DC2

Joe Hicken

On behalf of Biomason, Blue Planet Systems, Brimstone, CarbonBuilt, Chement, Fortera, Minus Materials, Queens Carbon, Sublime Systems, and Terra CO2

ABOUT US

DC_2 is a coalition of innovative companies at the forefront of the global effort to reduce carbon emissions from cement and concrete. Our ten current members—Biomason, Blue Planet Systems, Brimstone, CarbonBuilt, Chement, Fortera, Minus Materials, Queens Carbon, Sublime Systems, and Terra CO2—are pioneering North American venture- and private-sector-backed climate technology companies dedicated to delivering ultra-low carbon, carbon-neutral, and carbon-negative cement and concrete solutions. Collectively, our technologies rethink production processes and feedstocks, introduce novel materials, and utilize or sequester CO_2 directly in concrete—all with a goal of decarbonizing the cement and concrete sector.

No members engage in collusive or anti-competitive activities, including but not limited to discussions of pricing, market allocations, etc.

SHARED OBJECTIVES

LOW-CARBON FUTURE

To build future infrastructure with low-carbon cement & concrete

INDUSTRIAL BASE CAPACITY

To scale up the low-carbon cement and concrete industrial *manufacturing* base

LOCAL JOBS, LOCAL SUPPLY

To create new American jobs, bolster US competitiveness and reinforce local economies and local supply chains

ENVIRONMENTAL JUSTICE

To promote co-benefit generation and environmental justice in designing the future of manufacturing

SHARED POLICY LEVERS

PRODUCTION TAX CREDITS

Per dollar per kg of CO_2 abated, low-carbon cement and concrete is one of the most efficient taxpayer investments in avoiding CO2.

DEMAND SUPPORT

A well-constructed demand-side support strategy will unlock additional private financing to commercialize transformational solutions

EARLY ADOPTER PLATFORMS

We will seek to use the power of the public sector to convene sandbox testing to build confidence

LOW-CARBON GLOBAL STANDARDS

Ecolabeling is fraught with non-standard accounting.

TRANSFORMATIONAL PROCUREMENT POLICIES

Procurement policies that are attempting to buy clean and accelerate innovation are blunted by incrementalist, or supply-limited product offerings

THE GWP OF THE FINAL CONCRETE DRIVES EVERYTHING.

Collectively, we are technology agnostic. More shots on goal = greater probability of success in avoiding, abating, capturing and storing carbon to net-zero success.

TECHNOLOGY

We have distinct technologies that will drive down GWP of the critical materials that comprise our modern society

DEPLOYMENT

We are innovating, from displacing high GWP binders, to net-negative feedstocks, to alternative manufacturing, to mineralization of CO_2 (alone or in combination)

ADOPTION

We live in a world built to suit. We have customers that prefer prescription, performance, and customer-determined applications

IMPACT

Our success is not driven by innovation alone, but by the combination of adoption and net carbon reduction

BIOMASON

biomason.com

TECH	Biocement® grows in ambient temperatures, building with carbon to create controlled, structural cement for products or applied services
DEPLOY	A bacterial process that enables concrete manufacturers to decouple from cement-based manufacturing for block plants and precast products
IMPACT	Uses carbon as an input, enabling carbon-negative pathways through the production of construction materials

2023

BLUE PLANET SYSTEMS

blueplanetsystems.com

TECH	Geomimetic mineralization technology uses CO2 from any source as a feedstock to create ultra-low/carbon negative aggregative
DEPLOY	Commercial demonstration plant operating in CA to produce carbon-sequestering aggregate to be utilized in concrete as a replacement for virgin aggregate
IMPACT	Potential to store up to 1,120 lbs of CO2 per cubic yard of concrete

2023

BRIMSTONE

brimstone.com

TECH

Carbon-negative process that produces portland cement from a carbon-free calcium silicate rock instead of limestone

DEPLOY

Portland cement from the Brimstone process is physically and chemically identical to conventional portland cement

IMPACT

As reflected in a third-party LCA, the Brimstone process is carbon-*negative* across a range of energy-use scenarios.

2023

CARBONBUILT

carbonbuilt.com

TECH

Retrofits of existing concrete masonry facilities with off-the-shelf equipment to enable ultra-low carbon concrete technology, including utilization of low-carbon raw materials and waste CO2.

DEPLOY

Commercially available concrete masonry units at CarbonBuilt's flagship retrofit in Alabama, with additional retrofits underway

IMPACT

70-100% carbon footprint reduction, through both avoidance and mineralization, compared to facility baseline

2023

CHEMENT

chement.co

TECH

Renewable electricity + CaO3 to perform the chemical reaction with less energy and less CO2 emitted + cheaper carbon capture

DEPLOY

Cement for cast in place concrete deployed via ready-mix concrete producers

IMPACT

- More efficient production
- No energy emissions
- Easier carbon capture

2023

FORTERA

forterausa.com

TECH

The Fortera ReCarbĕ process re-carbonates Calcium Oxide without losing its cementitious properties, resulting in a cementitious mineral that is rich in CO_2.

DEPLOY

- SCM blend up to 35%
- 100%OPC substitute

IMPACT

- 70-100% Reduction in CO_2 per ton of cement
- Commercial Plant in Redding, CA

2023

MINUS MATERIALS

minusmaterials.com

TECH	Microalgae, sunlight, and seawater to capture and store carbon dioxide as biogenic limestone.
DEPLOY	Carbon-negative biogenic limestone that can help the cement industry achieve significant emissions reductions
IMPACT	Elimination of all mineral emissions during traditional cement manufacturing

2023

QUEENS CARBON

queenscarbon.com

TECH	Breakthrough ultra-low CO_2 manufacturing technology to produce cementitious materials from industry-standard raw materials
DEPLOY	Modular & scalable reactors that produce decarbonized SCM's at the cement plant
IMPACT	• Limitless, cost-competitive SCM supply • 20-50% cement decarbonization

SUBLIME SYSTEMS

sublime-systems.com

TECH

Clean, all-electric extraction of calcium and reactive silica from zero-carbon raw materials resulting in cement that exceeds performance and durability standards (ASTM C1157)

DEPLOY

Currently manufacturing by the ton: ultra-low-carbon cement for ready-mix concrete producers building cast in place structures

IMPACT

Independent third-party LCA (preliminary EPD) indicating >93%reduction in CO_2

2023

TERRA CO2

terraco2.com

TECH	Conversion of inexpensive, abundant, and local feedstocks from existing aggregate mines to high-performing and cost-competitive cementitious materials
DEPLOY	Supplement, blend, or replace Portland cement
GEO	Headquarters and pilot plant located in Golden, Colorado.

2023

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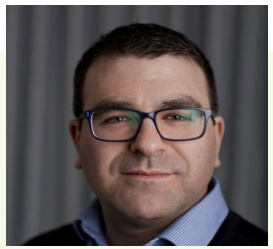

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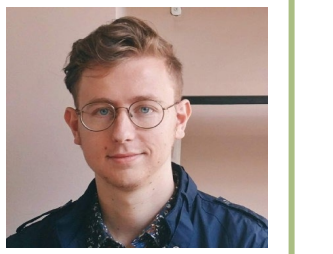

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MAKERS ARE THE FUTURE

Cement and concrete manufacturers built the modern world. Manufacturers will continue to be the future of our built environment.

NO CRYSTAL BALL

The ultimate measure of success is $ per CO2 avoided or permanently stored + market adoption.

INCREMENTAL IS DATED

We must address the climate crisis head-on, with transformational decarbonized materials.

THANK YOU

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www.decarbonizedconcrete.org