



Regional Carbon Conversion Procurement Grant Program Workshop

September 13, 2022

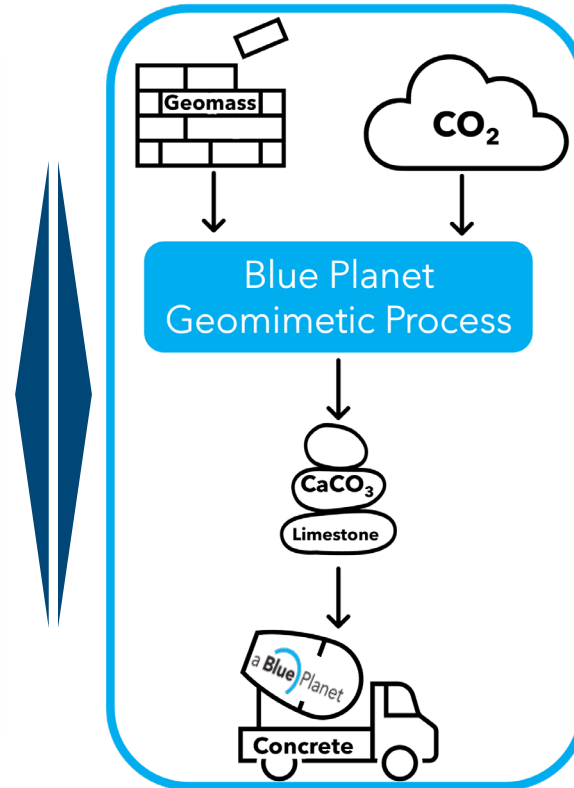
Laura Berland-Shane - VP Government Affairs
laura@blueplanetsystems.com



Blue Planet's process permanently converts CO₂ emissions into high value building materials

Blue Planet's process

- 1 A Geomimetic® “closed loop” technology** that sequesters and permanently stores CO₂ in aggregate
- 2 CO₂ source agnostic:** combustion flue gas, DAC⁽¹⁾, etc., at any concentration
- 3 Wide range of Geomass feedstock in a circular system**, such as demolished / returned concrete, cement kiln dust, steel slag, and fly ash
- 4 Patented technology** of over 50 patent families with 15 issued US patents, 5 global analogs and counting



Product and aggregate market

- 5 Produces 2 core aggregate products:**
1) CaCO₃ Aggregate (Synthetic Limestone)
2) Upcycled RCA⁽²⁾ Aggregate / Sands
- 6 Blue Planet aggregate is 44% CO₂ content by weight**
- 7 A market large enough for significant CO₂ sequestration:** global aggregate market is ~55Gt p/a; expected to grow from \$429bn to \$603bn p/a in 2027 (CAGR 3.3%)
- 8 Blue Planet's aggregates reduce CO₂ emissions in concrete by more than 4x** vs. a low CO₂ concrete mix that exclusively uses SCM^(3, 4) to reduce CO₂

Sources: Blue Planet Systems, Note: (1) Direct Air Capture; (2) Recycled Concrete Aggregate; (3) SCM: Supplementary Cementitious Materials; (4) While cement accounts for over 95% of CO₂ embodied in concrete using Ordinary Portland Cement (OPC), aggregates account for 80% of concrete's volume, therefore represent a greater opportunity to mitigate CO₂ emissions. Approximately 35% of concrete's volume can comprise embedded CO₂ using Blue Planet aggregate. This compares to using a low carbon concrete mix that substitutes out OPC with SCMs which only reduces concrete's embodied CO₂ by the equivalent of 8-10% of concrete's volume

Blue Planet's Pittsburg, CA commercial demo facility

Today

R&D (Lab Pilot)



Lab: 10's kgCO₂

Demonstration Plant (CM1)



CM1: 100's tCO₂

2023



Level-1: 15kt-20ktCO₂

Future Plans

2024



Level-2: 150kt-200ktCO₂

Decarbonizing the Built Environment via Carbon Capture & Conversion (Key Trends in California)



Market Mechanisms

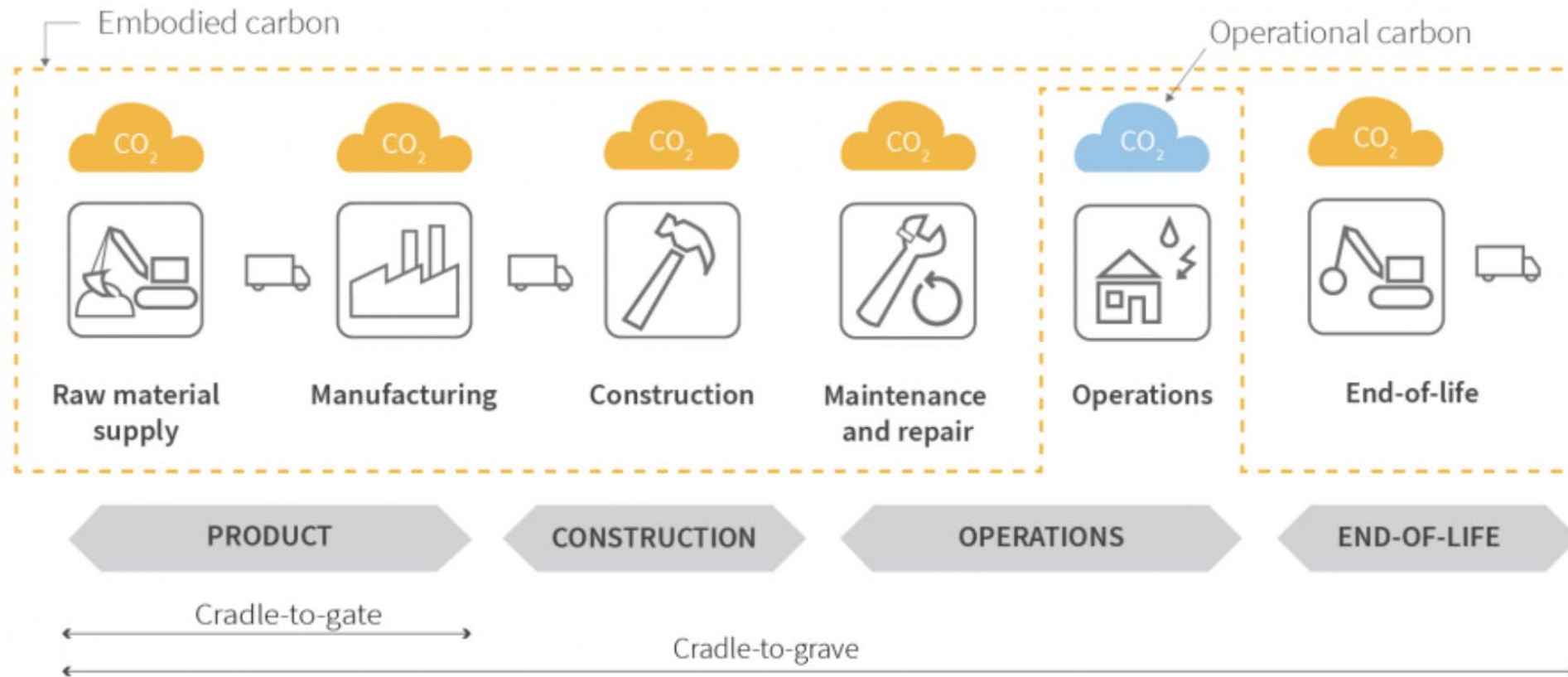
- ★ New focus on embodied carbon (vs. operating carbon) in the built environment.
- ★ Capacity to store CO₂ in public infrastructure – help meet GHG reduction targets
- ★ Capturing the value of sequestered CO₂ in building materials (vs. paying for offsets)



Policy/Regulatory

- ★ Legislation targeting embodied carbon (AB 2554) & SB 905 - creating a framework for CCUS– Passed & awaiting Governor's signature
- ★ IRA: increased tax credit for utilization & \$ billions for procurement of low-embodied carbon materials
- ★ Building code reform: CEC IEPR
- ★ Industrial Decarbonization (roadmap issued DOE)

EMBODIED CARBON 101



The embodied carbon footprint of a building includes all carbon emissions connected with the manufacture, transport, and installation of construction materials.

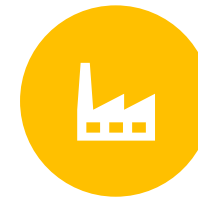
IRA Provisions for low-embodied carbon construction



\$250 MM for EPD Assistance



\$100 MM for Low-Embodied Carbon Labeling for Construction Materials



\$2.15 BB for Use of Low Carbon Buildings (GSA-owned)



\$2 BB for Low-Carbon Transportation Grants (FHA)



\$4 BB for Improving Climate Resilience of Affordable Housing

Challenges in Scaling Carbon Conversion Technologies

Offtake
agreements

Bias toward
geologic
sequestration

Buy Clean for
concrete

Price premium

Absence of
measurement
tool for carbon
sequestration
in building
materials

Carbon capture
is controversial
(esp. California)

Proposed Solutions



UPDATE CARB CCS PROTOCOLS TO
INCLUDE MINERALIZATION IN
AGGREGATE/CONCRETE



DEVELOP ACCOUNTING
METHODOLOGY/LCA TO
INCLUDE CARBON
SEQUESTERED IN BUILDING
MATERIALS



LEGISLATION: BUY CLEAN
FOR CONCRETE; LOW
CARBON CONCRETE
STANDARD



INCENTIVIZE AND
PRIORITIZE SEQUESTERING
CARBON IN THE BUILT
ENVIRONMENT



ACCELERATE TESTING OF
LOW CARBON MATERIALS
AT PUBLIC AGENCIES
(GSA/CALTRANS)



CONTINUED INDUSTRY
COLLABORATIONS FOR
EDUCATION, ADVOCACY
(CCC)