



CEMENT CREATES  
*Civilization*



# Together We Can Reduce the CO<sub>2</sub> Emitted by Cement Production.



# Scale an Economically, Climate-Positive Solution.



100,000+

Hours of Research



10+

Years of Development



100+

Issued Global and Pending Patents

## Fortera Redding ReCarb<sup>®</sup> Plant

Small Scale Commercial Plant

15,000t/yr Capacity

ReAct<sup>™</sup> Max Strength & Flow Product

Industrial Carbon Mineralization and Multi-Pollutant Utilization Process

Fortera Foundation<sup>™</sup> Community Benefit Program

“ CalPortland is pleased to see construction of the Fortera plant progressing at our Redding facility. We’re excited to see how the ReAct<sup>™</sup> product can best be utilized to achieve industry’s decarbonization goals. ”  
-Steve Regis, CalPortland Chief Operating Officer



Fortera Redding ReCarb Plant // August 22, 2023



## Low CO<sub>2</sub> Cementitious Product Solutions

Fortera offers customizable low CO<sub>2</sub> cementitious product solutions tailored to cement producers' business needs and marketplace.

ReAct products are synergistic with supplementary cementitious materials and ground limestone, optimizing the cement gradation, creating a more homogeneous microstructure, and eliminating defects.

ReAct is a precipitated calcium carbonate polymorph, which can be blended into ASTM C150\*, C595\*, or C1157 cements or mixed into concrete during batching.

\*ASTM C150 and C595 Ballot Approval September 2023

## Product Solutions

### ReAct Max Strength

Vaterite, a reactive form of calcium carbonate, used as partial cement replacement enhances the strength of binary and ternary blends.

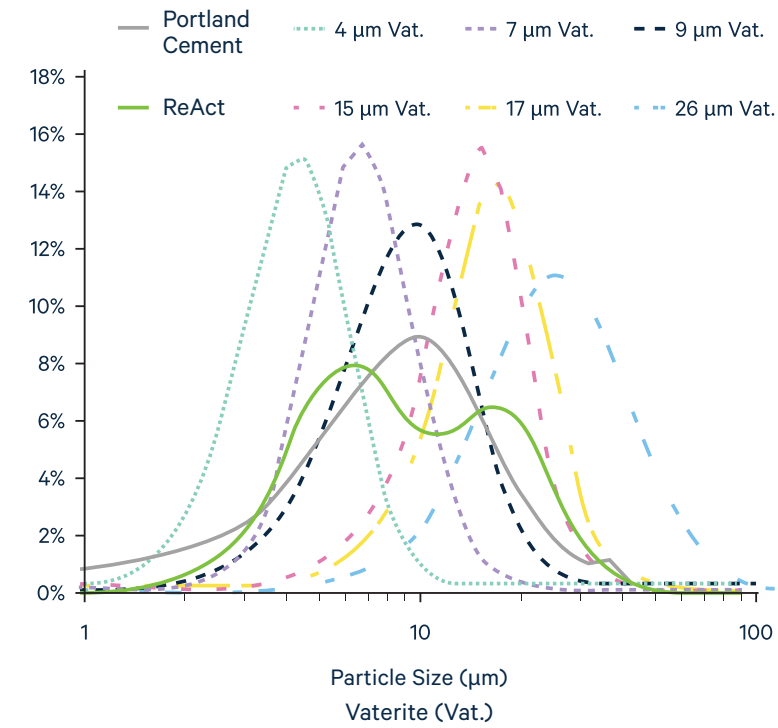
### ReAct Max Flow

Vaterite, a reactive form of calcium carbonate, used as partial cement replacement enhances the workability of concretes and mortars.

### ReAct Pure

Vaterite, calcium carbonate cement, used as a pure binder.

## Tailored Size and Surface Area Solutions



## Business Impact

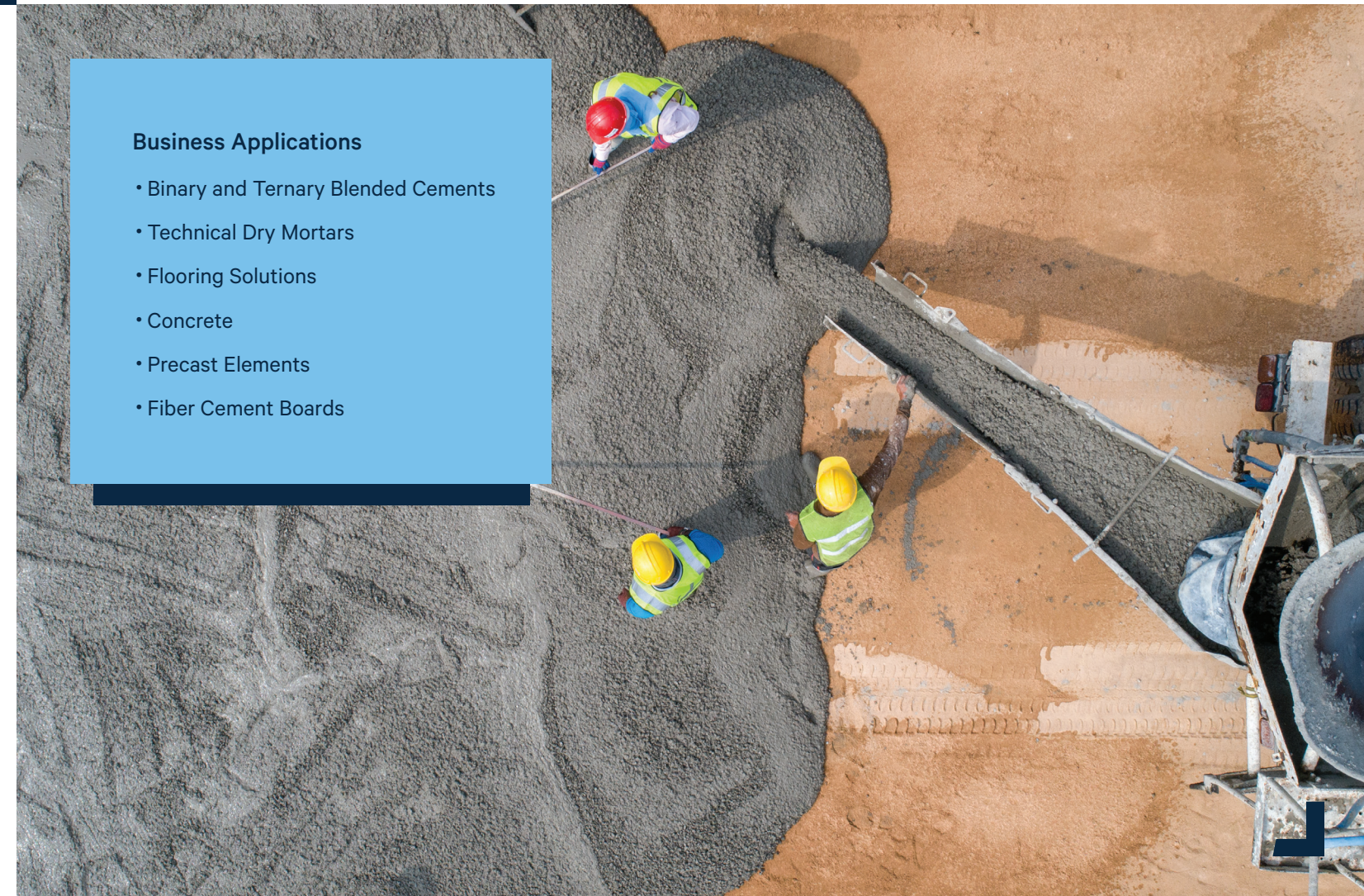
- Reduce the CO<sub>2</sub> impact of cement and formulated products
- Make low clinker content blends
- Optimize particle packing
- Increase strength and durability
- Improve flowability and workability
- Enhance LC<sub>3</sub> performance

## The ReCarb® Process Delivers Three Types of Innovative Low Carbon Cementitious Materials

ReAct Product Range	ReAct Max Strength	ReAct Max Flow	ReAct Pure
Function	Fine SCM	Coarser SCM	Cement
BET Surface Area (m <sup>2</sup> /g)	5 – 7	0.9 – 1.9	1 – 3
D <sub>10</sub> (µm)	2.5 – 4	10 – 13	7 – 10
D <sub>50</sub> (µm)	5 – 7.5	19 – 24	14 – 18
D <sub>90</sub> (µm)	9 – 12	31 – 36	23 – 28
Key Benefits	Low Clinker Blend Ample Surface Area for Nucleation Effect Particle Size Packing Higher Solubility, Faster Strength Gain Higher Reactivity with Alumina	High CO <sub>2</sub> Avoidance High Compressive Strength Rapid Curing at Elevated Temperatures Good Dimensional Stability Ultra Low Shrinkage	

### Business Applications

- Binary and Ternary Blended Cements
- Technical Dry Mortars
- Flooring Solutions
- Concrete
- Precast Elements
- Fiber Cement Boards



# Path to Zero

## ReCarb® Generates Cement with 100% CO<sub>2</sub> Reduction

Fortera's ReCarb process is a patented transformation of cement manufacturing, designed to deliver a realistic pathway to zero CO<sub>2</sub> cement production.

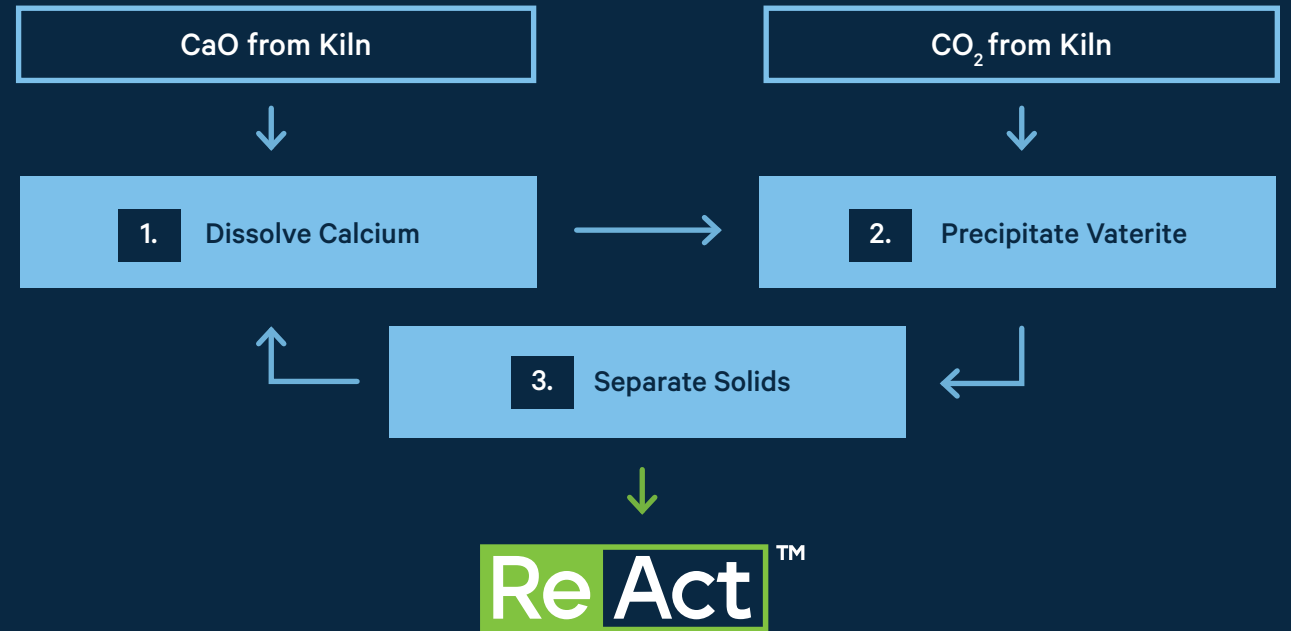
Through the ReCarb process, Fortera has created a market ready cement that is 70% lower in CO<sub>2</sub> emissions, which can ultimately achieve zero CO<sub>2</sub> emissions when combined with green energy sources using commercially available solutions.

## CO<sub>2</sub> Reduction

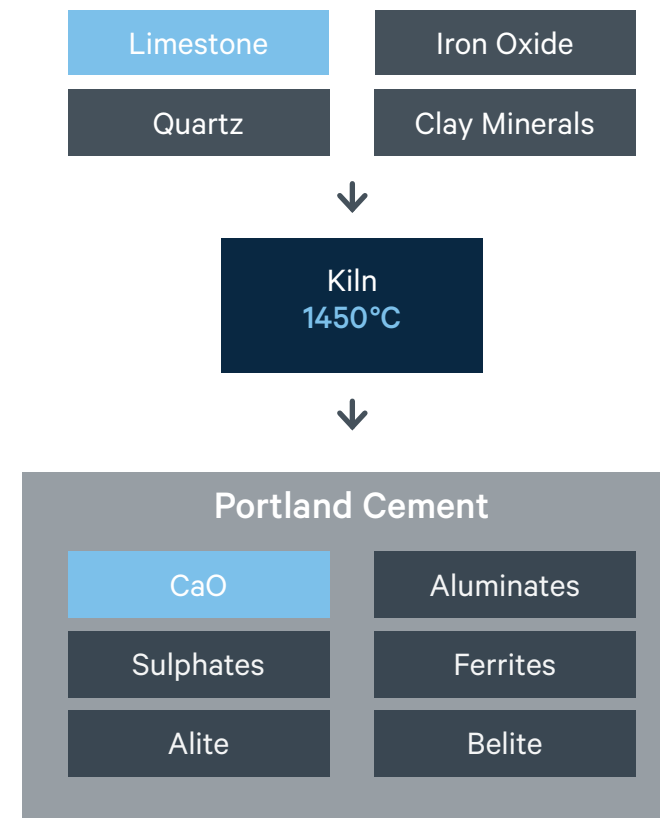


# ReCarb®

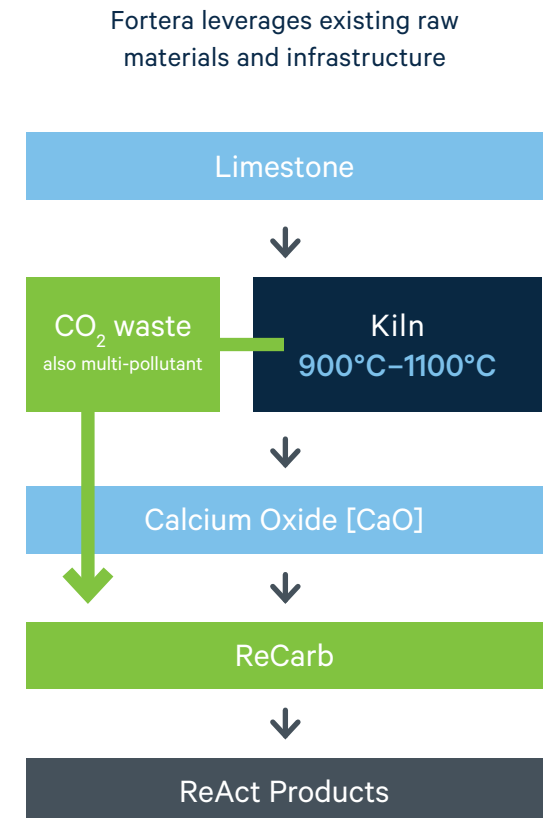
Patented 3-Step Manufacturing Innovation



## Traditional Cement Plant



## ReCarb Plant Process





# Engineering Technical Services

## Bolt-On Cement Decarbonization Solution

The Fortera ReCarb® Process Plant is a turnkey bolt-on decarbonization solution that integrates into existing cement plant infrastructures. It is customized to align with specific business goals and market requirements.



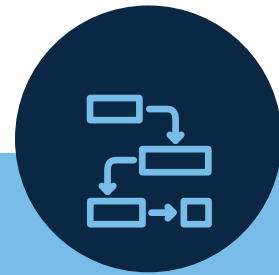
### Business Planning

- Discovery
- Limestone Analysis
- CO<sub>2</sub> + Multi-Pollutant Analysis
- Site Engagement



### Project Execution

- EPC Selection + Design
- Bolt-On Site Integration
- Permitting



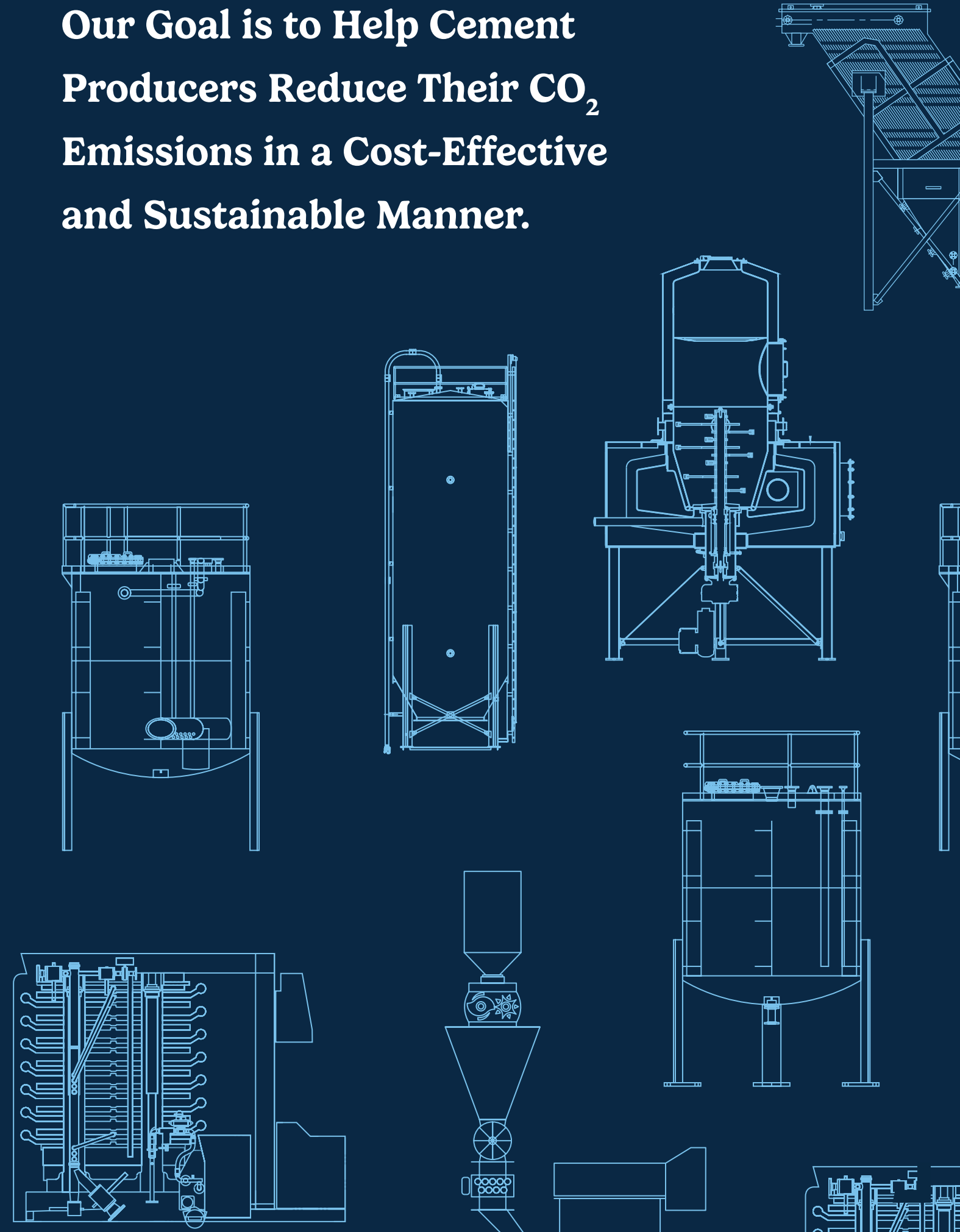
### Operational Support Services

- Hiring Team + Training Development
- Production Assistance
- QA+QC Process

## Key Partnership Benefits

- Provide a unique low-CO<sub>2</sub> cementitious solution for cement producers
- Reduce site emissions and related costs
- Increase production capacity without increasing cost
- Implement a custom product portfolio
- Execute a path to carbon neutrality

**Our Goal is to Help Cement Producers Reduce Their CO<sub>2</sub> Emissions in a Cost-Effective and Sustainable Manner.**





## Why the Plus?

Fortera is an Additive Solution for Cement and Concrete Producers



### We are your Partner

A bolt-on solution to your existing plant, leveraging your established distribution and sales network.



### We are the Green Solution

Employ green energy advancement to achieve zero or even negative emissions.



### We are Synergistic

Synergistic with both existing and new supplementary cementitious materials.



## Our Mission

Together we will reduce CO<sub>2</sub> emissions from cement production and scale an economical, climate-positive solution.

As a mission-driven materials technology company, our focus to work alongside our customers will pave a pathway to zero CO<sub>2</sub> cement production by upcycling carbon emissions directly from the kiln.

We drew inspiration from nature to invent a scalable process for making cement that uses CO<sub>2</sub> instead of emitting it. We intercept the CO<sub>2</sub> emitted when limestone is heated during calcination, and upcycle it to be used to create low-carbon cement.

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“ Fortera invented a low-carbon cement solution that is both ready to commercialize and able to economically scale globally. ”

- Ryan Gilliam, PhD  
Chief Executive Officer

Reach Out For More Info!

[info@forteraglobal.com](mailto:info@forteraglobal.com)