What is a Buy Clean Policy?

Buy Clean is a procurement policy approach that aims to fill a current gap in climate policy by incorporating low-carbon construction purchasing requirements that address the greenhouse gas emissions from construction materials into government purchasing.

Buy Clean policies use a combination of disclosure, incentives, and standards to leverage the significant purchasing power of public agencies to encourage a shift toward lower-carbon options in the broader construction materials market. Buy Clean is an approach that can be applied at the federal, state, or local level and can also be used by private building owners.

This document provides insight into why embodied carbon is an urgent problem, how Buy Clean poses a solution to address this problem, and an overview of the key policy elements.

Embodied carbon is a big piece of global emissions

Embodied carbon refers to the greenhouse gas emissions arising from the manufacturing, transportation, installation, maintenance, and disposal of building materials used in the construction of buildings, roads, and other infrastructure.

Building sector emissions are responsible for nearly 40% of energy-related global greenhouse gas emissions, with ***at least 11% resulting from the production of building materials***. This number is even larger when considering non-energy-related emissions from the manufacturing of cement, steel, and other construction materials (see Figure 1).

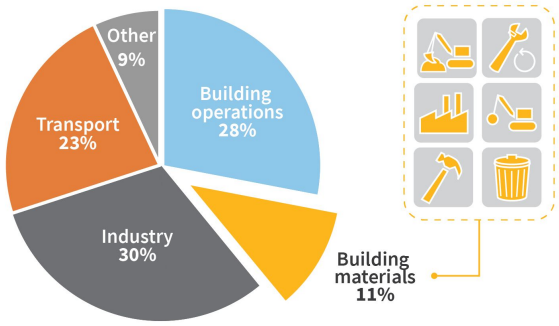


Figure 1. Global energy-related carbon emissions. Adapted from the UNEP Global Status Report 2019.

Embodied carbon is a gap in current climate policy

The majority of a product's embodied carbon footprint is generated across its supply chain, which may be spread across the globe. Current climate policy efforts do not hold anyone accountable for reducing these emissions because they only focus on locally generated emissions. This enables one location to outsource its emissions to another, creating a 'carbon loophole'. A 2019 report (by KGM & Associates and Global Efficiency Intelligence) found that ***approximately 25% of global emissions are embodied in traded goods that pass through this loophole.***

Procurement policies leverage money that is already being spent to fill this policy gap

Procurement policies are widely recognized as a key strategic lever for driving innovation and increasing the sustainability of the private and public sectors across the globe (UNEP; KGM & Associates and Global Efficiency Intelligence). Buy Clean is a procurement policy that addresses the current climate policy gap by accounting for a product's emissions throughout its supply chain, regardless of location.

Procurement policies leverage the large purchasing power of governments -- which typically makes up 12-30% of a country's gross domestic product (UNEP) -- to standardize embodied carbon emissions reporting and reward companies doing their part to reduce emissions. This has the opportunity to impact a significant amount of emissions:

- 32% of the embodied carbon of construction in the United States between 2008-2018 was attributed to public projects resulting in approximately 472 million metric tonnes of CO_2e per year in emissions (see Figure 2).
- Public projects are historically responsible for 46% of US cement use -- one of the largest opportunities for carbon reductions (PCA).

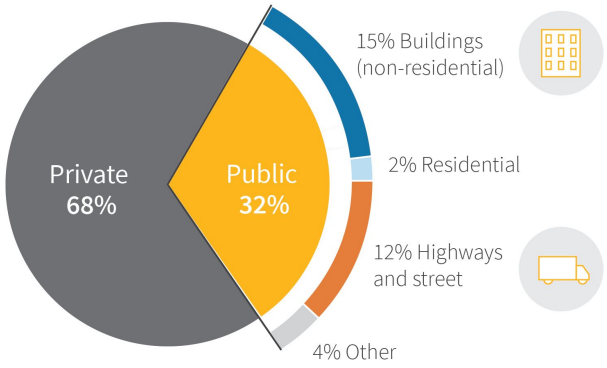


Figure 2. Relative contributions of the global warming potential of US construction for private and public projects). Data sources: US Census Bureau ("Annual Value of Construction Spending Put in Place" for 2008 – 2018); US EPA (USEEIO v1.1 data).

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Buy Clean has a large potential for impact

Due to the significant embodied carbon of public sector construction, Buy Clean policies have the potential to result in large emissions reductions.

State Impact Example

For example, the State of Washington spent approximately **$94 billion USD on construction** between 2008-2018 (US Census Bureau). This translates to approximately 39 million metric tons of CO_2e (using USEEIO data).

That amount of carbon is equivalent to the **energy used by all the homes in Washington for more than 2 years, or to the annual impact of 8.4 million passenger vehicles.**

Buy Clean builds on existing work by manufacturers and the building industry

These strategies have already been used on public sector projects to achieve large emissions reductions. Broader policies speed the process of turning that experience into common practice on public projects.

Case Study Project

The Helen Sommers Building constructed for the State of Washington used a procurement approach similar to Buy Clean to lower the carbon footprint of the concrete used on the project by 27% compared to the Pacific Northwest average, saving over 1,300 metric tons of greenhouse gas emissions.

The concrete supplier, contractor, engineer, and architect all worked together to redesign the concrete mixes and they required embodied carbon disclosure in the form of an Environmental Product Declaration (EPD) for nearly every concrete mix (see Figure 3). See the full case study (by Dave Walsh, Sellen Construction) to learn more about the project team and their success.

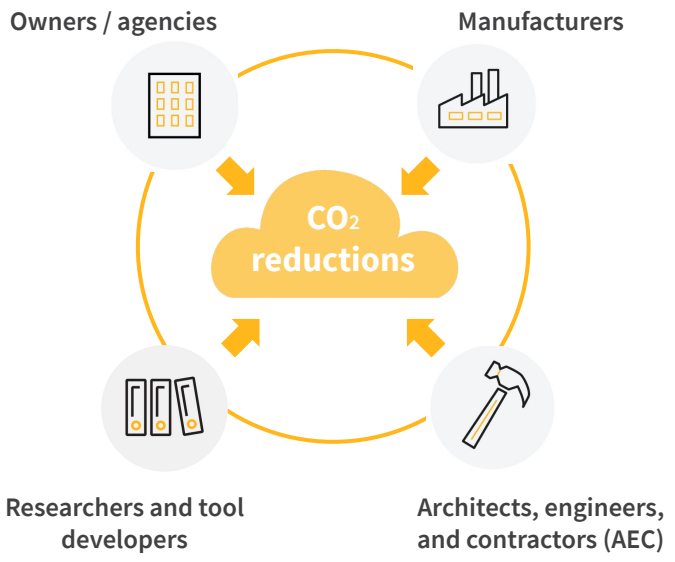


Figure 3. Embodied carbon reductions are achieved through collaboration and support from a range of key stakeholders.

Manufacturers and the building industry have developed a large range of solutions and tools for making and procuring lower-carbon materials.

The current gap in policy has created a market failure where manufacturers who have invested time and money into improving the carbon footprint of their products are not rewarded for that effort. Continuing to ignore these emissions will leave manufacturers in the United States unable to compete globally as Europe and other regions continue to adopt increasingly strict climate purchasing standards.

Buy Clean policies are spreading rapidly

The first case of Buy Clean legislation in the United States was introduced and passed into law by the State of California in October 2017. Policies are now being explored at the federal, state, and local levels across the United States (see Figure 4):

- **Federal:** A Buy Clean program was drafted in the Clean Futures Act in 2020, and clean manufacturing programs and incentives are included in Biden's Climate Action Plan.
- **State:** Iterations of Buy Clean were introduced in Oregon in 2017, Washington State in 2018, Minnesota in 2019, and Colorado in 2020. A material-specific variation of Buy Clean that focused on low-carbon concrete incentives was introduced and passed in New York State (Senate Bill S8965) in 2020.
- **Local:** Cities are adopting regional- or material-specific variations of Buy Clean, such as lower-carbon concrete procurement in Portland, Oregon. In 2019, Marin County (San Francisco Bay Area) passed the first embodied carbon building code, requiring Buy Clean-like procurement for both private and public sector projects built in Marin County.

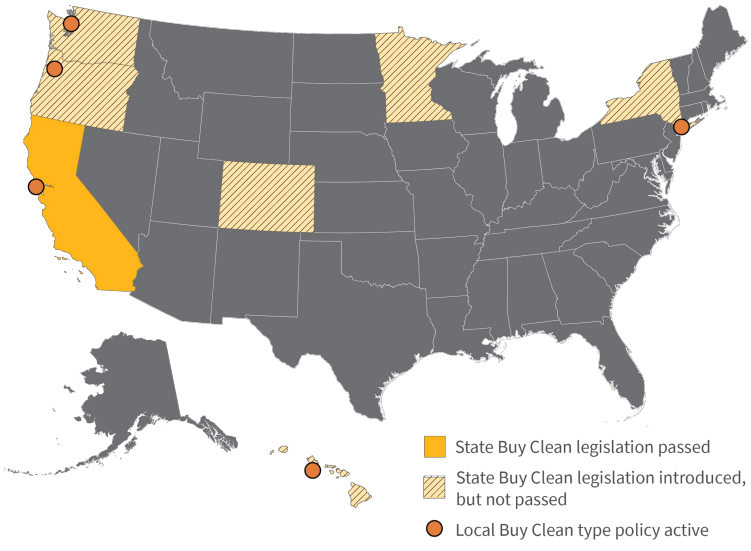


Figure 4. United States Buy Clean policy map as of October 2020.

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Key elements of Buy Clean policy

Buy Clean policies are typically composed of three core elements: disclosure, standards, and incentives. Disclosure is typically required whereas the inclusion of standards and incentives varies by region.

In addition to these three elements (explained in more detail below), policies must choose which materials and projects are eligible, and when to implement each requirement (learn more in Steps to Develop a Buy Clean Policy). Many Buy Clean policies start with structural materials like concrete and steel because they have a significant carbon footprint and a large range of solutions for emissions reductions. Requirements for standards tend to be phased in over a period of two to four years to allow time for adoption.

Disclosure

Buy Clean policies require measurement and disclosure of supply chain emissions in the form of environmental product declarations (EPDs), which are documents that contain information about a product's environmental impact. Requiring disclosure encourages the construction materials market to produce more and better data, which **increases the quality and quantity of data available**. This enables private and public purchasers to identify and select lower-carbon products based on demonstrated carbon reductions.

Possible outcomes of using disclosure requirements:

- Increased availability of EPDs
- Increased quality, consistency, and breadth of data to support future policies and research
- Procurement teams can select products based on environmental impact data
- Builds capacity of manufacturers to measure and track reductions in greenhouse gas emissions

Standards

Setting **performance-based standards** that set emissions (GWP) limits for eligible products allows for a technology-agnostic, market-based approach to industrial and building sector decarbonization. Emissions limits may be lowered or reviewed at regular intervals to align with climate goals.

Possible outcomes of using standards:

- Encourages domestic clean manufacturing solutions and discourages emissions outsourcing (avoids the carbon loophole)
- Encourages innovation and development of new decarbonization strategies
- Levels the playing field and rewards companies that have already invested in reducing their carbon footprint
- Supports tracking of emissions reductions (in contrast, prescriptive strategies may not necessarily result in emissions reductions)

Incentives

Policies can use incentives to **encourage voluntary participation, support broader implementation, or reward high performance.** Examples of incentives include financial support (tax incentives or other), technical support and training, and preferential purchasing (i.e. bid incentives).

Incentives can be provided early in the implementation of a new policy through a voluntary trial period or indefinitely.

Possible outcomes of using incentives:

- Increased early, voluntary participation
- Targeted support for small businesses
- Rewards innovators and industry leaders to continue pushing low carbon solutions
- Encourages market-driven solutions for reaching climate targets in the building and industrial sectors

Learn more about **disclosure and EPDs** here.

Learn more about **developing a Buy Clean Policy**, including incentives and setting performance-based targets here.

Carbon Leadership Forum

Join the movement: carbonleadershipforum.org

- 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

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