carbon upcycling

Transforming Next Generation Slag into Value for Cement & Concrete

2023

The cement & concrete industry has two hurdles to decarbonizing

Inherent CO_2 release from limestone

Limestone is heated to ~1450°C 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

Currently, Only GGBF Slag is Widely Usable in Cement & Concrete

GGBF Slag

GGBF slag is heavily used in cement but supply is dwindling as producers aim to decarbonize

BOF Slag

Iron slag has poor binding properties and is difficult for use in the cement industry

EAF Slag

EAF Slag has entirely different properties than GGBF slag and is traditionally unsuitable for cement

Waste from Industry = Value for Cement & Concrete

CUT-Pozz

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


GGBF Slag


EAF Slag


BOF Slag


Clay


Crushed Glass

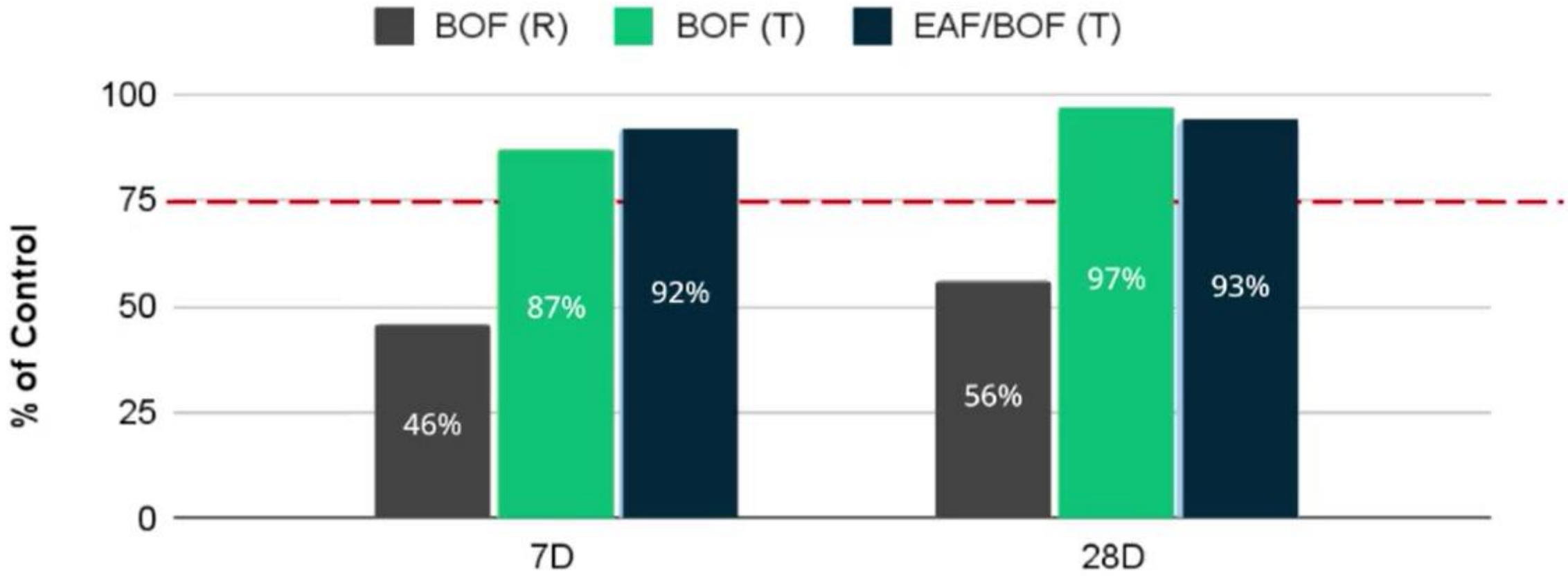

Landfill Fly Ash


Natural Pozzolans


Aggregate Fines

Significant Strength Increase with CUT-POZZ Slag

Strength Activity Index - *Raw Slag v. CUT-Pozz Slag*



*Water Demand was reduced by 7% in mortar testing

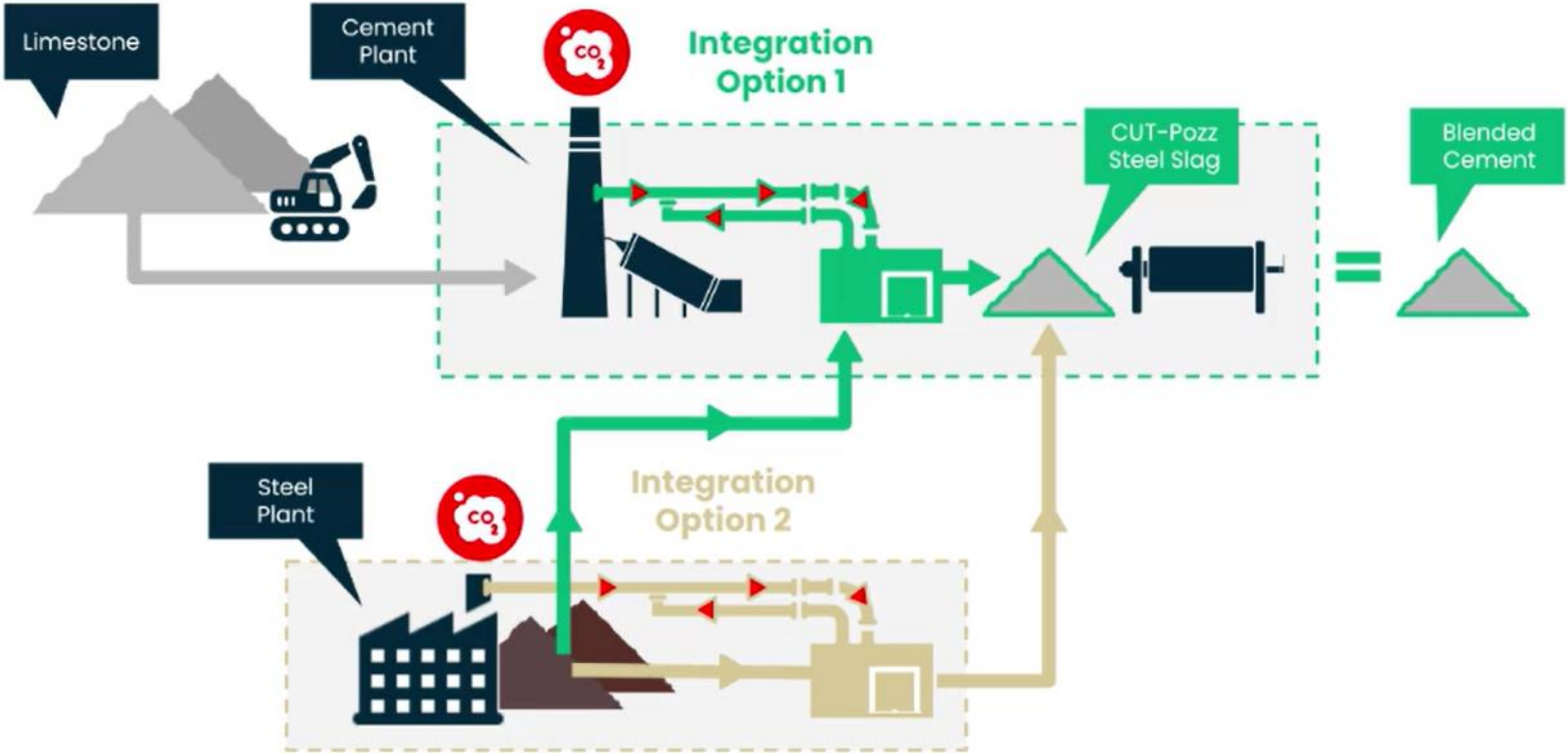
How it works

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
CO_2
Integration Option 1
CUT-Pozz Steel Slag
Blended Cement
Steel Plant
CO_2
Integration Option 2

CUT Business model

Reactor Sale, Licencing and Tolling Agreement

Establish long-term tolling/licensing agreement per tonne of product; our technology will be integrated with host facility existing equipment (e.g. cement plant)

Build-Own-Operate for SCM Asset Development *(with financing)*

Build-own-operate technology at a feedstock source, and sell CO_2-Enhanced SCMs to open market or customers under long-term contract

Project and corporate financing available for scaling based on discussion with a wide range of lenders

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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

Let's Connect!

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