



# Steps to Develop a Buy Clean Policy

Buy Clean is a policy approach that aims to reduce embodied carbon in the built environment by setting government procurement or purchasing requirements in favor of lower-carbon construction materials. Buy Clean legislation can shift government procurement towards lower-carbon materials, which could incentivize a similar shift in the broader construction materials market.

This document aims to provide an overview of the five basic components of Buy Clean and highlight key choices at each step.

**Want to learn more?**  
Check out the rest of the series below

- [Embodied Carbon 101](#)
- [What is Buy Clean?](#)
- [Guidance on Disclosure](#)
- [Implementing Buy Clean](#)

## Key Components of Buy Clean

An embodied carbon procurement policy, also commonly referred to as a 'Buy Clean' policy after California's bill passed in 2017, is composed of three to five essential components that answer the following questions:

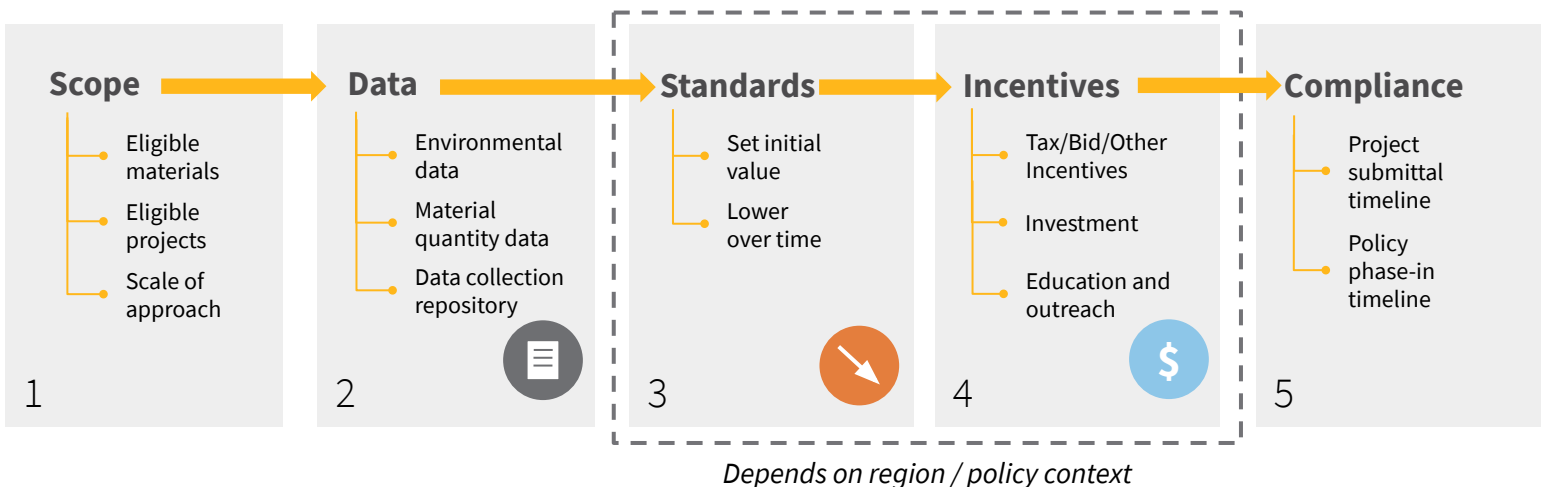
1. **Scope:** Which materials and projects are impacted by the policy? Under which government agency?
2. **Data:** What type of environmental and project data must be submitted to comply with the policy?
3. **Standards [optional]:** Do materials or projects need to be below a global warming potential (GWP) threshold?
4. **Incentives [optional]:** Is there financial and educational support available for manufacturers and/or companies that comply with the policy?
5. **Compliance:** What is the timeline for submittal and for implementation of each component of the policy?

To learn more about each of the steps, see Figure 1 and follow the five-step guide provided in this primer.

Buy Clean legislation varies widely depending on its geographic and political context. Geographically, the carbon footprint of materials and availability of embodied carbon disclosure data varies widely due primarily to the carbon intensity of the energy available in the region (for local products); and the quantity of **environmental product declarations (EPDs)** available in the region to set **global warming potential (GWP)** standards. GWP targets are measured in kilograms of carbon dioxide equivalents (kg CO<sub>2</sub>eq) per functional unit of product. See [Embodied Carbon 101](#) for additional guidance.

City, state, and federal agencies can all implement Buy Clean type procurement policies, but they all have different project types, purchasing power, incentive levers, and environmental data availability that will influence the scope of policy. A federal Buy Clean program may have more funding available to incentivize research, whereas a state Buy Clean program may be able to set regionally appropriate GWP targets earlier.

For additional reference, see the primer [What is a Buy Clean Policy?](#) and/or the full policy evaluation in the 2019 [Buy Clean Washington Study](#).



**Figure 1.** Overview of five key components of Buy Clean.

## Step 1

### Establish policy scope

1.1

#### Eligible materials

*Which materials will be covered by the policy? (select a subset of building materials targeting a specific segment of the industry, such as:)*

- 1. **Major structural materials**, including concrete, steel, and wood
- 2. **Potentially high-impact architectural materials and finishes**, including aluminum, glass, insulation, ceiling tile, gypsum board, and flooring materials
- 3. **Civil materials**, including asphalt pavement, concrete, and steel
- 4. **High-impact trade-exposed materials**

#### ➤ Additional considerations: Material descriptions ◀

Naming terminology for materials should be aligned with industry terminology to clearly communicate the scope to contractors, engineers, architects, and manufacturers. Policymakers can ensure clear communication of the scope by:

- Engaging the local AEC community to review material descriptions for clarity
- Adopting the naming terminology in the Embodied Carbon in Construction Calculator (EC3) which was developed in collaboration with trade associations for each material

1.2

#### Eligible projects

*Which types of projects will be covered by the policy? (select **one option**)*

- 1. **All construction projects**, including buildings and transportation\*
- 2. **Certain projects**, as defined by an area threshold (i.e. ‘projects greater than 20,000 square feet’) or a budget threshold (i.e. ‘projects with a budget greater than one million USD’)

*\*Note: Buy Clean legislation should identify the government agencies with eligible projects. These agencies vary by region, but examples of key agencies include departments of transportation and state universities.*

#### ➤ Additional considerations: Project size ◀

Requiring all construction projects guarantees the broadest impact. However, project size is typically related to the size of the firm working on the project. Setting an area or budget threshold may help reduce the likelihood that small businesses without resources to dedicate to training related to low-carbon procurement would be at a disadvantage.

1.3

#### Scale of approach

*Will the policy be focused on the materials only (material-scale), or will it consider the overall environmental impact of the project (building-scale) in addition to materials?*

- 1. Material-scale
- 2. Material- and building-scale

#### ➤ Additional considerations: Scale ◀

Material-scale policies are less complex and therefore easier to implement than building-scale policies. They focus on transitioning to clean manufacturing. Building-scale policies are more complex, but promote broader embodied carbon reduction strategies that can result in bigger carbon reductions, such as material efficiency and reuse of buildings or materials.

## Step 2

### Set data submittal (disclosure) requirements




#### 2.1 Environmental data


What types of environmental data are acceptable? (select Option 1 and additional options):

- 1. (Minimum requirement:) A **type III, facility-specific environmental product declaration (EPD), as defined by ISO 14025**. EPDs must be valid at the time of construction and cannot be an industry-wide EPD.  
  
The EPD shall also report the following if not already required by the relevant product category rule:
  - Percentage (%) supply chain specific data
  - Supply chain specific data for processes that comprise 80% or more of the cradle-to-gate global warming potential (GWP), as measured in kg CO<sub>2</sub>e
  - Data uncertainty range
- 2. Wood products must also submit the following **chain-of-custody information** alongside the EPD to provide supplemental information that is not currently covered by EPDs:
  - Does the production facility have a chain-of-custody certification? (Y/N)
  - Percent (%) volume contribution to wood sourcing with forest management certification
  - Percent (%) volume contribution to wood sourcing by state (US) or province (Canada)
  - Percent (%) volume contribution to wood sourcing by owner type (e.g. federal, state, private, other)

If using the building-scale approach, what additional data is acceptable?

- 1. **Total project global warming potential (GWP) per unit area** based on a whole building life cycle assessment.

 Learn more about how **global warming potential is measured** [here](#).

 Learn more about **embodied carbon transparency and disclosure** [here](#).

#### 2.2 Material quantity data

What are the requirements for material quantity data submittal? (select **one or more** options)

- 1. Material quantities based on **late-design stage material quantity take-offs**
- 2. **As-built material quantities** from the contractor

#### 2.3 Data collection repository

Where should the data be submitted?

- 1. Environmental and material quantity data from projects is submitted to an online, publicly-accessible repository.

## Step 3

### Set product standards for maximum global warming potential (GWP)



3.1 *What should be the initial maximum GWP value for **each** eligible material? (select **one** of the following options)*

#### Set initial value

- 1. The **80<sup>th</sup> percentile value** of the range of GWP data collected from EPDs in the previous two years, or as published by a credible third-party source.
- 2. The **industry average value** as established by an industry average EPD, or as published by a credible third-party source.

*If also using the building-scale approach, what should be the initial cap for a whole project? (select **one** of the following options)*

- 1. A **flat value** normalized by project size, e.g. 500 kg CO<sub>2</sub>e/m<sup>2</sup>
- 2. Multiple values that vary by project type and normalized by project size
- 3. Unique value calculated based on project features (e.g. structural system type, number of floors, etc.)

3.2 *How will the product emissions standards change over time? (select **one** option)*

#### Lower over time

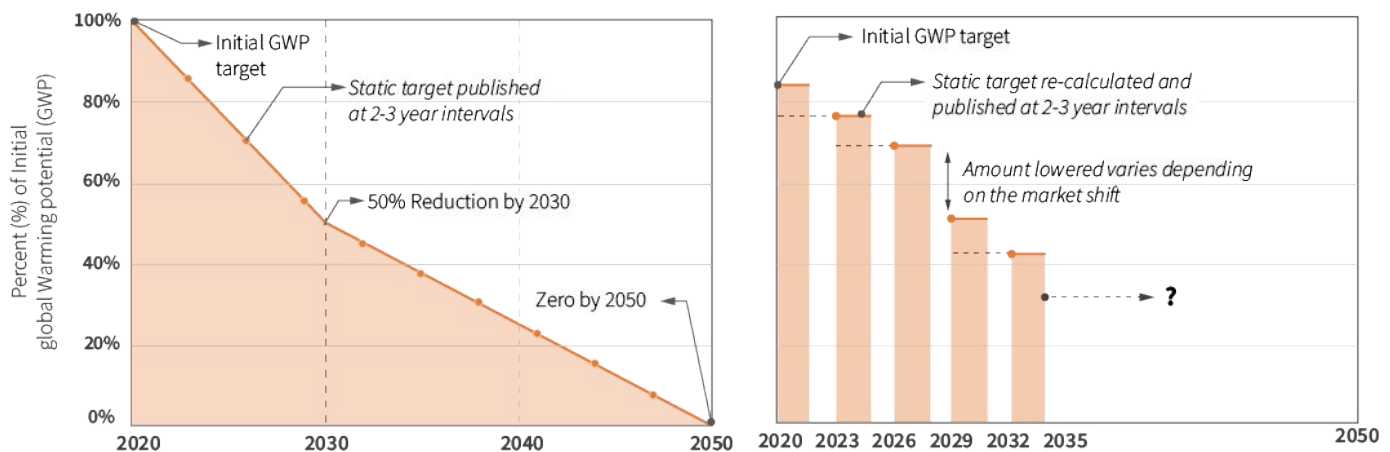
- 1. **% Reduction from baseline:** The initial value set in Step 3.1 is used as a baseline, and the maximum GWP value decreases at two- or three-year intervals to reach a 50% reduction by 2030 and zero-carbon at 2050.
- 2. **Re-evaluate and update:** The maximum GWP standard shall be updated at two- or three-year intervals to reflect reductions in data collected over the previous cycle, therefore continuously representing the 80th percentile or industry-average value of industry.

### ➤ Additional considerations: Lowering emissions targets over time ◀

The options above highlight two different pathways for reducing emissions over time. Figure 2 below shows the possible pathways and benefits of each option.

**Option 1 (% Reduction from baseline)** provides a straightforward path for aligning with 2030 and 2050 climate targets for reducing emissions. The updated values are predictable in advance, giving manufacturers and practitioners time to prepare for compliance.

**Option 2 (Re-evaluate and update)** reduces the risk of small businesses or less advanced regions being pushed out before they can comply. This policy should be paired with other tools to drive reductions. Values are less predictable, giving manufacturers less time to prepare to meet targets.



**Figure 2.** Two options for reducing maximum global warming potential (GWP) values over time for low-carbon product standards.

## Step 4

### Establish incentives and support structures



#### 4.1 How can policymakers encourage compliance?

##### Financial incentives

- 1. **Financial incentives** such as tax credits or direct grants for the creation of EPDs, reaching low global warming potential (GWP) targets, or to support small business compliance
- 2. Award a **performance bonus** at project completion for materials or projects below the 20<sup>th</sup> percentile of the range of GWP data collected from EPDs in the previous two years or as published by a credible third-party source
- 3. **Research grants** to support investment into clean manufacturing technologies for building product manufacturing supply chains and/or support development of the technical infrastructure required to collect and vet material and building embodied carbon data

#### 4.2 How will the bidding process change?

##### Bid incentives

- 1. **Score** carbon impacts alongside price and other qualifications or consider carbon alongside price when selecting a bid
- 2. Use **carbon shadow pricing** by converting estimated carbon into a cost and adding to each bid price
- 3. Apply a **performance discount rate** (see Figure 3 below left) by awarding a 5% artificial discount rate to bids with GWPs below the 20<sup>th</sup> percentile of the range of GWP data collected from EPDs in the previous two years (or as published by a credible third-party source)
- 4. Apply a **sliding discount rate** (see Figure 3 below right) by ranking bids according to submitted GWP values and providing an artificial price discount to the lowest carbon bids

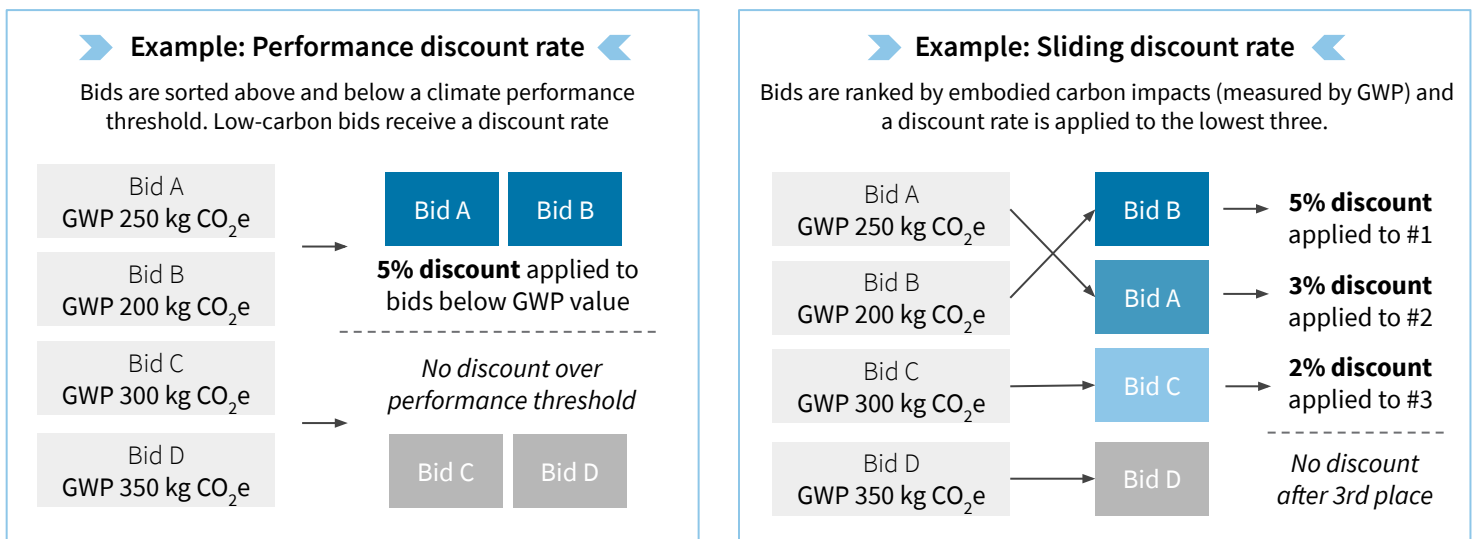


Figure 3. Example of bid incentives; performance discount rate (left) and sliding discount rate (right).

#### 4.3 How can policymakers support adoption of this policy? (select one or more of the following options)

##### Support structures

- 1. Provide **informational sessions** and **training opportunities** for staff and impacted stakeholder groups, directly or through partnerships
- 2. Provide **staff** (or consultant) time to support policy program
- 3. Create an **online resource portal** to collect and respond to questions and share resources
- 4. Publish reports on policy effectiveness on a regular basis and evaluate changes as necessary

## Step 5

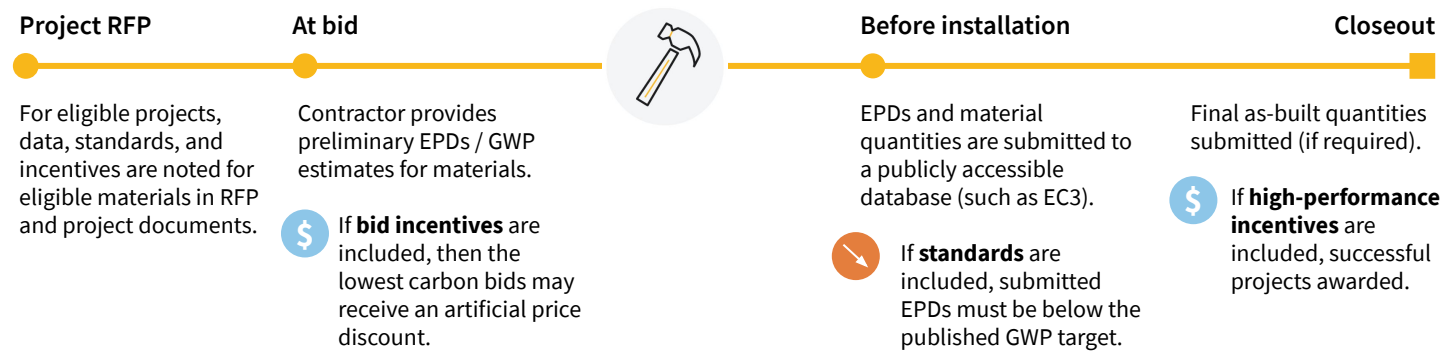
### Set compliance pathways and timelines

5.1 *When are environmental data submittals required? (select **one or more** of the following options)*

#### Project submittal timeline

- 1. Anticipated material quantities and EPDs for all eligible materials on the project are submitted as a part of the bid, based on late-design stage material quantity take-offs.
- 2. Material quantities and EPDs for selected products are submitted before installation. If standards are included, products may not be installed until the compliance review is complete.

See Figure 4 below for additional information about the submittal timeline.



**Figure 4.** Theoretical project submittal timeline.

5.2 *When will the data and standards (if applicable) be enforced? (select **one or more** options)*

#### Policy phase-in timeline

- 1. Activate disclosure requirements immediately for all categories where EPDs are already available in a publicly accessible database. Activate all disclosure requirements 1 year after policy is active.
- 2. Activate all disclosure requirements 1 year after the policy is active for all eligible materials with a published product category rule (PCR).
- 3. Set initial maximum GWP standards \_\_\_ years after the disclosure is required (1-3 years is recommended). See Step 3.2 for lowering targets over time.

*When will incentives (if applicable) be available? (select **one or more** options)*

- 1. All incentives are available indefinitely.
- 2. Incentives are available for the first \_\_\_ years after the policy is active.

Learn more about **implementing Buy Clean and phasing in timelines** [here](#).

- The Carbon Leadership Forum is accelerating the transformation of the building sector to radically reduce the embodied carbon in building materials and construction through collective action.
- We pioneer research, create resources, foster cross-collaboration, and incubate member-led initiatives to bring embodied carbon emissions of buildings down to zero.
- We are architects, engineers, contractors, material suppliers, building owners and policymakers who care about the future and are taking bold steps to decarbonize the built environment, with a keen focus on eliminating embodied carbon from buildings and infrastructure.

- Research
- Resources
- Initiatives
- Network