September 2023

EarthRock Ventures Inc.

Removing CO^2 from the atmosphere
& providing key soil nutrients through
Enhanced Rock Weathering

Executive Summary

Significant CO^2 removal and provides key soil nutrients to help achieve emission targets

EarthRock Ventures

is advancing its pilot project of Enhanced Rock Weathering (ERW) technology at a basalt mine in Ashcroft, BC, to demonstrate the compounding benefits of soil mineralization with engineered fertilizer and the application of innovative deployment methods for both

ERW

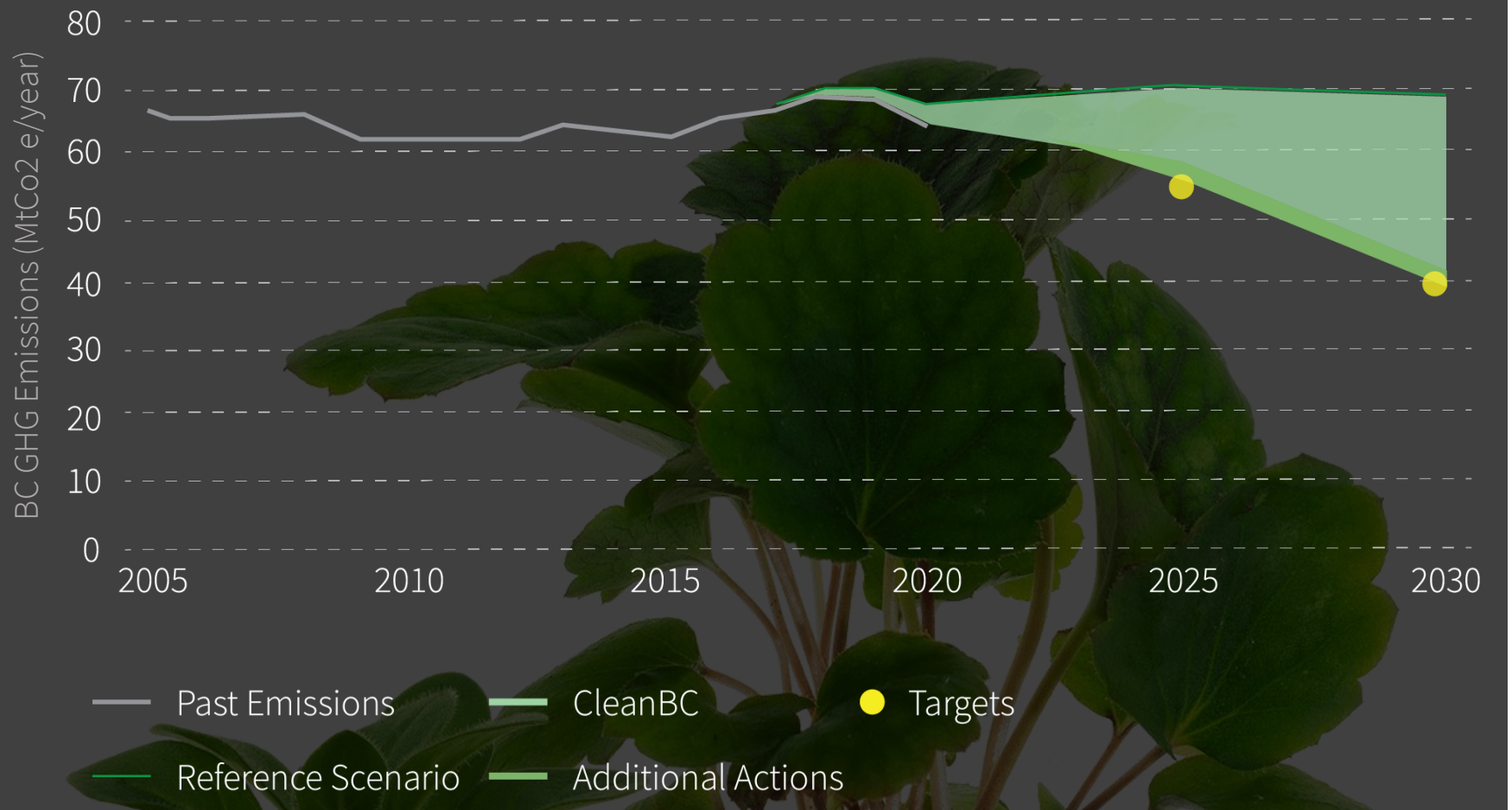
naturally promotes healthy soil and higher crop yields, while cutting down on fertilizer requirements and counteracting ocean acidity to create a more sustainable and biodiverse CO2 sequestration solution

ERW

is a process which spreads crushed basalt rock on agricultural fields that naturally reacts with CO2 from rainwater to form carbonates. These carbonates are then washed into oceans, where they are sequestered permanently

BC's Commitment to GHG Reduction

CleanBC Projections to 2025 and 2030



BC has committed to reducing GHG emissions by the following (2007 baseline)

80% by 2015

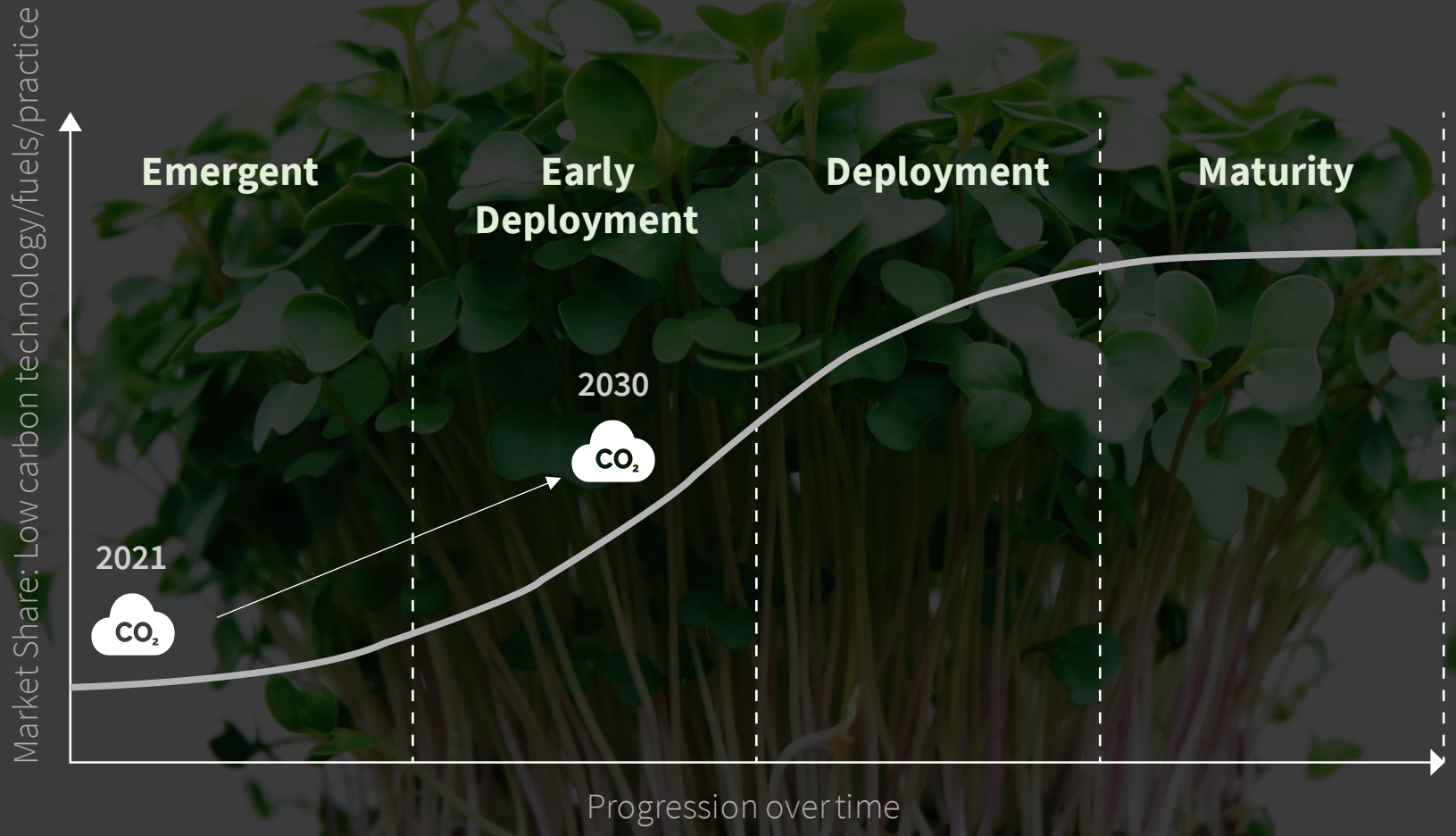
16% by 2025

40% by 2030

60% by 2040

BC's Commitment to GHG Reduction

Negative emissions technologies like ERW have a key role to play for BC to meet its emission goals



Key Actions

Considering NETs as compliance pathways for the Low Carbon Fuel Standard (LCFS)

Building an accounting framework for NETs

Investing in research, development and deployment

The Process

ERW sequesters Co2 through natural processes, benefitting soil and oceans

Volcanic rock dust sustainably sourced from rock quarries

Rock crushed into fines and transported to agricultural sites, increasing the surface area of rock for ERW

Crushed rock is spread onto agricultural fields, providing valuable soil nutrients

Rainwater which naturally absorbs atmospheric Co2 reacts with crushed rock to form carbonates

Carbonates are naturally washed into water bodies where they are sequestered and counteract ocean acidity

Benefits of ERW

Multiple benefits from ERW in support of a more sustainable future

Carbon Sequestration

1. Every **4** tonnes of basalt applied sequesters **1** tonne of carbon, permanently
2. Natural processed **enhanced** through crushing of basalt rock which provides increased surface area for reactions
3. Mitigates climate change through **Co^2 removal** and sequestration in the **top 6"** of **top-soil**

Regenerative Agriculture

1. Prevents soil degradation, replaces minerals consumed by crop production, **increases soil pH**
2. Basalt fines are a natural source of key minerals, providing up to **50%** of potash and phosphorous and **100%** of annual sulfur requirements
3. Conservation & rehabilitation approach focused on biodiversity and sustainable agriculture

Benefits of ERW

Multiple benefits from ERW in support of a more sustainable future

Healthier Ocean Environment

1. Counteracts ocean acidity when carbonates are washed into oceans
2. Carbonates in seawater are stored over geological time scales as dissolved molecules, precipitated minerals, or shell material for marine organisms

Mining Waste Re-use

1. Mining operations throughout the world routinely crush natural basalt formations into usable products
2. Usable fines (<0.075 um) from these operations are normally discarded in landfills
3. Basalt fines are a common mineral proven to sequester carbon when exposed to rain

Direct Benefits

1. **15** Permanent local jobs - **$1,200,000 +** in annual salaries
2. **20** Seasonal local jobs - **$600,000 +** annually
3. Up to **16** transportation and equipment **operators**
4. Significant reduction in fertilizer use resulting in **lower emissions** and wasted dollars and resources - $2,800,00+ annual reduction in fertilizer costs to local rural producers
5. Significant **contribution** to local **ESG** objectives
6. Increased **productivity and profitability** for local **farmers**

Indirect Benefits (5X Multiplier)

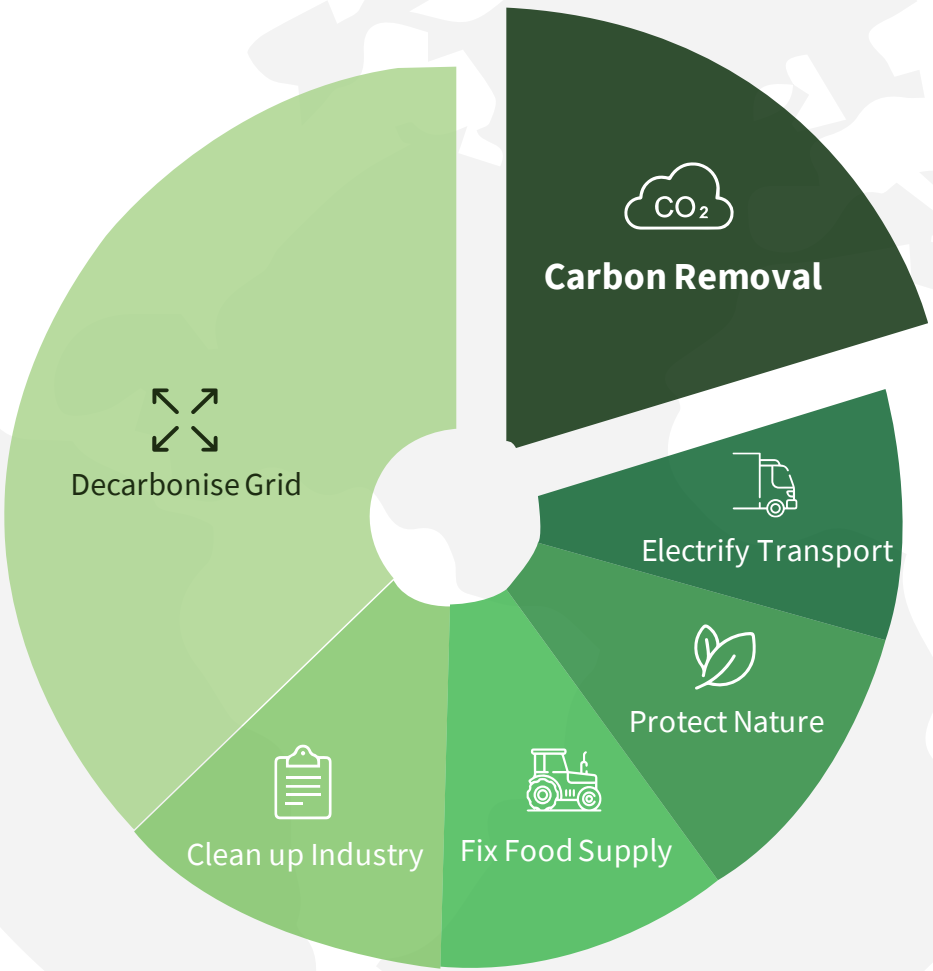
1. $9,000,000 annual effect to local rural economy
   - Equivalent to 24 British Columbia average annual income
2. $2,400,000 annual effect to local urban economy
   - Equivalent to 38 British Columbia average annual household income
3. Carbon offsets are achieved through the sequestration of over 12,500 tonnes of CO2 equivalent annually
   – Equivalent to annual offset value of up to $3,750,000 through volunteer efforts.

Economic Benefits

Multiple benefits from ERW in support of a more sustainable future

Mitigation Methods

Do we really need to remove Co^2 from out atmosphere?



ERW Publications

ERW is widely recognized as a viable form of Co^2 sequestration

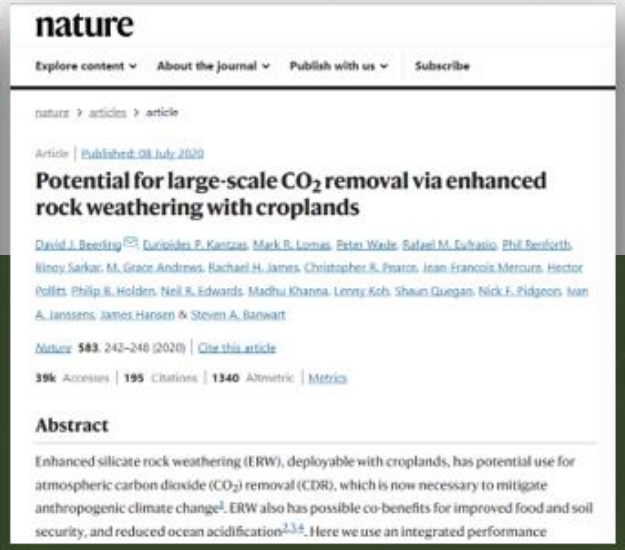

BBC

NEWS

Can 'enhanced rock weathering' help combat climate change?

Climate change

By Jonah Fisher


nature

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Potential for large-scale CO_2 removal via enhanced rock weathering with croplands

Abstract

Enhanced silicate rock weathering (ERW), deployable with croplands, has potential use for atmospheric carbon dioxide (CO_2) removal (CDR), which is now necessary to mitigate anthropogenic climate change. ERW also has possible co-benefits for improved food and soil security, and reduced ocean acidification. Here we use an integrated performance


International Journal of Greenhouse Gas Control

Volume 10, September 2012, Pages 229-243

The potential of enhanced weathering in the UK

P. Renforth

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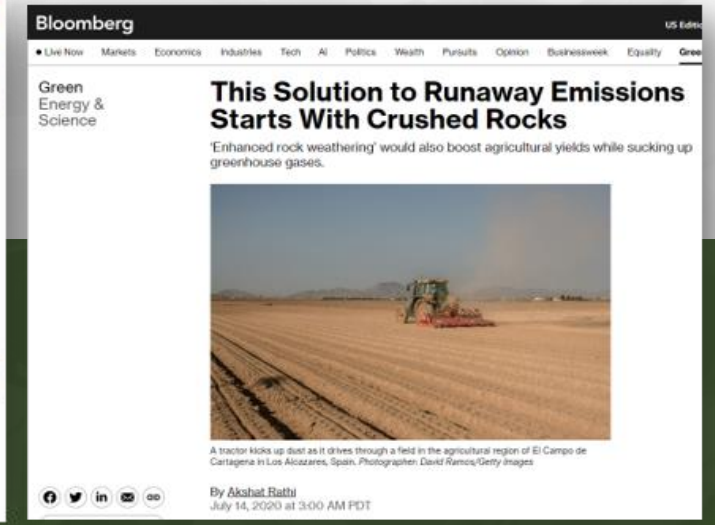
Abstract

Enhanced weathering is the process by which carbon dioxide is sequestered from the


Bloomberg

Green Energy & Science

This Solution to Runaway Emissions Starts With Crushed Rocks

'Enhanced rock weathering' would also boost agricultural yields while sucking up greenhouse gases.

By Akshat Rathi

July 14, 2020 at 3:00 AM PDT

EarthRock Ventures

EarthRock Ventures will be one of the first companies to use the ERW process technology in B.C.

Product Production

- Currently, volcanic rock dust is mined in upper Ashcroft, BC and crushed into various sized aggregates.
- The crushed aggregates are sorted for size and the fines are separated out and land filled as a waste product – too fine to be used in the final product
- The current land fill is nearing its end of life and a new landfill is being developed, an environmental approval is currently being pursued

Product Application

- The product is mixed with water into a slurry using a propriatory mixing process ready for application
- The slurry is pumped and spread onto the land using and Irrigation style gun, commonly used in Dairy Slurry and Catchment Pond management.

Product & Land Logistics

- Agreements are in place with some identified lands to receive initial applications of the product while other lands agreements are being negotiated
- Land fertilizer requirements and soil carbon content are measured to create a baseline
- The product is hauled by hopper bottom trucks (grain “B” Train configuration) from the source to the land to be spread

Carbon Offset Quantification & Validation

- The soil Carbon content is measured annually and against the baseline created before the first application, the difference is quantified and validated
- Subsequent applications are performed on the same lands as the difference in the change in Carbon content over last year diminishes

Who Are We?

The founding team with 75+ years of cumulative experience

President

Mark Kiddell

- Founder with 20+ years of fertilizer and soil experience
- Responsible for overall strategic direction
- Successfully developed key relationships for ERV
- Successfully completed $xxxxx in projects across North America
- Created xx% in returns for investors

Director Operations

Simon Coban

- 30+ years of experience in agricultural operations
- Director Livestock Services - UFA
- Previous Owner of an 18,000 head cattle feedlot
- Founding developer of $1.4 billion clean energy facility
- Past Board Member of the Clean Air Strategic Alliance;
- Natural Resource Conservation Board (NRCB) – Advisory Board

Director Aggregates

Ken Palko, P.eng

- 20+ years of experience in constructions materials and mining industry
- Leading industry expert in crushed materials

Phase 1

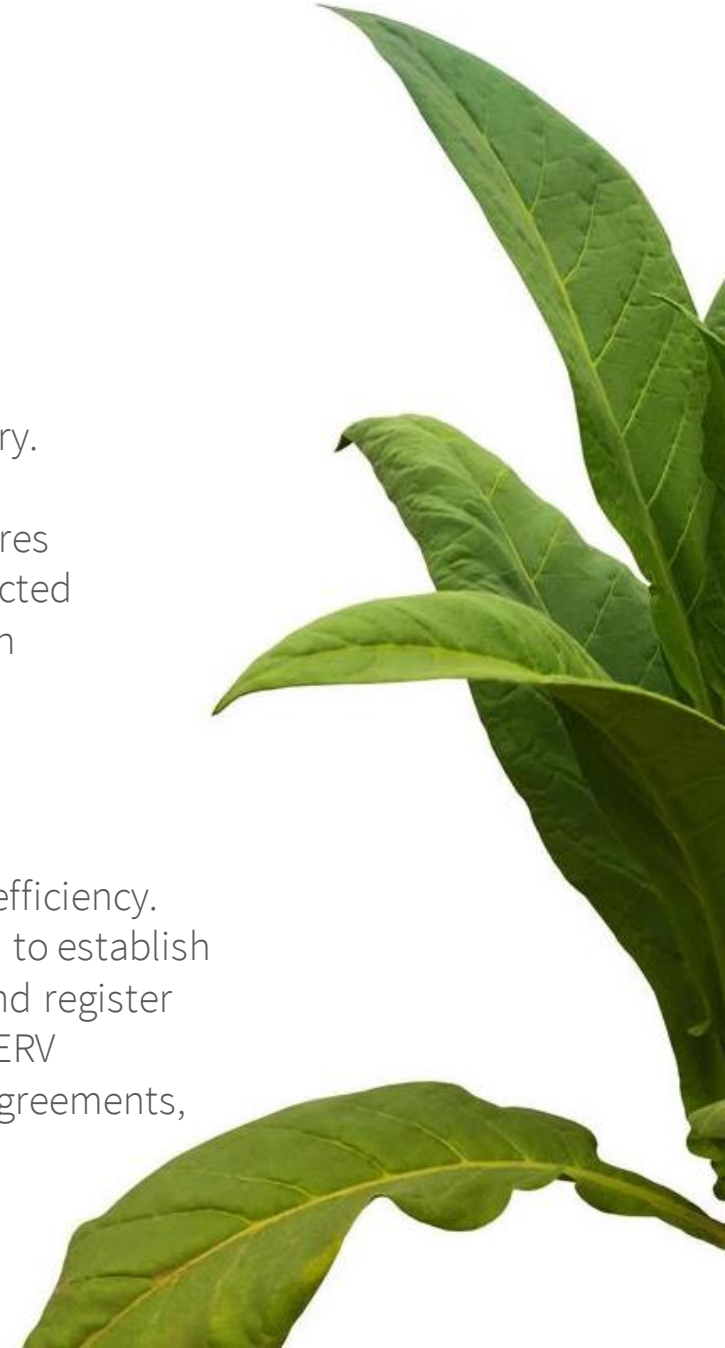
Basalt Project

Step 1

EarthRock Ventures
is advancing its pilot project in Ashcroft, BC, focusing on a Basalt rock quarry. They've established a partnership with a manufacturing facility producing 10,000 tonnes of high-quality basalt waste fines annually. EarthRock Ventures is working with local farmers to deploy these fines on irrigated land, conducted successful tests on application methods, and entered into agreements with Shell Canada and 3 degrees Capital for project support.

Step 2

The Project
aims to finalize the application method for optimal application rates and efficiency. Additionally, they are in the process of gathering all necessary information to establish the soil carbon baseline, conduct sequestration modeling, and quantify and register the offsets. To support these efforts, they are preparing a comprehensive ERV (Emission Reduction Verification) business model, executing offset sales agreements, and securing agreements for access to irrigated agricultural lands.



Phase 2

Basalt Project

Step 3

Commercial Deployment

- Share project results with local partners and industry associates
- Identify additional lands sufficient to consume all available fines at the project source
- Establish agreements for future ERV basalt deployments (every 2 years)
- Prepare a detailed ERV business model for the path forward
- Expand resources to scale benefits of the ERV approach
- Advance strategic alliances with progressive land-owners/farmers and carbon offset purchasers
- Advance on the next basalt resource

Turnkey Solution

Source Rock
- Identify Rock Type
- XRD/XRF Testing
- Contract Rock

Prepare & Transport
- Blast & Crush Rock
- Screen
- Transport

Spread Rock
- Spread Rock
- Baseline Soil

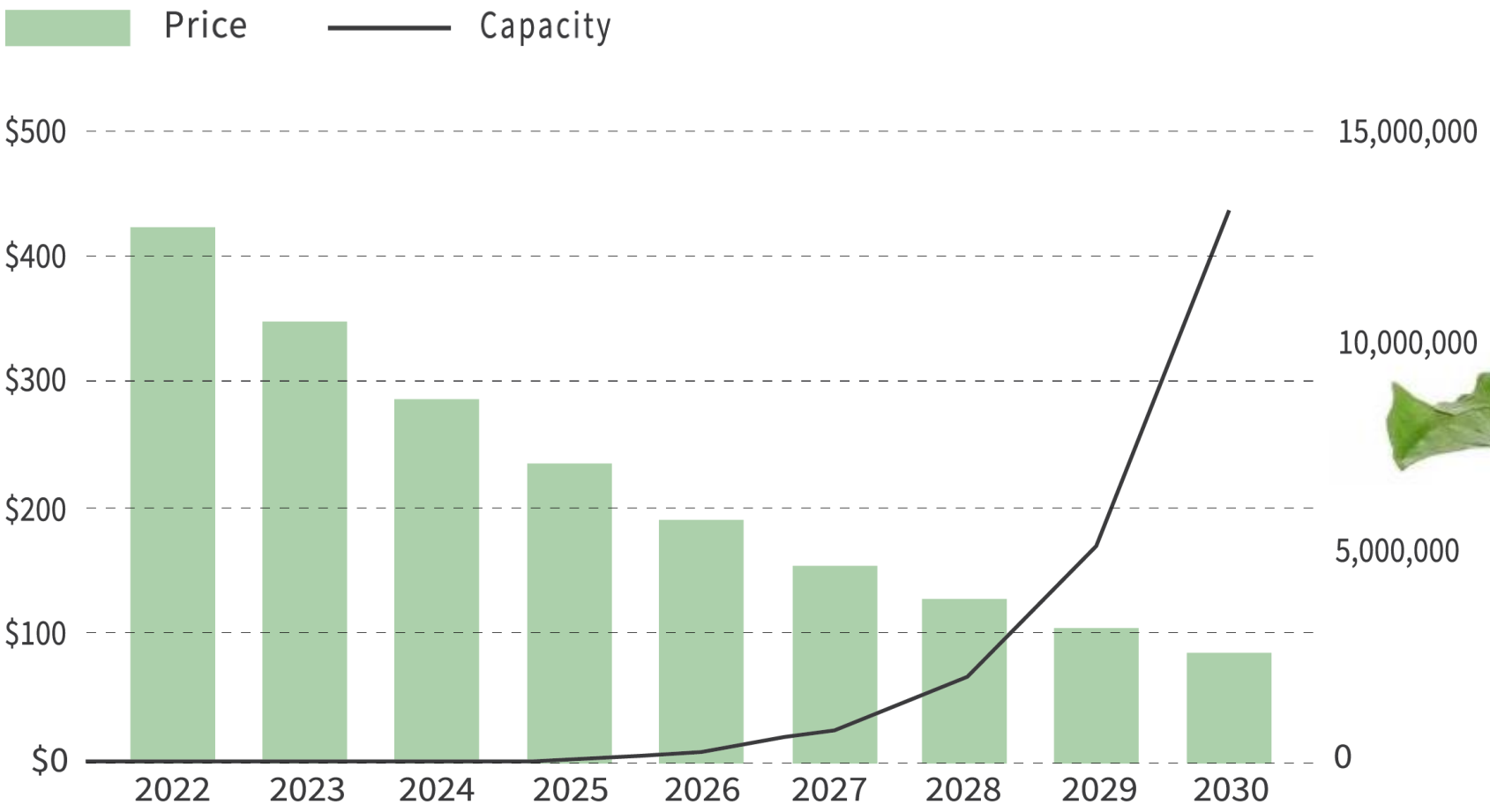
Record Data
- LCA
- Measure In-field

Verify Carbon
- Input parameters to model

Sell Carbon
- Submit Verified Data
- Market Carbon
- Sell Carbon

ERW Carbon Removal Capacity

ERW price is expected is expected to fall below $100/ton by 2030



ERW Carbon Removal Capacity

In comparison to other common forms of Co2 removal technologies, ERW provides the most economic and scalable solution

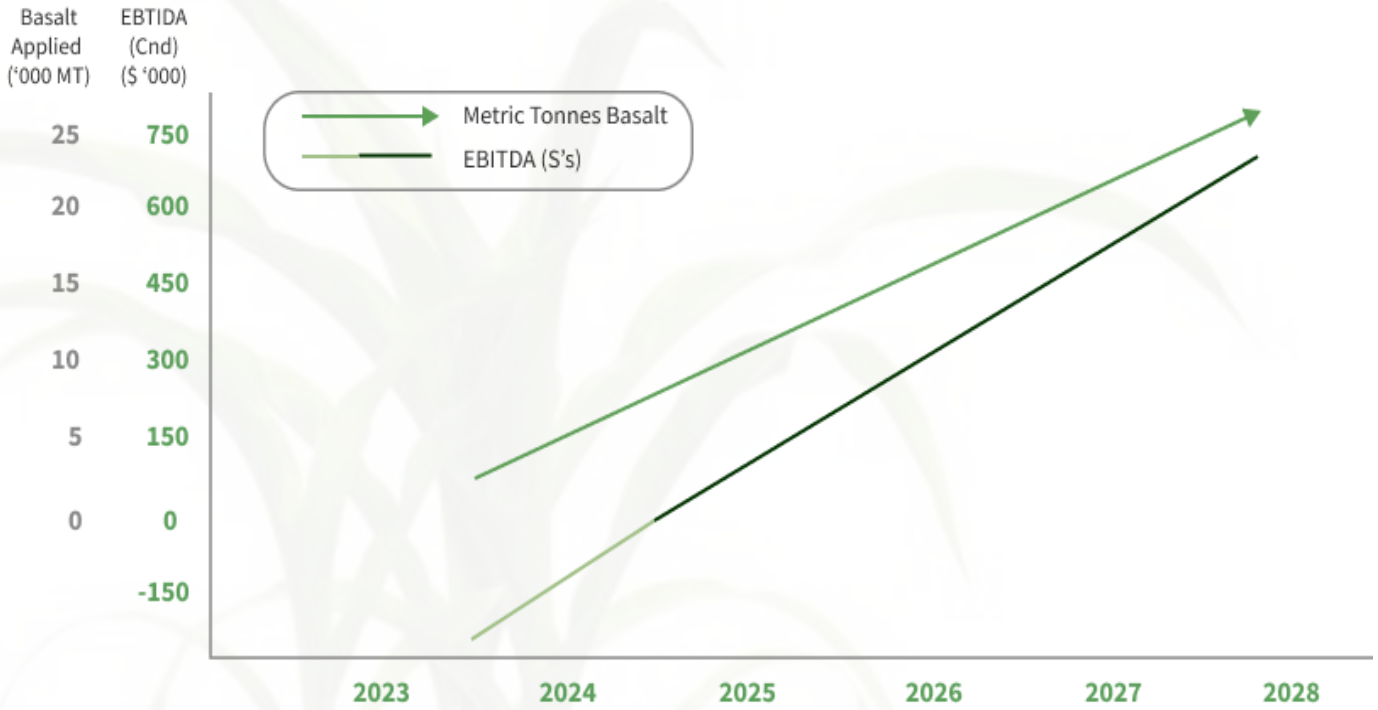
AlliedOffsets		2022	2023	2024	2025	2026	2027	2028	2029	2030
	Price	$379	$316	$264	$220	$184	$153	$128	$107	$89
BCH	Scale	7,424	14,619	28,786	56,682	111,611	219,770	432,745	852,110	1,677,874
	Price	$1,161	$1,029	$911	$807	$715	$634	$562	$498	$441
DAC	Scale	2,345	5,324	12,091	27,458	62,355	141,604	321,571	730,261	1,658,361
	Price	$430	$354	$291	$239	$196	$161	$133	$109	$90
ERW	Scale	7,012	18,006	46,237	118,727	304,866	782,834	2,010,159	5,161,680	13,254,145
	Price	$2,572	$1,834	$1,308	$933	$665	$475	$338	$241	$172
OCN	Scale	95	95	426	1,919	8,646	38,950	175,463	790,426	3,560,720

EarthRock Ventures is in the process of applying as an Eligible Business Corporation

Financial Support Sought

At present, we have obtained letters of support from both the Village of Cache Creek and Ashcroft municipalities, and we have initial plans in motion for further action.

Financial Returns



Business Model

EarthRock Ventures

- Retains all rights to and all proceeds from all environmental attributes associated with Basalt, including Carbon Offsets
- Markets all environmental attributes (including both regulated and volunteer carbon offsets)
- Plans to spread Basalt fines on Irrigated land at no cost to the agricultural producer – Net benefits to the producer are the fertilizer attributes of Basalt

Contact us

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