



CDR: State of the Market

An overview of market activity and trends from the first six months of the year

July 2025

AlliedOffsets

Background

AlliedOffsets is the world's largest database and market intelligence provider for the voluntary carbon market. We aggregate and analyze data to present the most comprehensive dataset on carbon offsetting activity globally. Our dashboard includes data and analysis of over 30,000 projects, including information on pricing, buyers, transactions, brokers, and more.

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Please cite the work as follows: AlliedOffsets. "CDR: State of the Market (July 2025)".

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Name	Acronym	Definition
Agriculture, Forestry, and Other Land Use	AFOLU	Turning to forests and agricultural fields in order to sequester CO2 out of the atmosphere more efficiently; also includes projects and companies that improve trees' effectiveness in absorbing carbon.
Biochar	BCH	Biomass is converted at high heat into a more stable charcoal form and added to soils, which can help improve water retention and nutrient availability
Bioenergy with Carbon Capture and Storage	BECCS	Burning renewable biomass to create energy, capturing the CO2 emissions, and storing the CO2.
Bio-other	BIO	Land biomass-based CDR technologies such as biooil or biomass with carbon removal and storage, which are different from generic biomass feedstock methodologies.
Blue Carbon	BLU	Restoring and promoting new growth of peatlands, mangroves, tidal marshes, seagrasses, kelp, etc.
Carbon Capture	CC	Capturing CO2 at point of source.
Direct Air Capture	DAC	Technologies that use a chemical approach to capture CO2 from ambient air.
Enhanced Rock Weathering	ERW	A technique that involves accelerating the natural process of weathering by grinding down certain types of rocks and spreading them on land.
Mineralization	MIN	Storing CO2 as a solid form in minerals.
Ocean Alkalinity Enhancement	OAE	Increasing seawater alkalinity to accelerate the ocean's natural carbon sink.
Utilization	UTL	Turning captured CO2 into products.
Direct Ocean Capture	DOC	It removes dissolved carbon directly from seawater using a range of electrochemical processes
Marine Biomass cultivation/sinking	MBCS	Growing seaweed or algae in oceans to absorb CO2 and sinking the marine or terrestrial biomass to the deep sea for long-term carbon storage.
Artificial upwelling/downwelling	AUD	Artificial upwelling and downwelling are proposed methods of marine geoengineering that aim to enhance natural ocean circulation patterns for carbon dioxide removal
Ocean Fertilization	OCF	Adding nutrients like iron to the ocean to enhance phytoplankton growth

What this report covers

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Section 1

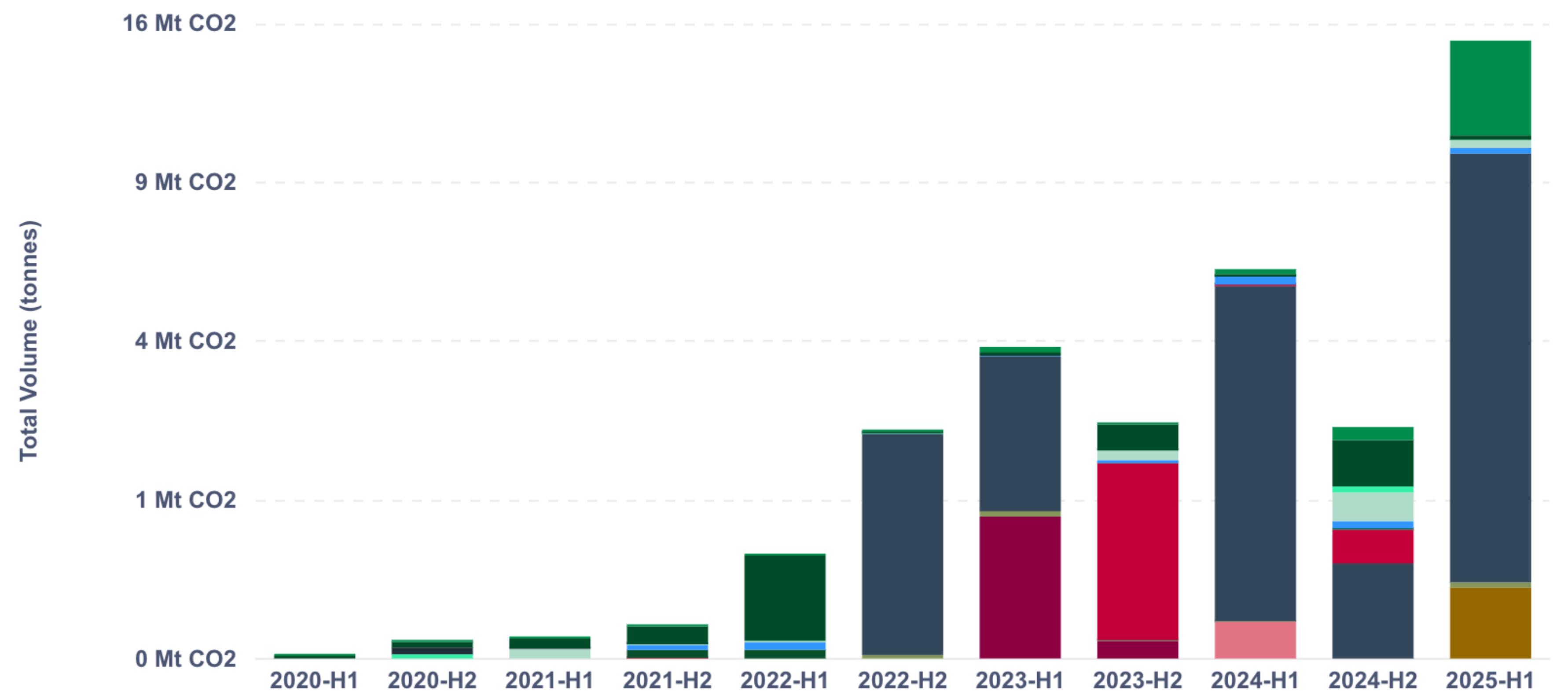
Headline Numbers

CDR Credits Trending Upward

In the first half of 2025, we saw unprecedented growth in the market, with a total of approximately 16 million tons sold. Historically, the beginning of the year is when buyers are most active, and we have been observing consistent growth over time.

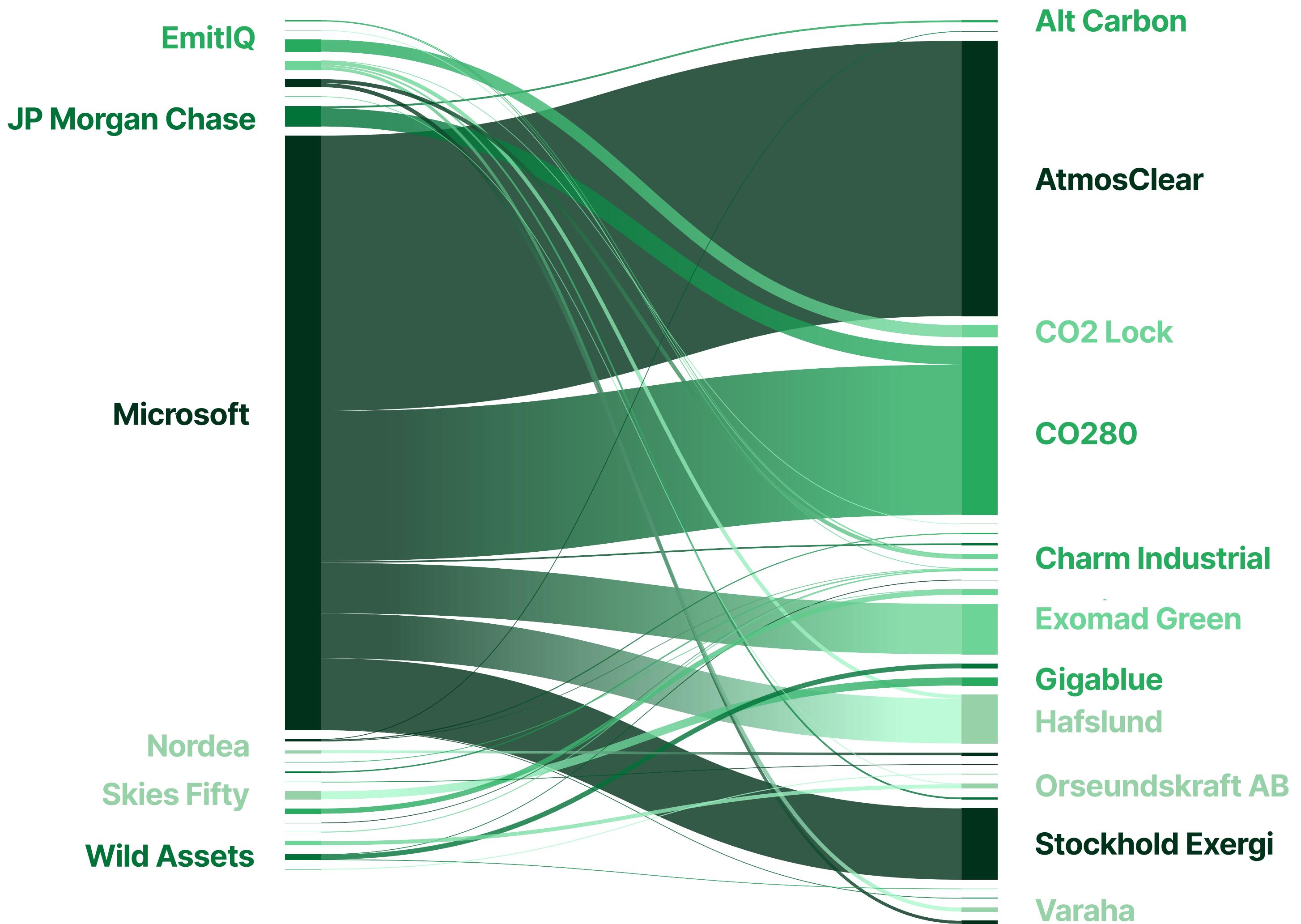
CDR technology purchase trends

- Bio-other
- DAC
- Marine Biomass cultivation/sinking
- Ocean Alkalinity Enhancement
- Enhanced Rock Weathering
- Biochar
- Mineralization
- NBS (CDR)
- BECCS
- Direct Ocean Capture
- Carbon Capture
- Utilization
- Ocean Fertilization



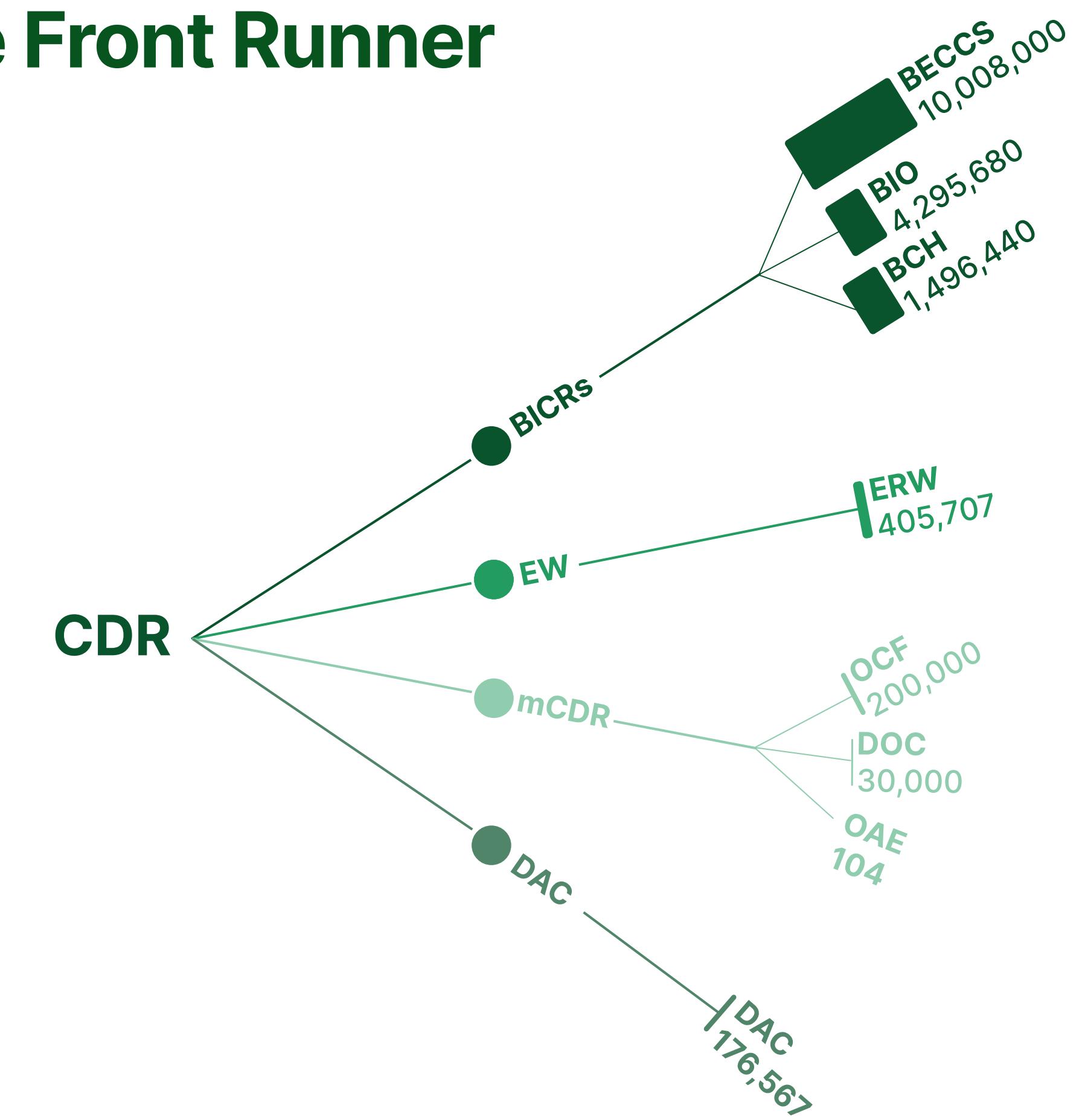
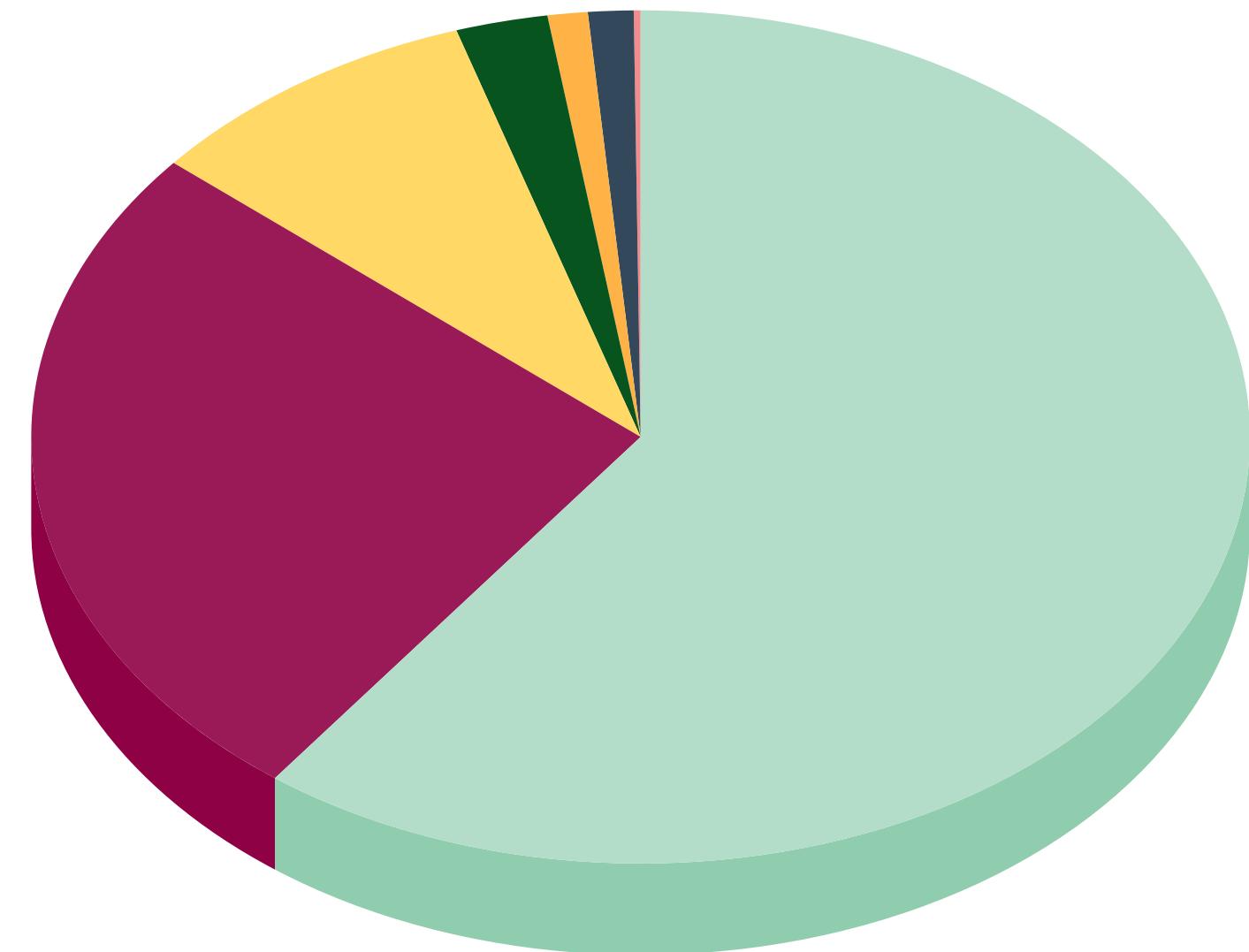
Tracking the Surge: CDR Deals in H1 2025

It should come as no surprise that Microsoft single-handedly made these 6 months the biggest ever – they contributed to **92%** of the purchases so far this year.



Biomass-Based Removal Purchases: The Front Runner

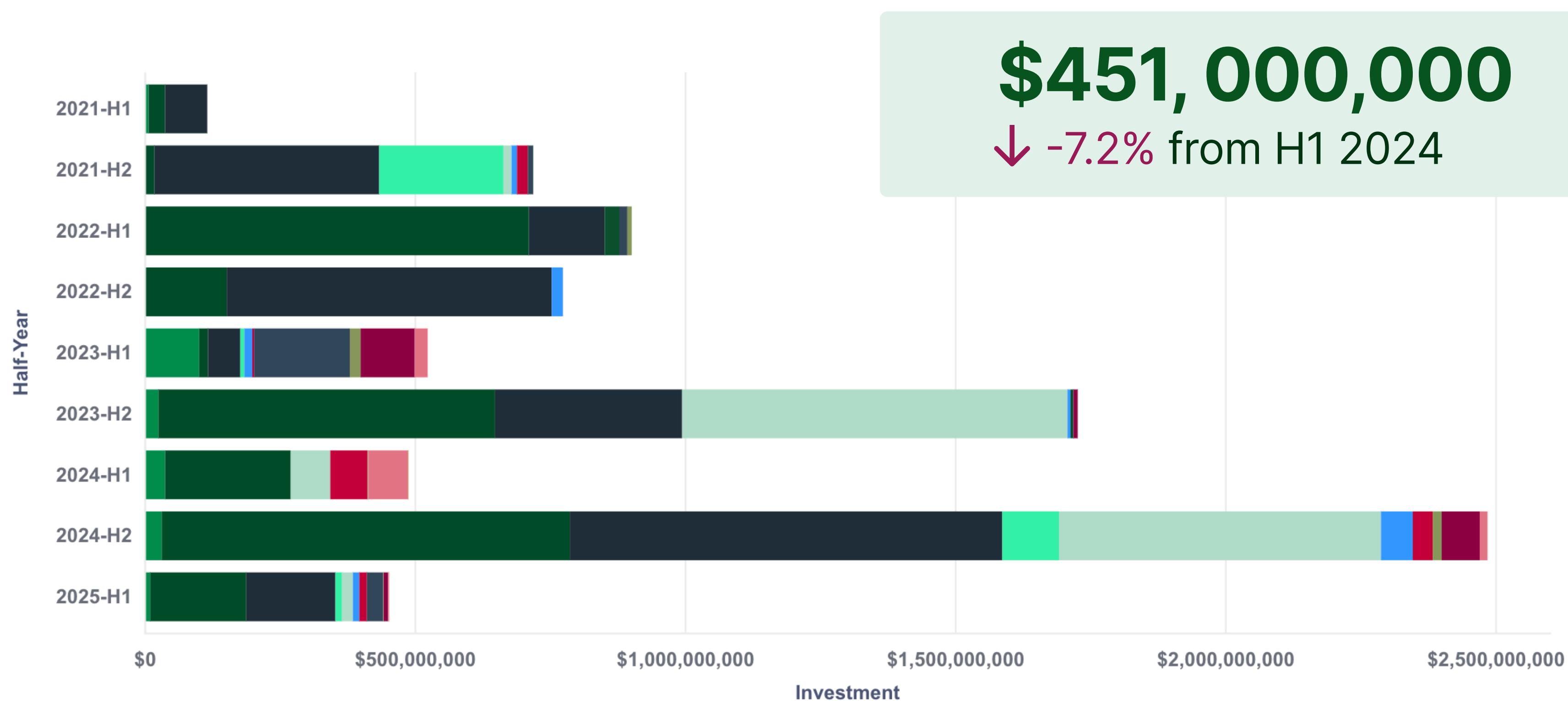
- BECCS - 60.2%
- BIO - 25.9%
- BCH - 9.0%
- ERW - 2.4%
- OCF - 1.2%
- DAC - 1.1%



Of the 16 million tons sold, 94% of the purchases have come from biomass-based CDR methods, including BECCS, Biochar (BCH), biomass direct storage/burial, bio-oil sequestration, and biogenic carbon capture and storage (BIO).

Investment Flows Dip Slightly, But H2 Consistently Outpaces H1

- Biochar
- DAC
- Utilization
- BECCS
- Carbon Capture
- Enhanced Rock Weathering
- Marine Biomass cultivation/sinking
- Mineralization
- NBS (CDR)
- Ocean Alkalinity Enhancement
- Bio-other
- Direct Ocean Capture
- Blue Carbon



\$451,000,000
↓ -7.2% from H1 2024

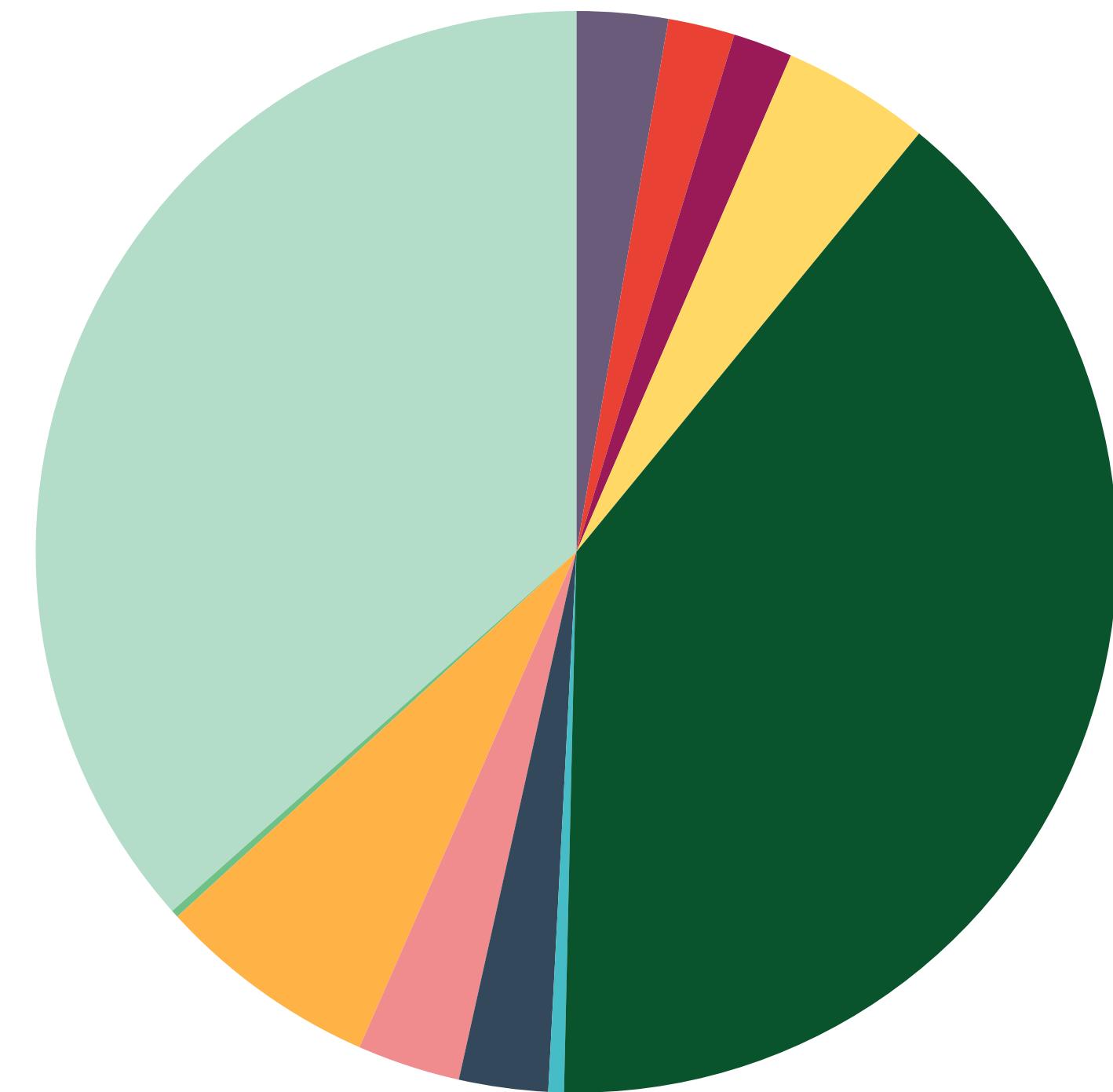
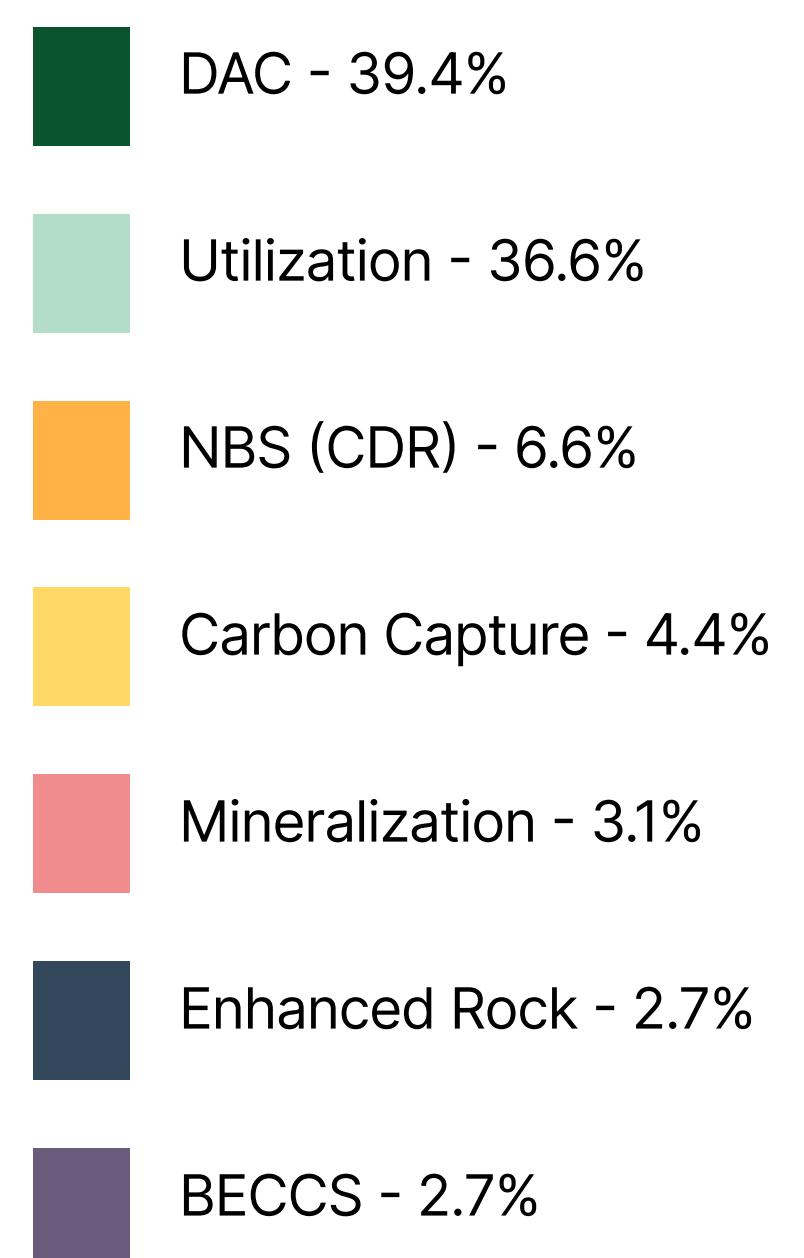
While initial expectations pointed to a slower year, particularly given the political uncertainty following Trump's return to office, investment activity has remained relatively resilient. Over the past two to three years, we've observed a consistent trend where investment is typically slower in H1 and gains momentum in the latter half of the year.

Where the Money's Going: CDR Investment by Technology

Most of the investment has continued to flow into Direct Air Capture (DAC) and Utilisation (UTL) technologies, which together accounted for nearly 80% of total capital deployed. In the DAC space, funding has been concentrated in companies like AirCapture, Spiritus, Capture6, and Remora. On the Utilisation side, investments have primarily gone to Twelve and Terra CO2, which are using captured CO2 to produce sustainable fuels, chemicals, and to decarbonise the cement industry.

While DAC remains a focal point, major developers have yet to deliver carbon removals at the scale implied by their nameplate capacities. It's important for the public to understand that other technologies are also capable of reaching gigaton-scale, especially if investment is diversified across the broader CDR landscape.

Investment breakdown by technology



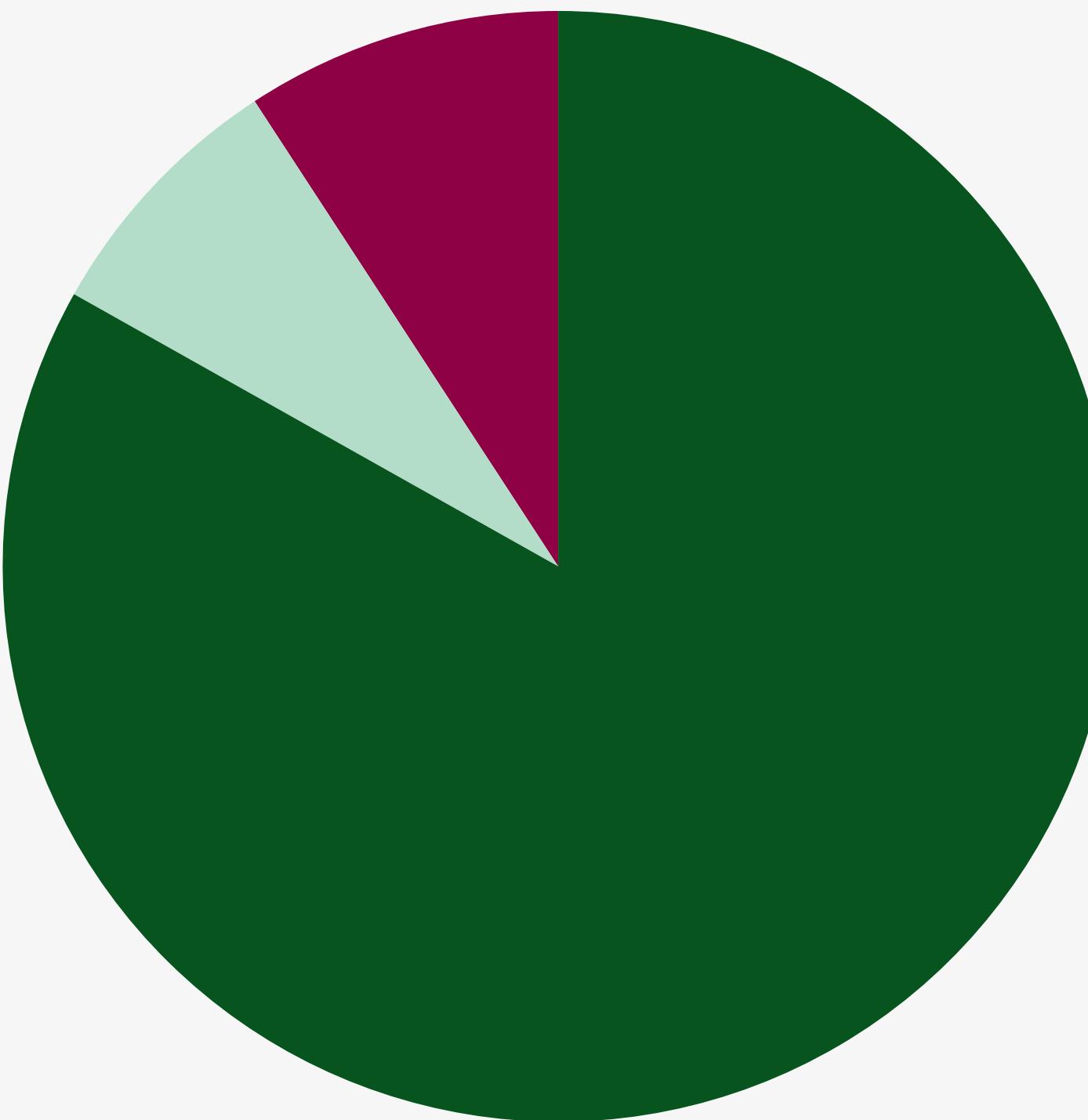
Biochar Tops H1 2025 Issuances

Total on-registry issuances amounted to approximately 290 kt. Biochar carbon removal continues to dominate in terms of issuance volume.

The most prominent suppliers generating issuances include Exomad Green, Carboneers, Neustark, CarbonCure, Vaulted, and Graphyte.

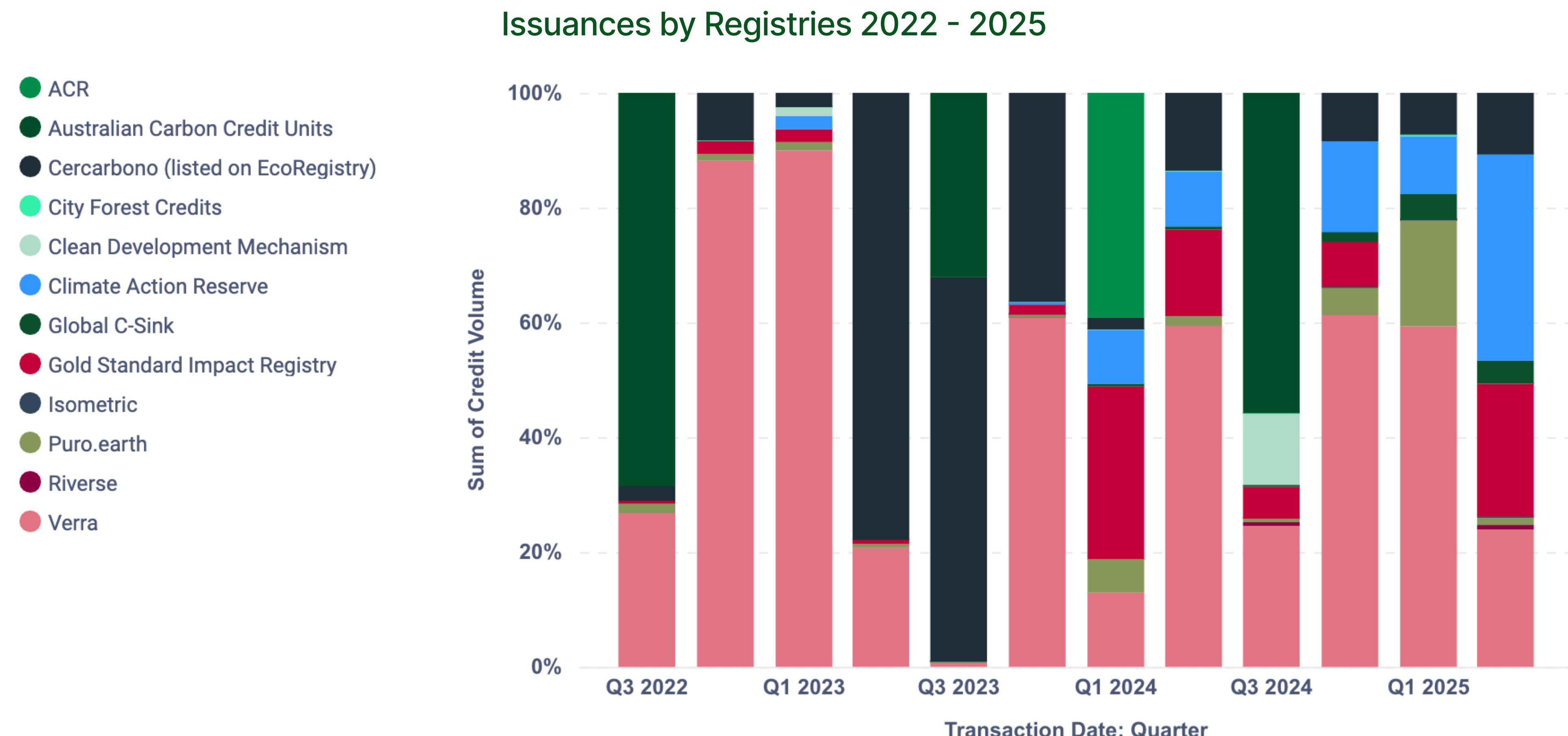
Issuances in H1 2025

- Biochar - 83.2%
- Bio-Other - 9.2%
- MIN - 7.6%



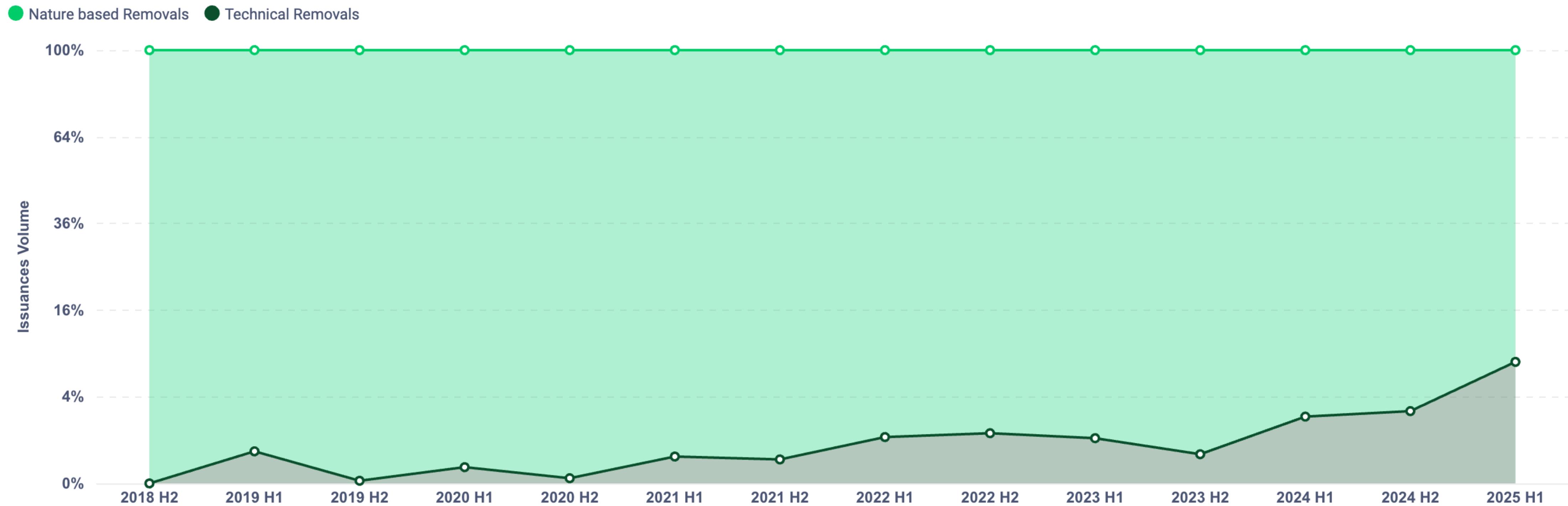
Registry Landscape Poised for Major Shift in 2026

Relatively newer registries are growing steadily in issuances. However, the vast majority of issuances in H1 2025 came from Verra and the Climate Action Reserve, which together accounted for over 60% of the total volume. A number of projects are expected to transition to issuing credits via a registry, which is projected to significantly increase issuance volumes in 2026.



Technical Issuances Rise, But NBS Still Dominates in Volume

Nature Based vs Technical Removals



Technical removal issuances have been increasing steadily and have picked up further in H1 2025. In contrast, nature-based removal issuances have dropped by nearly 50% compared to second half of 2024. That said, absolute volumes still heavily favour nature-based removals.

Technical Removals Still a Minority: Only 35% Contracted Offtakes to Date

Share of Contracted Offtakes (all time)



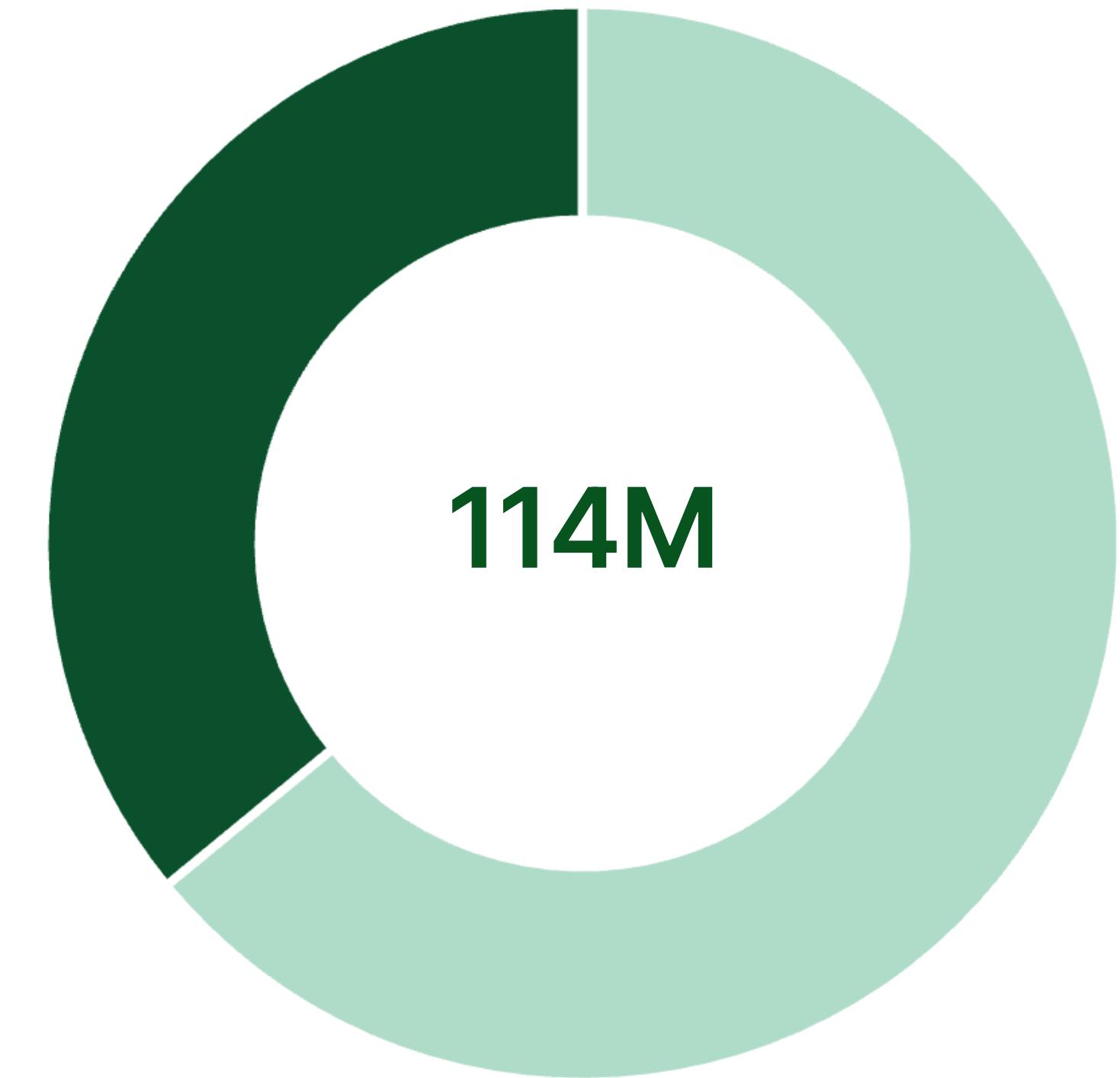
Nature based Removals

73M



Technical Removals

41M

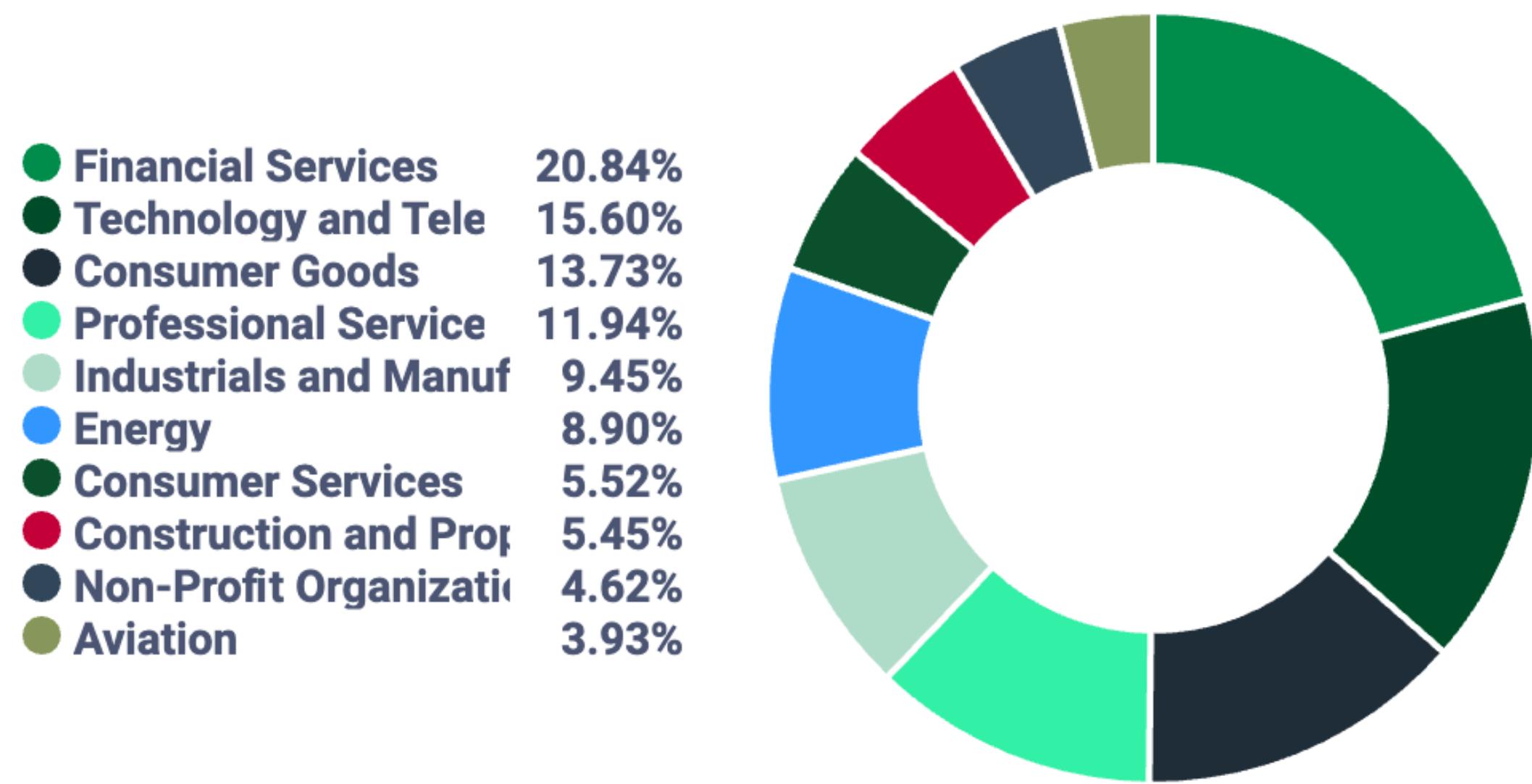


Section 2

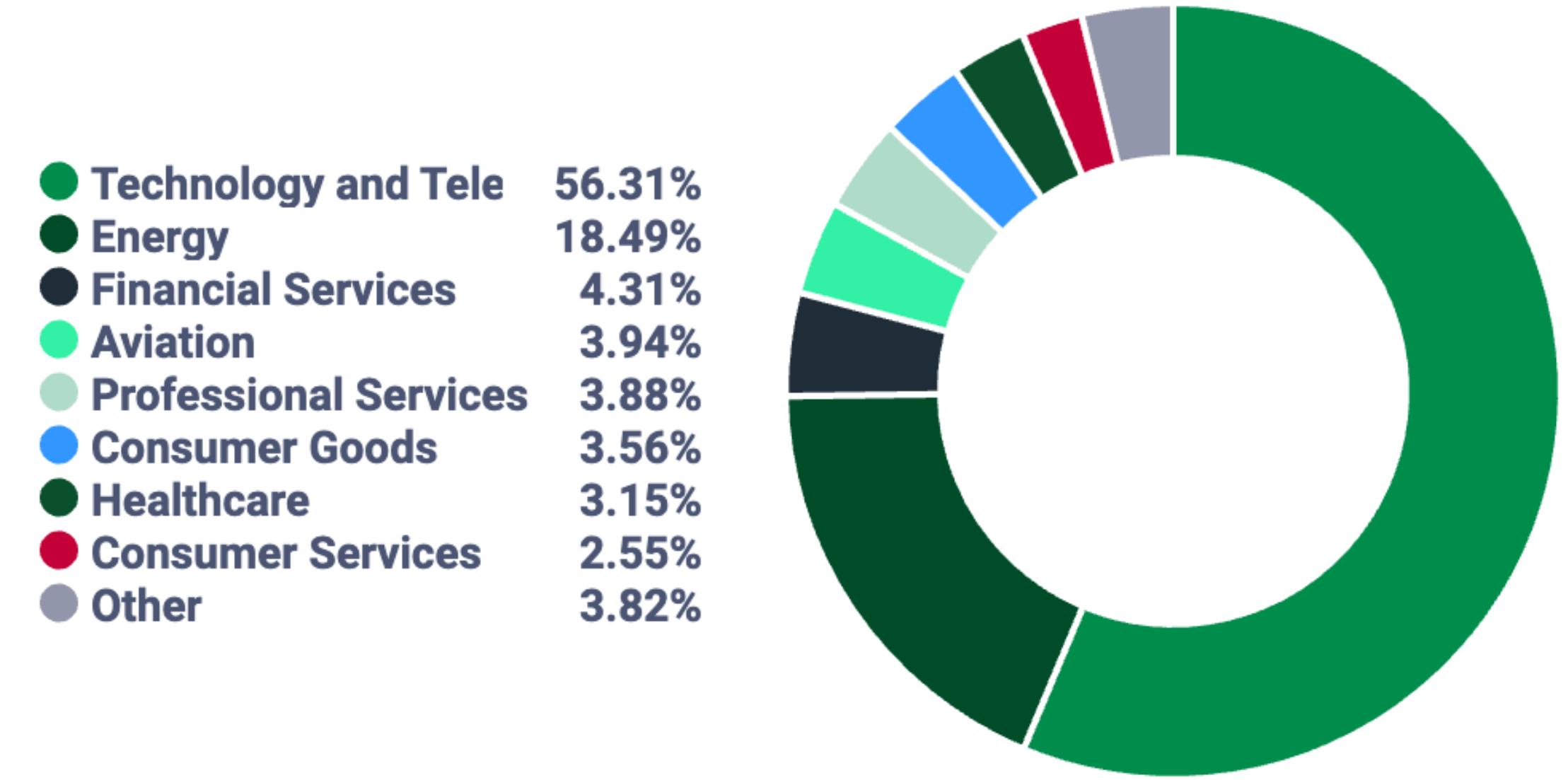
CDR Buyers

Finance Leads in Buyer Count, Tech Dominates in Volume

Count of CDR Buyers by Buyer Sector
(all time)

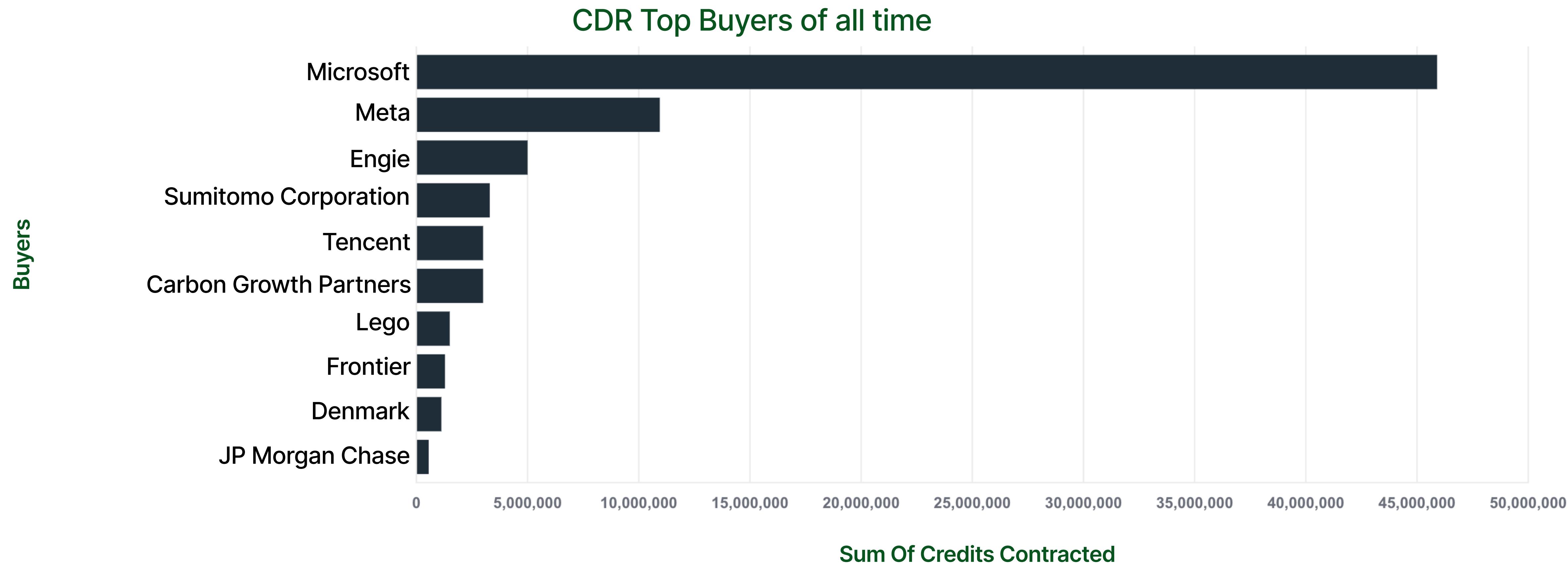


CDR Volume Distribution Across Buyer Sectors
(all time)



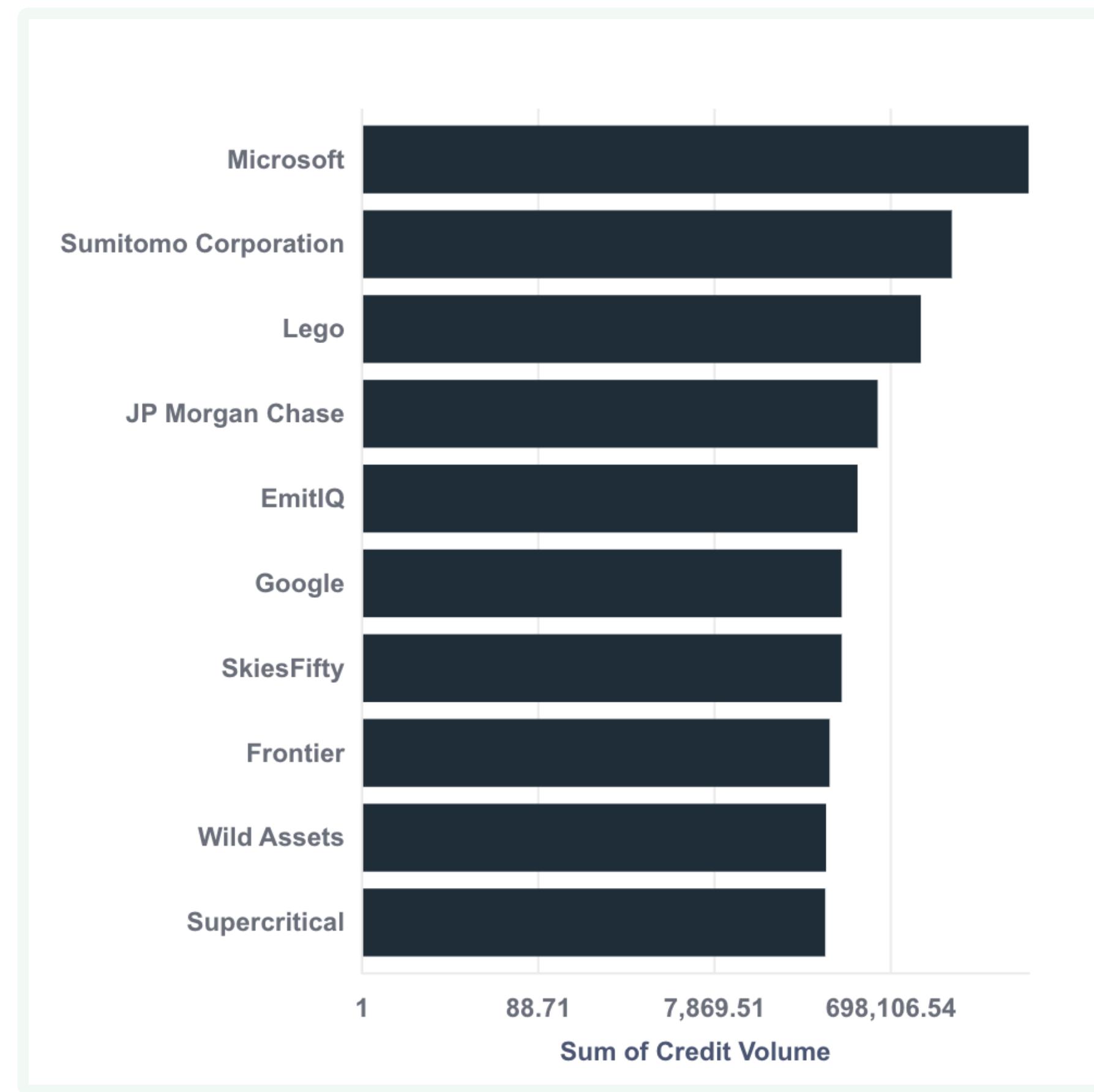
The largest cohort of buyers comes from the financial services sector, followed by the technology and telecommunications sector. However, in terms of volume of credits purchased, the tech sector dominates with **50 million credits**, followed by the energy sector with **16 million**.

Top CDR Buyers: All-Time

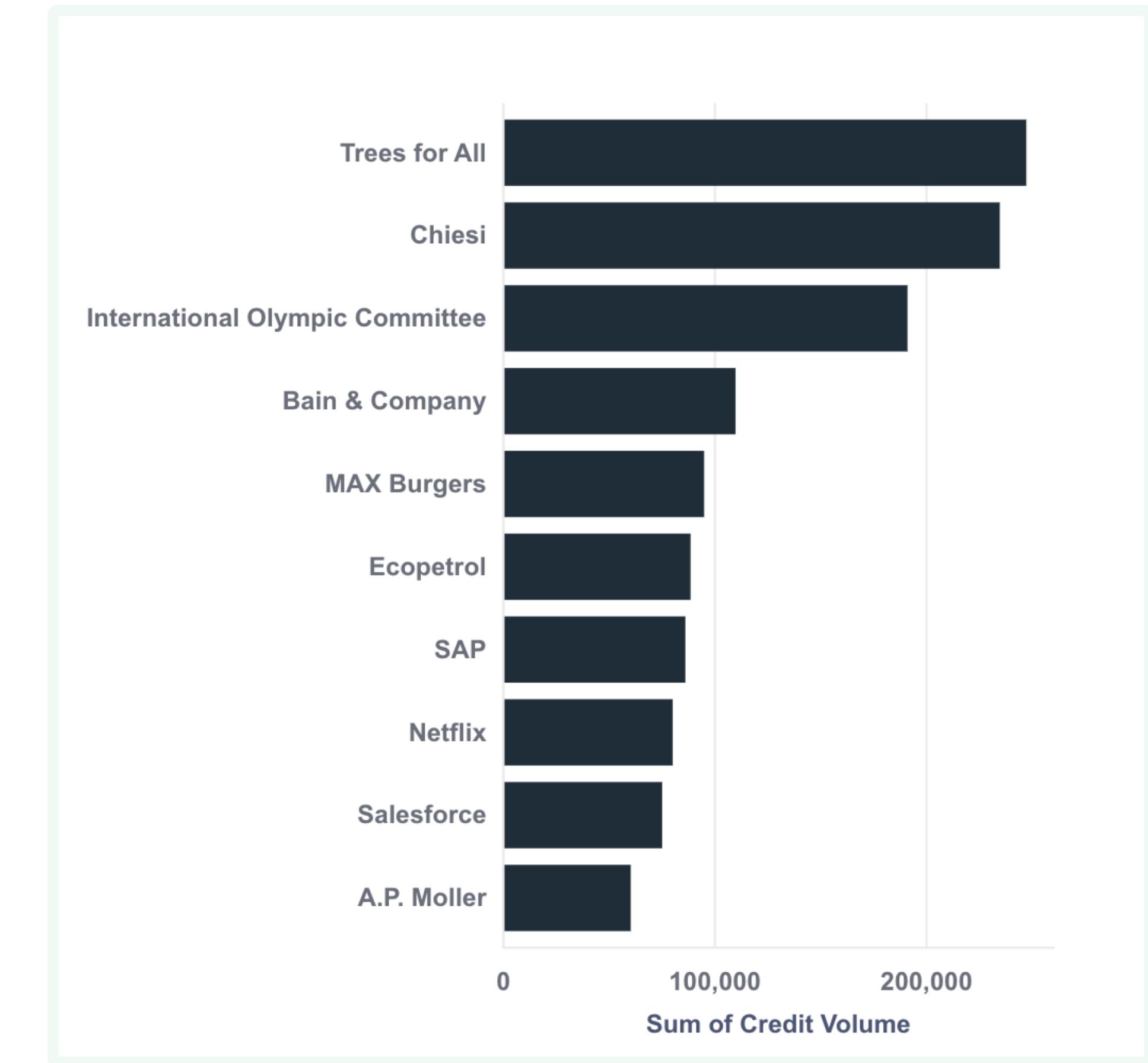


H1 2025's Most Active Companies: Purchase vs. Retirement

Top Offtakers H1 2025



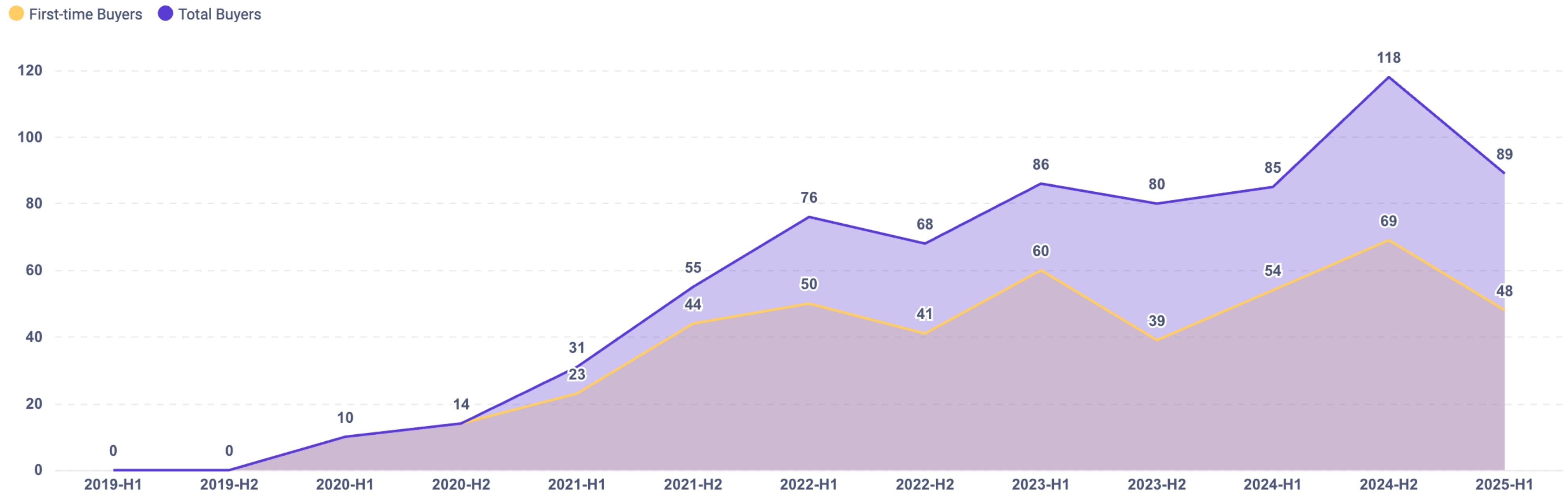
Top Retiree's H1 2025



Over 50% in H1 2025 Are First-Time CDR Purchasers

While the number of buyers declined in H1 2025, the volume of credits did not. Notably, more than half of the H1 2025 buyer cohort were first-time buyers - a positive signal for the market. Since 2023, the number of new buyers each half-year has averaged 57.

First time vs total CDR Buyers



First-Time Removal Buyers H1 25

The top 10 new entrants to the removal market contributed approximately 6 million credits, which is a positive signal for the growth and diversification of the CDR market.

Top 10 First-Time Buyers in 2025

First-Time Buyers	Sum of Credit Volume
Sumitomo Corporation	3,300,000
Lego	1,500,000
EmitIQ	300,000
SkiesFifty	200,000
International Olympic Committee	191,026
Wild Assets	134,440
Wihlborgs	100,000
Nordea	68,000
A.P. Moller	60,148
Mitsui OSK Lines	53,400

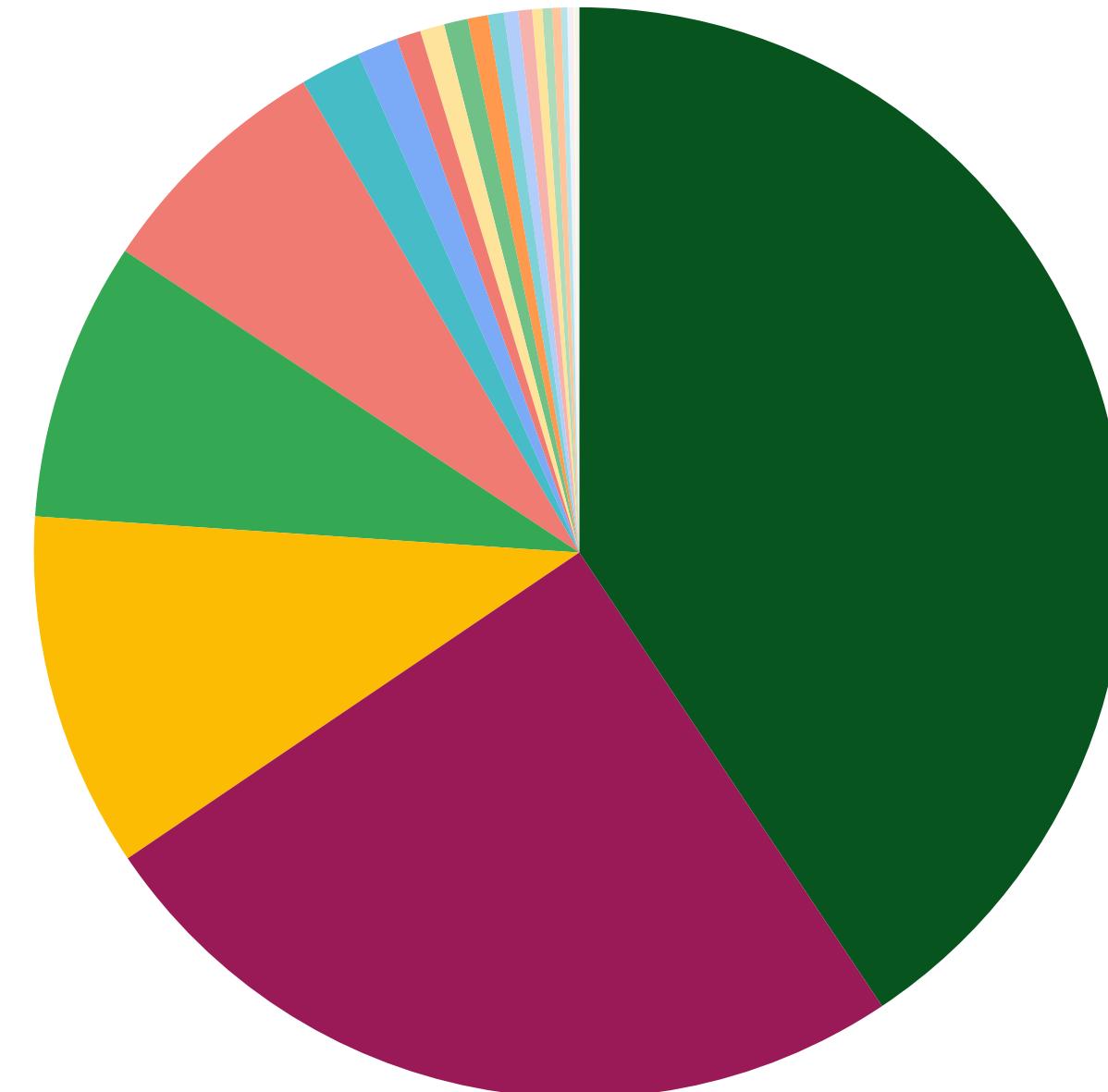
Section 3

CDR Suppliers

Top Suppliers this year

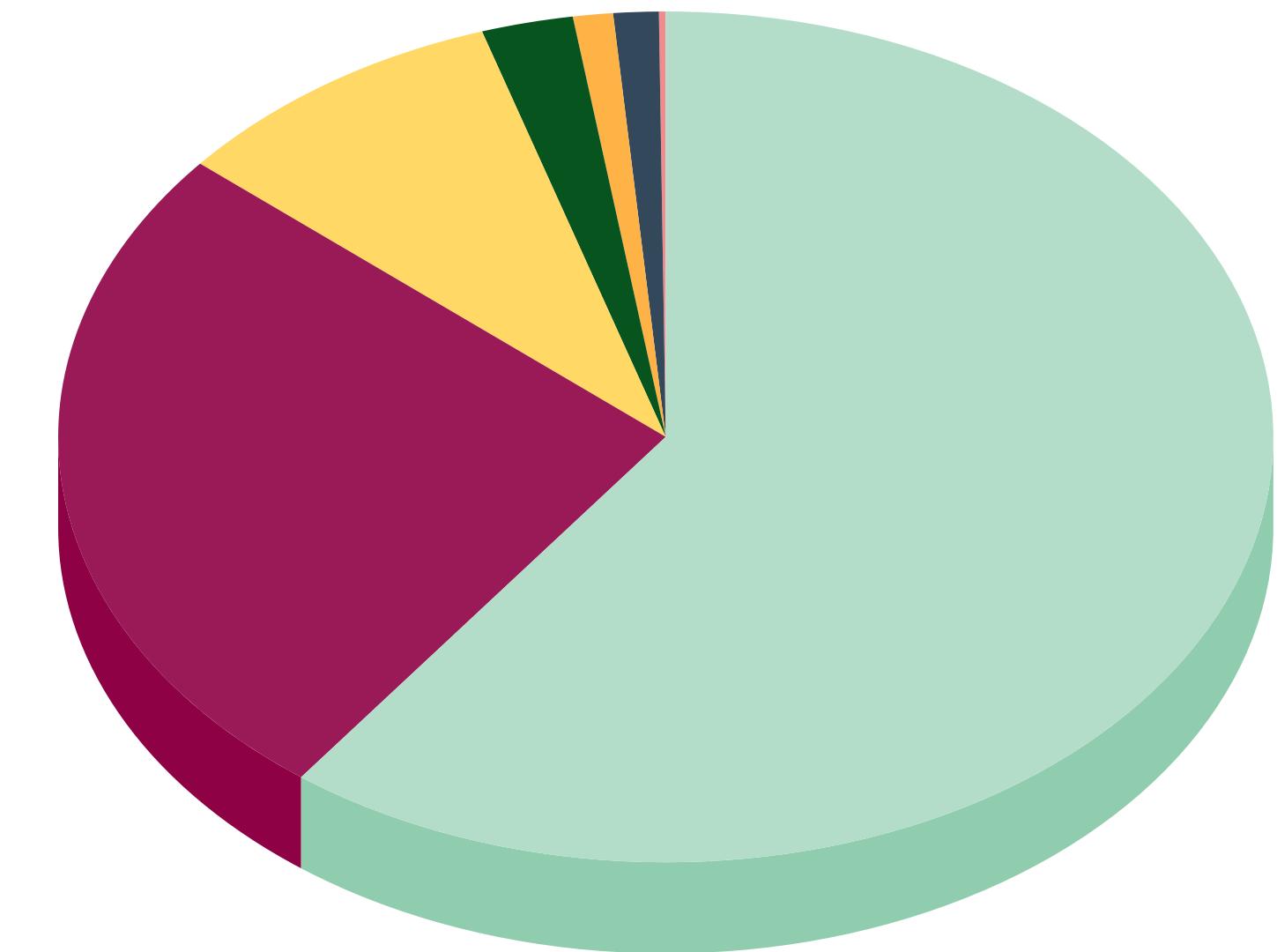
Breakdown of Suppliers

AtmosClear - 40.6%
CO280 - 24.9%
Stockholm Exergi - 10.5%
Exomoad Green - 8.3%
Hafslund - 7.2%
CO2 Lock - 1.8%
Gigablue - 1.2%
Frontier Carbon Solutions - 0.7%



Taxonomy Breakdown of Suppliers

BECCS - 60.2%
BIO - 25.9%
BCH - 9.0%
ERW - 2.4%
OCF - 1.2%
DAC - 1.1%



This year, Atmosclear, Stockholm Exergi, and CO280 together accounted for **75%** of all transactions, all within the biomass carbon removal and storage category. We also saw the first major transaction in the mCDR landscape, with Gigablue.

Tracking CDR Supply: Top 10 Suppliers (On and Off Registry)

Top 10 Suppliers based on-registry retirements

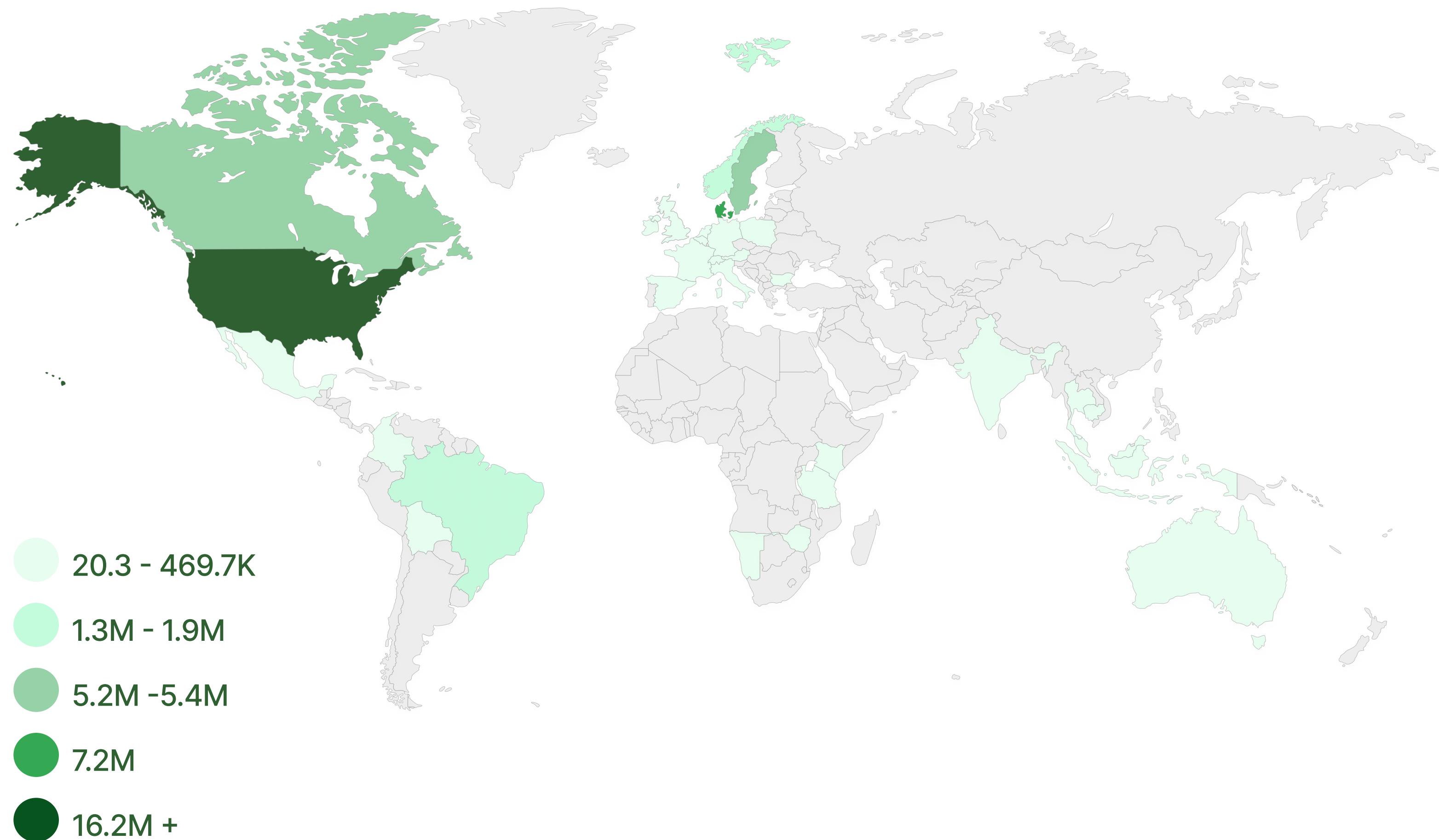
Supplies On-Registry	Sum of Credit Volume
Carboneers	89,472
CarbonCure	58,617
Varaha	32,786
Atmosfair	4,985
Interholco	4,098
Vaulted Deep	4,060
Graphyte	3,550
Isohemp	2,162
Wongphai Company	2,094
Biodiversal	1,575

Top 10 Suppliers (Off Registry)

First-Time Buyers	Sum of Credit Volume
AtmosClear	6,750,000
Vaulted	5,060,146
Stockholm Exergi	5,050,000
CO280	4,359,500
Ørsted	4,090,000
Gaia Carbon Capture	2,950,000
1PointFive	1,309,516
Hafslund	1,200,000
BioCirc	914,900
BluSky Carbon	382,213

Expected Carbon Removal Supply by Country, Inferred from Offtakes

This projection is based on signed offtake agreements with buyers. Delivery timelines vary, with some beginning as early as 2027 and extending through to 2040.



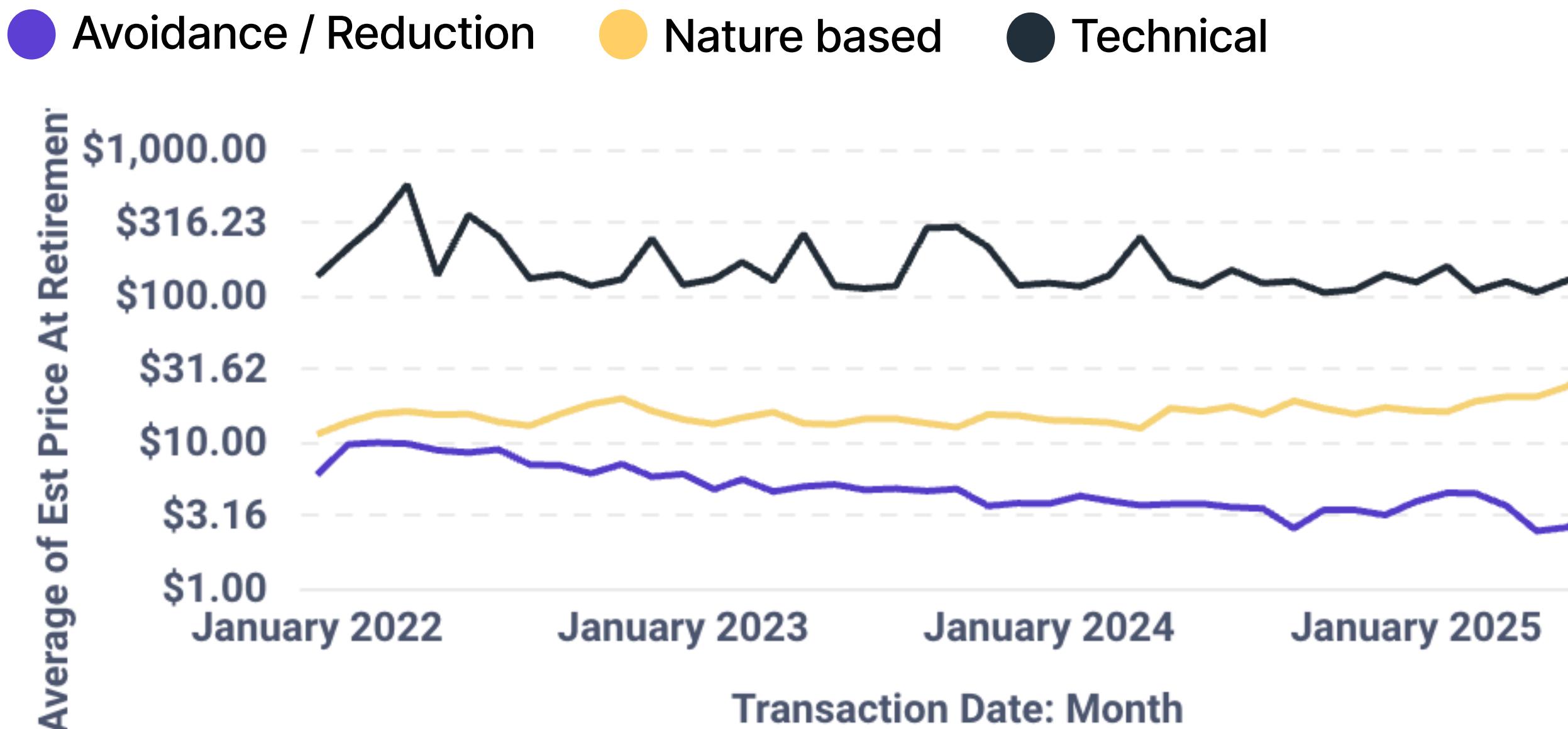
The United States leads by a significant margin, contributing nearly one-third of total CDR supply. The U.S. dominates forecasted credit supply with over 16 million credits, followed by strong European representation from Denmark, Sweden, Norway, and Switzerland. Canada and Brazil bolster the Americas' presence, while India and Bolivia highlight emerging contributions from the Global South.

Section 4

Prices

Expected Carbon Removal Supply by Country, Inferred from Transactions

Average Retirement Price by Offset Type



Technical removals have been averaging around \$180, depending on the type of credit retired in that month. With retirements dominated by biochar and biomass storage, the average price remains lower.

On the nature-based side, we've observed an upward price shift since December 2024 – rising from \$17 to \$35, a 105% increase.

To provide a clearer understanding of the current landscape, we've also included the cost data of avoidance and reduction projects in the graph above, which continue to average around \$3.

*The chart uses a logarithmic scale on the vertical axis to better visualize the wide range of price levels across project types. Monthly prices reflect the average price of all retirements in that month.

CDR Technologies at a Glance: Pricing

Weighted Average Prices Of Technical Removals



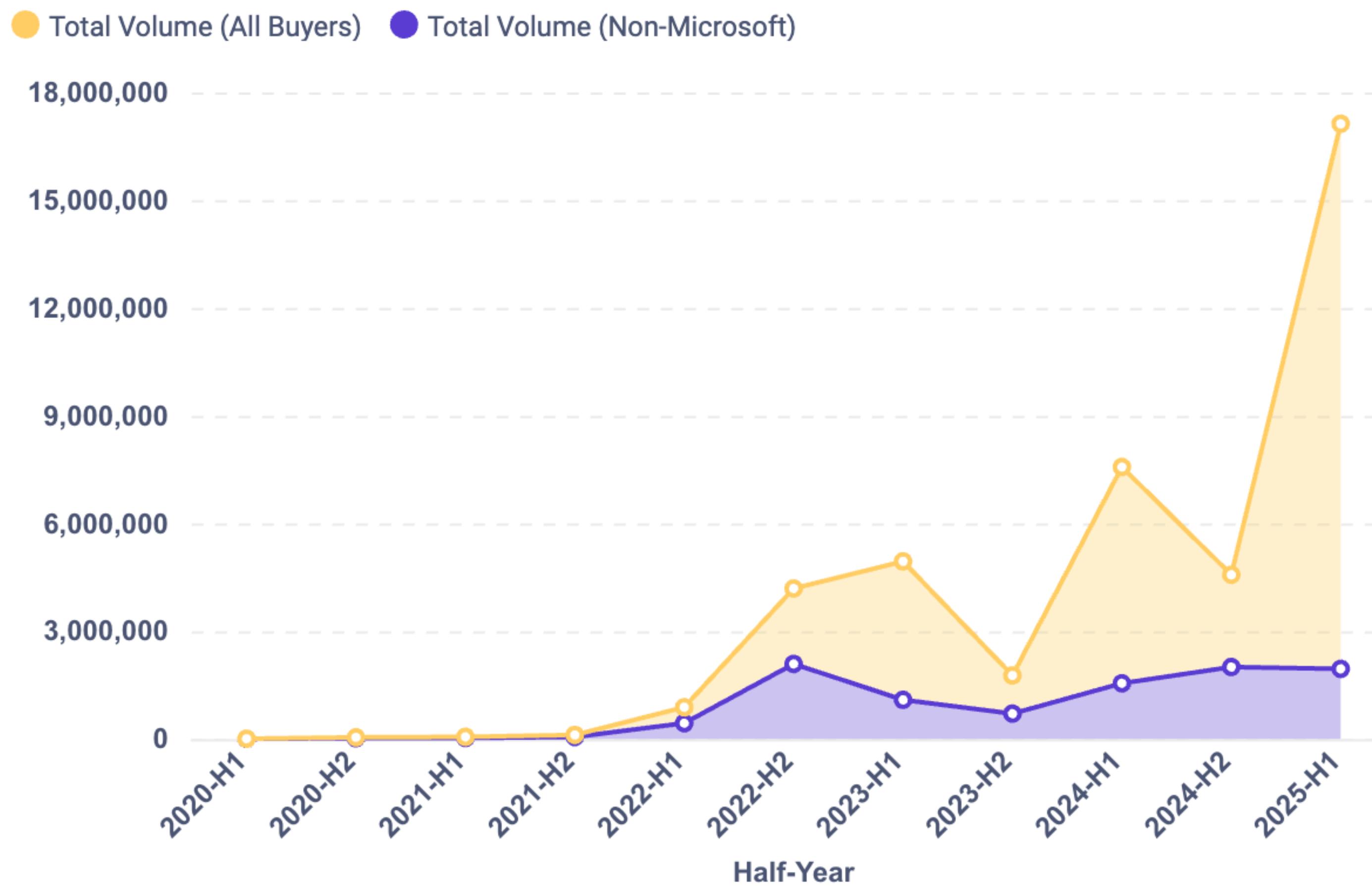
As depicted in the chart above, the lowest-cost credits priced close to \$100 are primarily from biochar carbon removal and biomass burial and storage. Most other credit types remain priced at about \$300.

Section 5

What Happens Without Microsoft?

How would the market look without Microsoft, given their market share?

Market Share: Microsoft versus Other Buyers



As of now, Microsoft alone has purchased 31 million tons of technical carbon removals accounting for nearly 83% of all technical CDR bought to date.

If Microsoft were excluded, total market purchases would drop from 38.3 million tons to just 8 million, revealing a stark reality: without Microsoft's leadership, the CDR market would appear dramatically smaller.

That said, the market is still growing steadily in Microsoft's absence, though not at the great volumes that's needed.

53

Number Of Projects
Supported By Microsoft

25

Number Of Projects Where
Microsoft Was The First Buyer

16

Number Of Projects With
Microsoft As The Sole Buyer

Top 5 Purchases by Microsoft (All Time)

Project Developer

Sum of Credit Volume

Chestnut Carbon

7,362,000

AtmosClear

6,750,000

Stockholm Exergi

5,050,000

Vaulted

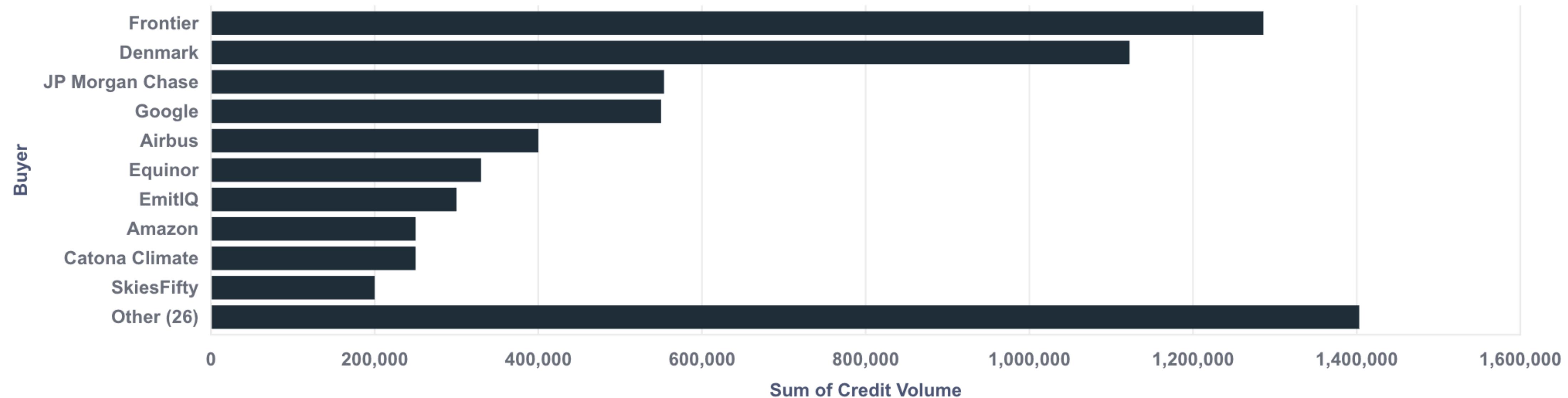
4,915,000

Ørsted

3,760,000

Leaders Of The Market

Top Buyers Excluding Microsoft

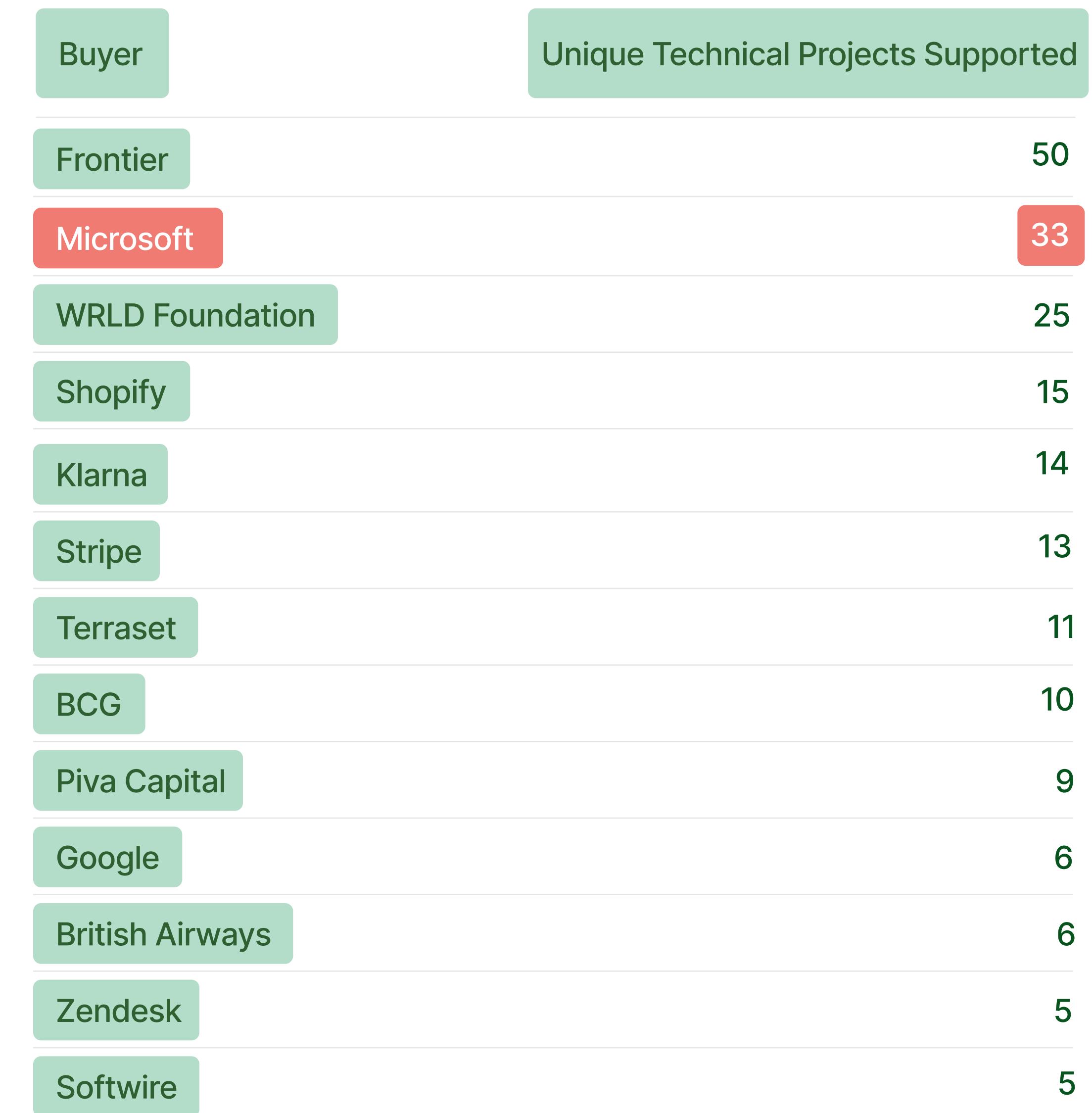


Frontier leads with support for 50 projects, followed by the Government of Denmark. Frontier's Advanced Market Commitment is driving innovation by backing a diversified portfolio of novel CDR methods - helping them scale toward the goal of sub-\$100 credits. JP Morgan Chase and Google are also emerging as major buyers of CDR credits.

Projects Portfolio Overview

There are other buyers supporting a range of projects, albeit not with large volumes, but still securing offtakes aligned with emerging advanced technologies.

Frontier is the only buyer supporting more projects than Microsoft; however, as a consortium with a diversified portfolio, that's to be expected.



Section 6

Conclusion

The first half of this year **has been positive** for the CDR market. The share of removals within the voluntary carbon market (VCM) mix is growing at a healthy rate, and several project developers have signaled that they plan to move to registries soon.

Initially, there were concerns that political influence, particularly from figures like Trump, might disrupt the carbon market. However, this has not materialized, as whilst public investments have dipped, **the private sector remains committed to making carbon removal happen**.

Biomass-based CDR has continues to dominate the market in 2025- both in terms of issuances and offtakes secured. However, there's a looming challenge: **biomass sustainability**. The global supply of sustainable biomass is limited, and as more projects scale, competition for feedstock could drive up prices. **When that happens, we may see a shift toward methods like enhanced rock weathering, mineralization, and eventually marine CDR and DAC ; driven by relative costs and scalability.**

In general, whilst 2025 has been a strong year for the VCM. **But we're still only removing approximately 2-3 MtCO2/yr through technical CDR, which is far short of the 6-10 Gt/year required by 2050.** Getting more buyers into the market remains a challenge, yet there is increasing evidence of **stronger demand signals for CDR**, potentially even from compliance markets sooner than expected. With SBTi now allowing removals for Scope 1 emissions and new markets emerging for captured CO2 and hydrogen. Nature-based solutions (NBS) are seeing a **noticeable price increase**, signaling rising demand.