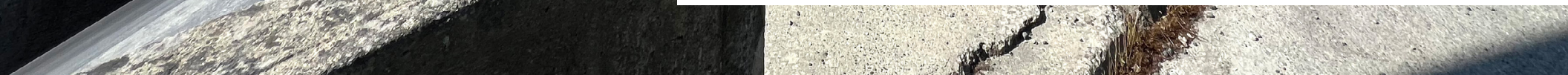
CARBON CURE™ Butler

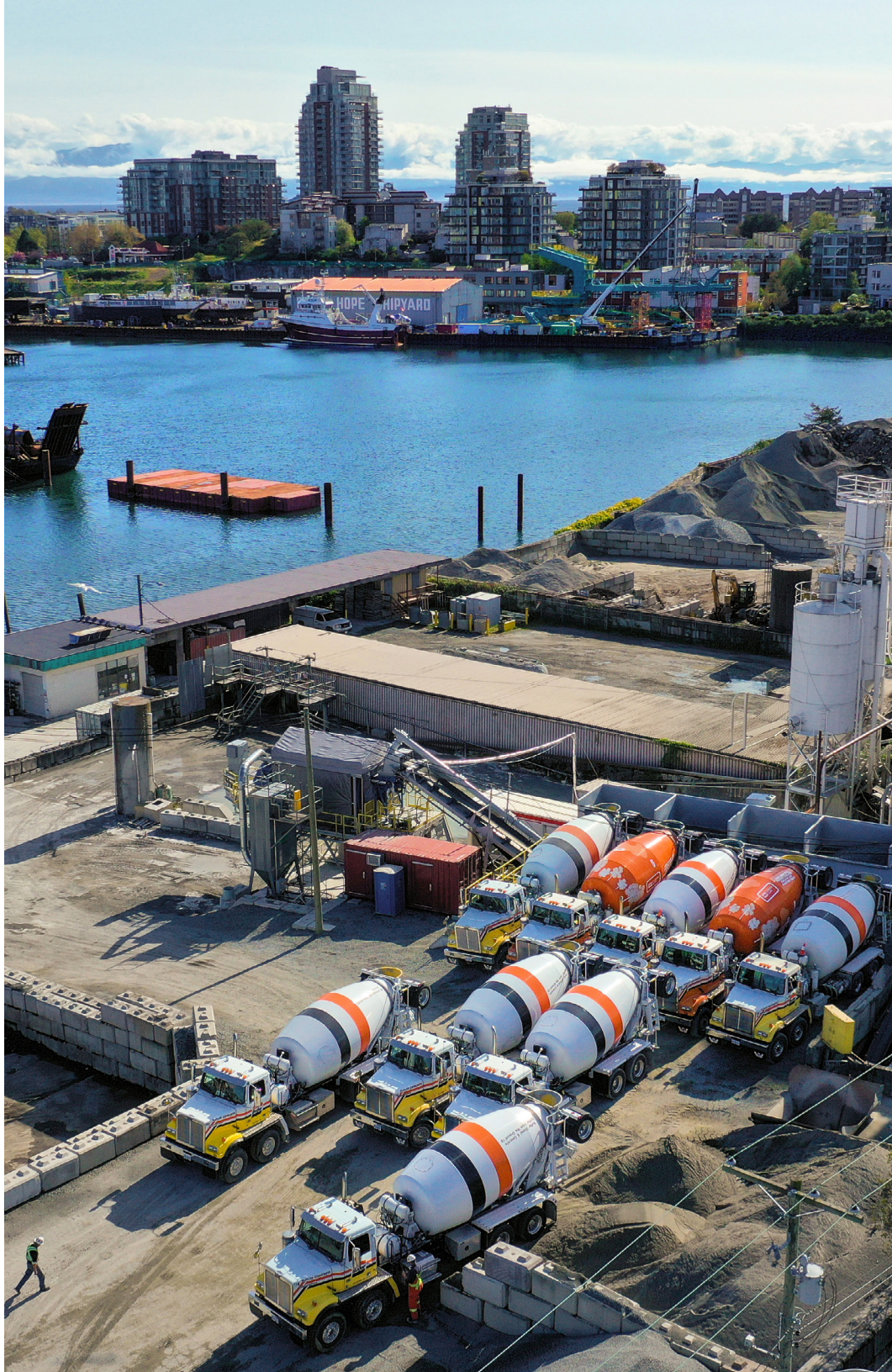
PRODUCER IMPACT STORY

How Carbon Credits Are Helping to Decarbonize the Concrete Industry

What Butler Concrete & Aggregate is doing to make low carbon and carbon neutral concrete a reality



Contents



Introduction

Outside of the construction industry, few people give concrete a second thought, despite the integral role it plays in shaping the built environment around us. Increasingly, however, concrete is coming under scrutiny for its significant climate impact.

Cement—the key ingredient that gives concrete its strength—is also one of the largest emitters of CO_2 in the built environment. It is responsible for about 7% of the world's CO_2 emissions and represents ***more than three times*** the CO_2 emissions of civil aviation.

But concrete is not an easy sector to decarbonize for several reasons:

1 Concrete manufacturing is thousands of years old (and slow to change)

Concrete is one of the world's oldest industries. Its basic components—cement, air and water, sand, and gravel—haven't changed much in centuries. The industry has been slower than other industries to adopt digital technologies and other innovations and many producers still embrace the status quo, "if it's not broke, don't fix it."

2 Margins are tight

Concrete is affected by economic factors including low profit margins, capital intensity, long asset life, and trade exposure—all of which make it difficult for producers to invest in innovations to decarbonize. If the innovative materials, technologies, or processes negatively affect any of these economic factors, producers can't take the risk on them.

3 Measuring the carbon footprint of concrete is complex and costly

Measuring the carbon content of concrete involves a systematic set of procedures for compiling and examining the inputs and outputs of materials and energy to create the final mix. Environmental Product Declarations (EPDs) can help concrete producers measure the carbon footprint of their mix designs. However, the creation of EPDs for concrete is a complex, costly, and time-consuming task.

While concrete is difficult to decarbonize, the effort is worth it. By 2060 the world's building stock is expected to double. That's equivalent to building another New York City every month for the next 40 years. Most of this new construction will be built with concrete and that presents us with a huge opportunity to permanently store immense quantities of carbon dioxide.

Carbon credits can play a vital role in incentivising concrete producers to adopt carbon reduction and removal technologies.

Incentivizing Producers with Carbon Credits

For concrete producers, carbon reduction and profitability do not have to be mutually exclusive. CarbonCure provides producers with the opportunity to earn additional revenue streams and fund investment in low carbon technologies by storing CO_2 in concrete.

On average, producers using **CarbonCure's technologies** reduce cement content by 4-7% with no compromise on concrete quality or performance. This reduction—along with the permanent storage of CO_2 in the concrete itself—reduces and permanently removes tens of thousands of metric tons of CO_2 each year. This carbon-saving activity, when done in accordance with CarbonCure's rigorous Verra methodology, can generate high-quality carbon credits that can be purchased by organizations looking to offset their own carbon emissions.

Upon selling the carbon credits, CarbonCure shares the carbon credit revenue with the concrete producers who generated them. Carbon Credits help producers increase the return on investment in CarbonCure and deliver their low carbon concrete at a more competitive price point. The end result is an improved bottom line for producers and an incentive to incorporate CO_2 into more concrete production—further driving down cement usage and carbon emissions.

> *"Carbon Credits have been a wonderful bonus and have greatly increased the ROI of CarbonCure for us. We've also been able to pass on financial incentives to developers to make our bids more competitive so they are helping us win more business too."*
>
> Travis Butler, President of Butler Concrete & Aggregate

How CarbonCure Works

CarbonCure uses mineralization technology to inject captured CO_2 into concrete during the mixing process.

Once injected, the CO_2 is chemically converted to a mineral and permanently embedded in the concrete, removing it from the atmosphere. This type of CO_2 mineralization improves concrete's compressive strength, enabling concrete producers to use less cement and further reducing the carbon footprint of concrete.

Changing the Status Quo in Concrete: How Butler Went Green

Butler Concrete & Aggregate has been providing concrete to Southern Vancouver Island contractors, developers, landscapers, and homeowners for over 80 years.

Over the years, Butler has experimented in a wide variety of initiatives to improve the carbon footprint of its concrete but many of the solutions it tried in the past proved commercially non-viable, driving costs up to the point where the concrete mix was uncompetitive.

The Butler team persisted, eventually finding and adopting CarbonCure's technology to further reduce the carbon footprint of its concrete mixes. While the company originally implemented CarbonCure solely for its additional sustainability benefits, it has also reaped the benefits of greater cost efficiency from cement reduction, and new business creation from the growing number of environmentally conscious clients.

"CarbonCure has helped us grow our business, expanding our portfolio to clients that are looking for more sustainable concrete," said Travis Butler, President of Butler Concrete & Aggregate.

Travis views Carbon Credits as a way to make sustainable concrete more accessible to a wider audience. "We are really investing in engaging developers and contractors and making it easy for them to source a cleaner, greener concrete product," he said.

"Outdated specifications have prevented us from bidding on some government projects—even though our low carbon mixes are helping the government to achieve its climate commitments," said Travis. "We see the bigger picture for our company and for society as a whole and are committed to working with governments to help them change their procurement policies."

Butler Concrete & Aggregate will continue to innovate and drive toward carbon neutral concrete. Its participation in generating carbon credits helps to make that possible, injecting more revenue into the business to reinvest in CarbonCure implementations and experiment with new low carbon or carbon removal technologies.

Through their use of CarbonCure and other green initiatives, Butler's concrete's carbon emissions are consistently 40-50% lower than the Canadian benchmark and its concrete has one of the lowest embodied carbon contents in North America.

> ***"We haven't even scratched the surface on the potential impact that CarbonCure's Carbon Credit Program can have on our business. It is helping us drive awareness and increase adoption of our low carbon mix designs by architects, designers, and developers."***
>
> Travis Butler, President of Butler Concrete & Aggregate

Butler's Sustainability Progress

4,168,012
square feet
(387,221 square meters)
of sustainable concrete made with CarbonCure poured

1,474
metric tons
of CO_2 saved

64,144
truckloads
of sustainable concrete made with CarbonCure delivered

1769
acres
(716 hectares)
of forest absorbing CO_2 for a year

The Critical Role of Carbon Buyers

CarbonCure is on a mission to reduce 500 million metric tons of embodied CO_2 emissions annually. We plan to do this by making our concrete technologies standard for all concrete production across the globe and turning every concrete plant around the world into a carbon removal factory. Purchasing our high-quality carbon credits will help to accelerate the adoption of CarbonCure's technologies to store more CO_2 in concrete and scale the decarbonization of the concrete industry.

Why CarbonCure Carbon Removal Credits?

CarbonCure's **technologies**, along with our verified carbon removal methodology, ensures high-quality credits in a number of ways:

1 CarbonCure has a robust system in place today for measurement, reporting and verification (MRV) of our carbon removal credits. Our carbon mineralization technology allows us to measure and gather comprehensive data to prove that each tonne of CO_2 removal you purchase from CarbonCure is real.

2 Less than 600 of the world's 100,000 concrete plants currently use waste CO_2 in concrete. By scaling our technology to all plants, we are removing carbon that otherwise would not be removed. This **additionality** is a key attribute of high-quality carbon credits.

3 CarbonCure's mineralization process is a permanent and cost-effective form of CO_2 utilization. Once injected into concrete, CO_2 chemically converts into a mineral that is **permanently stored** in concrete and is forever eliminated from the atmosphere.

CARBON CURE™

Invest in CarbonCure's Carbon Credits

Make a concrete impact to fight climate change

Hundreds of concrete producers around the world use CarbonCure's award-winning technologies to decrease the carbon emissions of concrete, reducing and permanently removing tens of thousands of tons of CO_2 each year, and generating high-quality carbon credits you can trust to deliver immediate, scalable, high-impact climate benefits.

For more information about purchasing carbon credits from CarbonCure, visit carboncure.com/carbon-removal.
To get in touch with a CarbonCure representative, email us at sales@carboncure.com or call us at
+1 (902) 448-4100 (Worldwide) or +1 (844) 407-0032 (North America).