actions to advance low-carbon construction in Washington across five focus areas: **energy and infrastructure, procurement standards, workforce development, material industries and circular economy innovation**. It highlights the below identified strategic steps to strengthen clean manufacturing, improve data transparency, expand equitable workforce access and accelerate adoption of climate-smart building materials statewide.

Energy and Infrastructure

Recommended actions

- Create a state transmission authority to facilitate investment in low-cost transmission solutions for industrial decarbonization
- Develop a targeted industrial growth strategy to ensure clean energy access for manufacturers
- Streamline permitting for clean materials and manufacturing facilities
- Offer grants or low-interest financing for clean energy upgrades at manufacturing facilities

Opportunities highlighted

- Strengthen Washington's leadership in low-carbon manufacturing
- Decarbonize facilities and supply chains
- Coordinate energy infrastructure planning and expansion with utilities to support low-carbon growth

Key barriers identified

- Limited access to affordable low-carbon electricity
- Infrastructure costs and permitting delays
- Lack of coordinated energy policy to support industrial decarbonization

Procurement and reporting standards

Recommended actions

- Expand BCBF procurement standards to all state agencies and WSDOT roadway projects
- Develop whole-building life cycle carbon standards and global warming potential (GWP) limits
- Incentivize voluntary reporting
- Provide grants to small manufacturers to produce EPDs and meet reporting requirements

Opportunities highlighted

- Improve data transparency and harmonize procurement standards statewide
- Align with growing national efforts to use supply chain-specific EPDs
- The BCBF database can set a precedent for transparent embodied carbon reporting

Key barriers identified

- Inconsistent data reporting and fragmented EPD framework
- Lack of accessible information on low-carbon and reused materials for procurement
- Limited supply chain transparency

Workforce development and equity

For a detailed summary of recommended actions, opportunities, and barriers related to workforce development and material industries, see Appendix E.

Recommended actions

- Expand workforce reporting under RCW 39.116
- Invest in career and technical education (CTE) programs tailored to low-carbon materials production and installation
- Fund state-certified apprenticeships and joint labor-management training programs for clean materials industries
- Support childcare and transportation grants to improve job access and retention in low-carbon manufacturing careers
- Develop a statewide media campaign to highlight local manufacturing success stories

Opportunities highlighted

- Improve job quality and transparency to attract workers to clean manufacturing careers
- Strengthen partnerships with labor unions, apprenticeship programs, and community colleges to align CTE programs with clean manufacturing and construction sectors
- Address childcare, transportation and scheduling challenges to expand workforce participation
- Build embodied carbon literacy across the construction and design ecosystem

Key barriers identified

- Preserving and expanding workforce
- Gap in education and training for emerging low-carbon technologies
- Lack of access to affordable, flexible childcare, especially for nonstandard work hours

Steel, concrete and wood industries

For detailed industry-specific findings and recommendations, see Appendix F for Steel, Appendix G for Concrete, and Appendix H for Wood.

Recommended actions

- Accelerate permitting and establish programmatic environmental reviews for clean materials technology and manufacturing facilities
- Incentivize metal service centers to stock and sell low-carbon steel products
- Develop a forest carbon stocking tool and update mill infrastructure surveys through the Department of Natural Resources (DNR)
- Provide grants or low-interest loans for facility improvements, EPD creation and administrative compliance

Opportunities highlighted

- Rapid innovation in material science, data reporting, and embodied-carbon measurement (e.g., EPDs, carbon capture, mass timber)
- Modernize permitting and approval pathways for innovation
- Recognize sustainable forestry and mill modernization as climate-smart investments.
- Improve supply chain transparency and traceability for manufactured building materials

Key barriers identified

- Limited in-state production capacity for low-carbon steel
- Slow and inconsistent permitting and regulatory delays, create administrative and financial burdens in compliance
- Gaps in carbon accounting and supply chain transparency
- Administrative and financial burden in compliance

Research, innovation and circular economy

Recommended actions

- Fund pilot projects that demonstrate the use and reuse of low-carbon materials and showcase circular economy case studies and innovations
- Support university-led research and development on material reuse, carbon accounting and EPD automation
- Create a statewide low-carbon materials guide to support procurement teams and public agencies

Opportunities highlighted

- Support circularity through reuse and recycling of construction materials to extend the useful life of materials and reduce construction waste
- Strengthen university-industry research partnerships (University of Washington, Washington State University and Carbon Leadership Forum)

Key barriers identified

- Fragmented data on embodied carbon emissions and limited access to information about sourcing and reusing low-carbon materials.
- Quality and consistency concerns about the reuse of materials
- Limited reuse, recycling and circular infrastructure
- Few pilot projects testing low-carbon materials at scale

Low-carbon manufacturing plan: Cross-sector recommendations and conclusions

Commerce prioritized five recommendations designed to harness Washington's purchasing power to reduce embodied carbon and support low-carbon manufacturing. Commerce was deliberate about its process to derive recommendations for BCBF from the TWG, which identified a full range of barriers, opportunities and policy and funding/program ideas. This generated dozens of recommendations of various readiness and degrees of support. Commerce then distilled and refined these recommendations through “temperature check” surveys — brief questionnaires asking the TWG to rate each idea’s readiness, feasibility, impact and overall support.

Expand the scope of BCBF procurement

Amend RCW 39.116 to apply BCBF procurement standards to all state agencies and to transportation infrastructure projects overseen by the Washington State Department of Transportation (WSDOT). By using the embodied carbon and labor quality data already reported under the statute, this change would establish uniform low-carbon and fair-labor criteria for materials used in state-funded buildings, bridges, highways and transit systems. Extending BCBF requirements to WSDOT projects ensures that every dollar the state invests advances Washington’s carbon-reduction and labor quality goals. Another way that BCBF standards could be expanded is by the addition of global warming potential (GWP) limits for covered materials, which is a strategy enacted with Buy Clean laws in other states.

Develop whole-building life cycle carbon standards

Consider developing a policy that sets phased greenhouse gas limits on the entire life cycle of major state construction projects, aligned with Washington’s zero emission building targets. The bill would require all agencies to adopt a standardized carbon accounting and reporting methodology, turning EPD data into a coherent framework for benchmarking embodied emissions across projects and material types. Consistent reporting will empower architects, engineers, and decision-makers to track progress, compare outcomes and prioritize low-carbon design strategies from project inception.

Support industrial growth with clean energy access

Recognizing that affordable renewable power is essential to scaling low-carbon materials manufacturing, one solution could be the creation of a targeted industrial growth strategy focused on clean electricity access in partnership with the Utilities and Transportation Commission (UTC). The strategy would include financial incentives and streamlined permitting processes to guarantee reliable, cost-competitive renewable energy for both new facilities and legacy industrial sites. Securing this clean energy foundation will enable Washington’s manufacturers to invest in decarbonized processes and strengthen the state’s position as a leader in sustainable building materials.

Gather project-level embodied carbon data

To inform and refine future procurement standards, create a dedicated program that collects, verifies and analyzes embodied carbon metrics on individual public construction projects. By gathering data at design and construction stages, the state can analyze which material choices and design approaches deliver the greatest emissions reductions. These granular insights will support performance benchmarking across agency portfolios, quantify the real-world impacts of BCBF policies and provide legislators with the evidence base needed to adapt and strengthen Washington’s low-carbon procurement framework over time.

Fund EPD development for small manufacturers

During conversations with manufacturers, Commerce heard concerns that smaller manufacturers may have financial barriers to completing LCAs and creating EPDs. While this recommendation was not included in the temperature check surveys described above, Commerce added it to address these concerns and help ensure market access for small manufacturers and to promote equitable competition. RCW 39.116.020 includes a provision that would provide financial assistance to small businesses to offset the cost of producing an EPD that complies with BCBF requirements, with the intent to make sure small manufacturers are not put at a competitive disadvantage. To date, the Legislature has not appropriated funds for this purpose. The Federal Environmental Protection Agency (EPA) initiated a $160 million grant program that would have provided funding to address the embodied carbon of construction materials. Under this program, Washington partnered with Oregon and the International Code Council and was awarded a $3.5 million grant to support EPD development and improve EPD data quality in the Pacific Northwest region. In early 2025 this funding was eliminated by EPA. To close this gap, the state legislature could provide Commerce with funding to implement the financial assistance provision in RCW 39.116.020.

Consideration of embodied carbon reporting and reduction strategies

RCW 39.116.050 requires Commerce and the TWG to provide "recommendations for consistent treatment in the reporting for covered products" and for this report to include consideration of other embodied carbon strategies that could be incorporated into future reporting.

BCBF reporting: Consistent treatment for covered products

The current BCBF law requires the same reporting tasks for all covered products (project teams must provide a current EPD and workforce data) and applies the same EPD definitions:

- **Environmental product declaration (EPD):** A type III environmental product declaration, as defined by the International Organization for Standardization (ISO) standard 14025 or similarly robust life-cycle assessment methods that have uniform standards in data collection consistent with the ISO standard 14025, industry acceptance, and integrity. When available, the environmental product declaration must be supply-chain specific.
- **Supply chain-specific:** An EPD that includes supply chain-specific data for production processes that contribute 70% or more of a product's cradle-to-gate global warming potential, as defined in ISO 21930, and that reports the overall percentage of supply chain-specific data included.

Commerce will collect EPDs in a manner consistent with these definitions and will require that submitted EPDs meet the requirements of the current Product Category Rules (PCR) for the specific product. This report does not propose any modifications to the existing framework governing the consistent treatment of covered products under BCBF.

When HB 1282 was first introduced in 2023, it included additional supply chain disclosure requirements for engineered wood products, so that wood EPDs must include:

- Any chain of custody certification
- Percent volume contribution to wood sourcing with forest management certification
- Percent volume contribution to wood sourcing by state or province and country
- Percent volume contribution to wood sourcing by owner type (federal, state, private or other)

These requirements go above and beyond what is currently required by wood PCRs. However, TWG members from the concrete and steel industries, environmental groups and labor unions have supported recommendations to include more supply chain-specific data and sourcing information in wood EPDs.

The term “consistent treatment” has been interpreted in different ways by different stakeholders and TWG members. While some parties take this to mean that all EPDs reported under BCBF requirements should only meet the requirements of the current PCR for a given product, other participants think that state policy requirements that go above and beyond existing PCR requirements. For example, some stakeholders think that including requirements for chain of custody and sourcing data in wood EPDs could help push wood PCRs to include more supply chain-specific data or shift current assumptions related to biogenic carbon, thereby increasing the scope and accuracy of data in wood products EPDs.

There are PCR requirements in other material categories which support inclusion of supply chain-specific data or disclose the level of accuracy included in an EPD. For example, steel and cement industry PCRs currently require supply chain-specificity scores, which is one measure of underlying accuracy.

There are two recent reports that discuss the treatment of biogenic carbon in wood EPDs:

1) Driving Action on Embodied Carbon in Buildings (Rocky Mountain Institute and US Green Building Council, 2023)[11]
2) Biogenic Carbon Accounting in Wood Environmental Product Declarations (Carbon Leadership Forum, 2025)[12]

While both reports emphasize the value of transparency and recommend including data on biogenic carbon storage in wood EPDs, the Carbon Leadership Forum report provides more focused information about technical harmonization of PCRs and LCA standards.

Proposing changes to PCRs or weighing in on PCR harmonization is out of scope for the BCBF TWG and RCW 39.116 does not direct Commerce to engage at this level. The statute does recognize EPDs as “the best available tool for reporting product-specific environmental impacts and informing the procurement of low-carbon building materials” and does require supply-chain specific EPDs for project reporting, while allowing some flexibility for product or facility-specific EPDs.

Commerce believes that following statutory definitions for EPDs and data collection does ensure products covered by BCBF are receiving consistent treatment. The BCBF team will monitor changes to PCRs and data collection trends in other states with Buy Clean policies and will seek input from TWG members to consider any updates to reporting standards that may happen in the future.

Other embodied carbon reduction strategies

Measuring embodied carbon through procurement-based policies and EPDs is only one of the ways governments can track and reduce the environmental impacts of building materials. Other strategies include:

- Reuse of existing buildings and building materials
- Whole-building life cycle assessment (WBLCA)

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[11] RMI, "Driving Action on Embodied Carbon in Buildings,"
[12] Carbon Leadership Forum, "Biogenic Carbon Accounting in Wood Environmental Product Declarations,"

A WBLCA is a cradle-to-grave assessment performed during the design phase of a project that covers life cycle stages A-C as defined by ISO 21931-1 or a similarly robust standard that evaluates the environmental impacts of a building, including, at minimum, GWP.

California's CalGreen Code includes requirements for commercial buildings where project owners can target embodied carbon reductions through EPDs, building re-use or WBLCA.[13] In Washington, HB 1458 (Reducing embodied carbon emissions of buildings and building materials) was introduced in 2024 and would add similar requirements to building codes.[14]

The Department of Enterprise Services (DES) published a report in 2024 that encourages code-based requirements with multiple embodied carbon reduction pathways.[15]

Commerce is tracking policy and code developments and will continue to evaluate how strategies like WBLCA could be incorporated with future reporting. The TWG is responsible for a second legislative report, described in more detail below, that will evaluate options for data collection and make recommendations for designing lower embodied carbon state building projects. After that report is published, Commerce may make changes to BCBF reporting requirements and refine the reporting database to accommodate policy changes, recommendations from the TWG or to align with best practices and proven strategies implemented in other public and private embodied carbon programs.

[13] California Building Standards Commission, "CALGreen: California Green Building Standards Code,"
[14] Washington State Legislature, "HB 1458 – Reducing Embodied Carbon Emissions of Buildings and Building Materials,"
[15] Carbon Leadership Forum, New Buildings Institute, RMI, and University of Washington, "A Study of the Language Addressing Embodied Carbon,"

Next steps for the Buy Clean and Buy Fair program

Commerce will continue to engage TWG members and other stakeholders to evaluate and consider the recommendations in this report. Commerce plans to host webinars or listening sessions in late 2025 or early 2026 to gather additional feedback on the work we're doing to address embodied carbon.

In accordance with RCW 39.116.050, Commerce will publish a second report in September 2026. This second legislative report will cover the following:

TWG policy recommendations

- Consider policies to expand the use of low-carbon materials and expand in-state manufacturing while supporting living-wage jobs.
- Summarize data collected under the BCBF policy, including global warming potential (GWP), health product declarations, supplier codes of conduct and any obstacles to implementation of this policy.
- Evaluate options for reporting on the manufacturing workforce.
- Make recommendations for improving Environmental Product Declaration (EPD) data, consideration of greenhouse gas emissions reductions through green power purchases and clarifying definitions in this policy.
- Identify barriers and opportunities for effective use of the BCBF Washington database.
- Identify emerging and foreseeable trends on embodied carbon and the procurement of low-carbon materials to promote regional and cross-sector alignment.
- Recommend approaches to designing lower-carbon projects.[16]

Updated guidance on reporting standards

The TWG convened in February 2025 and meets monthly. Subgroups were convened for the concrete, steel and wood manufacturing industries, and for labor union participants. Subgroup meetings often included a broader set of participants including industry associations, advocates and independent experts.

Commerce is also making progress on the BCBF Washington database, which will support project teams with material sourcing and data reporting and provide information about the GWP of building materials purchased and installed on state agency buildings.

By January 2027, Commerce may update reporting standards and requirements based on input from the Technical Work Group and incorporate lessons learned during the initial reporting period.[17]

Conclusions

Addressing embodied carbon is an emerging trend in Washington climate policy. It represents diverse and significant opportunities to both reduce greenhouse gas emissions and support manufacturing businesses and workers. While some of the policy and program recommendations in this report are still being debated — especially those relating to EPDs for wood products — there are many ways to make progress. Washington can continue to lead by convening stakeholders and investing in research, policy and program development that supports lower-carbon manufacturing.

[16] TWG policy recommendations due Sept. 1, 2026,
[17]Updated guidance on reporting standards due January 1, 2027,

Appendix A: Acronyms and definitions

A1-A4 Stages - Life Cycle Information A1 to A4
These life cycle stages cover:

- A1: Raw material supply or extraction
- A2: Transport of materials to the production facility
- A3: Product manufacturing
- A4: Transport of finished product to the project site

C595 hydraulic cements
Blended hydraulic cements, which are engineered to reduce the environmental footprint of traditional cement. These cements incorporate supplementary cementitious materials (SCMs) into the mix. This includes, but is not limited to Type 1-L cement mixes.

Carbon flow
Carbon flow describes how carbon moves through natural and human-made systems—how it's captured from the atmosphere, stored in plants or products, transferred between reservoirs (like soils or timber mills) and eventually released back into the air when materials decay or burn.

For example, in a managed forest:

- Trees pull CO_2 from the air and lock it into their wood and leaves.
- When harvested, about 99% of each log goes into products or mill energy, keeping carbon stored in buildings.
- Over decades, that wood in homes or furniture continues to hold carbon, slowing its return to the atmosphere.
- Eventually, when wood products reach end-of-life — through demolition, decay or combustion — the carbon flows back into the air, completing the cycle.

Circular economy
Circular economy in BCBF means keeping materials — like steel, concrete and wood — in use as long as possible through reuse, remanufacture and recycling. This approach lowers embodied carbon, rewards sustainable production and aligns with fair labor standards by stretching the life of existing resources instead of constantly making new ones. Procurement teams can drive demand for low-carbon, circular materials and reward suppliers who keep resources in play rather than landfilled. For example, salvaging structural timber from a demolished building and installing it in a new project locks carbon into the built environment and lowers customer demand for newly manufactured products.

Cradle-to-gate
Describes the portion of a product's life cycle that starts with raw material extraction ("cradle") and ends when the finished product leaves the factory ("gate").

The life cycle stages covered by cradle-to-gate are:

- A1: Raw material supply or extraction
- A2: Transport of materials to the production facility
- A3: Product manufacturing

Cradle-to-grave
Describes the full life cycle of a product, starting with raw material extraction ("cradle") and ending with disposal or recycling ("grave"). The life cycle stages covered by cradle-to-grave are:

- A1: Raw material supply or extraction
- A2: Transport of materials to the production facility
- A3: Product manufacturing
- A4: Transport of finished product to the project site
- A5: Construction and installation

Embodied Carbon
The sum of greenhouse gas emissions, expressed as carbon dioxide equivalents (CO_2e), associated with all upstream stages of a material's life cycle. These stages include raw material acquisition, transport, manufacturing, and installation. Embodied carbon is distinct from operational carbon, which covers emissions from energy use during a building's life.

EPD — Environmental Product Declaration
A third-party verified, ISO 14025 Type III declaration that reports quantified LCA results, including global warming potential and other impacts, for a specific product or product category. EPDs follow Product Category Rules (PCRs) to ensure consistency and comparability across manufacturers.

GWP — Global Warming Potential
A metric for comparing the heat-trapping ability of different greenhouse gases relative to CO_2 over a specified time horizon, most commonly 100 years (GWP_{100}). For example, methane (CH_4) has a GWP_{100} of about 27, meaning one tonne of CH_4 traps the same amount of heat as 27 tonnes of CO_2 over 100 years. GWP underpins the CO_2e results reported in EPDs.

LCA — Life Cycle Assessment
A standardized method for measuring the environmental impacts of a product or material across its full life cycle. This includes raw material extraction (cradle), manufacturing, use and end-of-life processing (grave). LCA uses internationally recognized methodology, specifically ISO 14040 and ISO 14044 standards, to ensure consistency, transparency and compatibility. It supports reliable benchmarking and helps guide informed decision-making in construction and procurement.

PCRs — Product Category Rules
Documented rules and requirements that define scope, system boundaries, data quality and impact categories for conducting an LCA and producing an EPD for a specific group of functionally equivalent products. PCRs ensure that all manufacturers within a category use the same methodological standards.

SCM — Supplementary Cementitious Materials
Byproduct materials such as fly ash, ground granulated blast-furnace slag and silica fume that partially replace Portland cement in concrete. SCMs lower the embodied carbon of concrete mixes by reducing clinker content and leveraging industrial residues while maintaining or improving performance.

TWG — Technical Work Group
A multistakeholder body composed of industry experts, state agency staff, labor representatives and technical advisors. The TWG advises the Department of Commerce on various strategies, recommendations, and guidance concerning Washington's BCBF.

Woodshed
Refers to the defined geographic area or timber catchment from which a primary wood processing facility sources its logs.

Appendix B: Embodied carbon emissions

Embodied carbon emissions

Greenhouse gas (GHG) emissions from buildings can be broadly divided into operational carbon and embodied carbon — reducing both operational and embodied GHG emissions is required to meet Washington’s climate targets and improve health outcomes for our communities.

The following graphic illustrates the embodied and operational carbon throughout building lifecycle stages:

Product stage

- Raw material supply
- Transport to factory
- Manufacturing

Construction

- Transport to site
- Construction

Use

- Use
- Maintenance repair
- Replacement refurbishment
- Operational energy and water

End-of-life

- Deconstruction
- Transport to processing
- Waste processing and disposal

Beyond

- Reuse
- Recovery
- Recycling

Materials used in the construction of buildings represent about 7% of total global greenhouse gas emissions. Raw material use is predicted to double by 2060, further increasing these emissions.

- 18% Building operations
- 7% Building material
- 10% Infrastructure materials
- 13% Other industry
- 17% Transportation
- 3% Waste
- 3% Land use change/forestry
- 14% Agriculture
- 14% Other (energy-related)

The Carbon Leadership Forum published a report in July 2025 estimating operational and embodied carbon of the built environment in Washington from 2025-2050.[18] The report finds that during this time period, embodied carbon

[18] Carbon Leadership Forum, "Washington State Carbon Emissions Estimation: 2025–2050,"

"is nearly as consequential as operational carbon in Washington," estimating that embodied emissions account for 40-49% of total emissions, compared to 51-60% for operational emissions.

Measuring embodied carbon

Embodied carbon is measured through life cycle assessment (LCA) at the level of a single product or material or for a whole building, which estimates greenhouse gas emissions — reported as global warming potential (GWP) in kilograms of carbon dioxide equivalents (kgCO2e) — as well as other environmental and human health impacts over the building's entire life cycle. Life cycle stages are organized into modules (A-D) and communicate when environmental impacts occur during a building's life span.

Product stage: sourcing raw materials (A1–A3)

Starting point:

- Getting raw materials from the earth (A1)
- Transporting raw materials to the factory (A2)
- Making or manufacturing the products (A3)

Most of the carbon emissions occur at this stage.

Construction stage: building with manufactured products (A4–A5)

Next stage:

- Moving materials to the building site (A4)
- Putting everything together (A5), including the energy used during construction

Use stage: building's operational life (B1–B7)

This covers the building's life after it's built:

- Regular upkeep such as maintenance (B2), repairs (B3) and replacements (B4)
- Energy used to keep it running (B6)

Carbon emissions are usually lower here — unless parts are frequently replaced.

End-of-life stage: deconstructing the building (C1–C4)

When the building is torn down:

- Demolition (C1)
- Hauling away the waste (C2)
- Sorting and processing it (C3)
- Final disposal (C4)

These steps can add significant emissions depending on how the waste is handled.

Beyond the life cycle: after the building's operational life (D)

This part is optional:

- Accounts for the benefits of recycling materials or recovering energy once the building's life is over

Life cycle assessment can be applied at the product level or the building level.

1) **Product level:** Quantifies the extraction and manufacturing impacts of a specific product. An environmental product declaration (EPD) is a standardized, third-party verified document that reports the environmental impacts of a product based on a product LCA. This is the type of LCA that informs EPDs collected as part of BCBF reporting.
2) **Building-level:** A whole building LCA (WBLCA) is a cradle-to-grave (A-C) assessment that evaluates the environmental impacts of a building or portion of a building across its life. There are no Washington policies currently requiring building-level LCAs or WBLCAs, however some building projects have opted to do this during the design phase.

Appendix C: Environmental Product Declarations (EPDs)

Environmental Product Declarations (EPDs)

EPDs are third-party verified documents that disclose the environmental impacts of building materials based on life cycle assessments (LCAs) conducted under international standards. Often described as “nutrition labels” for construction projects, EPDs help manufacturers, architects and builders make informed decisions and reduce environmental impacts.

Washington’s BCBF policy requires Type III EPDs, governed by ISO 14025, which report global warming potential (GWP) and other metrics. These EPDs are developed according to Product Category Rules (PCRs), which are standardized guidelines that define how LCAs are performed and reported for specific product types. PCRs lay out methods for generating EPDs, describing aspects such as:

- Description of the product
- Goal and scope of assessment including system boundary, description of data and its quality, inputs and outputs to be considered
- Data aspects such as methods of collection, calculation and classification of material and energy flows
- Environmental impacts to be considered
- Presentation in the final report

Program operators develop PCRs with a committee in an open process that allows industry stakeholders to review and comment on the aspects described above. Committee participants typically include manufacturers, material suppliers and trade associations and sometimes nongovernmental organizations, public agencies, LCA practitioners and consumers. The public comment process is open to all stakeholders.

EPDs are the primary mechanism for GWP disclosure in the building and construction industry. Building professionals use EPDs to evaluate the environmental impacts of a product and to compare data between functionally equivalent products. Manufacturers use product LCAs and EPDs to identify hot spots in their manufacturing processes and supply chains and guide future improvements that can reduce environmental impacts.

There are various categories of EPDs:

- Industry-wide EPDs: Represent average impacts across multiple manufacturers — useful for benchmarking but not for product comparison.
- Product-specific EPDs: Reflect impacts for a specific product and manufacturer, often across multiple facilities.
- Facility-specific EPDs: Attribute impacts to a single manufacturer and facility — introduced under California’s Buy Clean Act.
- Supply chain-specific EPDs: Defined in Washington’s HB 1103, these include upstream supply chain data for processes contributing 70% or more of a product’s cradle-to-gate GWP.

RCW 39.116 requires project owners to provide supply-chain-specific EPDs for building materials, with some flexibility for facility or product-specific EPDs.

Over the last decade, the number of manufacturers producing EPDs for their products has grown exponentially worldwide and in the U.S. EPDs are available in online databases like Building Transparency’s Embodied Carbon in Construction Calculator (EC3), which will be linked to Washington’s BCBF Database to ease access to EPDs for state building construction projects and to support efficient reporting.

Appendix D: The Technical Work Group

Barriers

Washington's BCBF policy is designed to encourage the use of lower-carbon products during the public procurement process while promoting high labor standards. This is an important step toward protecting the competitiveness of existing low-carbon manufacturing and growing new low-carbon materials manufacturing. However, as the TWG has identified, several systemic barriers that continue to limit the policy's full potential. These cross-industry challenges affect multiple sectors and stakeholders, from manufacturers and suppliers, to workforce partners and public agencies.

Limited access to affordable low-carbon electricity

The expansion and decarbonization of Washington's materials manufacturing sector depend on reliable access to affordable, low-carbon electricity. Access to clean, affordable energy is essential expanding low-carbon production and upgrading existing facilities to meet climate goals.

However, current limitations in the availability and affordability of clean energy present a major barrier. A notable example is the unsuccessful attempt to restart the Intalco Aluminum Smelter in Ferndale as a green aluminum facility. One key barrier to successfully restarting was the inability to secure 400 megawatts (MW) of competitively priced, low-carbon electricity — highlighting the critical role energy access plays in enabling industrial decarbonization.

Unfair competition and risk of carbon and job leakage

Washington's ambitious climate policies position the state as a national leader in low-carbon materials manufacturing. However, these same policies can inadvertently disadvantage in-state manufacturers. By increasing production costs without equivalent standards in other jurisdictions, Washington risks driving manufacturers and their emissions out of state.

This is known as carbon leakage and occurs when production shifts to regions with weaker environmental and labor protections, resulting in no net reduction in global emissions. Instead, pollution is displaced to more vulnerable communities. The risk is especially acute in materials manufacturing, where products like steel, concrete and aluminum are globally traded commodities that compete almost exclusively on price. This dynamic creates a "carbon loophole," where emissions embedded in imported goods are excluded from Washington's climate accounting.

The economic consequences are also significant. Washington has experienced substantial trade-related job losses, particularly in manufacturing. According to the Washington Fair Trade Coalition Education Fund, such job losses increased by 133% from 2017 to 2019 compared to the previous three-year period. This highlights the urgent need for policies that level the playing field for domestic producers while advancing climate goals.

Limited capacity for effective communication and outreach on emerging technical issues

Low-carbon materials manufacturing is a rapidly evolving field, that often involves complex, highly technical innovations. Effectively communicating these developments to industry stakeholders, policymakers, labor representatives and the public is a persistent challenge. The lack of clear, accessible information can hinder informed decision-making, slow adoption of new technologies and reduce stakeholder engagement.

Additionally, outreach efforts have not always kept pace with the growing need to educate and involve a broader range of participants, including small manufacturers, rural communities and underrepresented groups. Expanding and improving communication channels is essential to building trust, fostering collaboration and ensuring that all stakeholders are equipped to participate in Washington's transition to a low-carbon industrial economy.

Opportunities

Washington's BCBF policy presents a unique opportunity to position the state as a national leader in clean industrial innovation. TWG identified a set of cross-cutting opportunities that can accelerate decarbonization, strengthen local manufacturing and ensure that Washington's climate leadership is both economically and socially inclusive.

Elevating Washington's manufacturing leadership

Washington is already home to national and global leaders in low-carbon materials manufacturing. However, energy-intensive industries are often framed as climate liabilities rather than essential partners in the clean energy transition.

There is an opportunity to shift this narrative through a statewide media campaign and storytelling initiative that highlights the role of local manufacturers in enabling decarbonization. By showcasing success stories and elevating the voices of industry leaders, Washington can build broader support for clean manufacturing, foster collaboration and counteract the perception that climate policy and industrial growth are at odds.

Improving data transparency and collaboration

As more states adopt Buy Clean policies, the need for consistent, transparent and accessible emissions data is growing. Suppliers currently face a fragmented reporting landscape and limited support for Environmental Product Declarations (EPDs) development.

Washington can lead by developing an open-source EPD database with sharing capabilities across states. In parallel, university-industry pilot programs can identify data gaps in EPD development and propose practical solutions. These efforts would reduce administrative burden, improve data quality and support broader participation in low-carbon procurement.

Decarbonizing facilities and supply chains

Reducing emissions from manufacturing facilities and material transport is essential to meeting Washington's climate goals. Many facilities lack the technical capacity to identify cost-effective decarbonization strategies, and transportation-related emissions (A4) are often difficult to estimate and not included in cradle-to-gate EPDs.

There is an opportunity to support university-led audits that identify energy efficiency and fuel-switching opportunities at the facility level. A complementary pilot study could establish a baseline for transportation emissions and explore decarbonization strategies such as cleaner fuels and optimized logistics. Optimized logistics refers to improving how materials are transported, stored and delivered to reduce costs, cut delays and minimize emissions. By streamlining processes like shipping, warehousing and inventory flow, optimized logistics helps manufacturers move products more efficiently. The result of optimized logistics is lower embodied carbon, reduced supply chain risk and improved overall project performance. These initiatives would provide actionable roadmaps for reducing emissions across the value chain.

Supporting circularity and informed procurement

Procurement teams, designers and contractors often lack accessible information about sourcing low-carbon materials or reusing existing ones. At the same time, circular economy practices, where reuse of materials is prioritized, stall due to quality and consistency concerns.

Washington can fix this by:

- Building a statewide low-carbon materials guide that shows each product's emissions data, where to buy it and tips for procurement
- Funding research and pilot programs to test large-scale reuse methods, such as cleaning and certifying recycled steel, concrete or other materials

Together, the guide and pilots will give project teams clear facts, boost local sourcing and keep materials circulating instead of going to the landfill.

Accelerating innovation through demonstration and research

Emerging technologies that convert waste into low-carbon construction materials offer potential emissions reduction pathways but often lack testing to determine how new materials will perform in building construction. Meanwhile, Washington's university research capacity remains underused in supporting industrial innovation. A pilot project to test low-carbon materials can highlight new products, speed up their use in the market by addressing issues like performance, permitting and purchasing and help researchers and manufacturers work together to design practical, scalable low-carbon alternatives.

There is an opportunity to fund test projects that try out new materials on public infrastructure projects. In addition, the state can invest in applied research and development partnerships between universities and manufacturers. This includes support for testing facilities, innovation hubs and collaborative research initiatives that speed up the time it takes to get next-generation materials to the market.

Recognizing leadership and expanding education

Market transformation requires clear rules and positive incentives, such as reward programs for leading buildings and projects that employ low-carbon construction tactics or financial incentives for companies developing lower-carbon products. At the same time, there is a growing need to educate professionals and the public about low-carbon materials and practices.

Washington can create financial incentives, awards, or certification programs to recognize manufacturers that lead in low-carbon innovation. Public education campaigns and professional training programs can build embodied carbon literacy among architects, engineers, contractors and procurement officials, ensuring that the workforce is equipped to support the state's climate goals.

Engaging stakeholders through roadshows and outreach

Many public sector stakeholders are unfamiliar with the practical steps needed to put BCBF policies into place — like organizing roadshows for building owners, government agencies and policymakers. These events would provide hands-on education about low-carbon procurement, materials innovation and implementation best practices, helping to build confidence and speed up adoption.

Expanding carbon accounting across sectors

To track progress and refine policy, Washington needs better data on embodied carbon at both the project and landscape levels.

The state can develop systems to collect and analyze project-level emissions data while also expanding carbon accounting to include forests, farms and other working lands. This would enable climate-smart forestry and agriculture to be recognized and rewarded within the state's broader decarbonization strategy.

Streamlining permitting and supporting infrastructure

Permitting delays and infrastructure costs remain significant barriers to scaling low-carbon manufacturing. Washington can explore the use of programmatic Environmental Impact Statements (EIS) to streamline permitting for clean materials and manufacturing facilities. The state can also provide grants or low-interest financing to help manufacturers invest in the infrastructure needed to expand production, such as storage systems or specialized equipment.

Low-carbon manufacturing plan recommendations

To tackle barriers and capitalize on opportunities across Washington's steel, concrete, workforce and wood sectors, Commerce surveyed the TWG and received targeted recommendations.

Recommendations are organized into:

- Policy Recommendations: actions requiring legislative or regulatory change.
- Funding and Program Recommendations: investments and initiatives to support implementation.

Policy recommendations

Expand the scope of BCBF procurement

Use the data collected under RCW 39.116 to establish comprehensive procurement standards for covered products across all state agencies. Extend BCBF requirements to transportation infrastructure projects managed by WSDOT, ensuring consistency with Washington's carbon reduction and labor-quality goals.

Develop whole-building life cycle carbon standards

Create limits on whole-building life cycle greenhouse gas emissions, with phased reductions aligned to zero-emission building targets. Establish standardized carbon accounting and reporting requirements for major public projects to enable consistent benchmarking across material types.

Set consumption-based emissions reduction targets

Complement Washington's existing territorial greenhouse gas limits (RCW 70A.45.020) with a consumption-based target that captures emissions embedded in imported goods. Identify and adopt the data tools and reporting frameworks necessary to measure and track progress over time.

Strengthen industrial energy infrastructure through coordinated policy

Create a state transmission authority to facilitate investment and development in the most efficient, lowest cost transmission solutions for industrial decarbonization. This entity would bring together utilities, manufacturers and regulators to secure affordable clean power for both expanding low-carbon facilities and retrofitting existing plants.

Funding and program recommendations

Support industrial growth with clean energy access

Develop a targeted industrial growth strategy that ensures ample, affordable clean electricity to enable expansion of low-carbon materials manufacturing and the decarbonization of legacy industrial facilities.

Gather project-level embodied carbon data

Fund a program to collect and analyze embodied carbon metrics at the project level for public construction. These data could help inform future policies and reporting standards, support performance benchmarking and quantify policy impact.

Create a voluntary reporting incentive

Provide procurement incentives or bid advantages to manufacturers who voluntarily disclose more granular sourcing and workforce data beyond standard Environmental Product Declarations (EPDs) and Product Category Rules (PCRs).

Recognize and reward disclosures that include things such as:

- Specific geographic origin of raw materials and critical supply chain inputs
- Facility-level labor practices and third-party labor standards verification

Incentivize participation by:

- Offering preferential scoring in competitive procurement processes
- Providing public recognition via sustainability leaderboards or registries
- Enabling access to expedited review or pilot programs for innovative low-carbon or equitable practices

This voluntary reporting pathway encourages transparency while fostering market leadership and aligning procurement with Washington's climate and labor justice goals.

Advance collaborative platforms for low-carbon engagement

To increase the efficacy of Washington's embodied carbon policies and programs, Commerce should support, highlight or expand forums or roadshows where manufacturers can connect and collaborate with designers, builders and government stakeholders. These forums can include education and demonstration projects and may highlight case studies and achievements in projects and products that reduce embodied carbon.

TWG subgroups

Building on the overarching barriers, opportunities and recommendations identified by the TWG, the following four appendices (Appendix E, Appendix F, Appendix G, Appendix H) provide a focused review of individual industry subgroups. Each subgroup — workforce development, steel, concrete and wood — engaged stakeholders to surface sector-specific insights and propose strategies for advancing low-carbon manufacturing across Washington's built environment.

Appendix E: Workforce development

Barriers

A skilled and inclusive workforce is essential to Washington's leadership in low-carbon manufacturing. However, the TWG has identified persistent barriers that limit workforce participation and readiness across key sectors. Addressing these barriers is critical to ensuring that the transition to a clean industrial economy is both equitable and sustainable.

Preserve and expand skilled labor to support low-carbon manufacturing growth

Washington's skilled manufacturing workforce is a foundational asset in the state's effort to lead in low-carbon materials manufacturing. Preserving and expanding this workforce is essential to both decarbonizing existing industries and attracting new investment in clean manufacturing.

This challenge has two key dimensions:

1) **Workforce education and training:** Preparing workers with the technical skills needed for emerging low-carbon technologies and processes.
2) **Labor force participation:** Ensuring enough workers are available across the full supply chain — including upstream sectors like forestry, which is critical to wood product manufacturing.

Manufacturers cannot expand operations or establish new facilities without a reliable pipeline of skilled labor. Without one there is a risk of slowing industrial decarbonization and deterring private investment. To remain competitive, Washington must implement policies that strengthen workforce development, support career pathways in manufacturing and align training programs with the needs of low-carbon supply chains.

Structural barriers to workforce participation — including childcare access

In addition to training and labor supply challenges, many Washingtonians face structural barriers that limit their ability to participate in the manufacturing workforce. One of the most significant is access to affordable, flexible childcare that aligns with the nonstandard hours often required in manufacturing and supply chain jobs.

Without reliable childcare options, many skilled and willing workers, particularly women and single parents, are unable to enter or remain in the workforce. This reduces the available labor pool and disproportionately impacts rural and underserved communities where childcare infrastructure is especially limited.

Addressing these barriers is essential to:

- Expand equitable access to manufacturing careers.
- Strengthen the resilience of the low-carbon industrial workforce.
- Support inclusive economic development across Washington.

Investments in childcare access, transportation and other wraparound services is critical to unlocking the full potential of Washington's workforce and ensuring that the transition to a low-carbon economy is both just and inclusive.

Opportunities

A resilient and inclusive workforce is essential to Washington's success in scaling low-carbon manufacturing. As the state advances its BCBF policy, there are clear opportunities to improve job quality, expand access to training and remove structural barriers to workforce participation. The TWG has identified several strategies to support a strong labor foundation for the state's clean industrial transition.

Enhance transparency around working conditions

Washington's BCBF law (RCW 39.116) currently requires suppliers of covered products to report the average number of employees by employment type (full-time, part-time and temporary) at production facilities. This reporting framework provides a foundation for greater transparency around labor practices in the manufacturing sector.

Expanding the scope of working conditions reporting would allow the state to better identify and support manufacturers that uphold high labor standards. By leveraging public procurement to promote job quality, Washington can help ensure that the growth of low-carbon manufacturing is accompanied by stable, well-paying employment opportunities. High job quality is key to attracting workers to manufacturing, operations and maintenance and construction careers, as well as other areas of work across the supply chain for low-carbon materials.

Invest in workforce development training

The transition to low-carbon manufacturing will require a skilled workforce across multiple sectors, including construction, forestry and advanced manufacturing. However, many employers report difficulty finding workers with the necessary technical skills.

Expanding workforce development programs aligned with clean materials and industrial decarbonization can help close this gap. Partnerships with labor unions, community colleges and industry can ensure that training programs are responsive to employer needs and accessible to a diverse range of workers.

Address structural barriers to workforce participation

Many Washingtonians face systemic barriers that limit their ability to enter or remain in the workforce. Lack of affordable childcare, especially for nonstandard shifts, is a persistent challenge that disproportionately affects women and low-income communities.

Removing these barriers is critical to building an inclusive and resilient labor force. Strategies such as expanding access to childcare, improving transportation options and supporting flexible scheduling can increase participation and ensure that the benefits of Washington's clean economy are broadly shared.

Together, these opportunities would strengthen the state's labor foundation, improve equity in the clean energy transition and ensure that Washington's leadership in low-carbon manufacturing is matched by leadership in job quality and workforce inclusion.

Low-carbon manufacturing plan recommendations

- **Require cradle-to-gate, supply-chain specific EPDs:** Mandate that EPDs for all covered products focus on cradle-to-gate emissions (meaning from raw material extraction through manufacturing but not including transportation to the construction site or installation). EPDs should use data specific to the actual supply chain rather than industry-wide averages. This approach rewards manufacturers who actively manage their emissions and maintain strong labor standards throughout their operations.
- **Incorporate working conditions reporting into BCBF:** Expand RCW 39.116 to require reporting on employment numbers, wages, hours worked and other job-quality metrics. Aligning procurement with fair labor practices and responsible employment standards helps ensure a stable, well-trained workforce capable of supporting low-carbon manufacturing.
- **Expand covered products by functional class:** When adding new products to BCBF, group them by functional class (e.g. building enclosures) instead of individual product types. This approach prevents unintended bias and ensures fair competition among functionally equivalent materials.

- **Invest in career and technical education for clean materials fields:** Provide dedicated funding for middle and high school career technical education (CTE) programs in manufacturing, forestry and construction trades, with curricula tailored to low-carbon materials production and installation. Advance CTE Career Clusters is an example of a framework that supports the development of CTE program.[19]
- Advance state-certified apprenticeships and joint labor-management training programs for low-carbon industries: Expand state-certified apprenticeships and joint labor-management training programs focused on clean materials. These initiatives will promote inclusive job growth in emerging sectors.

[19] Advance CTE – Career Tech Org, "Career Clusters Framework,"

Appendix F: Steel industry

Barriers

Steel is a foundational material in Washington's construction sector and a major contributor to embodied carbon. While the industry has made progress in reducing emissions through recycling and process improvements, several implementation challenges remain. The TWG has identified key barriers that limit the availability, traceability and practical use of low-carbon steel in public projects.

Complex emissions tracking for steel assemblies

Fabricated structural steel is composed of multiple steel components, such as hot-rolled sections, plates and hollow structural sections sourced from various suppliers. Applying Buy Clean requirements to every individual input within these assemblies can be an impractical administrative burden for manufacturers and project teams.

While not as complex as tracking emissions for an entire automobile, the challenge is conceptually similar. A more effective and streamlined approach would focus on the primary structural element within each fabricated assembly — the column, beam or brace — which typically accounts for approximately 90% of the total weight and embodied carbon of the final product.

Targeting the primary component ensures that Buy Clean policies remain impactful without imposing excessive compliance burdens. This approach maintains the integrity of emissions reporting while supporting practical implementation across the steel fabrication industry.

Limited supply flexibility during project changes

Meeting embodied carbon requirements is achievable when steel fabricators have sufficient lead time and can plan accordingly. However, construction projects often involve last-minute changes that require fabricators to supply newly fabricated steel components on short notice to avoid project delays.

In these time-sensitive scenarios, sourcing low-embodied-carbon steel can be difficult. Local metal service centers, which supply approximately 70% of all construction steel in the U.S., may not have compliant material readily available. This lack of availability can lead to unnecessary project delays and puts fabricators in a difficult position: either delay the project or compromise on compliance.

To support both climate goals and construction timelines, Buy Clean policies must account for the realities of just-in-time fabrication and the constraints of local supply chains.

Lack of local production and incentives

Washington currently has only one operating steel mill, which produces steel reinforcing bars. All other structural steel products used in construction are sourced from out-of-state producers and distributed through metal service centers. These service centers act as intermediaries, supplying approximately 70% of construction steel to contractors and fabricators.

However, service centers are not currently incentivized to prioritize or stock low-carbon steel. Without market signals or policy-driven incentives, they tend to focus on cost and availability rather than environmental performance. This limits access to compliant materials and undermines the effectiveness of Buy Clean policies.

To expand the use of low-carbon steel in Washington, it is essential to create targeted incentives or procurement preferences that encourage service centers to purchase, stock and distribute low-carbon steel products across the entire state.

Opportunities

Steel is one of the most carbon-intensive materials used in construction, but it also presents some of the greatest opportunities for emissions reduction through procurement reform, supply chain coordination and targeted incentives. The TWG has identified several strategies to improve the availability, traceability and practical implementation of low-carbon steel in Washington's built environment.

Streamline emissions reporting for fabricated steel

Fabricated structural steel assemblies are composed of multiple components sourced from various suppliers. Requiring emissions data for every individual input can be administratively burdensome and difficult to implement in practice.

A more streamlined approach could focus emissions reporting on the primary structural element within each assembly, such as the beam, column or brace, which typically accounts for most of the product's weight and embodied carbon. This method would preserve the integrity of Buy Clean goals while reducing compliance complexity for fabricators and project teams.

Improve responsiveness of steel supply chains

Construction projects often involve last-minute changes that require fabricators to source new steel components on short notice. When compliant steel is not readily available from local service centers, project delays or noncompliance can result.

Improving the responsiveness of steel supply chains — through better inventory coordination, regional supplier networks or procurement flexibility — would help fabricators meet Buy Clean requirements without compromising construction timelines.

These improvements are especially important in make-to-order production.

Create market signals for low-carbon steel at service centers

Most structural steel used in Washington is imported and distributed through metal service centers, which act as intermediaries between producers and fabricators. However, these centers are not currently incentivized to stock or prioritize low-carbon steel.

Establishing procurement preferences, financial incentives or recognition programs for service centers that carry low-carbon products could shift market behavior and expand access to compliant materials. By sending a clear demand signal, Washington can help align distribution practices with its climate and procurement goals.

Together, these strategies would make low-carbon steel more accessible, traceable and practical to implement across a wide range of construction projects. They also support the broader goal of embedding climate performance into the everyday operations of Washington's steel supply chain.

Low-carbon manufacturing plan recommendations

- **Align EPD requirements with Product Category Rules (PCRs):** Require that any embodied carbon policy using Environmental Product Declarations (EPDs) specify the applicable PCRs for each product. Imported steel must comply with the same rules to guarantee consistency and comparability.
- **Focus emissions assessment on high-impact areas:** Limit life cycle assessment for steel to cradle-to-mill-gate or cradle-to-manufacturer-gate scopes, the highest-impact portion of the steel value chain. Clear scope definitions prevent confusion and ensure representation of all construction materials.

- **Target primary steel components in fabricated assemblies:** Apply Buy Clean requirements only to the principal element of a fabricated member such as a beam, column or brace — which represents roughly 95% of its weight and embodied carbon. This approach preserves policy impact while reducing administrative burden.
- **Adopt clear definitions for covered steel products:** Use the American Institute of Steel Construction's Buy Clean Guidance to define structural steel elements covered by policy. Consistent definitions ensure appropriate materials are included and avoid scope gaps.
- **Maintain parity among functionally similar materials:** Include steel, concrete, masonry and wood in the list of covered products to ensure equitable treatment of all materials performing the same structural function. Require facility-specific EPDs across categories to uphold uniform data quality.
- **Incentivize low-carbon steel distribution through service centers:** Establish tax credits, purchase reimbursements or other incentive programs for metals service centers to stock and distribute low-embodied-carbon steel. Service centers are the primary point of sale and are critical to product availability in Washington.
- **Fund education and outreach on low-carbon steel options:** Support industry roadshows, informational publications and stakeholder workshops that promote the purchase of the lowest-carbon steel products —many of which are already produced domestically.

Appendix G: Concrete industry

Barriers

Concrete is one of the most carbon-intensive materials used in construction, yet it also offers significant opportunities for emissions reduction through innovation and material substitution. Despite this potential, the TWG has identified regulatory and market barriers that slow the adoption of low-carbon alternatives such as supplementary cementitious materials (SCMs). These challenges hinder progress toward embodied carbon reduction targets and limit the industry's ability to respond to evolving procurement standards.

Slow permitting for new supplementary cementitious materials (SCMs) and concrete products

The timely adoption of low-carbon concrete technologies, such as those incorporating supplementary cementitious materials (SCMs), is hindered by slow and inconsistent permitting processes. These delays create a bottleneck for deploying innovative, lower-emission concrete products on public and private construction projects across Washington.

Despite growing demand for climate-friendly building materials, permitting timelines often lag technological advancements. This slows market entry for new SCMs and concrete formulations, discourages innovation and limits the construction sector's ability to reduce embodied carbon in infrastructure. Streamlining approval pathways is essential to accelerate the use of low-carbon concrete and meet the state's climate and procurement goals.

Opportunities

Concrete is one of the most widely used construction materials and a major contributor to embodied carbon in the built environment. While industry has begun to explore low-carbon alternatives such as SCMs and carbon capture technologies, regulatory and market barriers continue to slow adoption. The TWG has identified early-stage opportunities to support innovation and streamline implementation of low-carbon concrete solutions.

Modernize permitting pathways for low-carbon mix designs

Permitting delays for new concrete mix designs remain a significant barrier to market adoption. These delays can discourage innovation and limit the use of lower-emission alternatives in public projects.

Washington can support the concrete industry by developing fast-track permitting pathways for low-carbon concrete mixes. This could include standardized performance-based specifications, preapproved mix libraries or model guidance for local permitting agencies. Streamlining the approval process would reduce uncertainty for producers and contractors while accelerating the use of climate-friendly materials in construction.

Support data collection and transparency for concrete emissions

Unlike steel and wood, the concrete industry has fewer standardized tools for tracking and reporting embodied carbon at the mix or project level. This limits the ability of suppliers to differentiate low-carbon products and makes it harder for project teams to make informed procurement decisions.

Investing in tools and pilot programs that support Environmental Product Declaration (EPD) development for concrete mixes would improve transparency and help establish a baseline for emissions performance. These efforts could also inform future updates to BCBF requirements and support broader industry alignment on carbon accounting.

Low-carbon manufacturing plan recommendations

Accelerate permitting

Accelerate permitting for low-carbon concrete by establishing a programmatic environmental review pathway tailored to supplementary cementitious materials (SCMs), C595 hydraulic cements (including Type IL cement) and novel binders. Agencies should offer a fast-track review option for mixes that meet or exceed defined performance thresholds. This streamlined process will reduce regulatory uncertainty for batch plant upgrades and new green-concrete facilities, encouraging producers to invest in lower-carbon technologies.

Adopt performance-based standards for concrete products

Transform prescriptive specifications into performance-based standards for concrete and the use of (C595) cement. Additionally, adopt the American Concrete Institute's ACI 323 Low-Carbon Concrete Code for all state-funded projects, including prevailing-wage work.

Use whole life cycle assessment

Require Whole Life Cycle Assessments for all state-funded concrete projects under the ACI 323 Low-Carbon Concrete Code, encompassing embodied emissions, operational energy use, in-service carbonation uptake and natural and working-lands carbon inventory. Develop and maintain a public database that compares each project's designed global warming potential and the as-built global warming potential, thereby ensuring transparency and continuous performance improvement.

Renovate and upgrade existing concrete batch plants

Provide grants or low-interest loans to support concrete producers in renovating and upgrading batch plants, conditioned on the installation of low-carbon production technologies, streamlining permitting and approval processes.

Enable the use of lower-carbon cements (including Type 1-L Cement)

Washington should support pilot projects to build trust and remove strict rules that are slowing the use and understanding of lower-carbon cements. Allocate resources for field trials of ASTM C595 blended hydraulic cements (such as Type I-L mixes), collect strength and durability data, and develop standardized test reports that inform permitting decisions and engineer specifications.

Education and workforce development

Provide a dedicated workforce development grant program that allocates operating funds to nonprofit partners, such as the Association of General Contractors (AGC), National Ready Mixed Concrete Association (NRMCA), Washington Aggregates and Concrete Association (WACA), ACI and to the Core Plus CTE initiative.. Grants will underwrite hands-on workshops on low-carbon mix design, performance testing and best-practice demonstrations, while also supporting the integration of low-carbon concrete technology modules into middle and high school CTE curricula. This coordinated investment will ensure designers, contractors, plant operators and students statewide gain the practical skills needed for a robust, sustainable concrete workforce.

Appendix H: Wood industry

TWG members who contributed information on wood products included representatives for wood manufacturers, a project designer with experience in mass timber utilization and environmental organizations focusing on forest conservation and sustainable land use.

Barriers

Washington's wood products industry is uniquely positioned to support both climate goals and rural economic development. However, current carbon accounting practices and supply chain limitations make it difficult to distinguish climate-smart wood from conventional products. The TWG has identified several barriers that prevent sustainable forestry practices from being recognized and rewarded, while also highlighting infrastructure gaps that limit the use of low-value wood from forest restoration efforts.

Incomplete carbon accounting at the forest management level

Current life cycle assessment (LCA) and environmental product declaration (EPD) standards for wood products do not adequately capture the full climate impact of forest-derived materials. Specifically, they exclude carbon flows and emissions associated with forest management practices, relying instead on a general assumption that all wood is carbon-neutral. This approach overlooks significant upstream differences in carbon storage and emissions based on geography, ownership type and forest stewardship methods.

As a result, the true climate profile of wood products remains obscured, making it difficult for consumers, builders and policymakers to distinguish between conventional and climate-smart wood. This lack of transparency inhibits the growth of markets for sustainably managed wood and prevents producers who implement carbon-beneficial practices from receiving recognition or market incentives.

Improved data collection and standardized methodologies are needed to:

- Assess carbon stocking and sequestration at the landscape level
- Differentiate forest management practices by region and ownership
- Integrate forest-level impacts into LCA and EPD frameworks

Recognizing the carbon benefits of sustainable forest management would not only support climate goals but also deliver co-benefits to rural communities — such as reduced landslide risk, improved water quality and increased demand for skilled forest labor. It would also create new economic opportunities for timber-based economies in Washington that are often underserved and employment-constrained.

Lack of transparency in wood supply chains

Wood product supply chains often obscure the origin and ecological impact of raw materials. Logs from a wide range of timber owners — each employing different forest management practices — are aggregated at primary mills, where they are processed into boards of various grades and uses. While mills typically track source information such as landownership type and county of origin, this data is rarely passed along to downstream buyers or consumers.

The absence of transparency makes it difficult to distinguish between conventional and climate-smart wood products. As a result, forest managers and suppliers who go beyond standard practices to implement sustainable, carbon-beneficial forestry are not recognized or rewarded in the marketplace. This lack of visibility inhibits the development of robust markets for climate-smart wood and limits the ability of consumers, builders and policymakers to make informed, climate-conscious purchasing decisions.

Improving supply chain transparency is essential to:

- Enable traceability of wood products to their forest of origin
- Support preferential sourcing from sustainably managed forests
- Incentivize higher standards in forest stewardship

Greater transparency would empower the market to reward climate-smart practices and help scale the environmental and economic benefits of sustainable forestry across Washington.

Insufficient mill infrastructure and market demand for low-value wood from forest restoration

Ecological forest management and restoration efforts often yield small-diameter or otherwise low-value logs. However, Washington lacks the necessary mill infrastructure and market demand to process and utilize these materials at scale. Without viable end markets, these restoration activities become financially unfeasible, especially in the absence of cost-share programs, grants or other public support.

This infrastructure gap limits the implementation of critical forest health treatments, contributing to increased wildfire and landslide risks, degraded water quality and declining forest resilience. It also constrains the growth of climate-smart wood markets and stifles economic development in rural, timber-based communities.

Expanding milling capacity and developing markets for low-value wood would:

- Make ecological forest restoration more economically viable
- Improve forest health and reduce climate and disaster risks
- Stimulate rural economies and create skilled employment opportunities
- Increase the supply of climate-smart wood products

Strategic investment in infrastructure and market development is essential to unlock the full environmental and economic benefits of sustainable forestry in Washington.

Opportunities

Washington's forest products sector is uniquely positioned to contribute to the state's climate goals, but realizing this potential requires better data, infrastructure and supply chain transparency. The TWG has identified several strategic actions that could enhance the climate performance of wood products while supporting forest health, rural economies and sustainable land stewardship.

Strengthen forest-level carbon accounting

Current LCAs and EPDs for wood products do not reflect the carbon impacts of forest management practices or landscape-level carbon flows, which takes into consideration how carbon moves into, around and out of an entire area instead of just one tree or soil sample. This gap hides the climate benefits of sustainable forestry and limits the ability to reward landowners who manage their properties for carbon storage. By tracking these flows across whole landscapes, it can be determined where carbon is stored or lost on a big scale, with the goal of locking more carbon and releasing less.

Developing a statewide forest carbon stocking tool and public carbon inventory would address this issue. By providing annual, spatially explicit data on carbon storage by ownership type and geography, the tool would enable more accurate emissions accounting and support integration into LCAs and EPDs. It would also align with recommendations from other state-led initiatives, such as the Small Forest Landowner Carbon Work Group and the

Carbon Sequestration Advisory Group and help position Washington's forests within broader natural climate solutions strategies.

Improve supply chain transparency for climate-smart wood

Logs from diverse sources are aggregated at mills, but key sourcing information (landownership, county of origin and forest certification status) is rarely passed along the supply chain. This lack of traceability makes it difficult for procurement teams to distinguish climate-smart wood from conventional products.

Expanding the BCBF database to include sourcing and certification data for covered wood products would increase transparency and enable more informed procurement decisions. This approach would also create market-based incentives for landowners and suppliers who meet higher environmental and social standards.

Rebuild mill infrastructure to support forest restoration

Forest restoration efforts often generate small-diameter, low-value logs that require specialized milling capacity. In many parts of Washington, the lack of infrastructure makes it difficult to process restoration byproducts and limits the economic viability of forest health projects.

Reinstating and expanding the Department of Natural Resources' Washington State Mill Survey would provide the data needed to assess current capacity and identify infrastructure gaps. The survey should include information on engineered wood products, which are a growing segment of the industry and a key market for small-diameter wood. Follow-up studies could highlight successful regional models and inform targeted investments in milling infrastructure that support both ecological restoration and low-carbon wood production.

Account for land-use change and forestry emissions

Washington currently lacks a comprehensive inventory of greenhouse gas emissions from forestry, land use and agriculture. Without this data, it is difficult to understand the full climate impact of land-based sectors or to incorporate these emissions into material-based LCAs.

Developing a statewide land-use change and forestry GHG inventory would fill this gap. It would also provide a foundation for calculating A1 emissions for wood products and support alignment with international frameworks such as FLAG (Forest, Land and Agriculture Guidance).

Together, these strategies could elevate Washington's leadership in climate-smart forestry, improve the integrity of embodied carbon accounting and expand market access for sustainable wood products. By investing in data systems — infrastructure and transparency — the state can unlock the full climate and economic potential of its forest sector.

Low-carbon manufacturing plan recommendations

TWG members submitted multiple sets of recommendations that reflect the diversity of perspectives in this work group. While the recommendations reflect a shared commitment to advancing low-carbon wood materials, they do not represent agreement across the approaches for meeting the commitment. In several instances, perspectives diverged based on differing priorities, technical approaches or policy interpretations. These contrasting viewpoints are summarized in the table following the recommendations to provide transparency and context for ongoing deliberation.

Support and recognize regionalized and updated EPDs

The American Wood Council (AWC) has recently published US region-specific EPDs.[20] AWC and industry stakeholders participating in the TWG wood subgroup would like Washington to recognize region-specific EPDs on the same level as facility-specific EPDs, sharing the concern that some small mills have financial barriers to completing LCAs and producing EPDs.

Note: Some environmental groups and project designers support the development and promotion of supply chain-specific and facility-specific EPDs over regional EPDs. Some small manufacturers in the wood industry have already developed facility-specific EPDs for cross-laminated timber products and have expressed concerns that region-specific EPDs do not provide enough data to inform procurement decisions. In addition, these stakeholders would rather provide financial support (incentives) to small wood manufacturers to develop supply-chain specific or facility-specific EPDs, so that these EPDs can meet existing policy requirements in Washington.

Support the development of an automated EPD generator

Costs associated with data collection, life cycle assessment and verification can be a barrier to the creation of wood product EPDs. An automated EPD generator tool for the US wood products sector could reduce the time and cost associated with producing EPDs. With this type of tool, companies could enter manufacturing data and generate ISO and PCR-compliant EPDs on demand. This EPD generator tool could support third-party verification and allow for the creation of manufacturer, facility, mill or product-specific EPDs for wood products. AWC has established an online LCA survey that could provide data for the EPD generator tool. The representatives of wood manufacturers recommend that Commerce provide funding to AWC to continue developing an EPD generator tool that builds on AWC survey data.

Explore incentive structures to improve and update Washington manufacturing facilities

Some of the manufacturing infrastructure in Washington is outdated and could benefit from improvements to process efficiency. Identifying and supporting incentives to support enhancements to manufacturing facilities would likely result in reduced greenhouse gas emissions.

Improve end-of-life data for US wood products

In Europe, EPDs include emissions associated with end-of-life (EOL) scenarios like deconstruction and disposal. In North America, per the PCRs for Structural and Architectural Wood Products, EOL is not a required life cycle stage. Several life cycle impact tools in the U.S. are attempting to estimate EOL scenarios for wood products, but their assumptions are not yet based on robust data. This data can be improved so that it can flow into embodied carbon and WBLCA tools. Funding the University of Washington Center for International Trade in Forest Products (CINTRAFOR) to conduct a literature review to gather information about the disposition of finished wood products could address the research gap.[21]

Enhance American Wood Council's Wood Sourcing Tool

AWC has created a wood sourcing tool intended to help designers and builders better understand wood sourcing data. This tool could be enhanced by integrating grade stamps that link back to mill-specific information.[22]

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[20] Association of Washington Cities, "Environmental Product Declarations Technical Brief,"
[21] Center for International Trade in Forest Products, "Cintrafor — Center for International Trade in Forest Products,"
[22] The environmental and design stakeholders think that sourcing data belongs in EPDs and that existing EPD databases (like the EC3 tool) should be used to share information about sourcing, rather than developing a separate, wood-industry specific platform.

Engage in the USDA carbon science delivery platform

Provide state forest inventory and mill data to support the design of a USDA-sponsored digital platform. Ensuring that this USDA-sponsored digital tool meets Washington's needs will streamline access to high-integrity carbon metrics across the wood value chain, from forest management through finished materials.[23]

Implement "Build Clean" requirements for public building projects

Build Clean is a policy approach that includes design-phase strategies like whole building life cycle assessment (WBLCA) to reduce embodied carbon.[24] This type of approach can result in different material choices and accounts for embodied carbon impacts throughout the whole life cycle of the building including transportation from the manufacturer to the job site — which is not reported in most EPDs.

Use insights from the "Mass Timber Tipping Point" project

Incorporate insights from the Mass Timber Tipping Point project, which explores the barriers and opportunities for scaling mass timber construction across North America, into state policy and procurement guidance.[25] While this project focuses on engineered mass timber, its supply chain transparency insights can inform policy across all low-carbon materials. Use it to identify challenges and prioritize building code updates, incentive structures and technical assistance for mass timber pilot projects in public buildings, thereby accelerating the adoption of low-carbon wood construction. This project also highlights challenges with existing regulatory mechanisms and biogenic carbon assessment methodologies and recommends improved supply chain transparency and the development of economic incentives that "translate carbon reduction into economic value."

Establish a statewide forest carbon stocking tool

Amend RCW 39.116 to develop and publicly maintain a forest carbon stocking tool, updated annually with region- and ownership-specific data. Integrate these data into EPD frameworks to enable procurement from climate-smart wood sources.

Reinstate and expand the Washington mill survey

DNR should conduct a periodic mill survey assessing the capacity of regional sawmills, including small-diameter and engineered wood facilities, to process low-value restoration wood. Use findings to inform targeted policy incentives for infrastructure upgrades.

Require supply-chain transparency in wood product EPDs

Update RCW 39.116 to require covered engineered wood manufacturers to disclose chain-of-custody certification, percent volume from certified forests, regional sourcing breakdowns (county, state/province, country) and ownership type. This ensures parity with steel and concrete data standards and supports responsible sourcing.

Incentivize through procurement voluntary reporting

Offer additional evaluation points in procurement for projects where fabricators and downstream wood processors provide timber supply area data beyond EPDs. This program would strongly guide decision-making without instituting a requirement. Suppliers would be encouraged to submit timber supply area information for their

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[23] The environmental and design stakeholders agree that this tool as the potential to be useful but point out that the tool does not yet exist, would not extend beyond the US and may be limited in use.
[24] While representatives from wood manufacturers typically use the term "Build Clean" to refer to WBLCA-based policies, this term does not refer to any specific policies currently enacted or under consideration.
[25] Pilot Projects, "Mass Timber Tipping Point,"

feedstocks and primary processing facilities that supplied them. Reports could include a geographic delineation of the woodshed from which each facility sources logs, as well as percentage by volume of logs sourced by county of origin and by landowner type and proportion of log supply covered by forest management certification and chain-of-custody certification. By supplementing EPDs, which do not capture land-use or forest-ecosystem carbon dynamics, the program aligns with independent guidance and equips forestry experts to differentiate bidders based on supply chain practices, while preserving final selection authority for decision-makers.[26]

[26] The representatives of wood manufacturers do not support data requirements outside of ISO 21930-compliant EPD scope, and they do not support the use of EPDs as a decision-making tool.

Recommendations comparison table

This table compares perspectives between the wood product manufacturers and environmental and design stakeholders on implementing BCBF wood manufacturing standards. While both support improving environmental data and transparency, their approaches range from a preference for minimal, voluntary measures to calls for stricter, state-driven requirements and expanded reporting. This table is meant to show similarities and differences, illustrating the complexity of the industry.

Topic	Wood product manufacturers	Environmental and design stakeholders	Overlap / Divergence
Reporting requirements and data requests	Limit compliance to ISO-21930 EPD data; no extra state mandates	Require timber supply area, log origin by county/owner, certifications alongside EPDs; encourage granular data	Divergence
EPD granularity	Recognize regional EPDs as equal in weight to mill-specific EPDs	Support facility-specific and supply chain EPDs	Divergence
EPD generation	Fund development of an automated EPD generator using American Wood Council's LCA survey database	Offer resources/incentives for mills to develop detailed EPDs	Similar goal of easing EPD creation; different method
Data mapping tools	Advocate for USDA Carbon Science Delivery Platform	Invest in a state-led forest carbon mapping tool	Both support improved data tools; differ on leadership
Sourcing transparency	Enhance American Wood Council's Wood Sourcing Tool with grade-stamp traceability; oppose deeper mandates	Require reporting of timber supply areas	Shared focus on traceability; mandate vs. voluntary
Manufacturing incentives	Incentivize production-site upgrades to reduce manufacturing emissions	Procurement preferences or public incentives for robust EPDs	Both propose incentives; target differs
End-of-Life data	Fund UW-Cintrafor study to improve EOL (stages C&D) data	Not specifically addressed	Wood manufacturers only
Procurement model	Transition to "Build Clean" whole-building design model	Maintain BCBF's reporting-only ("Buy Clean") framework	Major divergence
PCR & EPD usage	Do not harmonize PCRs at the state level; use EPDs only as informational tools	Bridge gaps with supplemental reporting until PCR updates	Agreement on respecting ISO; nuance on EPD use

Appendix I: Additional emissions reduction policies

House Bill 1458 and building code proposals

During the 2025 legislative session, House Bill 1458 (Reducing embodied carbon emissions of buildings and building materials) was introduced but did not pass.[27] This bill would enact commercial building code requirements and embodied carbon reduction targets that could be met through three pathways — building reuse, procuring lower-carbon materials or designing lower-carbon buildings. This bill is similar to the CalGreen code requirements enacted in California.[28]

A similar three-pathways approach to reducing embodied carbon has been proposed to the Washington State Building Code Council (SBCC). This proposal has been considered as an appendix to Washington's building code requirements for commercial buildings, where it could be adopted by local jurisdictions. Before being finalized, this proposal will go through a rulemaking process led by the Department of Enterprise Services (DES). This rulemaking process is likely to get underway in 2026.

DES also published a report in November 2024 describing recommendations for embodied carbon language in building codes.[29]

The Climate Commitment Act, EITE and HEAL

The Climate Commitment Act (CCA) is Washington's cap-and-invest program.[30] It requires Washington's largest emitting businesses to purchase allowances equal to their covered greenhouse gas emissions through quarterly auctions hosted by the Department of Ecology. These allowances can then be freely bought or sold on a secondary market among program participants, allowing businesses to identify and implement their most efficient path to lower carbon emissions.

Revenue generated from allowance auctions is reinvested into programs like BCBF that further reduce Washington's overall carbon footprint and create a healthier climate for all. This program works alongside other critical climate policies in Washington to achieve the state's commitment to reducing greenhouse gas emissions by 95% by 2050.

In establishing the Climate Commitment Act, the Legislature recognized that certain industries face unique challenges in reducing their greenhouse gas emissions in the early years of the cap-and-invest program. The Legislature decided to give no-cost allowances to these "emissions-intensive, trade-exposed" industries, or "EITEs," until at least 2034.

EITEs are mostly manufacturing facilities (including those that produce steel and cement) that use high levels of energy and contribute large amounts of greenhouse gas emissions while also facing significant national or global competition for their products.

EITEs were given special consideration by the legislature because changes to their operational costs could result in the manufacturer limiting operations within the state or choosing to relocate outside of Washington, which may put manufacturing jobs at risk and reduce the overall opportunity to reduce GHG emissions. BCBF also encourages the state to spend its money on products made with strong environmental and labor standards. This helps build a

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[27] Washington State Legislature, "House Bill 1458 – Reducing Embodied Carbon Emissions of Buildings and Building Materials,"
[28] California Building Standards Commission, "CALGreen: California Green Building Standards Code,"
[29] Washington State Building Code Council, "Embodied Carbon Study,"
[30] Washington State Department of Ecology, "Climate Commitment Act,"

market for responsible manufacturers and keeps jobs and production from moving to places with weaker standards and rules.

The Department of Ecology (ECY) manages the EITE program and expects to publish a report to the legislature in December 2025.[31]

ECY is also responsible for tracking statewide emissions and reporting on progress towards GHG limits established in RCW 70A.45.020. The most recent report identifies that industrial processes contribute 5.1% or 4.3 million metric tons of total Washington emissions. The industrial processes sector tracks GHG emissions from some of the industries covered by BCBF, like cement manufacturing.

Commerce is engaged in administering other policies and programs that support manufacturing businesses:

- Building Economic Strength Through Manufacturing (BEST) Act: Enacted in 2021, this policy set a goal to double Washington's manufacturing jobs and support women and minority-owned businesses.[32] This work includes the formation of an interdisciplinary Manufacturing Council. In 2024, Commerce distributed $2 million through the Evergreen Manufacturing grant program to accelerate manufacturing job growth and economic opportunity across the state.[33]
- Clean Manufacturing Leadership Act: Enacted in 2023, this policy creates a statewide industrial strategy to strengthen Washington's existing manufacturing base.

Washington's environmental justice law, introduced as the Healthy Environment for All Act (HEAL), passed in 2021. Now in statute, Chapter 70A.02 RCW provides a roadmap for integrating environmental justice into seven state agencies, including Commerce.[34] In keeping with the requirements of this law, Commerce conducted an environmental justice (EJ) assessment for the BCBF bill in 2023, before the bill was signed in to law. This EJ assessment is available on Commerce's website and includes information on potential impacts to overburdened communities and plans for community and tribal engagement.[35]

[31] Washington State Department of Ecology, "Emissions-Intensive, Trade-Exposed Industries under the Climate Commitment Act,"
[32] Washington State Department of Commerce, "Building Economic Strength Through Manufacturing (BEST) Act"
[33] Washington State Department of Commerce, "Commerce Awards $2 Million to Encourage Innovative Business and Manufacturing Expansion Statewide"
[34] Washington State Legislature, "Healthy Environment for All Act (HEAL) – Chapter 70A.02 RCW,"
[35] Washington State Department of Commerce, "Environmental Justice Assessment for the Buy Clean Buy Fair Act."