



# An Emerging Opportunity in Carbon Dioxide Removals

August 2025

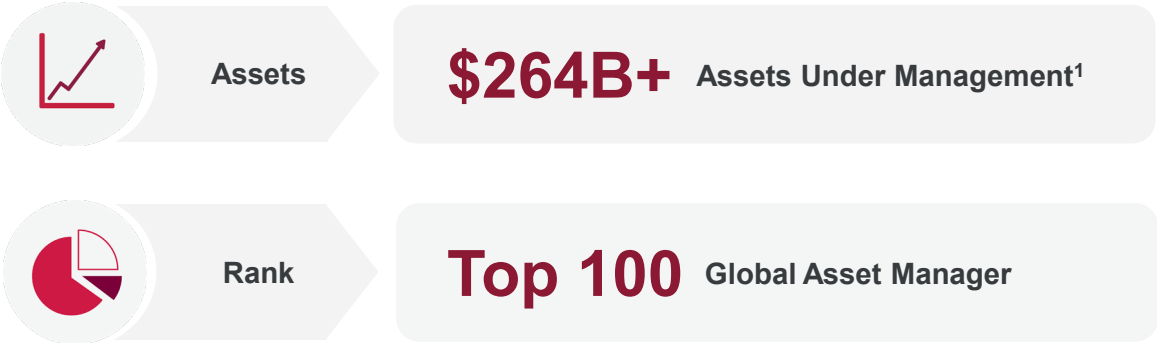
**Aaron White**  
Executive Director and  
Head, Sustainable  
Investments

CONFIDENTIAL

# CIBC Global Asset Management

A Rich History of Service

## CIBC Global Asset Management | Size Metrics



## CIBC Global Asset Management | Employee Metrics



## CIBC Global Asset Management | North American Footprint

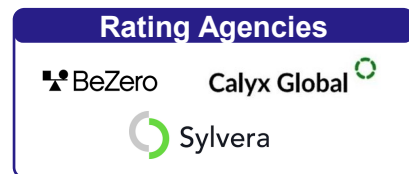


<sup>1</sup> Based on Canadian Asset Management's \$177B of assets under management includes \$35B in multi-asset and notional currency overlay mandates and \$29B in 3rd party sub-advised assets and U.S. Asset Management's assets under management of \$87B (as at December 31, 2024). All figures expressed are in USD.

# CIBC Leadership in Carbon Management

*Leveraging our Experience for Access and Insights*

- Early support for carbon management has established CIBC as a credible and leading bank ecosystem for market participants
- CIBC is uniquely positioned with intellectual capital built through early participation and **advocacy for carbon markets to add value for investors and stakeholders and accelerate a critical industry supporting the climate transition**



*Combining our long history of managing credit with institutional expertise in carbon management to support execution*

# Established Relationships Across the Carbon Ecosystem

## PROJECT DEVELOPERS



*"CIBC is well known to us and is advanced in their understanding of the carbon dioxide removal ecosystem. Their idea to unlock debt financing to catalyze our industry is much needed."*

**- Paul Needham, CEO**



*"CIBC Asset Management is helping to unlock the capital that CDR desperately needs. We look forward to continuing our collaboration with CIBC to support innovative access to capital."*

**- Jim Mann, CEO & Founder**

## BUYERS



*"As an early purchaser of carbon dioxide removal credits, we would welcome a source of flexible institutional capital to help finance carbon project developers that we are supporting."*

**- Mitchel Selby, Lead, Sustainability Fund**

## NGO



*"CIBC has been an early supporter of the carbon removal industry in Canada. It would be helpful for the Canadian industry to gain access to debt financing to facilitate large-scale, durable carbon removal solutions."*

**- Na'im Merchant, Executive Director**

**CIBC has supported project developers, buyers, government entities, NGOs, and philanthropic organizations in supporting their carbon management initiatives**



# Carbon Dioxide Removal (CDR)

*Removal of greenhouse gases is critical to achieving long-term climate goals*

1

**Private Capital Is Essential  
For Achieving Net Zero**

2

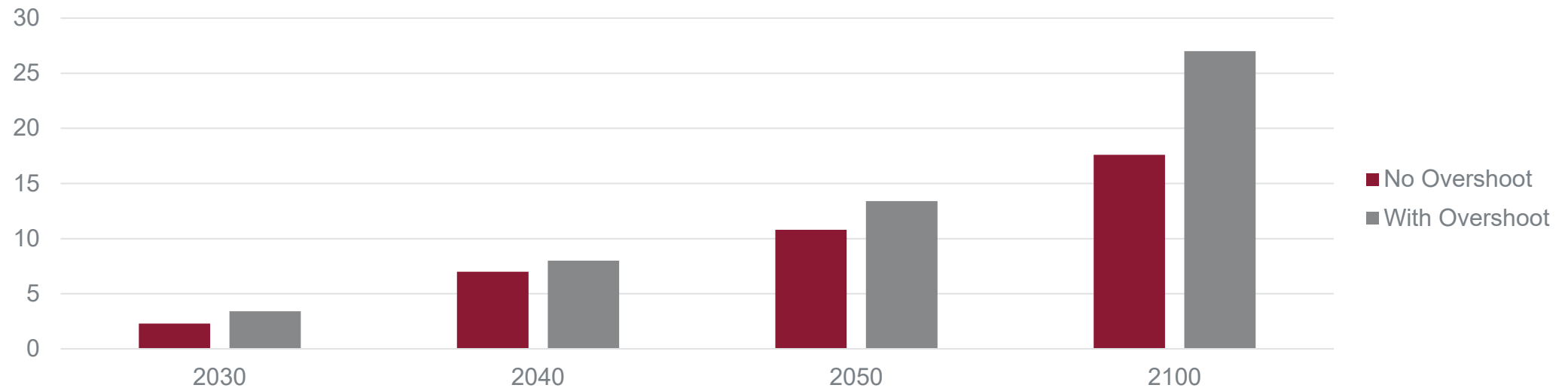
**Sustainable Private Debt  
Has Been Relatively Scarce**

3

**High Demand For  
Bespoke Financing**

- Intergovernmental Panel on Climate Change Sixth Assessment Report

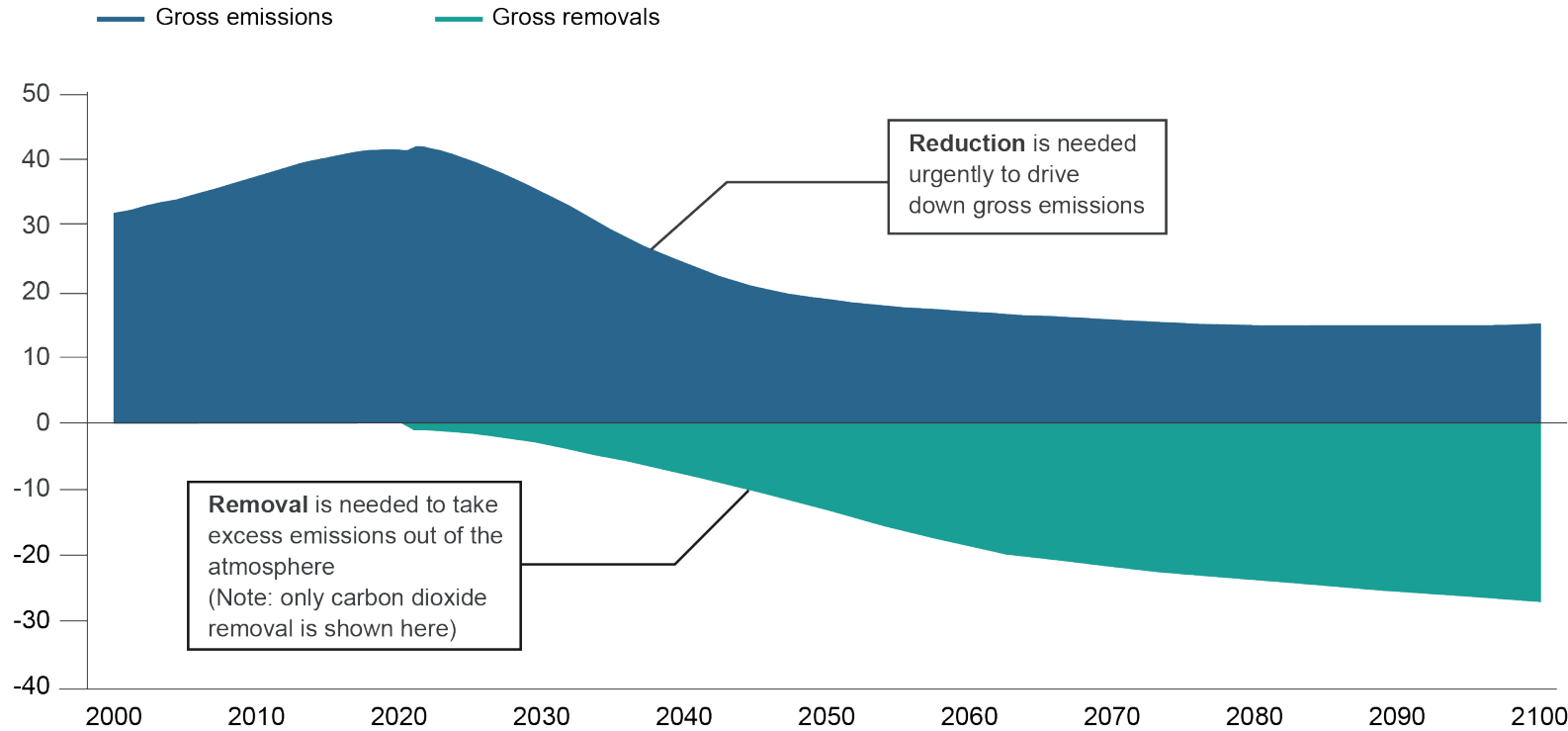
**Average CDR required under IPCC 1.5C Scenarios (GtCO<sub>2</sub>/y)**



# Carbon Dioxide Removal (CDR)

*Removal of greenhouse gases is critical to achieving long-term climate goals*

## Emissions and removals of carbon dioxide (Gt CO<sub>2</sub>/y)



### Point Source Carbon Capture

**Reduces a localized source of CO<sub>2</sub>, such as industrial facilities and power plants. Lowers the footprint of traditional carbon intensive industries. Critical in supporting scale in carbon management infrastructure.**

### Carbon Removal

**Pulls existing CO<sub>2</sub> directly from the air using technological and nature-based solutions. Essential for targeting legacy emissions and solving for residual CO<sub>2</sub> challenges.**

# Carbon Management Supported by Policymakers

*Impact of regulatory environment on the progress of carbon management*



## Policy Support + Government Procurement

- The Canadian Federal Government implemented an investment tax credit for capital invested in carbon capture, utilization, and storage (CCUS) project. The ITC covers 60% of capital expenditures for new direct air capture (DAC) facilities, capture other than DAC are eligible for a 50% credit, and carbon transportation, storage, and use are eligible for a 37.5% credit
- \$10M carbon removal procurement announced by the Canadian Government in October 2024



## Enhancement of 45Q Tax Credit

- The U.S. government has reaffirmed its bipartisan support for carbon capture and storage by preserving the federal Section 45Q tax credit in the “One Big Beautiful Bill Act”
- The bill maintains the 45Q tax credit for point-source capture at US\$85/ton and direct air capture (DAC) at US\$180/ton in dedicated geologic storage. The tax credit now includes parity for the utilization of carbon dioxide. In this new bill, CO<sub>2</sub> used or converted into valuable products or injected and geologically stored in a qualified enhanced oil recovery or natural gas recovery project site will qualify for the same dollar value credit as CO<sub>2</sub> that is permanently sequestered in a dedicated geologic storage site



## EU ETS + Article 6

- Policymakers will assess by 2026 whether and how permanent carbon removals could be integrated into the EU Emissions Trading System (EU ETS)
- Article 6 of the Paris Agreement establishes frameworks (notably Articles 6.2 and 6.4) that enable countries to cooperate in achieving their climate targets through international carbon markets, including the trading of carbon removal credits

# Carbon Dioxide Removal (CDR)

## *Approaches and Universe*

**There are many approaches to CO<sub>2</sub> removal, and all are needed**

From managing ecosystems to engineered projects, these approaches remove atmospheric CO<sub>2</sub> and store it in biological or geological systems underground.

Carbon removal projects vary not only by **type of approach and storage method** but also in **price, geographical scope, technological maturity**, and **co-benefits** (e.g., environmental and social). Some projects even combine natural and technological processes.

Transport and Storage of captured CO<sub>2</sub> is a separate, but important, domain.

**Navigating these complexities is challenging**

### Biogenic CDR



Soil



Afforestation/  
Reforestation



Blue Carbon



Biochar

### Geochemical CDR



Mineralization



Mineral Alkalinity  
Enhancement



Enhanced Rock  
Weathering

### Synthetic CDR



Direct Air Capture



Electrochemical  
Alkalinity Production

### Transport and Storage of CO<sub>2</sub>

Conventional  
CO<sub>2</sub> Storage

In-site  
Mineralization

Ex-situ  
Mineralization

*Examples of CDR approaches within each category are non-exhaustive*



# Carbon Dioxide Removal (CDR)

*Procurement of carbon removals is being led by large-cap technology companies*

**Frontier is an advance market commitment to buy an initial \$1B+ of permanent carbon removal between 2022 and 2030.**<sup>1</sup> It was founded by Stripe, Alphabet, Shopify, Meta, McKinsey and tens of thousands of businesses using Stripe Climate.

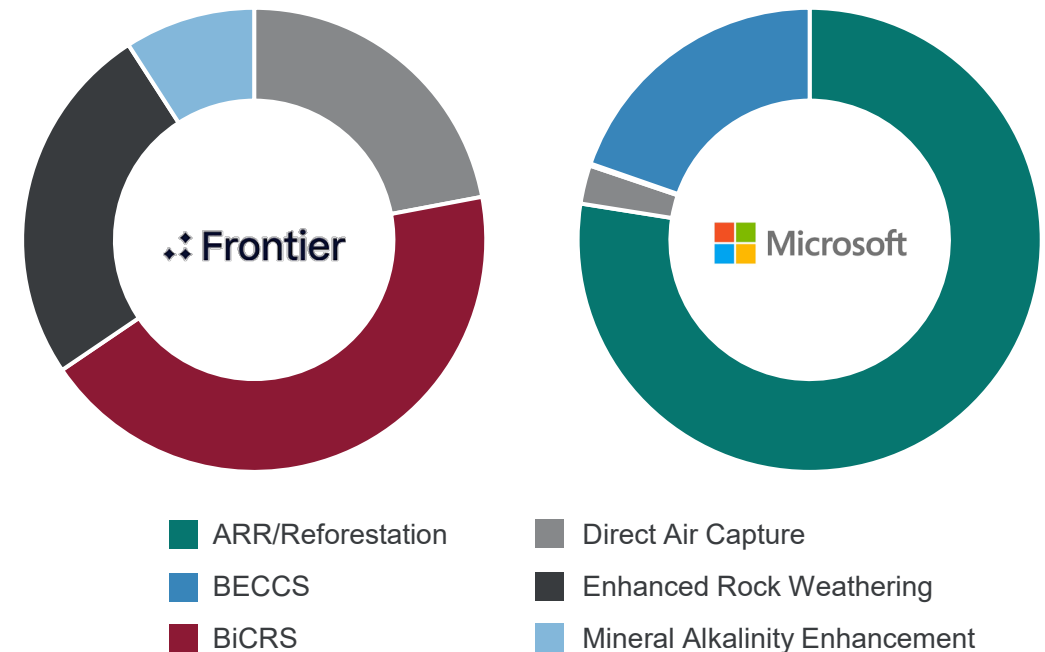
Separately, **Microsoft** has led with a series of high-volume offtakes.



1. Frontier has contracted \$328.4MM as of October 23, 2024; All figures USD, unless otherwise stated

## Which CDR approaches are leading?

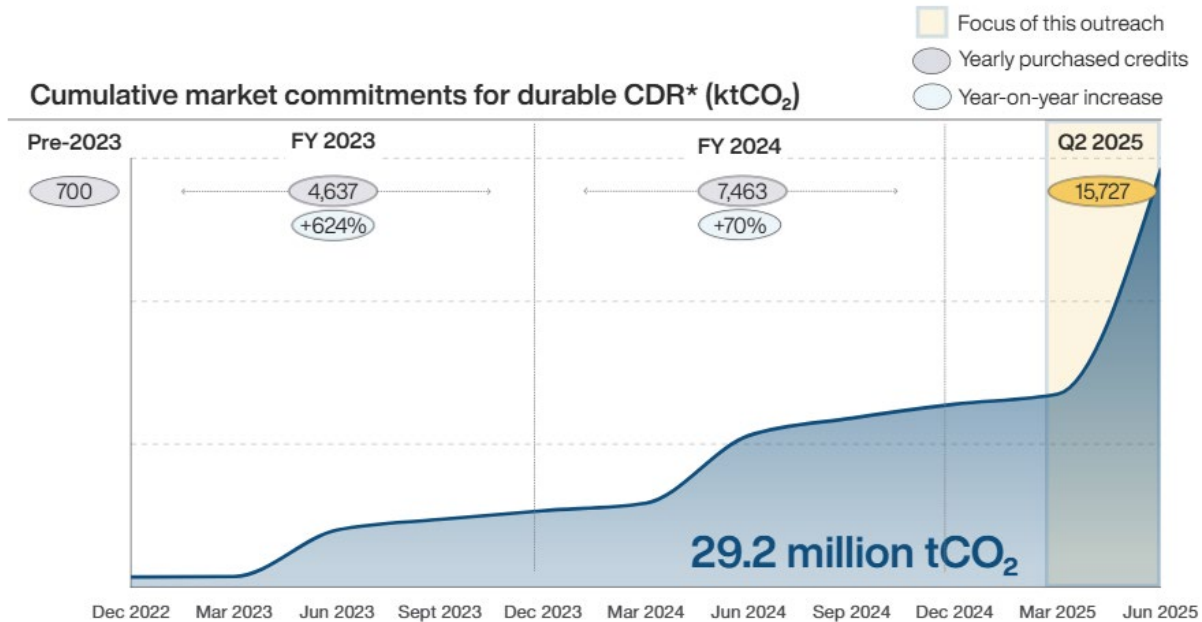
Most purchases have been of nature-based solutions, but hybrid and engineered procurement is growing rapidly



Data above is based on offtake agreements signed and not of other types of purchases  
Frontier also signed an offtake with Exergi supporting a BECCS project but contracted volume was not disclosed so omitted from this data set

# Market and Industry Growth

*In a Landmark Quarter, the CDR Market More than Doubled in Size – From 13.5M tCO<sub>2</sub> to 29.2M tCO<sub>2</sub>*



\* CDR contracts excluding MOUs. Purchases include pre-purchases, spot purchases, and offtake agreements.

## Key Insights

- The durable CDR market witnessed an unprecedented surge in Q2 2025, more than doubling in size in the space of just three months
- The market jumped from 13.5 million tCO<sub>2</sub> to 29.2 million tCO<sub>2</sub>
- This growth was fuelled by 15,727 kt of new CDR contracts, representing a 233% year-on-year growth compared to the same period last year
- Remarkably, 2025 has already recorded over twice as many credit purchases than the whole of 2024, with April 2025 recording more purchases than the seven previous quarters combined



**29.2M tCO<sub>2</sub>**  
MARKET SIZE



**15,727 kt**  
OF NEW CDR  
CONTRACTS IN Q2 2025



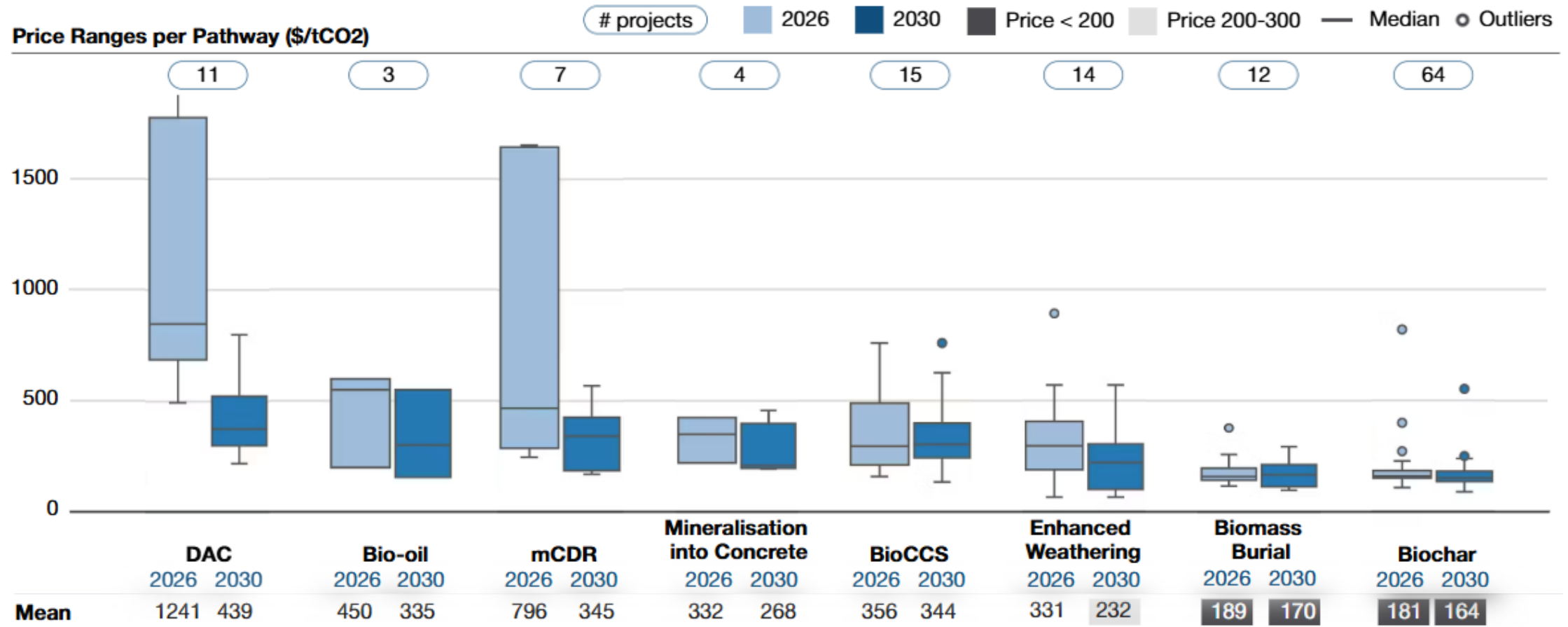
**+233%**  
Y-o-Y GROWTH  
VS. Q2 2024



**39 kt**  
CDR CREDITS  
ISSUED IN Q2 2025

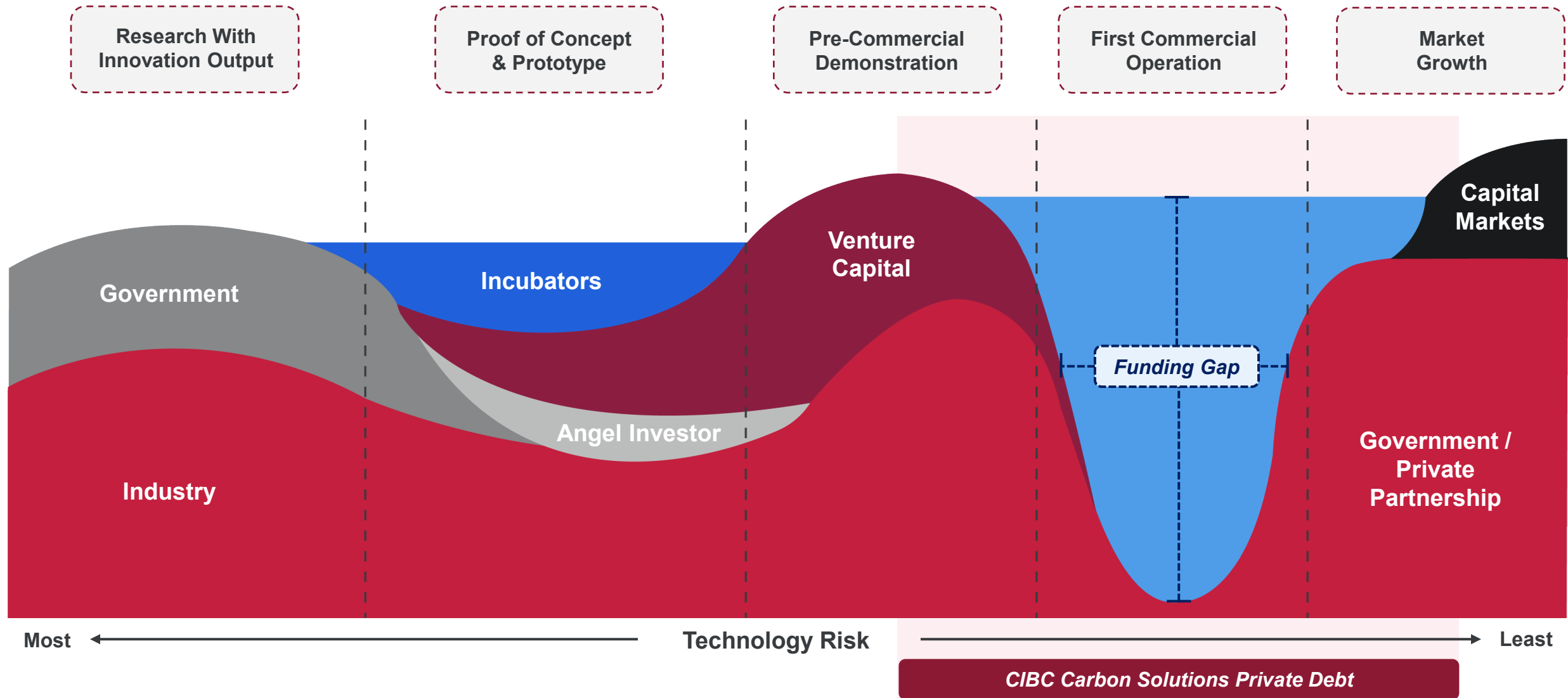
# CDR Pricing Dynamics

*Credit Pricing Ranging Anywhere From \$150 / tonne for Biochar, to \$1,800 / tonne for DAC*



# Carbon Dioxide Removal (CDR) Company Financing Lifecycle

*Flexible Capital is Essential To Solving the Project Finance Valley and Critical in Scaling the Industry*



# Private Debt in Support of Scale

*An Attractive Opportunity for Investors While Catalyzing an Essential Industry to Support Real World Decarbonization*



**Debt Provides  
Investors With  
Security In An  
Emerging Industry**

- Demand for flexible debt is rising as the industry undergoes rapid maturation
- Reduces consolidation risk as companies compete for market share by technology and process type
- Produces regular cashflow and maturities create structured liquidity



**Market  
Dynamics  
Favour Debt**

- Long term pricing dynamics will vary across technology types as they experience scale, impacting investment outlooks and making debt more favourable in the capital stack
- Structuring creates flexibility and risk management benefits that support investor interests

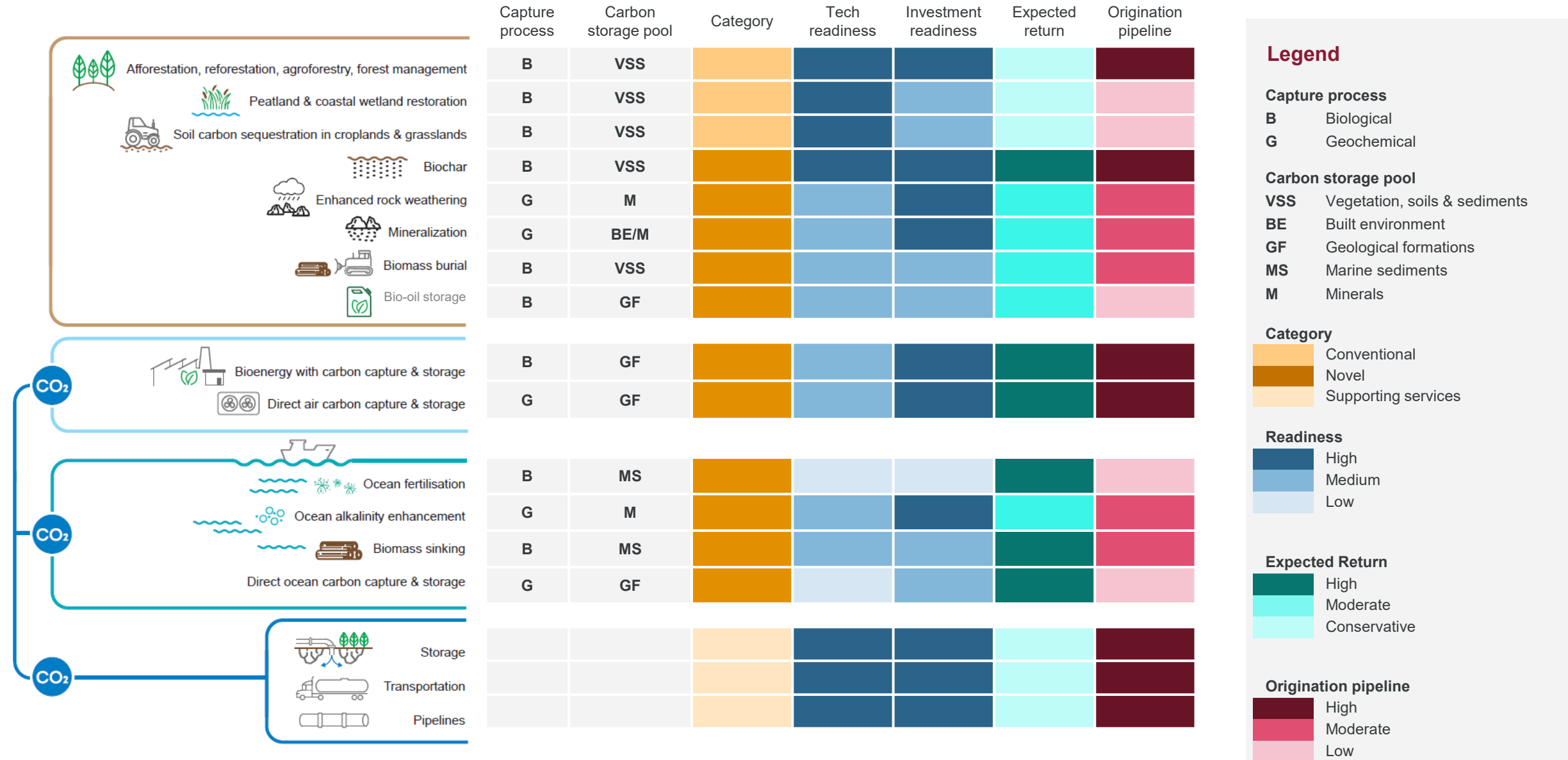


**Necessary To  
Drive Scale**

- Market participants and project developers have identified the lack of debt and project finance as a key barrier to scale
- Debt offers an attractive risk / reward prospect and impact to scaling the carbon dioxide removal industry



# Carbon Dioxide Removal (CDR) Landscape



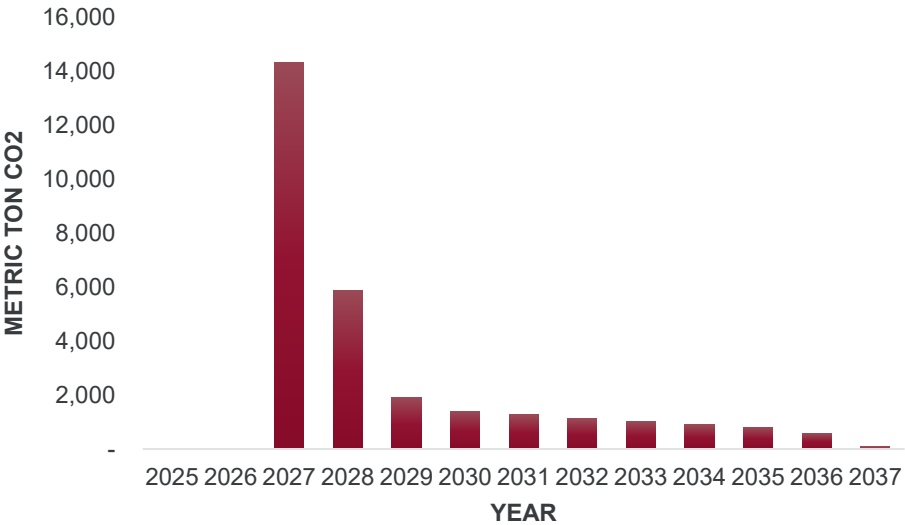
# Transaction case study: Enhanced Rock Weathering

## Prospective Terms

Security	Senior - GSA
Headquarters	UK & Canada
Offtake	Signed
Pricing	1400
Upfront fee	N/A
Maintenance covenants	Leverage

## Offtake Information

Counterparty	Microsoft
Purchase amount	\$15.2M USD
Tons contracted	29,313



## Project Considerations

- **Execution:** Experienced management team with active sites in credit production. Site plans and land use agreements in place to fulfill deployment for offtake.
- **Social and Harms and Benefits:** Minimal risk to community impact. Project drives job creation and minimizes fertilizer use, leading to lower impact on local ecosystems.
- **Environmental Harms and Benefits:** Introduction of wollastonite to agricultural land creates co-benefits by releasing essential nutrients, improving soil health and increased crop yields.
- **Additionality and Baselines:** Protocol accelerates a natural process creating additionality. Regular measurement is required to establish adequate baselines.
- **Measurement, reporting, and Verification:** Defined protocol with secured sourcing for lab work and data. Process meets established registry protocols.
- **Durability:** Low risk for reversal and long storage periods.
- **Leakage:** Production of feedstock, transportation, and delivery can be emissions intensive. Projects are sourced close to production facilities to minimize leakage.
- **Regulatory and Policy Considerations:** Projects are compliant with local and national frameworks and have obtained necessary permitting.

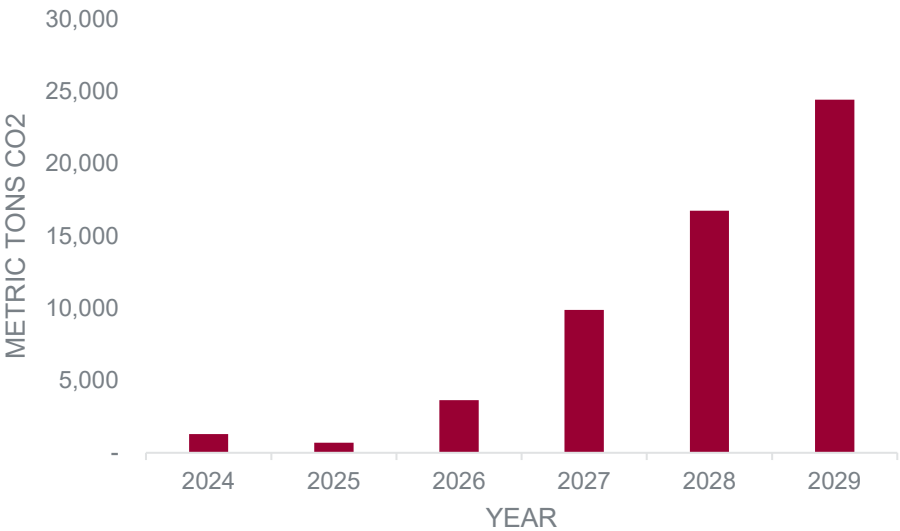
# Transaction case study: River Alkalinity Enhancement

## Prospective Terms

Security	Senior - GSA
Headquarters	Canada
Offtake	Signed
Pricing	1200
Upfront fee	N/A
Maintenance covenants	Leverage

## Offtake Information

Counterparty	Frontier
Purchase amount	\$26.9M USD
Tons contracted	56,753



## Project Considerations

- **Execution:** Management has successfully completed a pilot project and has comprehensive site plans in place to meet near and mid-term requirements for a series of offtake agreements.
- **Social and Harms and Benefits:** Extensive engagement with Indigenous communities to obtain free and prior informed consent. Community education and buy-in in support of ecosystem co-benefits.
- **Environmental Harms and Benefits:** Introduction of limestone to river systems creates co-benefits by reducing acidity and improving system health, this process improves fish stock and health.
- **Additionality and Baselines:** Protocol improves capacity for carbon sequestration via a natural process. Establishing baselines can be difficult given potential conflicts with other river enhancement programs.
- **Measurement, reporting, and Verification:** Defined protocol with sensor deployment to collect and report data. Process has been recognized by registries and aligns with offtake requirements.
- **Durability:** Low risk for reversal and long storage periods.
- **Leakage:** Production of feedstock and transportation can be emissions intensive. Projects are sourced close to production facilities to minimize leakage.
- **Regulatory and Policy Considerations:** Projects are compliant with local and national frameworks and have obtained necessary permitting.

# Key Takeaways

*Carbon emerging as one of the largest commodity markets of the next century*

1

## **Intersection of an emerging industry and climate action**

- Carbon management is an essential industry for real world decarbonization
- The industry has reached a critical juncture where scaling is needed to meet climate scenarios
- Policy environment is supportive for CDR

2

## **Private Debt is essential to drive scale**

- Infrastructure like asset class requires debt solutions to execute against contracted cash flows
- Unique environment where flexible lenders can set terms, be selective, and demand significant yields
- Protections of debt reduce risk

3

## **Portfolio Benefits**

- Solution climate commitments by scaling a critical industry for transition
- Exposure to an emerging growth asset class with diversification benefits
- Strong risk adjusted return potential

**Thank You**



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