carbon upcycling

Upcycle Waste. Capture Carbon. Build a Circular Economy.

2023

The cement and concrete industry has two inherent hurdles to overcome in order to decarbonize

Inherent CO_2 release from limestone

Limestone is heated to ~1450℃ in the kiln and the stable calcium carbonate bonds are broken releasing CO_2

Material Scarcity

With increased demand for cement replacements, raw material imports are at an all time high resulting in more transport emissions

Supply of traditional cement replacements (SCMs) are becoming scarce

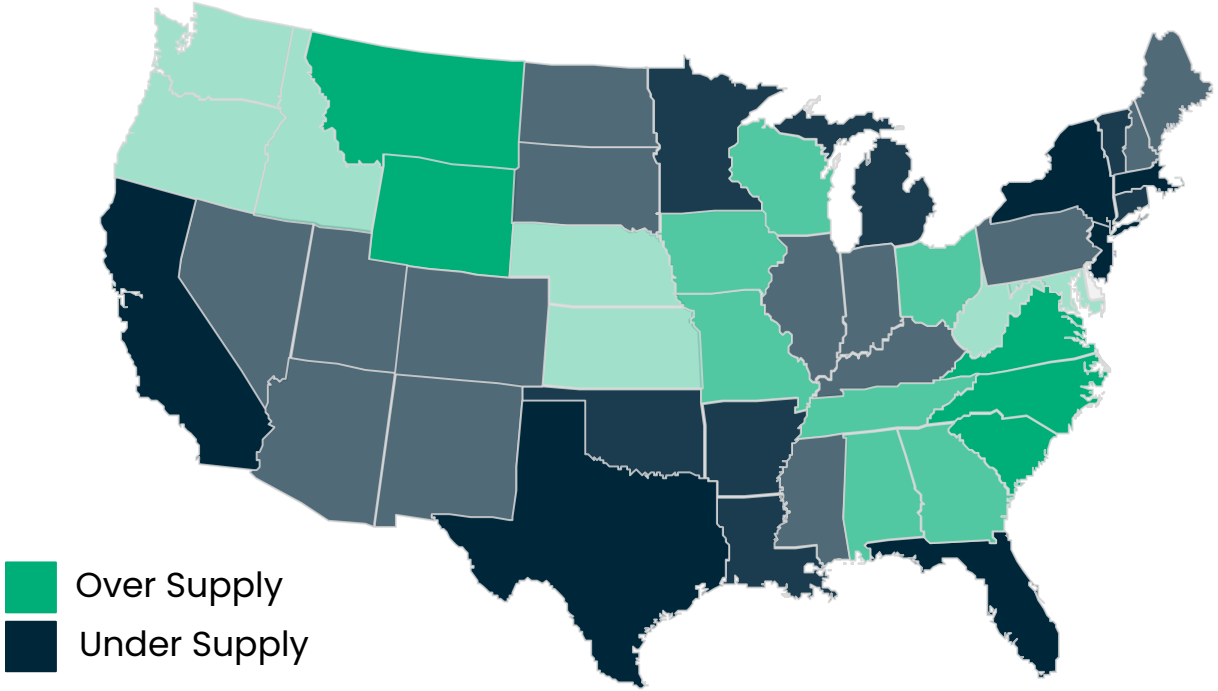
Fly Ash

Coal plants are decarbonizing eliminating fresh supplies of fly ash

Blast Furnace Slag

Steel production is electrifying, which results in completely different byproducts

Snapshot of SCM Shortage in the USA



Graph data is based upon 2020 fly ash supply and demand in the US. This does not account for fly ash reclamation projects.

Over **60%** of the United States faces a shortage of SCMs

We are unlocking the next frontier of quality SCMs

CUT-Pozz

A CO_2-enhanced cementitious material produced by upcycling byproducts & minerals

Clay

Steel Slag

Natural Pozzolan

Crushed Glass

Landfill Fly Ash

Aggregate Fines

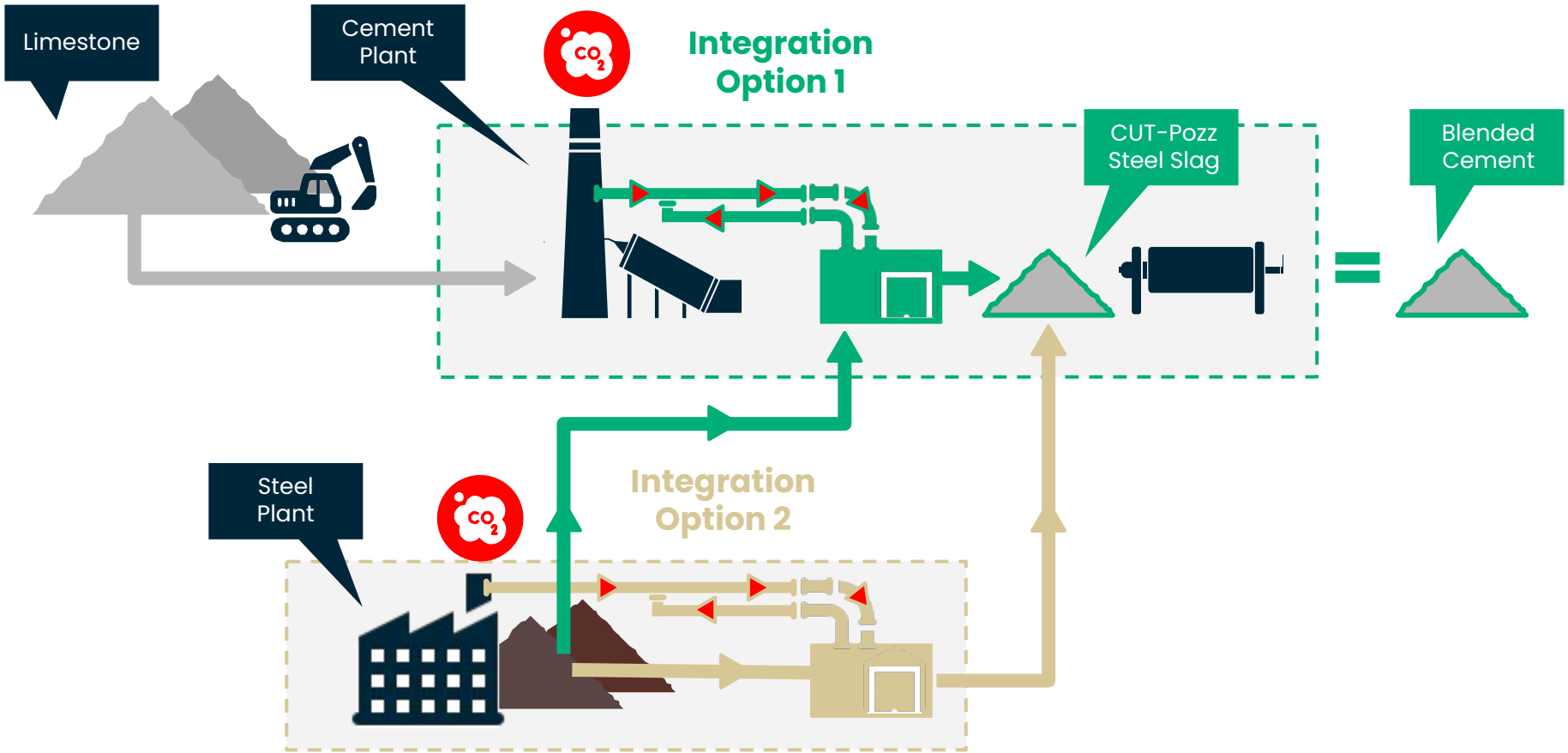
How it works

The Process

1. Source a local feedstock
2. Feed material into the reactor
   a. Mechanical exfoliation
   b. Mineralization of CO_2
3. Convey to storage
4. Ready for use

Key Differentiators

- Compact footprint
- Low-energy
- Electrically powered
- Directly utilize low-purity flue gas


Limestone
Cement Plant
Integration Option 1
CUT-Pozz Steel Slag
Blended Cement
Steel Plant
Integration Option 2

Commercial Project

BURNCO

Calgary, Alberta, CAN

CUT-Pozz Fly Ash

Q2 2023

Funded: Emissions Reduction AB

Commercial Project

Mississauga, Ontario, CAN

CUT-Pozz Steel Slag

Q4 2023

Funded: LCEF (CAN Federal)

Commercial Project

Rugby, United Kingdom

CUT-Pozz Glass

Q3 2024

Funded: Innovate UK

Key Considerations for Successful Scaleup

Technology needs to practically integrate into existing facilities **in order to achieve near-term decarbonization goals**

Being able to ***utilize low-purity CO_2 (as is) makes integration simpler and improves overall LCA*****, as there is no need to rely on carbon capture**

Contribute to the circular economy **by** ***repurposing waste*** ***byproducts or underutilized resources*** ***from one industry into valuable materials for another***

Let’s Connect!

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