



Regional Hub Policy Series

Introduction to the Embodied Carbon Policy Landscape

Overview

This Presentation

1. Why Embodied Carbon?
2. Overview of Types of Policies
3. Core Concepts
4. Growing Policy Landscape
5. Opportunities for Informing Policy Development

Policy Introductory Series

1. **Introduction to the Embodied Carbon Policy Landscape**
2. Climate Action Plans
3. Procurement Policy
4. Building Codes
5. City Zoning and Incentive Programs
6. Reuse and Deconstruction

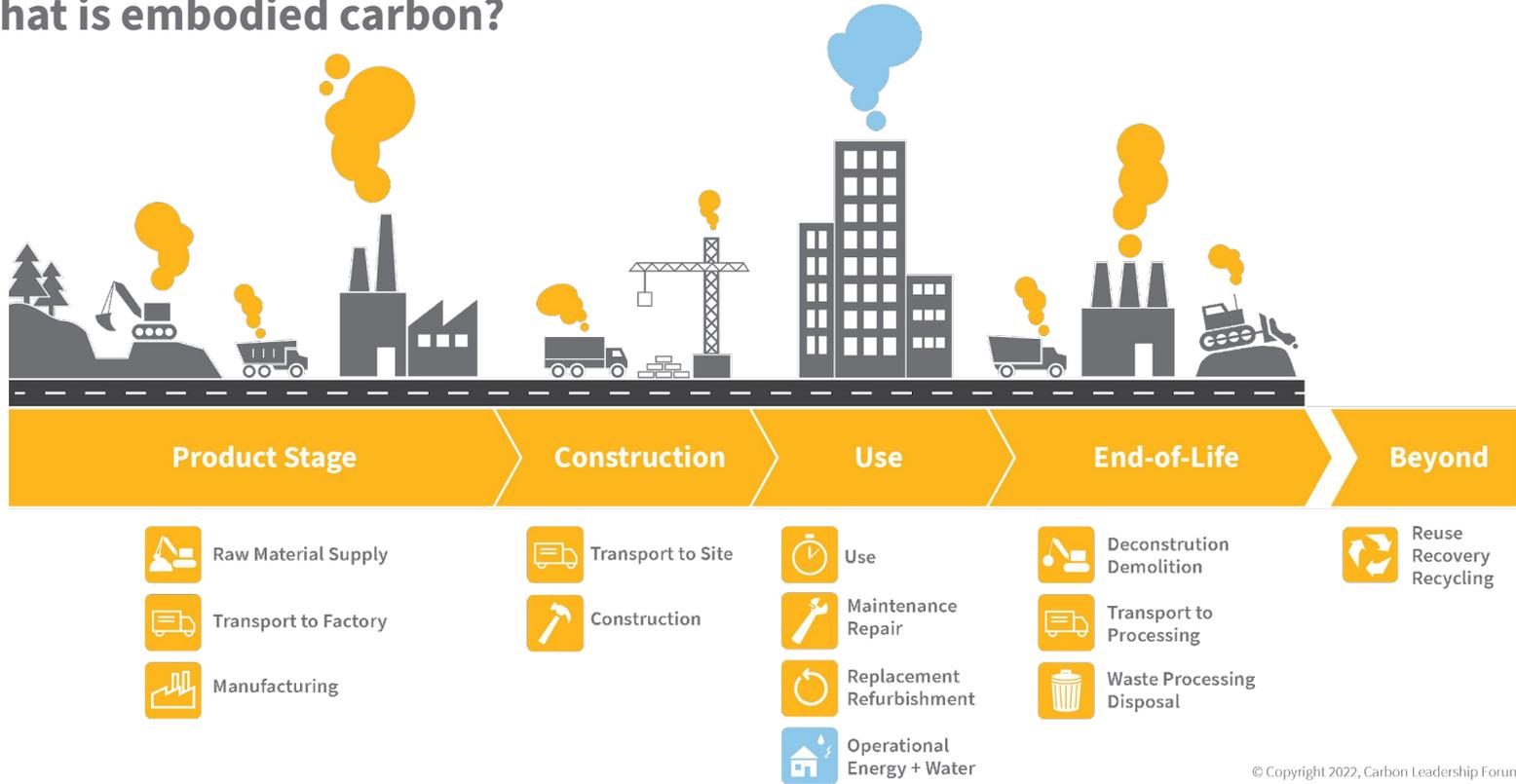


Thanks to the CLF Regional Hub Policy Leads for feedback and review of this series.



Why Embodied Carbon?

What is embodied carbon?



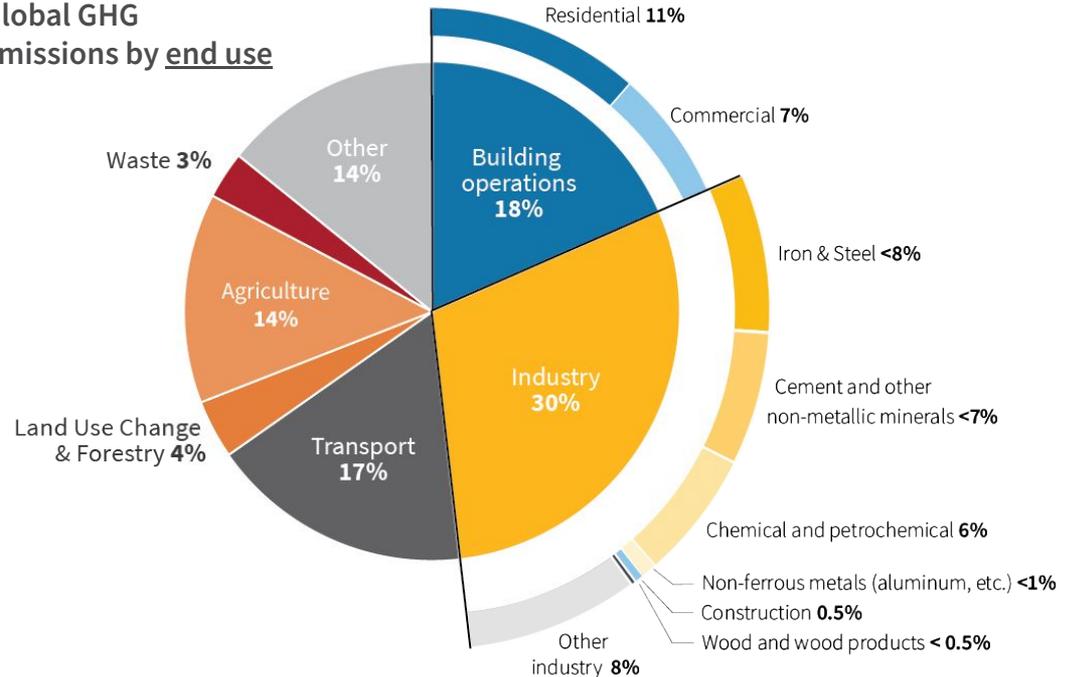
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Embodied carbon refers to the greenhouse gas (GHG) emissions associated with the manufacturing, transportation, installation, maintenance, and disposal of construction materials. Calculated as **global warming potential** (GWP) and expressed in carbon dioxide equivalent units (CO₂e)

Built environment is key to decarbonizing industrial and building sectors

- Industrial sector is largest and 'hardest to abate' emissions sector
 - High-temperature heat
 - Process emissions
- Reducing embodied carbon through design & procurement (rather than at the facility) can:
 1. Broaden the solution space
 2. Avoids the carbon loophole (emissions outsourcing) by addressing global supply chains
 3. Create market demand for low carbon products and designs

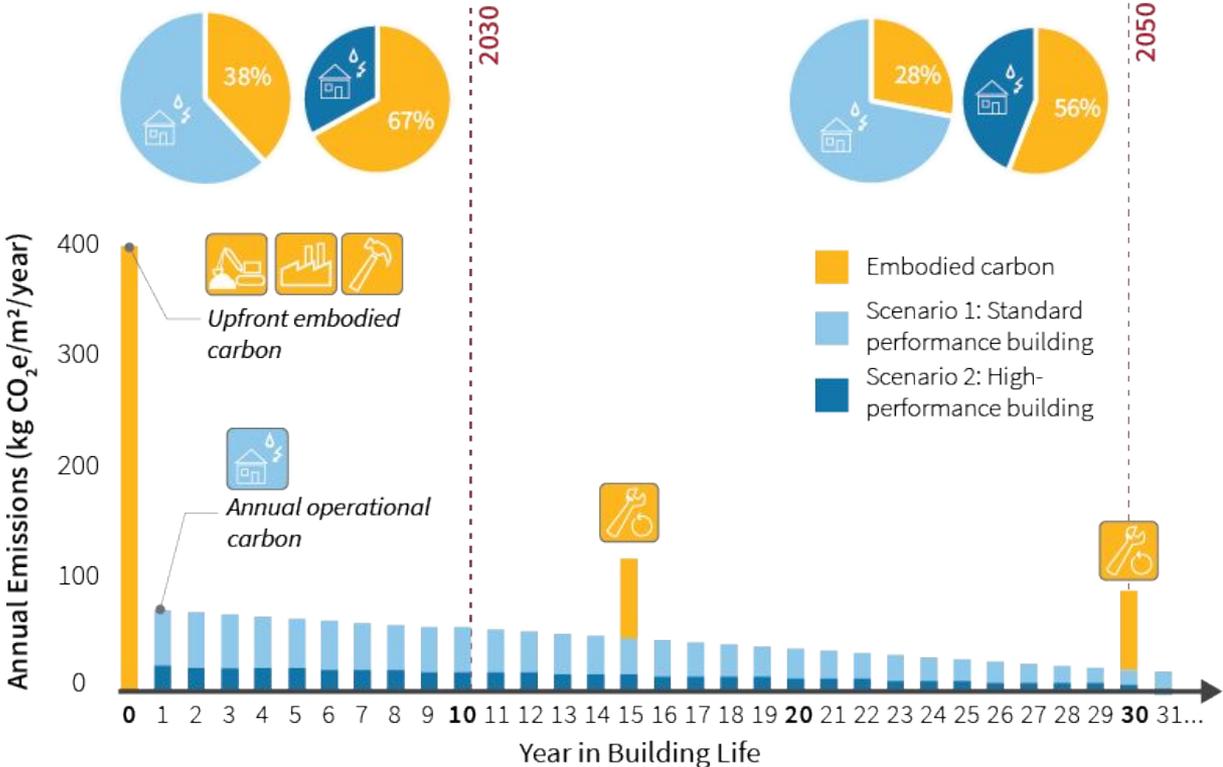
Global GHG emissions by end use



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Data sources: [WRI Climate Watch](#) (2016); IEA World Energy Balances (2019).

Reducing embodied carbon is **urgent**



Embodied carbon is...

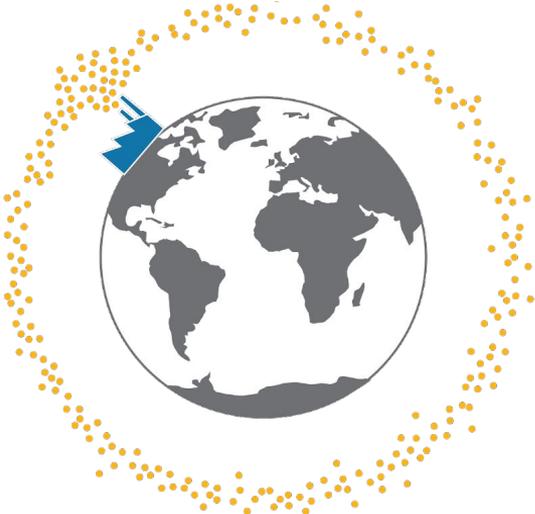
2/3 of total emissions in the first 10 years

1/2 of total emissions in the first 30 years

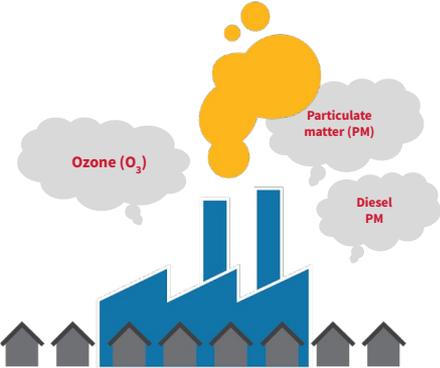
Image Source: [AIA-CLF Embodied Carbon Toolkit for Architects, 2021](#)

Embodied carbon **disproportionately impacts frontline communities**

Global Impacts from Climate Change



Regional/Local Impacts on Health and Environment

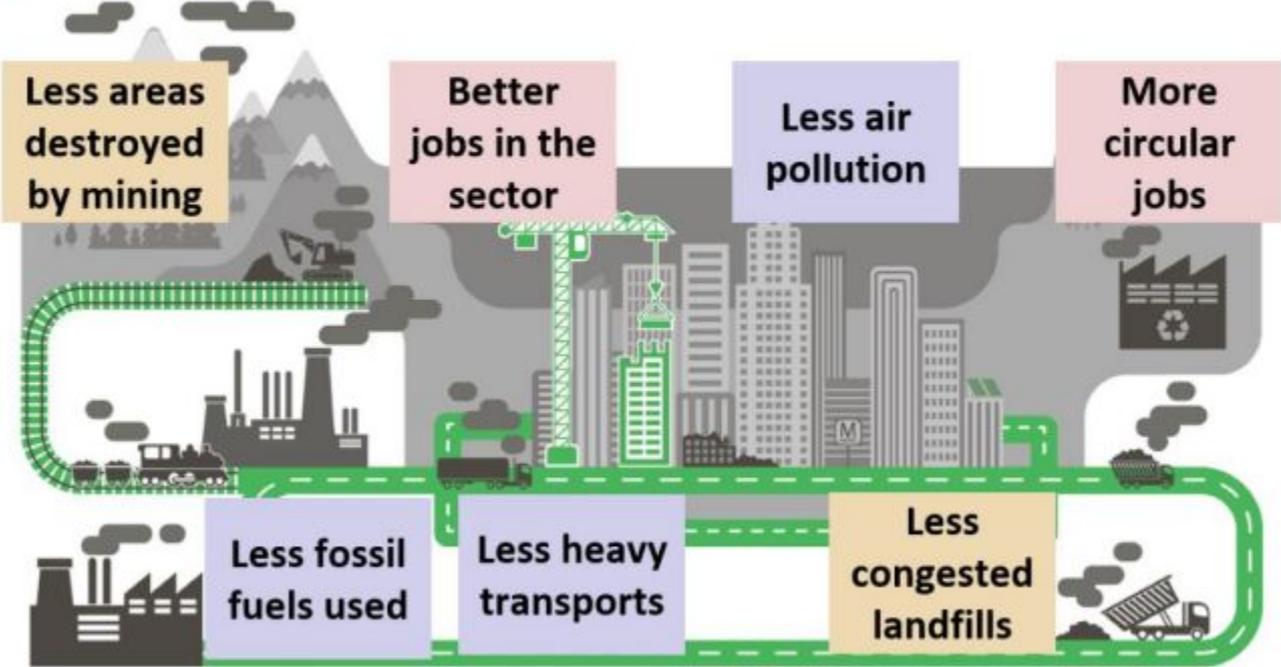


Supply Chain Concerns



Reducing embodied carbon **benefits cities & communities**

Figure 2 Embodied carbon reduction benefits to communities

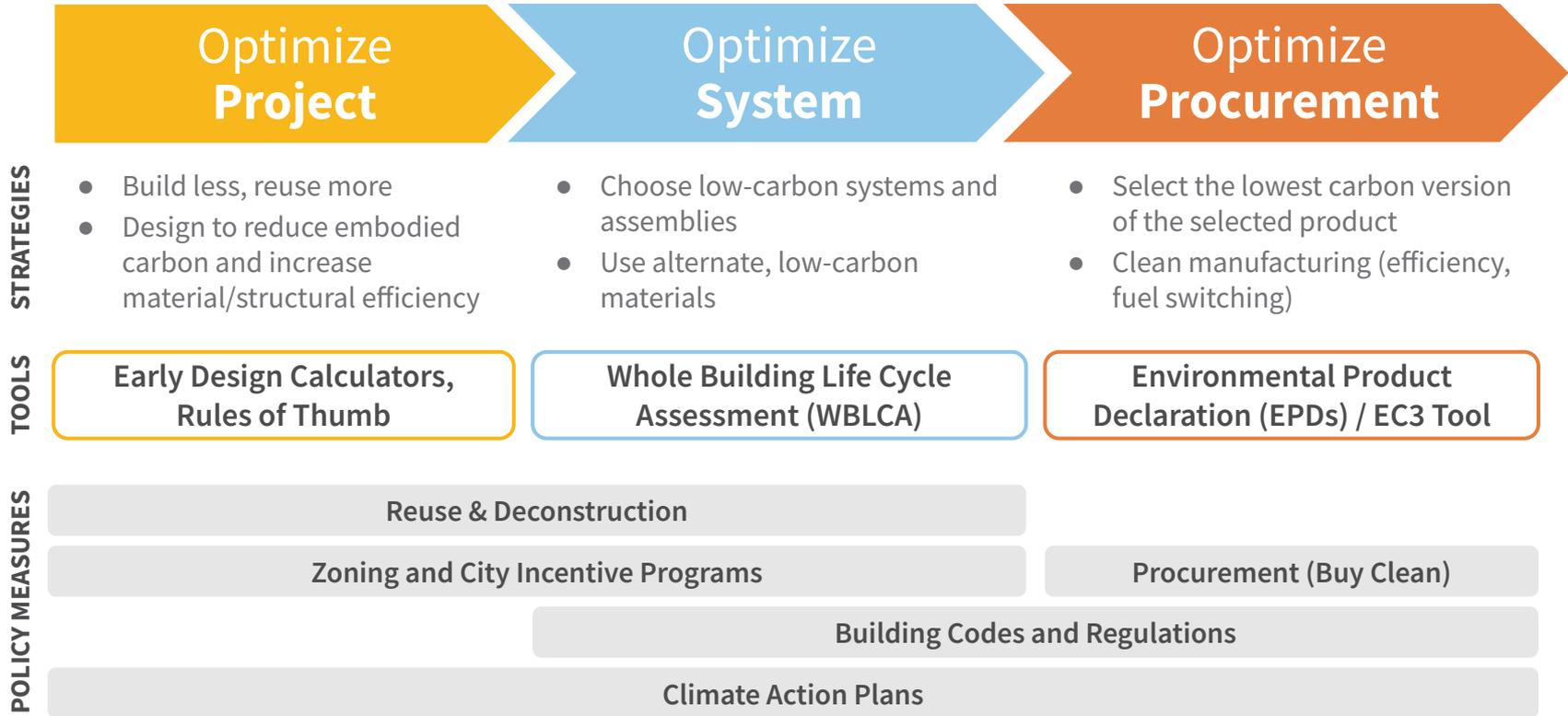


Carbon Neutral Cities Alliance, 2020



Overview of Types of Policies

What Matching Policy Measures and Embodied Carbon Reduction Strategies



What Policy Instruments

Awareness

- Awareness campaigns
- Targeted training
- Workforce development
- Etc.

Voluntary Actions & Agreements

- Goals/commitments
- Early adoption incentives
- Voluntary certification (LEED, etc.)
- Etc.

Incentives

- Waived fees/expedited permitting
- Subsidies, tax breaks, R&D funding
- Performance bonuses
- Technical assistance
- Etc.

Disclosure

- Reporting environmental/other data requirements
- Etc.

Regulatory Approaches

- Mandatory obligations
- Performance standards
- New code, zoning, permitting requirements
- Etc.

Where Policy Jurisdiction

International

- Global climate/environmental agreements and treaties

Federal

- Research, funding, and tool development
- National climate, industrial, and waste policies
- Federal green building and procurement requirements ('Lead-by-example')

State

- State climate, industrial, and waste policies
- State building codes & regulations
- State green building & procurement requirements ('Lead-by-example')

Local

- Local building codes, zoning and land use policies, and green building incentive programs
- Climate action plans
- Local green building and procurement requirements ('Lead-by-example')
- Local waste management policies, including deconstruction

Who does the policy target? Who benefits?

- Scope and Jurisdiction
- Stakeholder required to change (and required to lead compliance, may be different)
- What agency / organization is responsible for leading compliance and verification?



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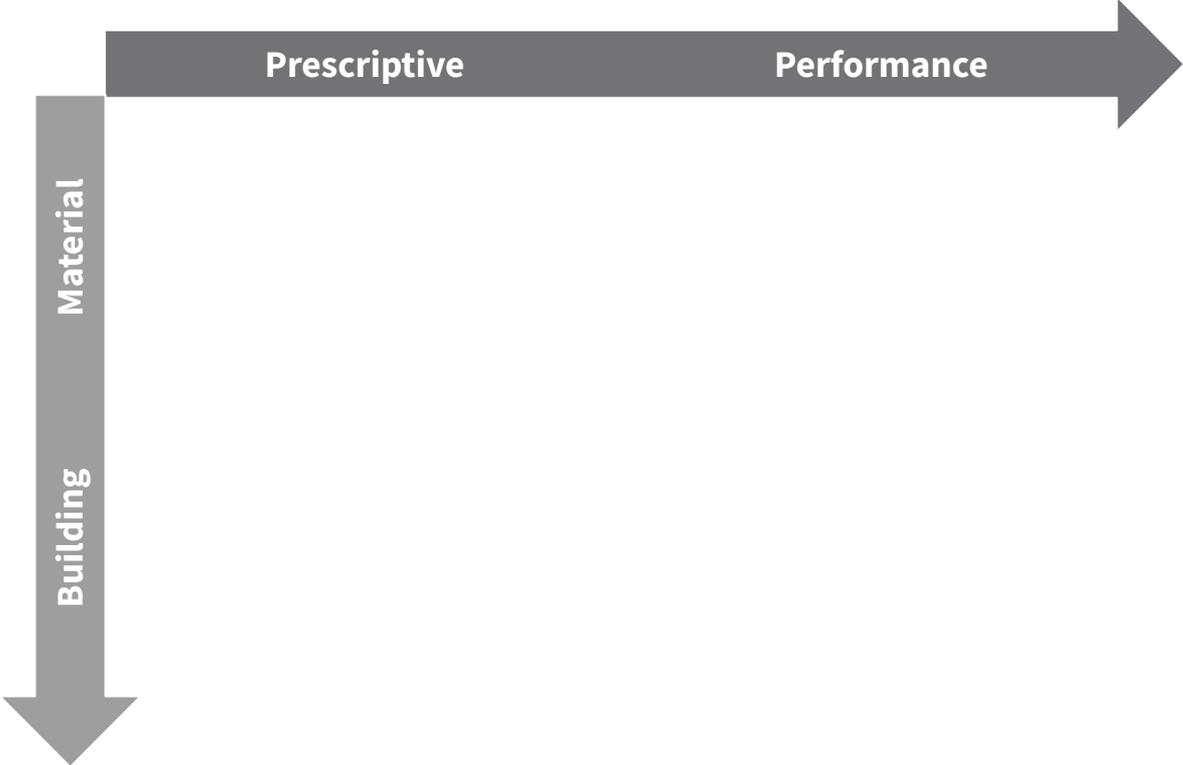
Core Concepts

Prescriptive or Performance-based?

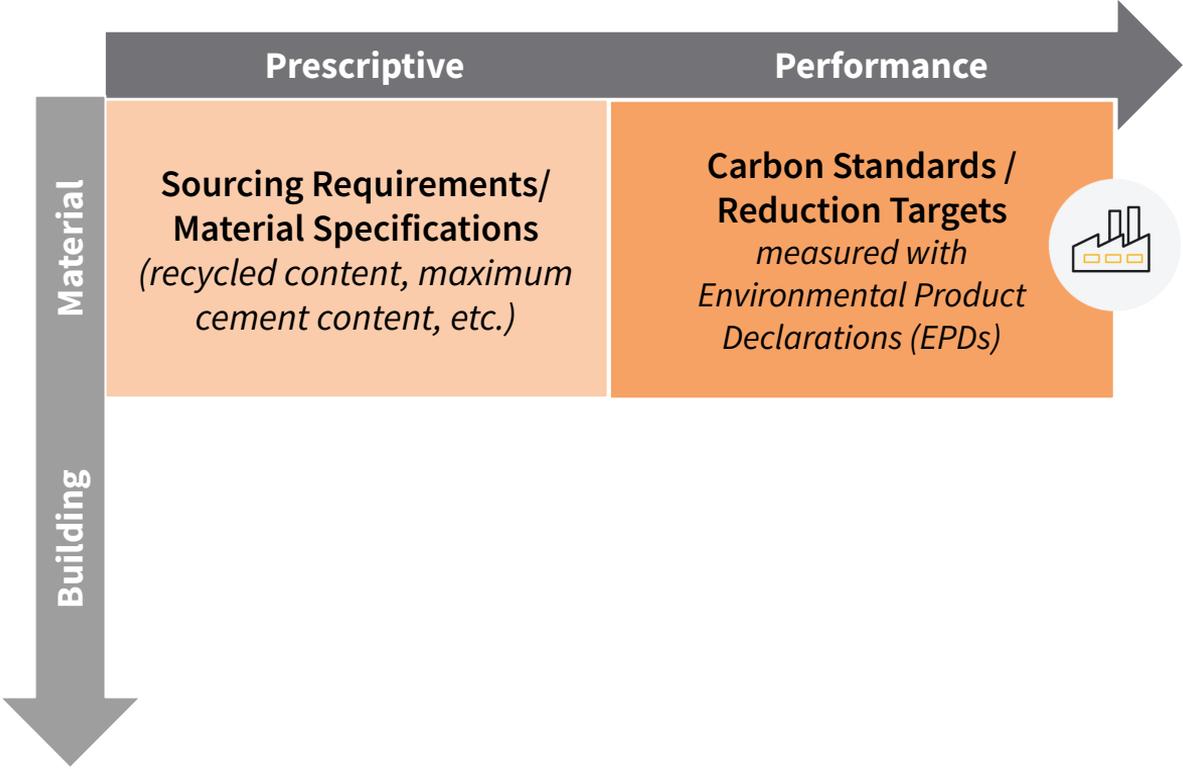


- Requires products or projects to use all or a portion of a list of strategies
 - Describes the **attributes** required by a policy
- Requires products or projects to perform relative to a baseline or threshold
 - Describes the **outcome** desired by a policy

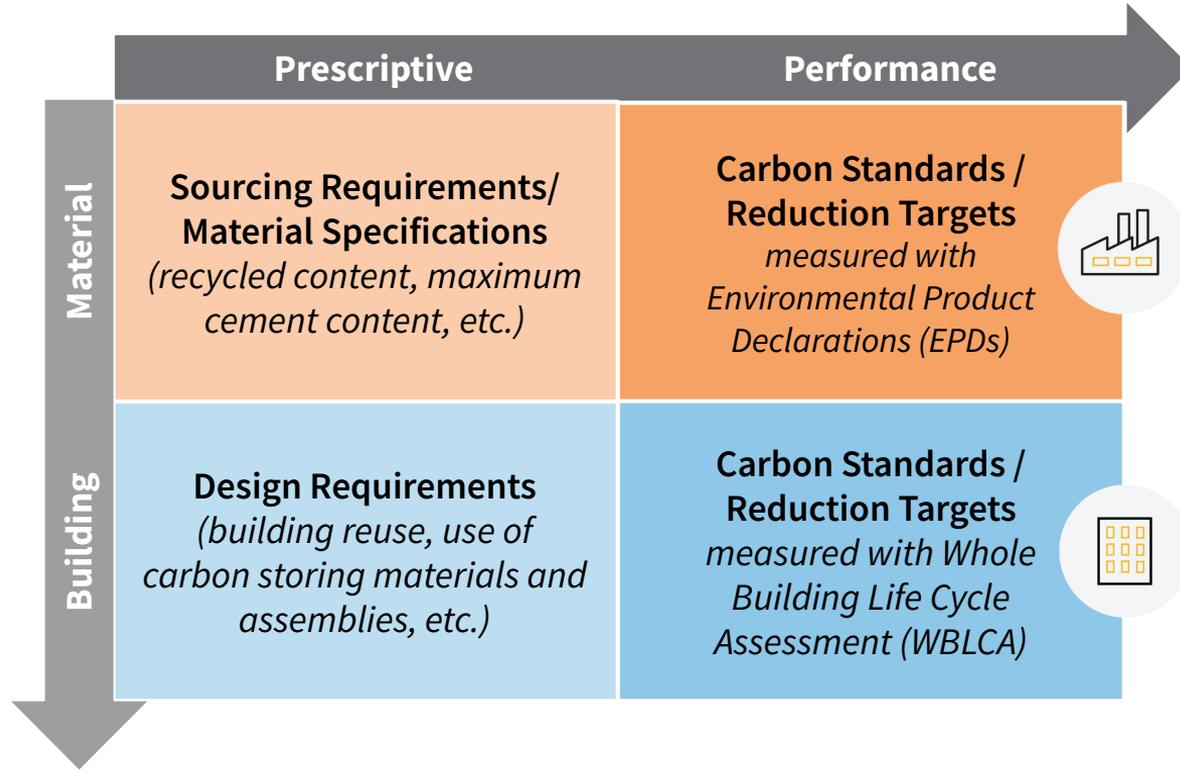
Materials or Buildings?



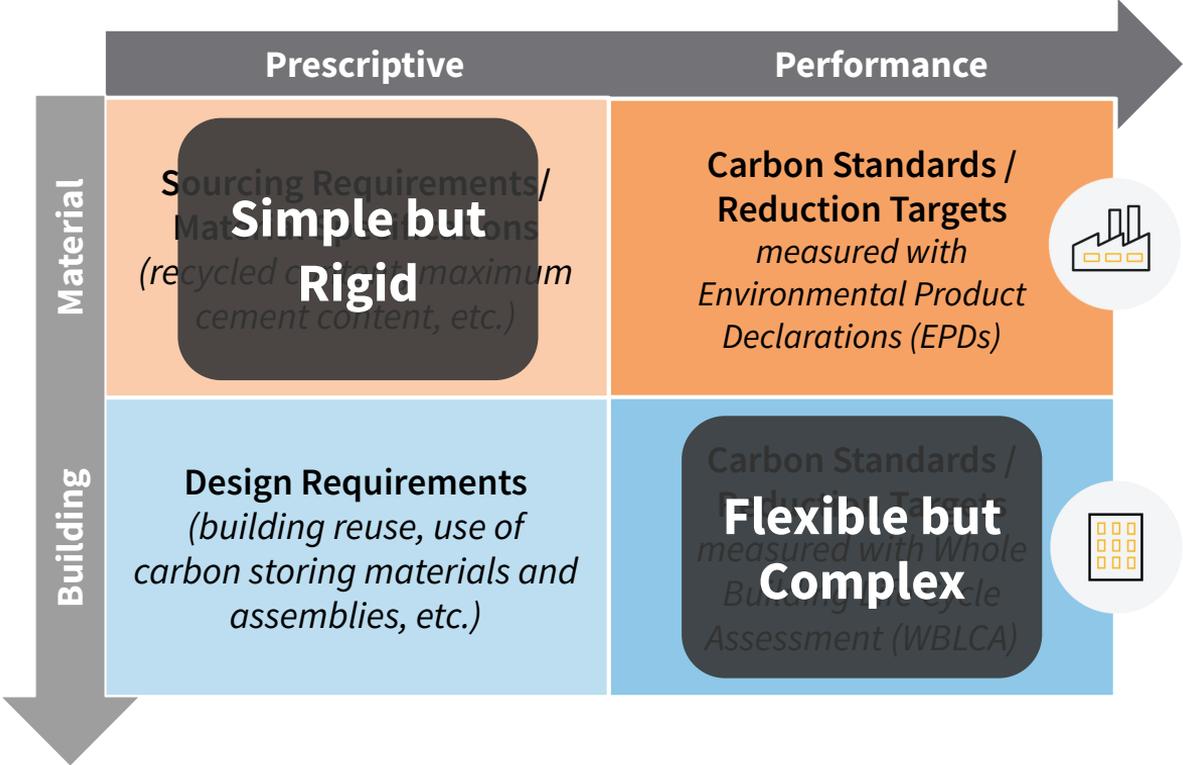
Material Policies: Prescriptive and Performance Requirements



Building Policies: Prescriptive and Performance Requirements



Pros and Cons





Growing Policy Landscape

Growing Landscape of Embodied Carbon Initiatives & Policies

- **Public policy**, including government regulations and incentives.
- **Green building certifications**, such as BREEAM, LEED v4, ILFI's Living Building Challenge and Zero Carbon certification, Canada's ZCB, and the Envision rating system for infrastructure.
- **Corporate Scope 3 emissions tracking and reduction commitments** such as CDP Supply Chain, Science Based Targets, the GRESB reporting index, actions for SDG 12 (Responsible Consumption and Production), and company-specific net-zero commitments.
- **Voluntary commitments in the building industry**, such as the SE2050 and MEP 2040 commitments, the AIA Materials Pledge, Contractor's Commitment, and the 2030 Challenge for Embodied Carbon.

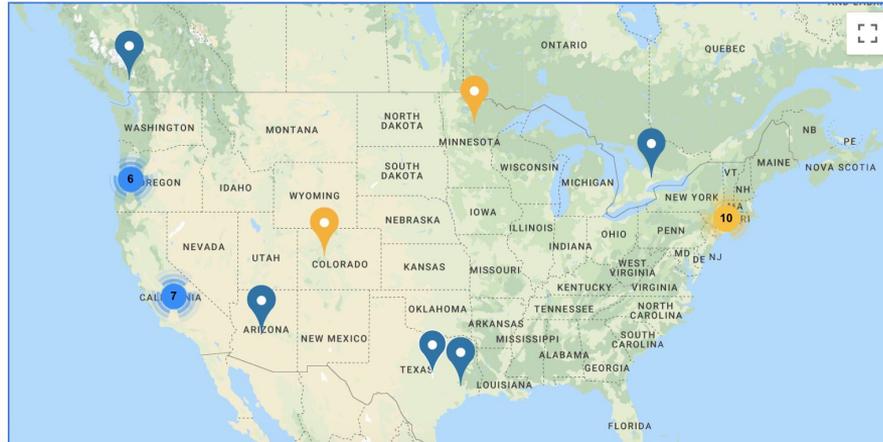
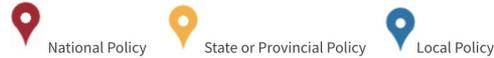


Tracking the Growing Embodied Carbon Policy Landscape



Current Embodied Carbon Policy

Embodied carbon policies are spreading rapidly across the United States and the world. Click on the map markers below to learn more about existing and proposed policies. For more information about the individual policies, see the links for each policy below the map.



Learn more at the CLF Policy Toolkit:
carbonleadershipforum.org/clf-policy-toolkit

Growing Building Owner and Corporate Commitments

Examples of organizations with commitments to reduce embodied carbon and/or Scope 3 emissions:



Learn more at carbonleadershipforum.org/clf-owner-toolkit/



Learn more about the **ownersCAN Carbon Action Network** and their **Embodied Carbon Action Plan** at <https://www.buildingtransparency.org/programs/ownerscan/>



Opportunities for Informing Policy Development

Summary of CLF Policy Engagement



Develop Research and Resources

Build knowledge and awareness via online **educational resources**, in the form of accessible written and recorded resources

Develop **model policy language** to support effective policy development

Maintain **CLF Policy Toolkit**



Inform Policy Development

Provide **technical guidance and subject matter expertise** to:

- Advocates and NGOs
- Government agencies (federal, state, or municipal)
- Legislators (*when requested*)



Provide Training and Education

Build capacity for developing and implementing embodied carbon policy through training opportunities:

- Architects, engineers, contractors
- Manufacturers
- Government agencies and compliance officials

Guidance for CLF Hubs on Policy Engagement

Do:

- **Share** resources, presentations, and model policy language
- **Identify** local/regional policy opportunities and general policy position
- **Provide** technical guidance and feedback on policies, including specific language
- **Collaborate** with administrative agencies and standards bodies
- Testify or respond to questions *when requested by a legislator*

Don't:

- **Direct lobbying**
 - Example: Using the CLF logo to sign a letter of approval/support (or rejection) for a specific policy
 - Example: Testifying 'for' or 'against' a bill
- **Grassroots lobbying**
 - Example: Using the CLF network to urge individuals to contact their legislators to vote yes for a policy



Thank you!