

Executing a Multi-Pronged Approach to Building Decarbonization



Joe Sollod



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Chris Perry



Josh Jacobs

The Impact of Buildings

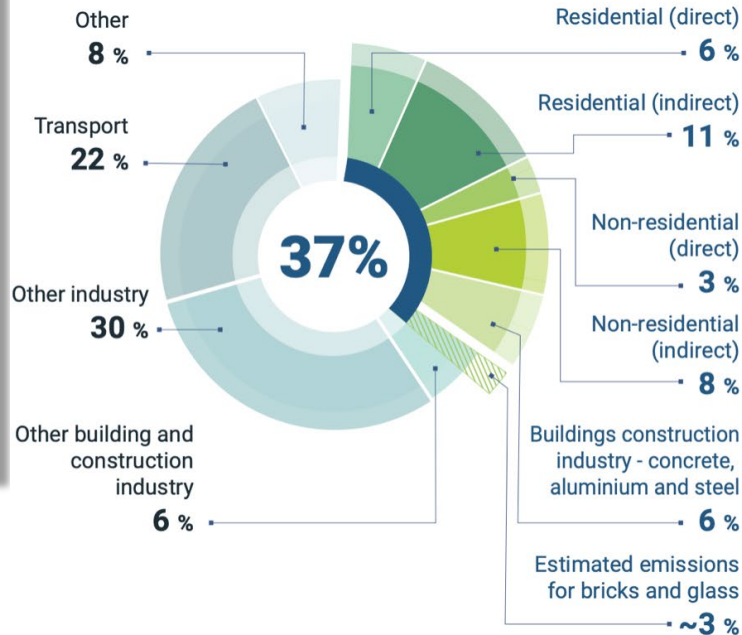


2022 GLOBAL STATUS REPORT FOR BUILDINGS AND CONSTRUCTION

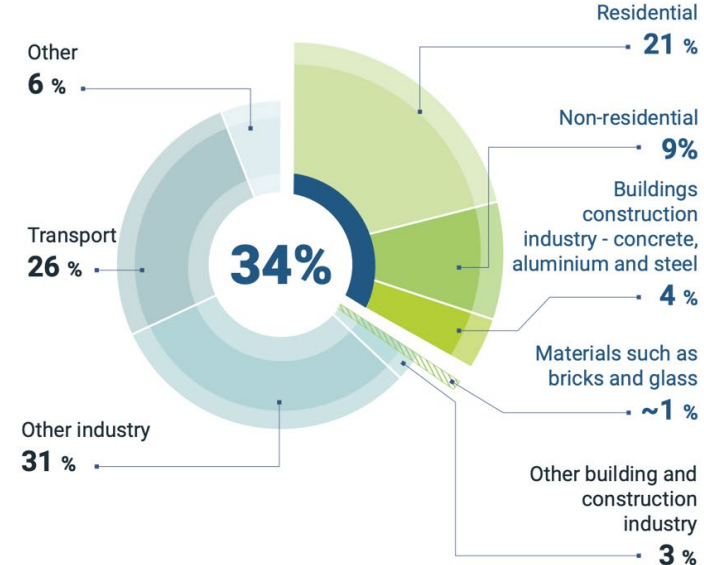
Towards a zero-emissions, efficient and resilient buildings and construction sector



Global share of buildings and construction operational and process CO2 emissions, 2021

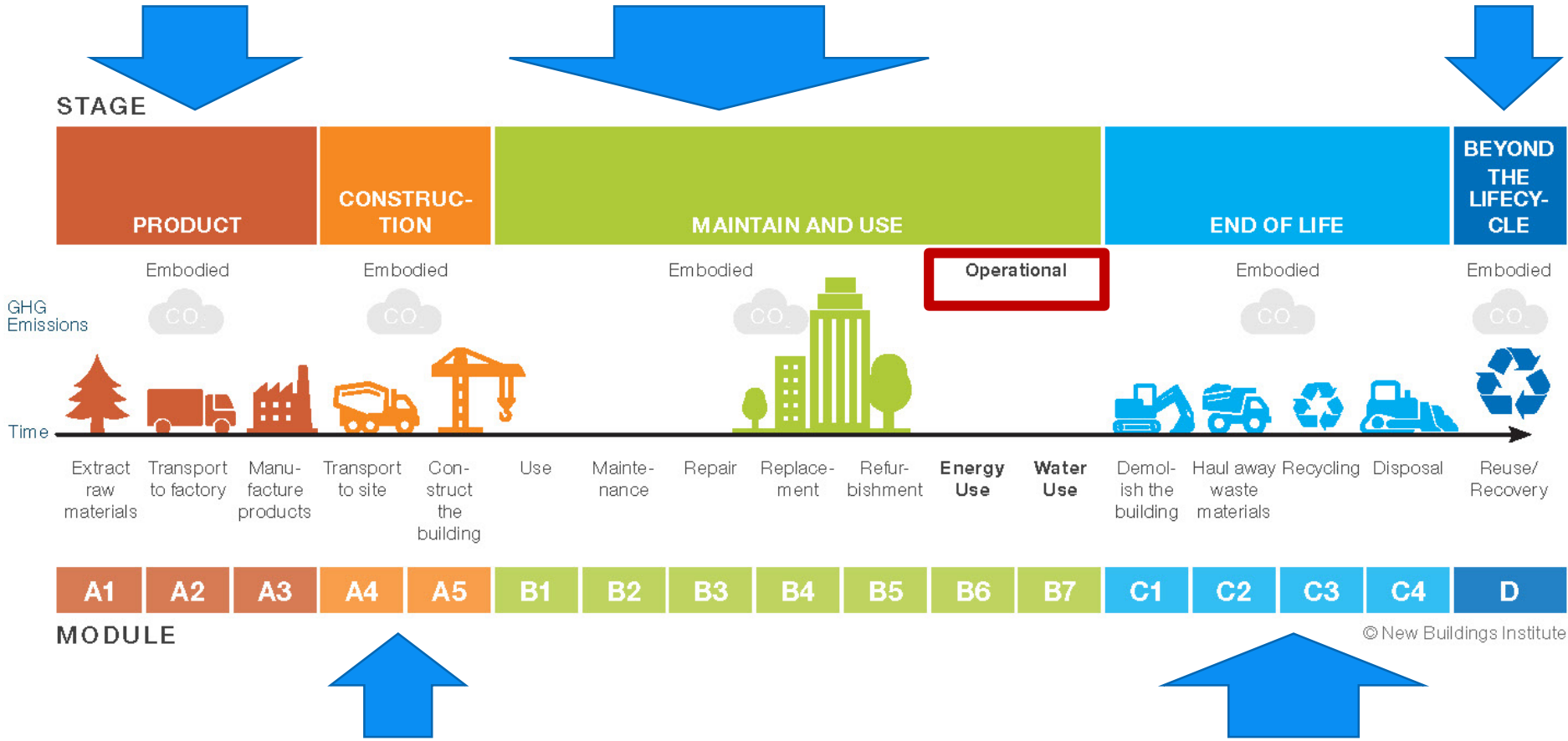


Global share of buildings and construction final energy demand, 2021



Acronyms to Know

- EPD – Environmental Product Declaration
- ISO – International Organization for Standardization
- LCA – Life Cycle Assessment
- PCR – Product Category Rule
- PO – Program Operators





What is an EPD

- Type III label, third party verified, and internationally recognized!
- A single transparent disclosure of a product's impacts throughout its life cycle.
- EPDs are an evaluation tool to help manufacturers, purchasers, suppliers and distributors from government to institutional facilities evaluate a product's characteristics. Further, they enhance awareness of the overall impact of a product.
- EPDs can represent one product, a group of similar products from one or more manufacturer's site, or multiple manufacturers (e.g. an industry average EPD)

What is IN an EPD

- General declaration information
- The product definition and information about building physics
- Declared or functional unit of assessment (e.g. m² of installed product, 1 ton, 100,000 hand drying instances)
- Information about basic materials and the materials' origins
- A description of the product's manufacturing and processing
- Information about installation, in-use conditions and end of life
- LCA results by impact category
- Testing results and verifications

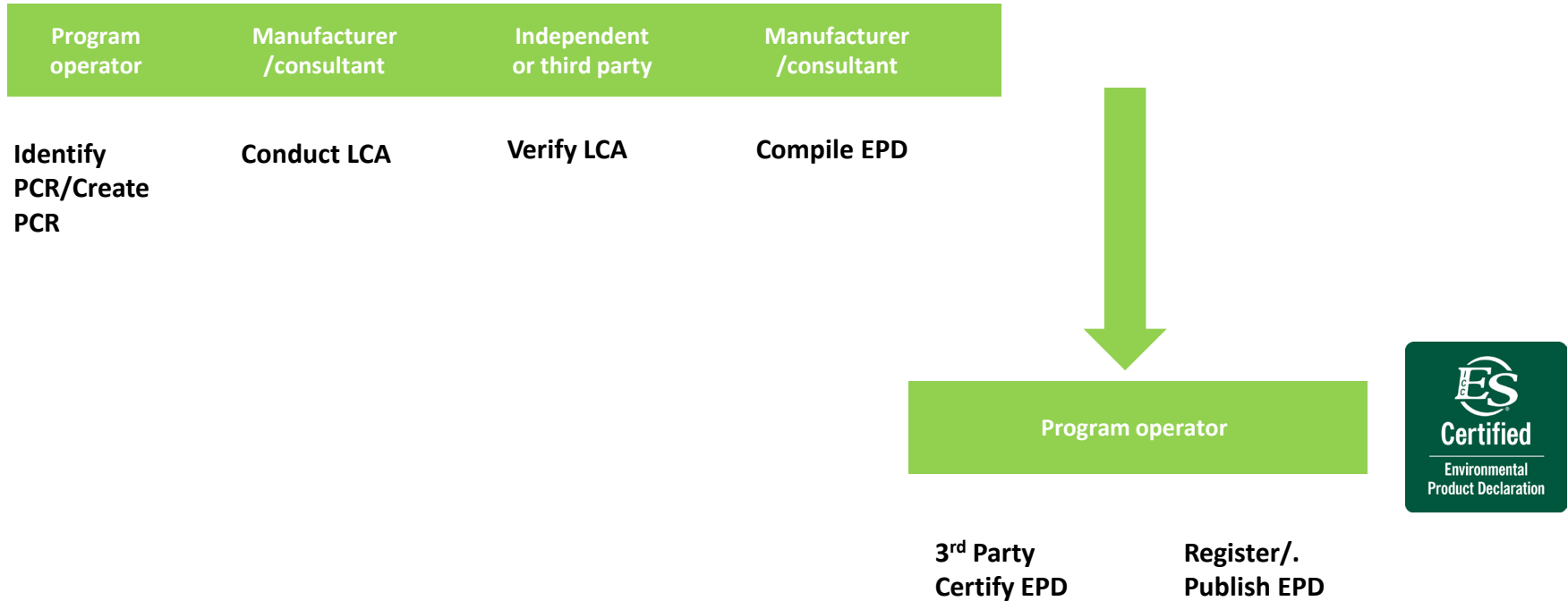


The most important aspect...results

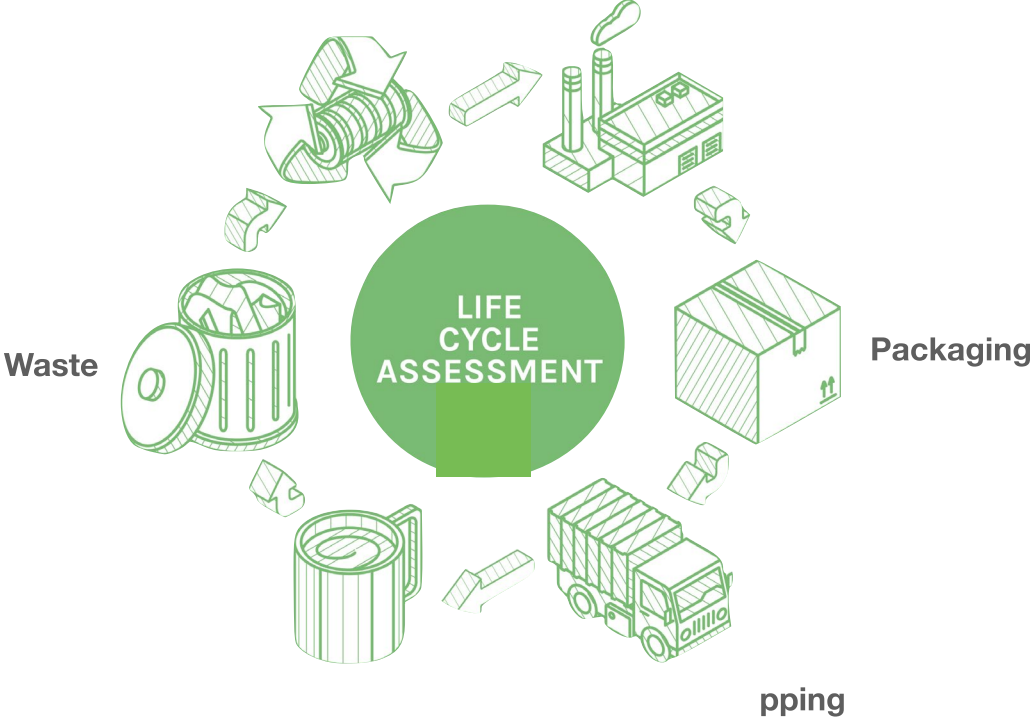


Parameters (Weighted Average)	Units	Modules Included in LCA							
		A1 - A3	A4	A5	B1 - B7	C1	C2	C3	C4
Global Warming Potential (GWP)	kg CO2 eq	2.13E+02	2.12E+01	3.93E+01	0	2.1E+00	3.2E+00	1.6E+00	0
Ozone depletion (ODP)	kg CFC 11 eq	6.47E-06	1.16E-05	3.81E-06	0	2.6E-07	2.2E-06	1.1E-06	0
Acidification potential (AP)	kg SO2 eq	8.13E-01	1.29E-01	1.13E-01	0	1.6E-02	1.9E-02	1.2E-02	0
Eutrophication potential (EP)	kg N - eq	1.68E-01	2.62E-02	3.27E-02	0	3.7E-03	4.8E-03	2.5E-03	2.1E-02
Photochemical ozone creation (POCP) -	kg O3 - eq	7.66E-02	9.30E-03	1.24E-02	0	4.7E-03	1.4E-03	8.9E-04	0
Abiotic depletion potential for fossil resources (ADP-fossil fuels)	MJ	3.00E+02	1.87E+01	6.88E+02	0	2.9E+01	4.0E+01	2.0E+01	0

So how do we get to the EPD



So what is a Life Cycle Assessment (LCA)



Stages of an LCA

Defines which product life cycle phases are included

- **Product Stage (Modules A1-A3): Raw Material and Manufacturing (required)**
- **Construction Stage (Modules A4-A5): Transportation and Installation**
- **Use Stage (Modules B1-B7): Use, Maintenance, Repair, and Replacement**
- **End of Life Stage (Modules C1-C4): Demolition, Waste Processing**

PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS/LOADS BEYOND SYSTEM BOUNDARY
Raw material supply	Transport	Manufacturing	Transport from gate to site	Assembly/Installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse-/recovery-/Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>												<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

Getting to Substantially Lower Embodied Greenhouse Gas Emission Construction Materials

EPA's Low Embodied Carbon Construction Materials Program

Inflation Reduction Act - Sections 60112 & 60116

Alison Kinn Bennett, Program Lead, Office of Chemical Safety & Pollution Prevention



Background

Why focus on embodied carbon of construction materials?

Embodied Carbon of Construction Materials

- U.S. industrial sector is linked to nearly a third of U.S. greenhouse emissions from industrial processes
- 11% of U.S. GHG emissions come from construction materials
- The U.S. manufacturing sector produces the materials that are critical to rebuilding and strengthening the nation's infrastructure

Government Procurement

- U.S. federal government is the world's largest buyer of goods and services (\$650B+/year); its supply chain emissions are twice as large as emissions from federal buildings and vehicles
- ~32% of construction-related embodied carbon in the U.S. is from government-funded projects
- Federal and local governments purchase nearly 50% of the concrete poured in the U.S. each year

Guiding Federal Programs & Policy

The Federal Buy Clean Initiative



DOT Secretary Pete Buttigieg at launch of the Federal Buy Clean Initiative at the Cleveland-Cliffs Direct Reduction steel plant in Toledo, Ohio on September 15,

- The initiative leverages federal procurement and funding to **catalyze markets** for lower carbon construction materials to upgrade U.S. transportation, buildings and energy infrastructure
- The Buy Clean Task Force coordinates federal **demand for lower embodied carbon construction materials:** steel, concrete/cement, asphalt and glass that are made in America with union jobs
- EPA will be serving as the “**Data & Technical Assistance Center of Excellence**”

www.sustainability.gov/buyclean

EPA's IRA Low Embodied Carbon Construction Materials Program



\$250 million

Grants and technical assistance to support enhanced standardization, measurement, and reporting via environmental product declarations (EPDs) for construction materials/products

\$100 million

Program to identify and label substantially lower embodied carbon construction materials/products

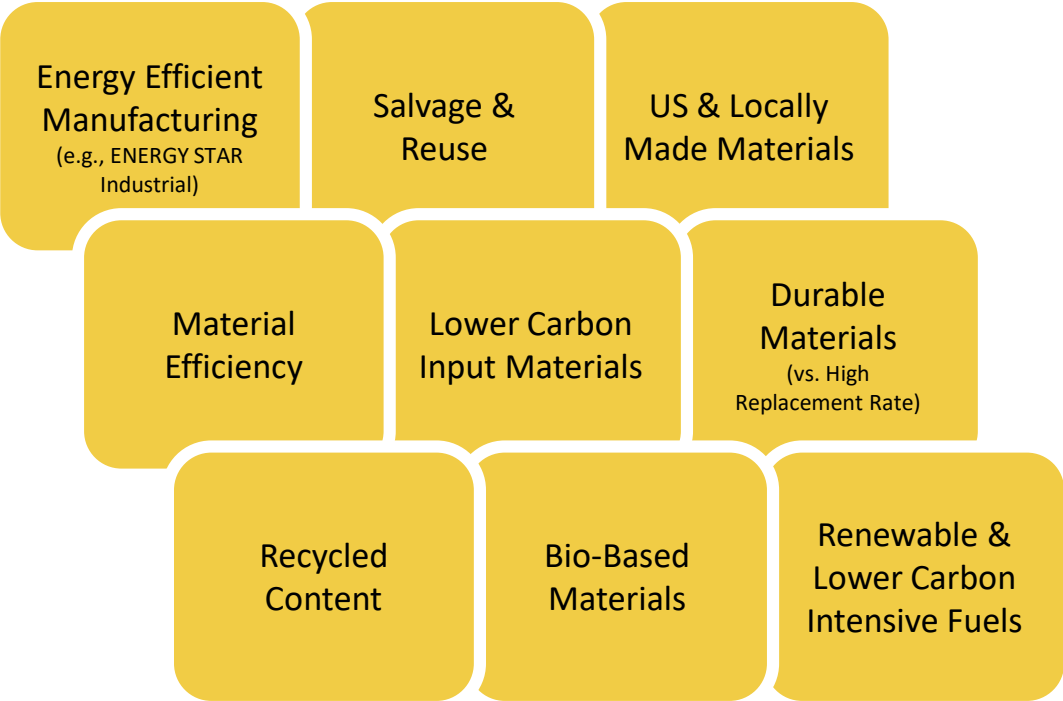
IRA provides a major boost to lowering embodied carbon

Many agencies' efforts depend on EPA's work

Sec #	Agency	Funding	Purpose	Funds expiration
60116	EPA	\$100M	For administrative costs to develop (with GSA and DOT-FHWA) a program to identify and label construction materials/products that have substantially lower levels of embodied GHG emissions, based on EPDs and determinations by State agencies, as verified by EPA.	9/30/26
60112	EPA	\$250M	Grants and technical assistance to businesses, states, tribes and nonprofit organizations to support the development, enhanced standardization and transparency, and reporting criteria for EPDs for construction materials/products that include measurements of the embodied GHG emissions across all life cycle stages	9/30/31
60503	GSA Federal Buildings Fund	\$2.15B	To acquire and install materials/products for use in the construction or alteration of buildings that have substantially lower levels of embodied GHG emissions (as determined by EPA)	9/30/26
60506	DOT FHWA	\$2B	To reimburse or provide incentives (up to 2% of incremental costs) to eligible recipients for the use of construction materials/products that have substantially lower levels of embodied GHG emissions (as determined by EPA)	9/30/26
30002	HUD	\$837.5M	For direct loans and grants to improve climate resilience of affordable housing, including low-emission building materials/processes	
70006	FEMA		May provide financial assistance for costs associated with low carbon materials	

Range of Strategies to Reduce Embodied Carbon of Products at Play in Market

Need for standardization in disclosure, measurement, and verification approaches across strategies and supply chains



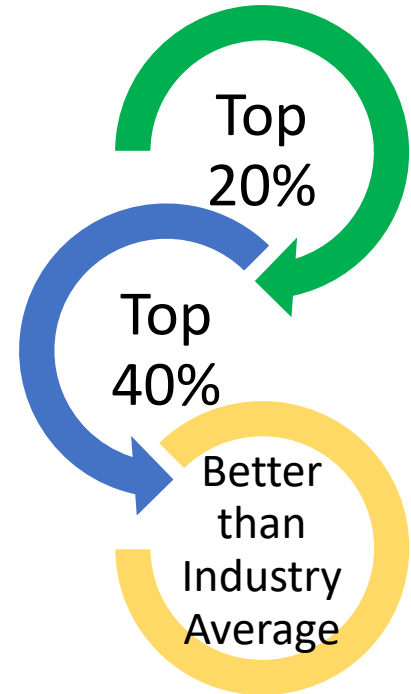
Most strategies to reduce embodied carbon of construction materials take place long before arriving at a construction site.

60503 & 60506 EPA's Interim Determination: Interpretation of "Substantially Lower"

- EPA December 2022 "[Interim Determination](#)" defines "substantially lower embodied carbon construction materials" as:
 - Best performing 20% Global Warming Potential (GWP)
 - If not available in project location, best performing 40%
 - If not available in project location, better than estimated industry average

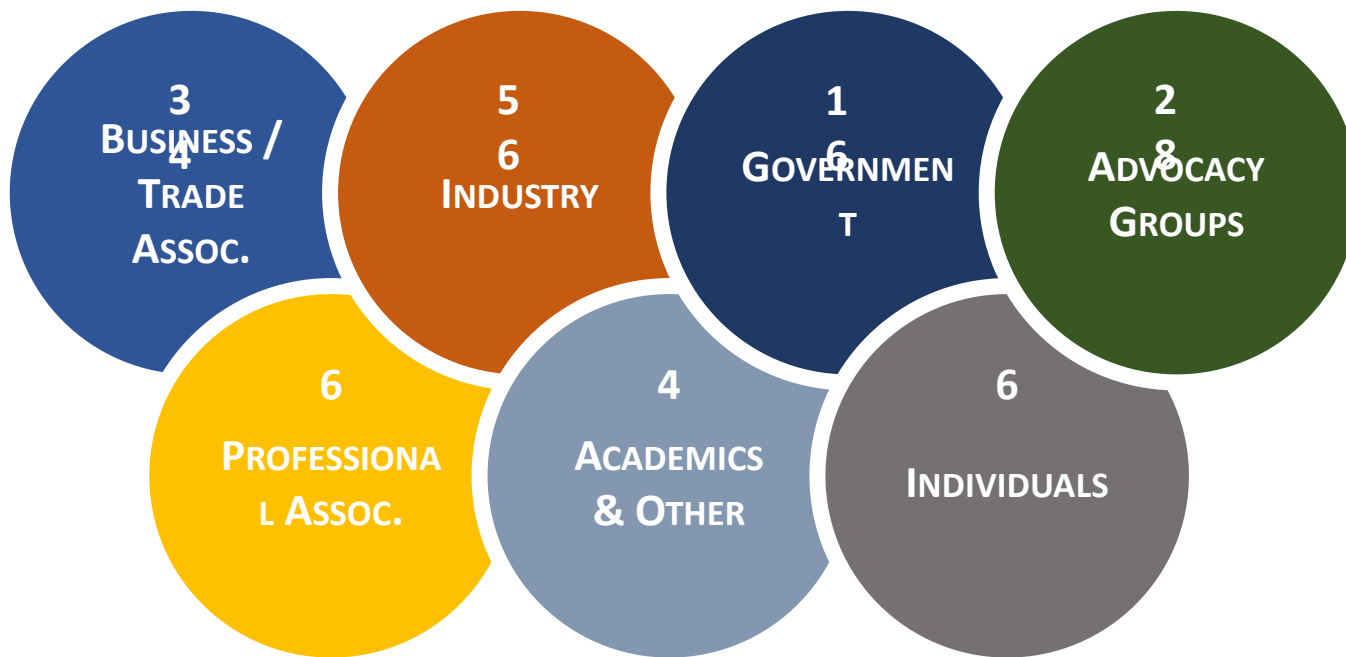
In addition

- Providers of qualifying products are required to report the supplying plant's ENERGY STAR Energy Performance Score where an energy performance indicator is available
- EPA is requesting other data from GSA and FHWA to inform implementation of Sections 60112 and 60116
- EPA expects to update the determinations of "substantially lower" over time



2023 RFI Elicited 200+ Stakeholder Submissions

1,000+ pages of comments on how to engage industry to reduce embodied carbon of construction materials



Key Needs Stakeholders Identified

See all 200+ comments: <https://www.regulations.gov/docket/EPA-HQ-OPPT-2022-0924/comments>

Life Cycle Assessment + Data

- LCA education + expanding the talent pipeline
- Access to free LCA consultants for small businesses
- New/updated lifecycle inventories/datasets, esp electricity & fuel
- Tools to help industry share/report LCA data confidentially
- Enhanced Federal LCA Commons
- And more



Product Category Rules

- More PCRs to fill gaps
- Updated PCRs
- Financial & technical support for public agency & NGO participation in PCR committees
- EPA and other federal engagement in PCRs, plus additional NA guidance
- Multistakeholder Consensus-based PCR Standard & Third-Party Conformity Assessment Program
- And more



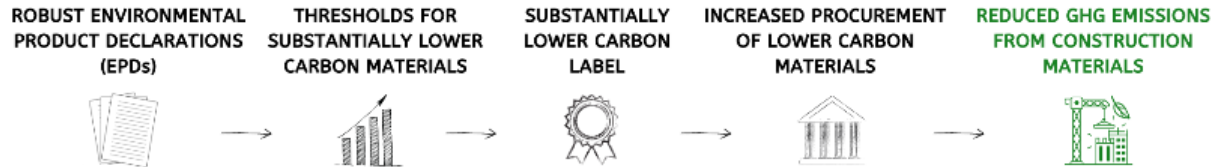
Environmental Product Declarations

- General EPD education for producers & purchasers
- Cradle to Grave & Cradle to Cradle EPDs
- A consensus standard EPD template
- More industry-wide/average EPDs to fill gaps
- More EPD generator tools to fill gaps
- Financial & technical support for development & Update of EPDs
- Digitization of EPDs
- Free access to EPD generator tools
- An accreditation program for EPD verifiers
- Funding/reimbursement for EPD third-party verification
- Publicly-funded EPD Database with x, y, and z functionality

And more

Main Components of Program Approach

Program path and theory of change



Advancing a Robust EPD System

ROBUST ENVIRONMENTAL
PRODUCT DECLARATIONS
(EPDs)

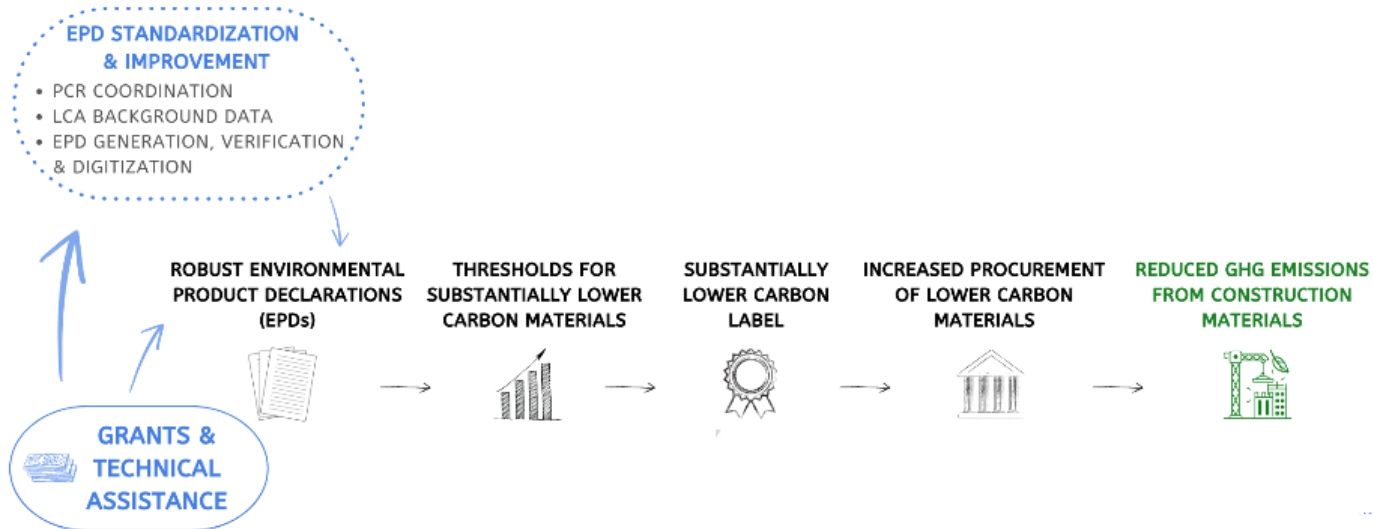


“Robust” – in relation to data, PCRs, EPDs and associated tools and resources – refers to the following characteristics:

- Conformance with international standards
- Third-party verification
- Product, facility, and supply-chain specific data
- Inclusion of relevant stages of production, use, and disposal
- Inclusion of additional environmental and human health impact categories beyond GWP
- Interoperability via digitization
- Transparency via disclosure of background dataset(s), upstream data source(s), and uncertainty/assumptions
- Potentially other characteristics as the market develops

Data + EPD Standardization & Improvement

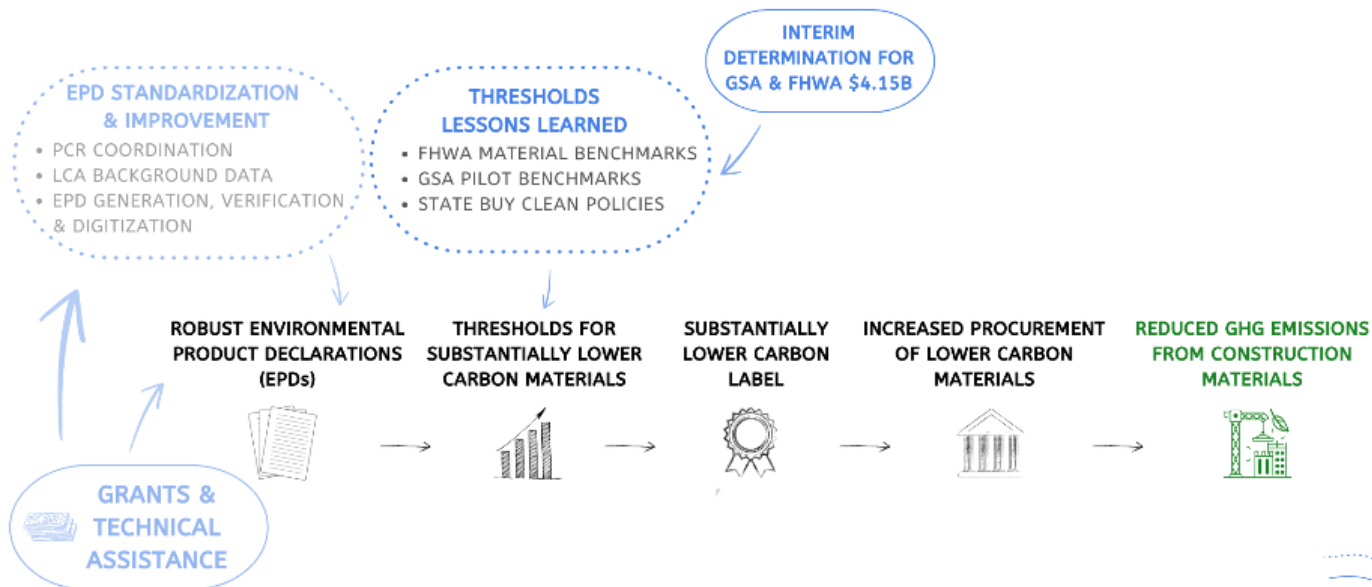
We cannot manage what we do not measure



- EPA IRA TEAM INVOLVEMENT & LEADERSHIP
- EPA IRA TEAM LED
- FHWA US FEDERAL HIGHWAY ADMINISTRATION
- GSA US GENERAL SERVICES ADMINISTRATION
- EPD ENVIRONMENTAL PRODUCT DECLARATION
- LCA LIFECYCLE ASSESSMENT
- PCR PRODUCT CATEGORY RULE
- CRM CUSTOMER RELATIONSHIP MANAGEMENT

Setting Thresholds for Label & EPA “Determination”

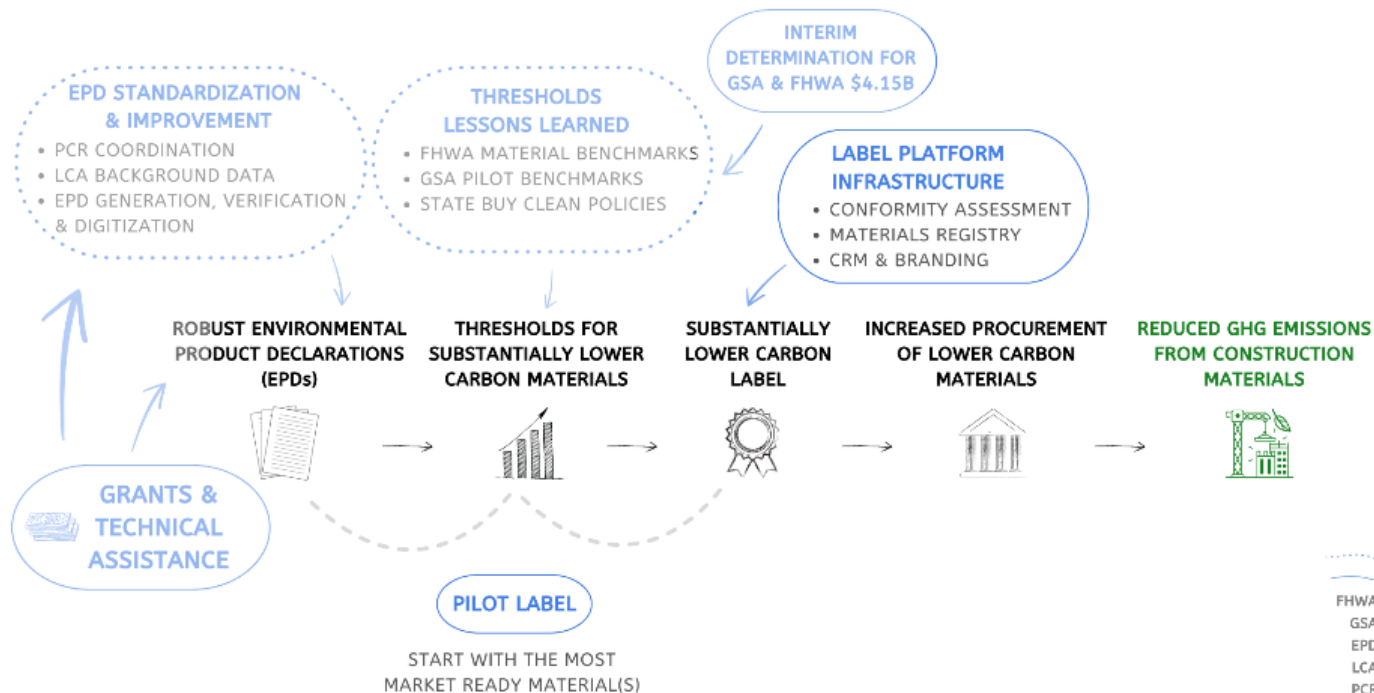
Learning from GSA, FHWA and State Buy Clean Initiatives



- EPA IRA TEAM INVOLVEMENT & LEADERSHIP
- EPA IRA TEAM LED
- FHWA** US FEDERAL HIGHWAY ADMINISTRATION
- GSA** US GENERAL SERVICES ADMINISTRATION
- EPD** ENVIRONMENTAL PRODUCT DECLARATION
- LCA** LIFECYCLE ASSESSMENT
- PCR** PRODUCT CATEGORY RULE
- CRM** CUSTOMER RELATIONSHIP MANAGEMENT

Building the Label

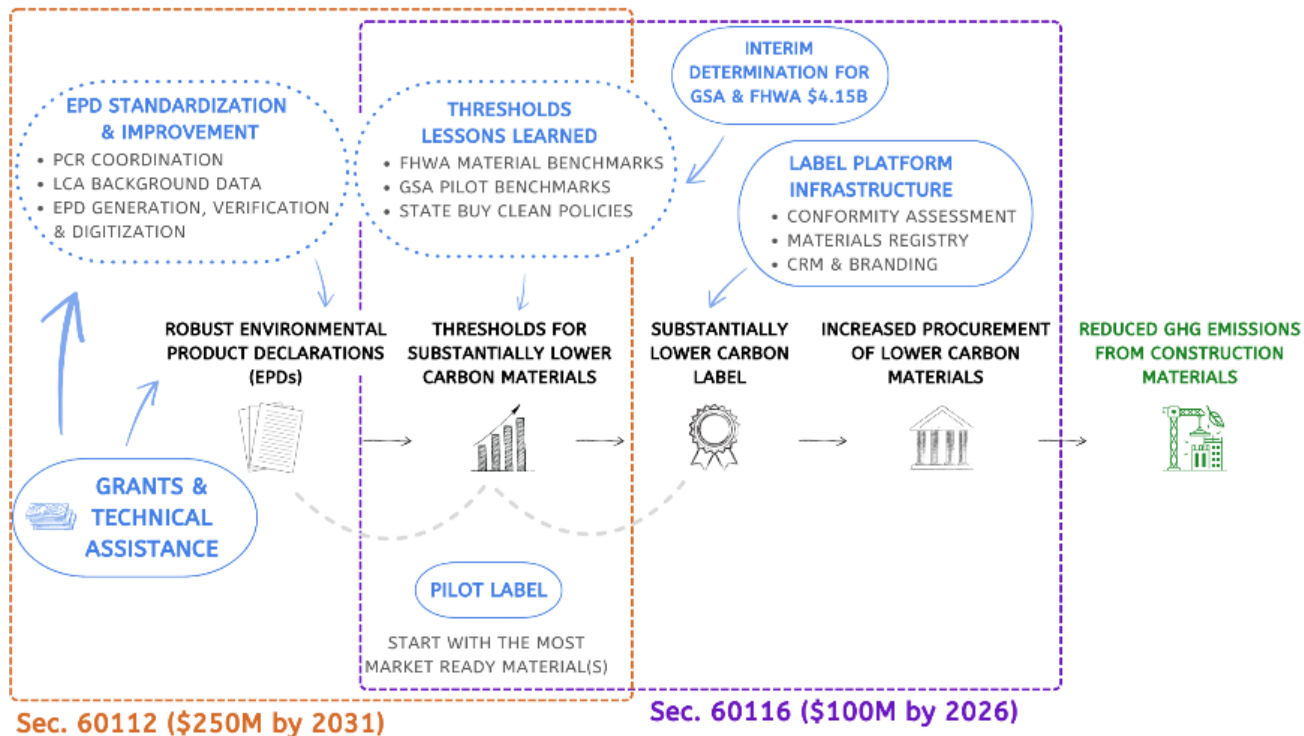
Making procurement of lower embodied carbon materials easier



- EPA IRA TEAM INVOLVEMENT & LEADERSHIP
- EPA IRA TEAM LED
- FHWA** US FEDERAL HIGHWAY ADMINISTRATION
- GSA** US GENERAL SERVICES ADMINISTRATION
- EPD** ENVIRONMENTAL PRODUCT DECLARATION
- LCA** LIFECYCLE ASSESSMENT
- PCR** PRODUCT CATEGORY RULE
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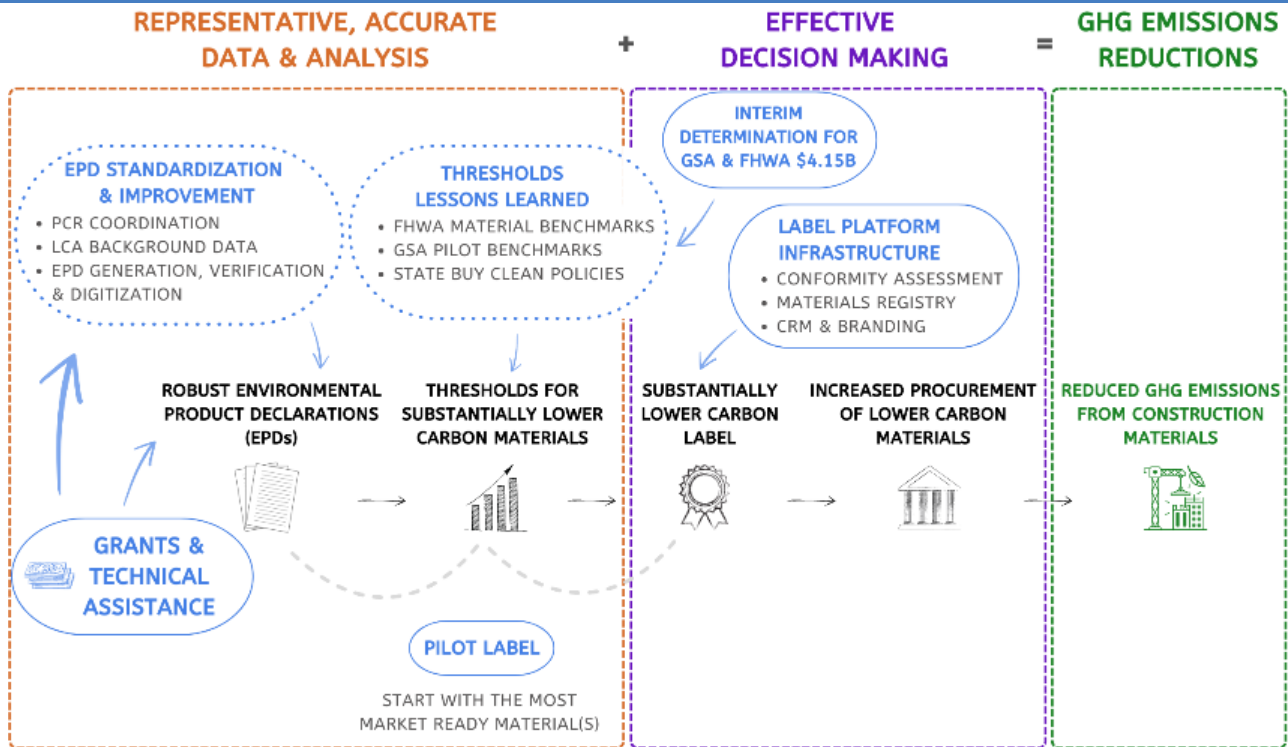
Program Approach & IRA Sections

Synergies of 60112 and 60116 efforts & funding



Current Program Approach

Key elements to reducing embodied carbon from construction materials



Key Milestones to Date

The work is well underway!

Utilizing IRA Funds to Catalyze GHG Reductions

- Enabled \$4B+ in FHWA & GSA IRA spending on substantially lower embodied carbon materials
- Establishing mechanism for direct manufacturer EPD technical assistance (coming Q1-Q2 FY24)

Engaging Stakeholders to Improve Data & Understand Needs

- Engaged hundreds of stakeholders in industry, academia, NGOs, and states & local governments
- Issued RFI, eliciting 200+ stakeholder comments on LCA data, PCRs, EPDs, labeling and materials

Leading Federal Coordination on Data Quality

- Launched federal coordination on LCA enhancement as the Buy Clean “Data & Technical Assistance Center of Excellence”
- Boosted engagement in critical Products Category Rules, LEED, ASHRAE and other codes/standards

Get ready! Typical Process for EPA Pollution Prevention Grants

EPA will provide a thorough training when the forthcoming IRA NOFO is posted

EPA issues Notice of Funding Opportunity (NOFO) including:

- Threshold eligibility criteria
- Evaluation criteria
- Grantee reporting requirements
- Submission process

Applicants apply, including:

- **Register on SAM.gov & Grants.gov**
- Standard Form 424 – Application for Federal Assistance (SF-424)
- Standard Form 424A, Budget Information – Non-Construction Programs
- EPA Form 4700-4, Pre-Award Compliance Review Report for All Applicants Requesting Federal Financial Assistance
- EPA Key Contacts Form 5700-54
- Project Narrative form
- Comprehensive plan for gathering and reporting on the expected environmental outputs and outcomes of proposed grant work.
- Budget table

Awardee reporting, including:

- Awarded grantees must report on the outcomes achieved (typically mid-year and annual performance reports during the project period and a final technical report at the completion of the grant).

Steps to prepare for applying for grant:-

<https://www.epa.gov/p2/steps-take-applying-p2-grant>

<https://www.epa.gov/grants/how-register-apply-grants>



For more information & to stay in touch

- EPA's IRA Low Carbon Materials Program:
<https://www.epa.gov/inflation-reduction-act/inflation-reduction-act-programs-fight-climate-change-reducing-embodied>
- White House Council on Environmental Quality: Federal Buy Clean Initiative <https://www.sustainability.gov/buyclean/>
- Listserv sign-up:
<https://www.epa.gov/greenerproducts/forms/contact-us-about-greener-products-and-services>
- Email: embodiedcarbon@epa.gov



Achieving Decarbonization Through Energy Codes

Federal Initiatives and Funding Opportunities

Building Innovation Summit

Washington, DC | September 6, 2023



Building Technologies Office

BTO works to reduce the energy intensity and related carbon emissions resulting from homes and commercial buildings through the development and application of cost-effective technologies and practices.



Emerging Technologies

- Building technology developments in energy-efficiency, demand-flexibility, low-carbon, and cost reductions to help support building sector decarbonization.

Commercial Buildings Integration

- Identify and develop strategies and technologies to dramatically reduce commercial building decarbonization and energy consumption.

Residential Buildings Integration

- Residential solutions to deliver energy, cost, carbon, and other benefits at scale.

Appliance and Equipment Standards

- Set policy regulations for more than 60 products to save energy and water for residential, commercial, and industrial consumers, as directed by statute.

Building Energy Codes Program

- Provides technical assistance to support building energy efficiency, decarbonization, and resilience, and comfort through the advancements and implementation of building codes.

BUDGET

\$307.5M FY22

\$332M FY23

STAFF

55 Feds

24 Contractors

9 Fellows



Building Energy Codes Program (BCEP)

Mission

To support building **energy code development, adoption, implementation and enforcement processes** to achieve the maximum practicable, cost-effective improvements in energy efficiency and decarbonization while providing safe, healthy buildings for occupants.

Directive

The Building Energy Codes Program is directed to:

- **Participate in industry processes** to develop model building energy codes
- **Issue determinations** as to whether updated codes result in energy savings
- **Promulgate standards** for federal buildings
- **Provide technical assistance** to states to implement their energy codes



Model energy codes are projected to save (2010-2040):



\$138 billion
energy cost savings



900 MMT
of
CO² emissions



13.5 quads
primary energy

These savings equate to the annual emissions of:



195 million passenger
vehicles

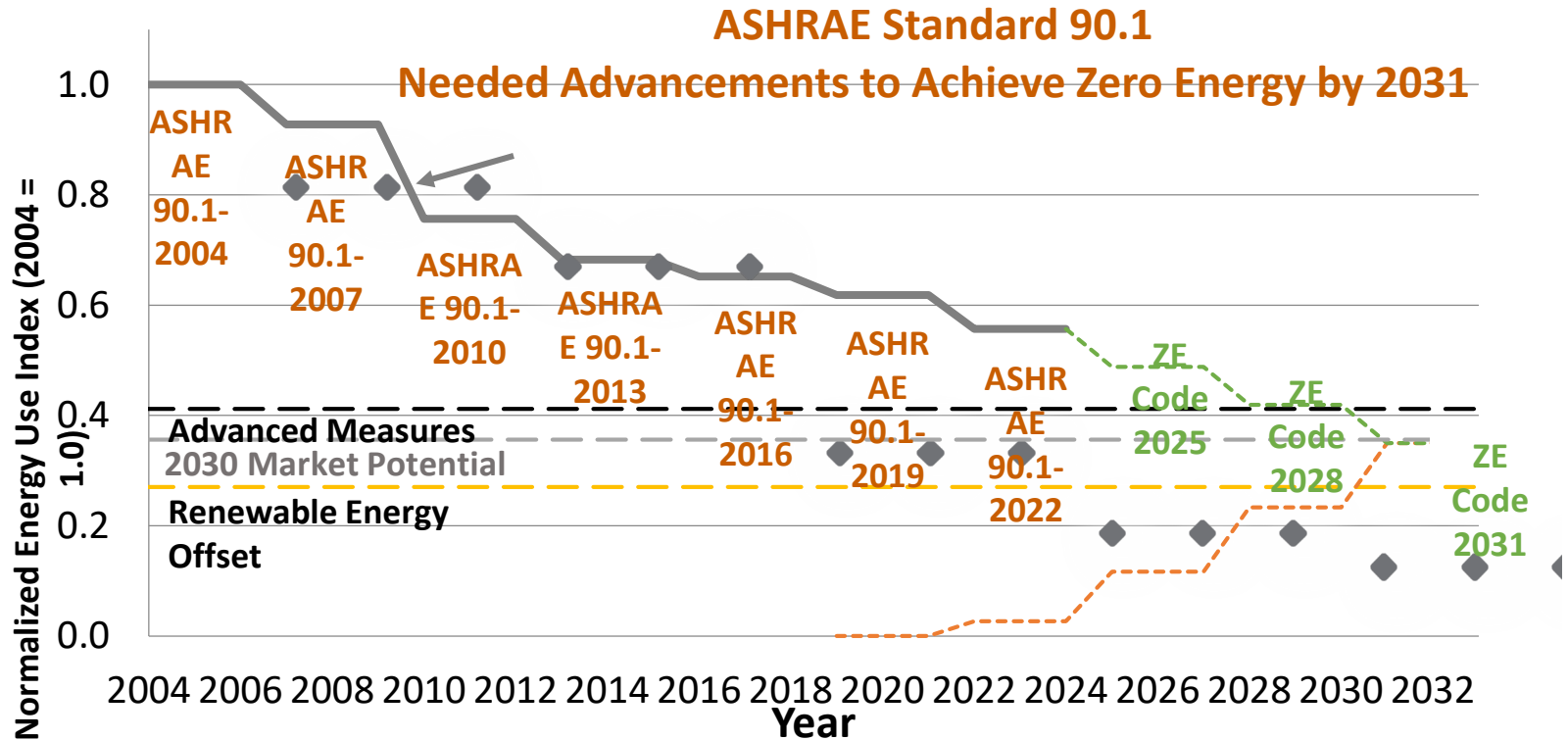


227 coal
power plants



108 million
homes

BECP supports efforts to achieve zero codes



Both energy efficiency improvements and renewable energy will be needed to achieve zero codes

BECP supports stretch code development

DOE and PNNL are developing an ongoing series of technical briefs which can be incorporated as **“plug-ins” to building energy codes**. Many of these align with **existing EERE programs and initiatives**.



EV
charging



Simplified
HVAC
system
performanc



Energy
Credits



Electric
readiness



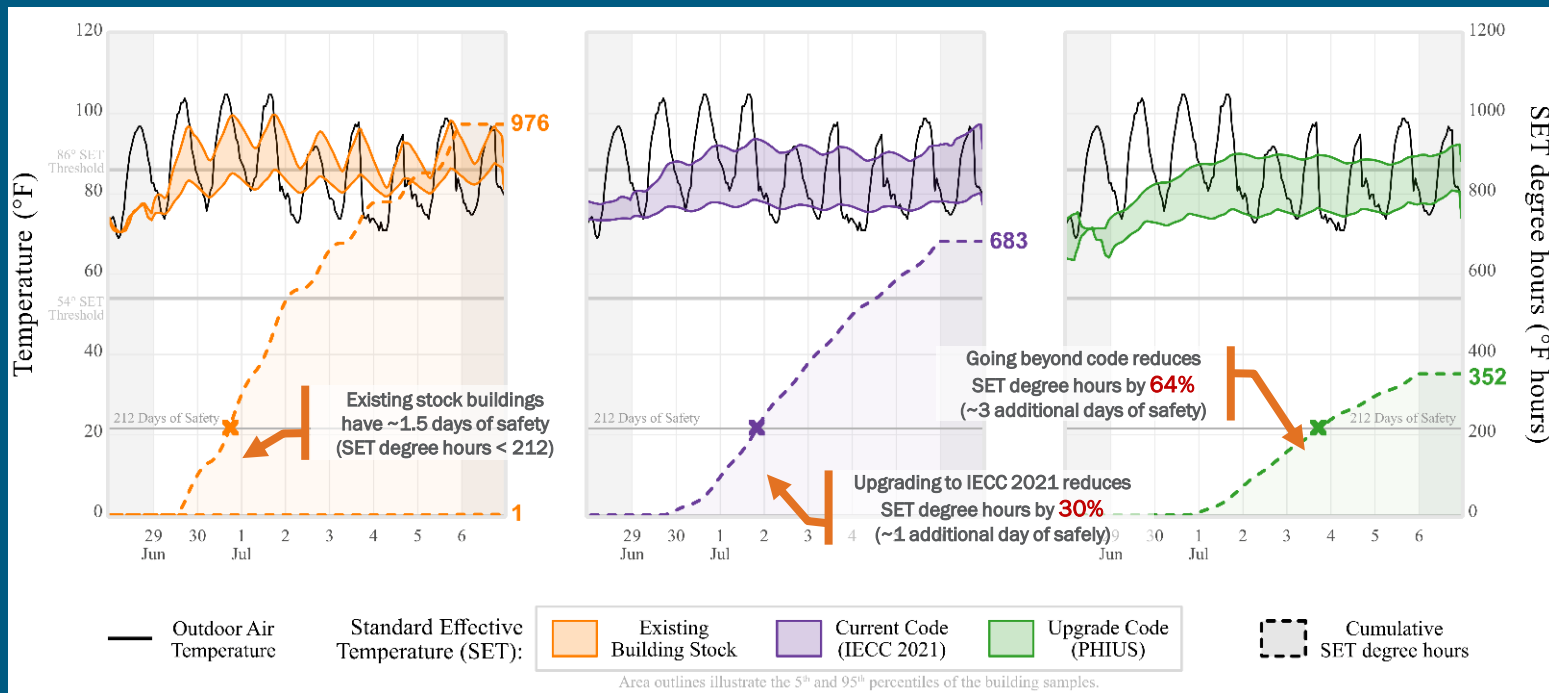
Grid-
interactive
efficient
buildings

Plug-ins are available for adoption by state and local governments, as well as for incorporation into future model codes (editions of the IECC and Standard 90.1).

www.energycodes.gov/stretch-codes

Energy codes improve energy resilience

Atlanta, GA (3A): Long Heat Event (2012)

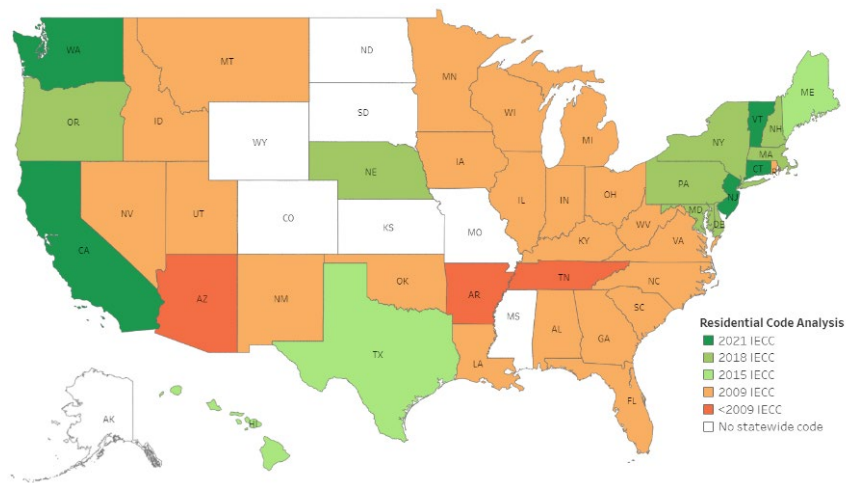


As building envelope improves via better codes, building occupants can remain safe for a longer period of time

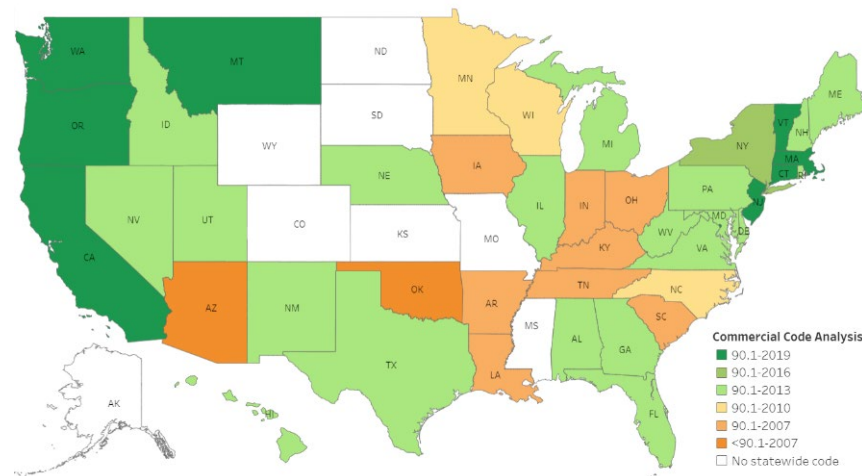
<https://www.energycodes.gov/energy-resilience>

Many states still use outdated energy codes, and need support for key code activities like adoption, implementation, workforce training, and compliance.

Current status of state energy code adoption:



Residential Buildings (IECC)



Commercial Buildings (Standard 90.1)

\$1.2 billion in new federal funding

\$225 million	Bipartisan Infrastructure Law (BIL)
\$1 billion	Inflation Reduction Act (IRA)

DOE awarded \$90M to 27 projects for the first round of BIL funding

State and Local Code Adoption

2813-1520 - Slipstream Group Inc: Building a Strong Foundation for Wisconsin Code Adoption, Compliance, and Local Support

2813-1560 - Colorado Energy Office: Colorado Advanced Energy Code Adoption and Enforcement Program

Workforce Development

2813-1565 - Alaska Housing Finance Corporation: Framework for Responsive Code Development in Alaska

2813-1582 - Pennsylvania Department of Environmental Protection: Maximizing Workforce for Energy Efficient Buildings and Building Construction in Pennsylvania

2813-1549 - American Society of Heating, Refrigerating and Air-Conditioning Engineers: Energy Code Official – Training & Education Collaborative (ECO-TEC)

2813-1568 - Southeast Energy Efficiency Alliance: Securing Energy Code Advancements in Louisiana

Implementation and Compliance

2813-1522 - Southeast Energy Efficiency Alliance: Georgia Residential Energy Code Field Studies: Single-family and Multifamily

2813-1542 - Northeast Energy Efficiency Partnerships: Pennsylvania and Delaware Energy Code Field Studies

2813-1523 – International Code Council: CODES: Code Official Digitization and Efficiency Support

2813-1524 - Karpman Consulting, LLC: Automation of Performance-based Compliance Quality Control and Reporting

2813-1544 - California Energy Commission: Digital Infrastructure to Support Energy Code Compliance and Implementation

2813-1519 - Energy Futures Group: Vermont Building Energy Code Administration Project

Innovative Approaches

Stretch Codes

2813-1577 - Massachusetts Department of Energy Resources: Massachusetts Integrated Deployment of a Decarbonized Long-term Energy Code (MIDDLE-C)

2813-1510 - Center for Energy and Environment: Minnesota Advanced Energy Codes Partnership: A Path to Net Zero

2813-1595 – City of Fort Collins: Zero Carbon Performance Code Implementation

2813-1502 - New Buildings Institute: District of Columbia Net Zero Code Implementation

BPS

2813-1588 - Earth Advantage: Advancing Building Performance Standards in Oregon

2813-1554 - University of Cincinnati: Developing a cost-optimal, equitable approach to building performance standards in *Ohio's large cities*

2813-1580 - ClearlyEnergy, Inc.: Designing & Implementing Building Performance Standards in Small, Rural, and Justice40 Communities

2813-1537 - Institute for Market Transformation (IMT): Supporting Equitable Building Performance

2813-1528 - Elevate Energy: Building Performance Resource Hub

2813-1556 - Colorado Energy Office: Advancing Building Performance Standards (BPS) in Colorado

EEEJ

2813-1570 - Southeast Energy Efficiency Alliance: Closing Equity Gaps to Advance Codes and Standards

2813-1514 - Clean Energy Group, Inc.: Climate Resilient Energy Codes for Multifamily Affordable Housing

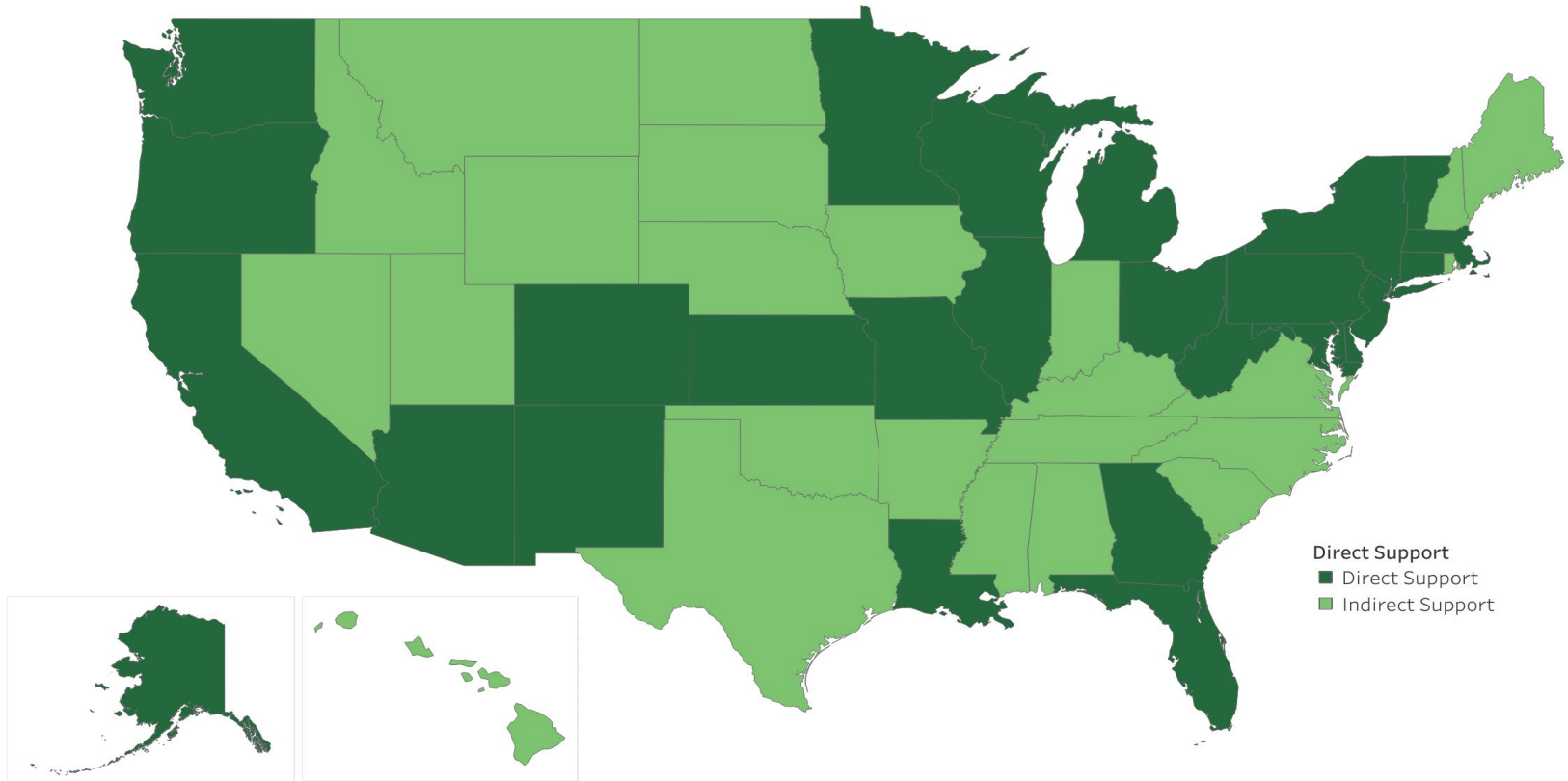
Partnerships

2813-1597 - Metropolitan Energy Center: Mid-America Collaborative for Codes Workforce Development and Implementation

2813-1553 - American Council for an Energy-Efficient Economy (ACEEE): National Energy Codes Collaborative

2813-1505 - New Buildings Institute: Resilient Southwest Building Code Collaborative

27 states are directly supported; all states are indirectly supported



Thank you!

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www.energycodes.gov



Executing a Multi-Pronged Approach to Building Decarbonization

Ryan M. Colker

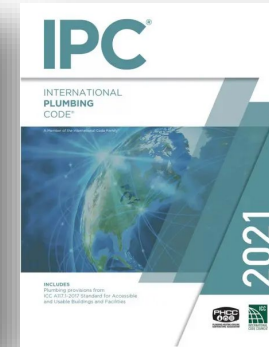
Vice President, Innovation

Executive Director, Alliance for National & Community Resilience

Impacts Across the Building Life-Cycle

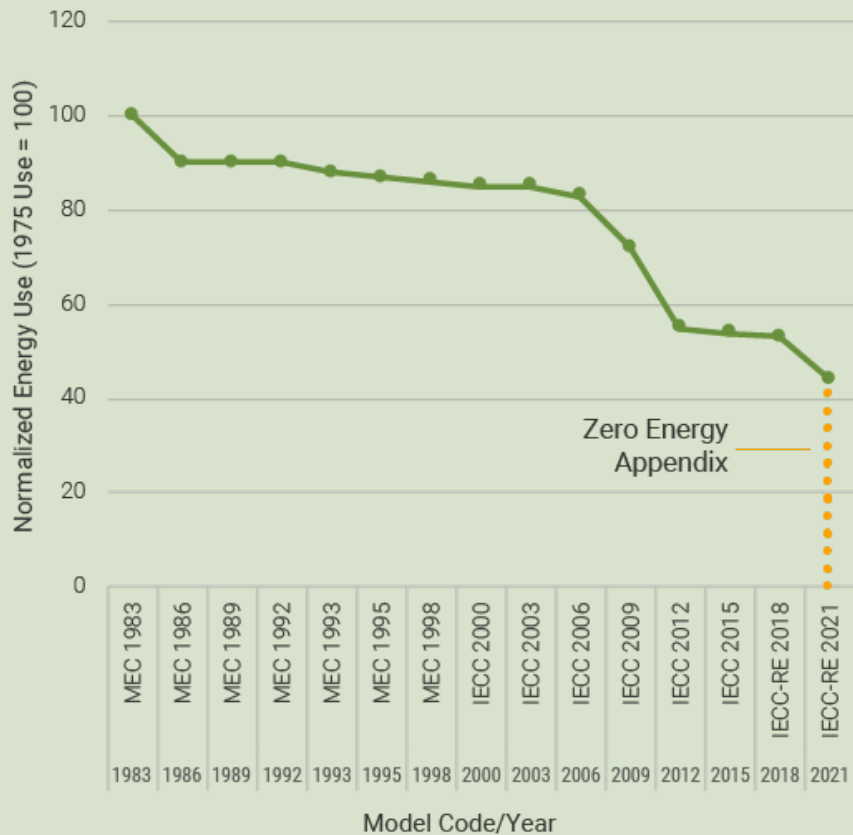
A1 - A3 PRODUCTION STAGE			A4 - A5 CONSTRUCTION STAGE		B1 - B7 USE STAGE					C1 - C4 END OF LIFE STAGE				D OPTIONAL INFORMATION STAGE
A1 Extraction and upstream production	A2 Transport to factory	A3 Manufacturing	A4 Transport to site	A5 Installation	B1 Use	B2 Maintenance (+production, transport & disposal of necessary materials)	B3 Repair (+production, transport & disposal of necessary materials)	B4 Replacement (+production, transport & disposal of necessary materials)	B5 Refurbishment (+production, transport & disposal of necessary materials)	C1 De-construction / Demolition	C2 Transport to waste processing or disposal	C3 Waste processing	C4 Disposal of waste	D Potential net benefits from reuse, recycling, carbon offsets, renewable energy, and/or energy recovery beyond the system boundary

B6	Operational energy use
B7	Operational water use



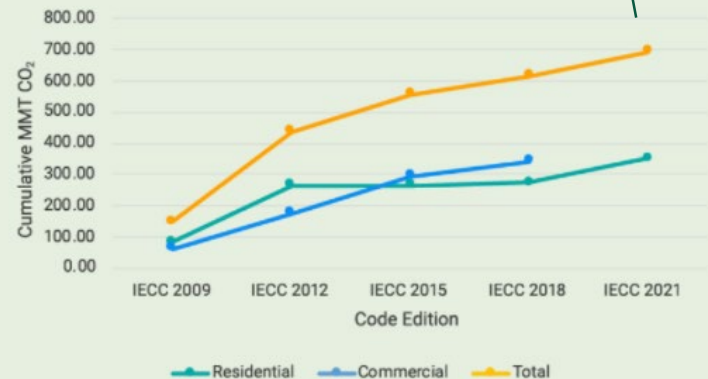
Improvement in Energy Use for Residential Model Energy Codes (1983–2021)

Courtesy of Pacific Northwest National Laboratory



Equivalent to 1-year of emissions from:
 150,828,463 passenger vehicles,
 88,174,088 homes, or
 187 coal power plants

Cumulative CO₂ Savings from Each Edition of the IECC (2009–2021)



Impacts Across the Building Life-Cycle

A1 - A3 PRODUCTION STAGE			A4 - A5 CONSTRUCTION STAGE		B1 - B7 USE STAGE					C1 - C4 END OF LIFE STAGE				D OPTIONAL INFORMATION STAGE
A1 Extraction and upstream production	A2 Transport to factory	A3 Manufacturing	A4 Transport to site	A5 Installation	B1 Use	B2 Maintenance (+production, transport & disposal of necessary materials)	B3 Repair (+production, transport & disposal of necessary materials)	B4 Replacement (+production, transport & disposal of necessary materials)	B5 Refurbishment (+production, transport & disposal of necessary materials)	C1 De-construction / Demolition	C2 Transport to waste processing or disposal	C3 Waste processing	C4 Disposal of waste	D Potential net benefits from reuse, recycling, carbon offsets, renewable energy, and/or energy recovery beyond the system boundary

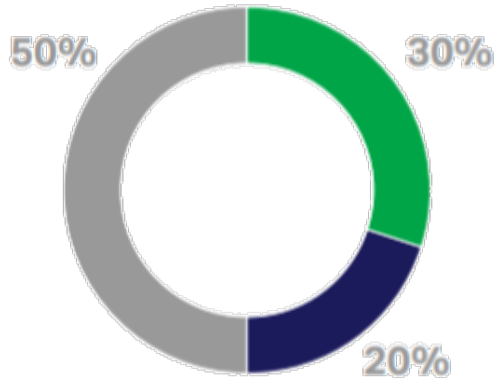
B6	Operational energy use
B7	Operational water use



Avoided GHG Emissions from the I-Codes

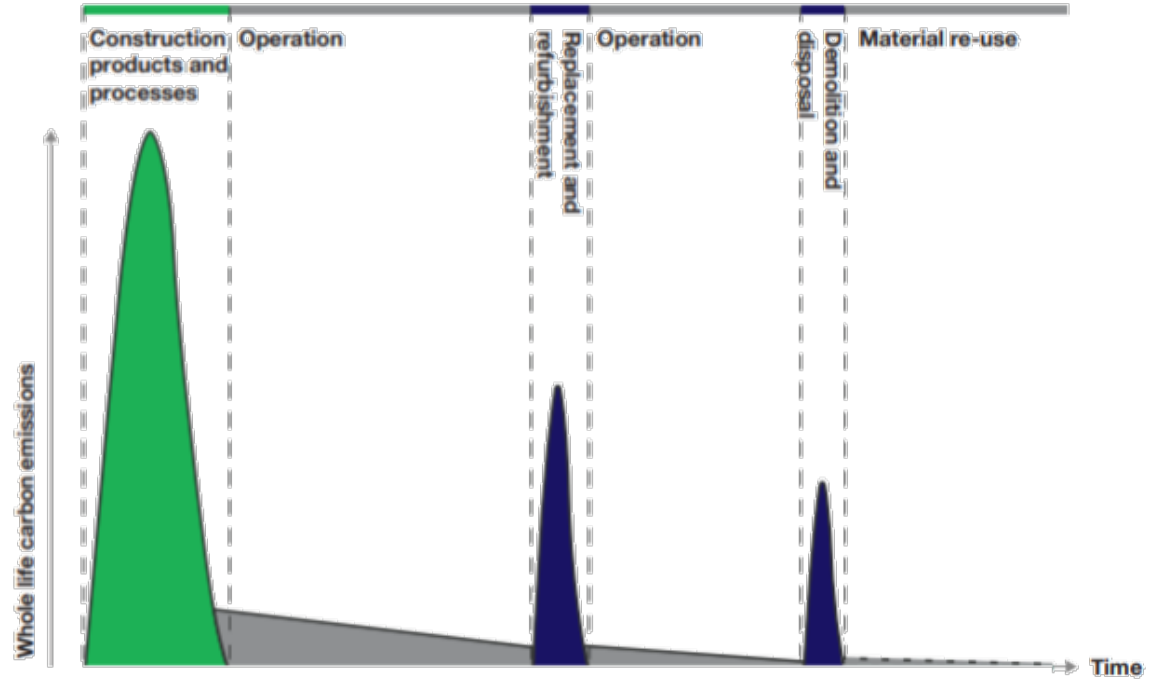
The lead investigator for the National Institute of Building Sciences (NIBS) Mitigation Saves study found that the 15,000 homes preserved per year due to use of current codes avoids 1.5 million metric tons of CO2 emissions per year (equivalent to about 168 million gallons of gasoline or the annual emissions of 323,000 passenger vehicles). Structures consumed by fire (either inside or outside of the wildland urban interface) release significant amounts of carbon into the atmosphere. Constructing buildings to wildfire resistant codes has the equivalent value of preserving about 4,800 new homes and avoiding 500,000 metric tons of CO2 emissions per year.

Figure 4: Estimated distribution of carbon emissions per life cycle stage



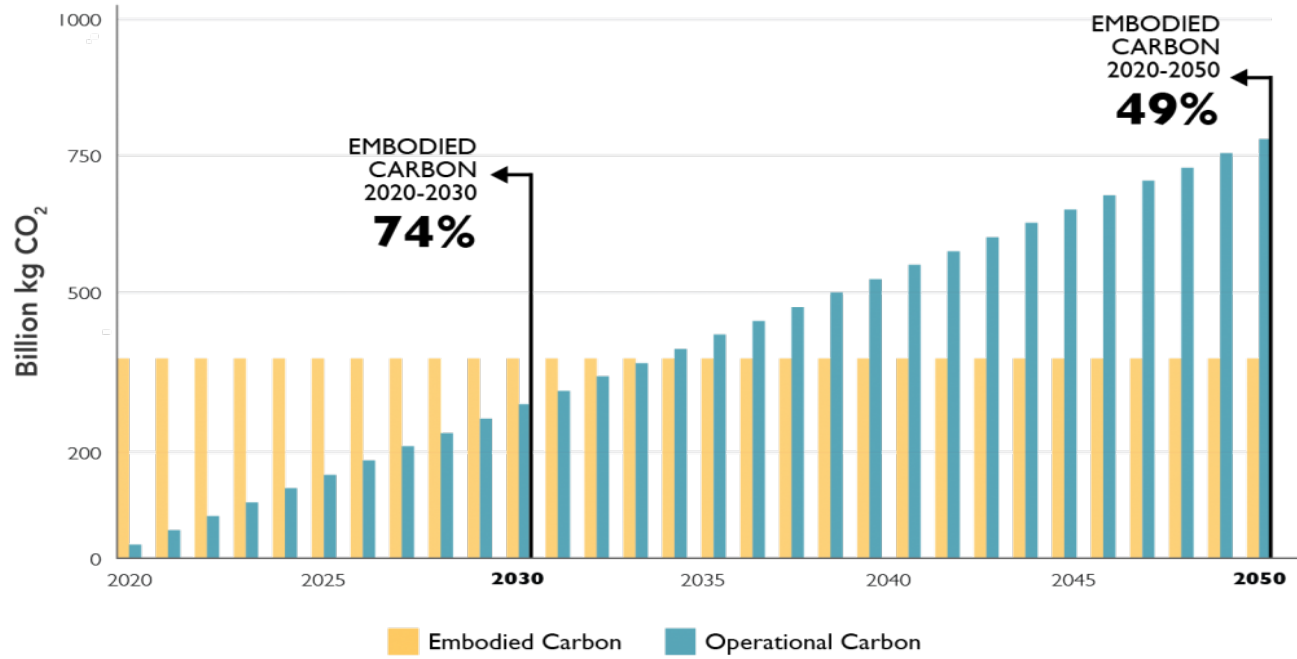
- Embodied A1-A5
- Embodied B-C
- Operational B6-B7

Figure 5: Whole life carbon emissions, Arup (2020)⁷



Total Carbon Emissions of Global New Construction from 2020-2050

Business as Usual Projection



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Data Sources: UN Environment Global Status Report 2017; EIA International Energy Outlook 2017

Why Life-Cycle Tools?

Performance Considerations:

- Structural Loads
- Operational Energy
- Embodied Energy/Carbon
- Occupant Health
- Durability
- Maintainability
- Cost
- Availability
- ...

How do you balance
all of these?



Building Life-Cycle GHG Impacts



ASHRAE/ICC Standard 240 - Quantification of Life Cycle Greenhouse Gas Emissions of Buildings

<https://www.iccsafe.org/about/periodicals-and-newsroom/the-international-code-council-and-ashrae-to-co-sponsor-whole-life-carbon-approach-standard/>



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New Acceptance Criteria Approved for Low-Carbon Alternative Cements

FOR IMMEDIATE RELEASE: February 16, 2022

Contact: ICC-ES Customer Care

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Tel: 1-800-423-6587 x3332

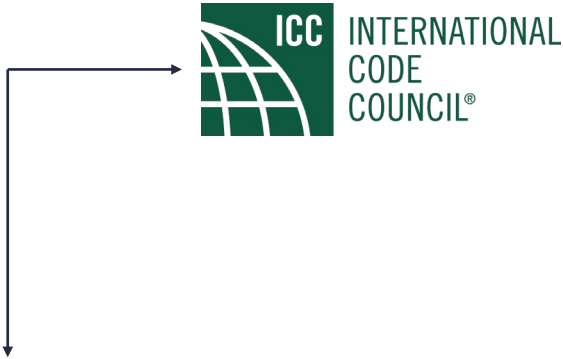
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AC529 provides much-needed requirements to the cement and concrete industry

Brea, CA – During the February 2022 ICC-ES Evaluation Committee public hearing a new ICC-ES acceptance criteria (AC529) for the use of low-carbon alternative cements for use in concrete in lieu of the conventional code-compliant cements was unanimously approved.

The International Building Code (IBC) and the International Residential Code (IRC) – the predominant codes in the United States for building construction – currently do not have provisions for evaluation of alternative cements. Therefore, acceptance criteria AC529 was developed by ICC-ES engineers and

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