

# Carbon Credits in Agriculture: From Frameworks to Field Implementation

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in the context of the IFAD Webinar on Carbon Credits.

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France's second largest retail banking group



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# Natural Capital: a holistic approach of nature to deliver value & impact at scale

As a cross-cutting and fundamental issue, investing in nature represents a genuine market opportunity.

1

## ENVIRONMENTAL ASSETS



*Targeted drivers of value & impacts generation*

- Nature conservation
- Carbon credits
- Biodiversity Certificates
- Payments of ecosystem services

2

## SUSTAINABLE LAND USE



*Targeted drivers of value & impacts generation*

- Agroforestry
- Regenerative agriculture
- Landscape approach
- Sustainable timber

01

# Why do Carbon Markets exist?





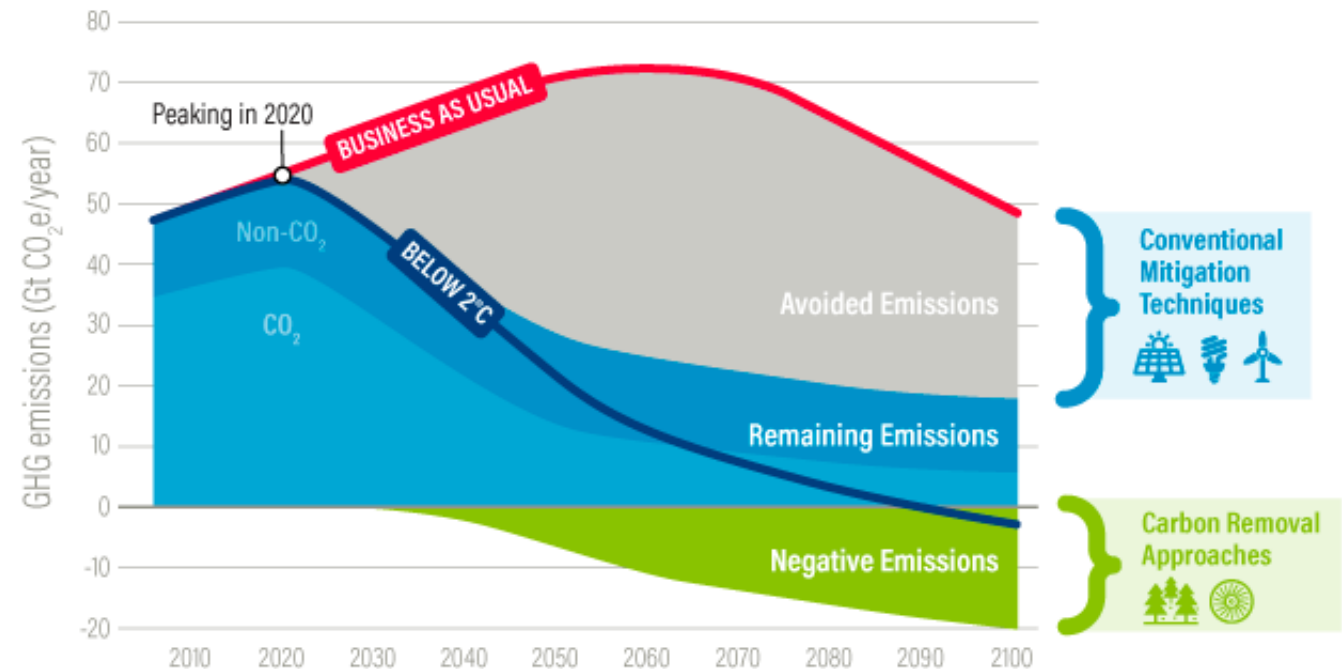
## WHY DO CARBON MARKET EXIST?

The challenge: +1.5 °C scenario requires to be “net zero” in 2050, with carbon removal playing a significant role

The Paris Agreement declared a commitment to hold “the increase in the global average temperature to well below 2°C above pre-industrial levels”, and preferably 1.5°C.

Fossil fuel consumption is the single largest contributor to man-made climate change, accounting for 73% of emissions<sup>1</sup>, while **A**griculture, **F**orestry and **O**ther **L**and **U**ses (AFOLU) is the 2nd largest (22% emissions)<sup>2</sup>.

Meeting Paris Agreement requires (i) avoided fossil fuel emissions (transition to low carbon/renewable energy), (ii) avoided AFOLU emissions **AND** (iii) negative emissions (carbon removal from the atmosphere).



Source: Adapted from UNEP 2016.  
For more information, visit [wri.org/carbonremoval](http://wri.org/carbonremoval).

 WORLD RESOURCES INSTITUTE

## WHY DO CARBON MARKET EXIST?

### What are the different markets?

The key principle behind the ability to trade emissions (or emission reductions) is that the **environmental impact is independent of the source of the emission/reduction.**

For carbon emissions, releases of greenhouse gas rapidly mix and accumulate causing the solar radiation to warm the atmosphere - the greenhouse effect. **Actions to slow this warming are beneficial no matter where they are undertaken.**

#### Compliance Carbon Markets

Mandatory systems regulated by government organizations to cap emissions for specific industries.



Market size  
2021

Compliance  
**\$899B**

#### Voluntary Carbon Markets

Where carbon credits can be purchased by those that voluntarily want to compensate for their emissions.



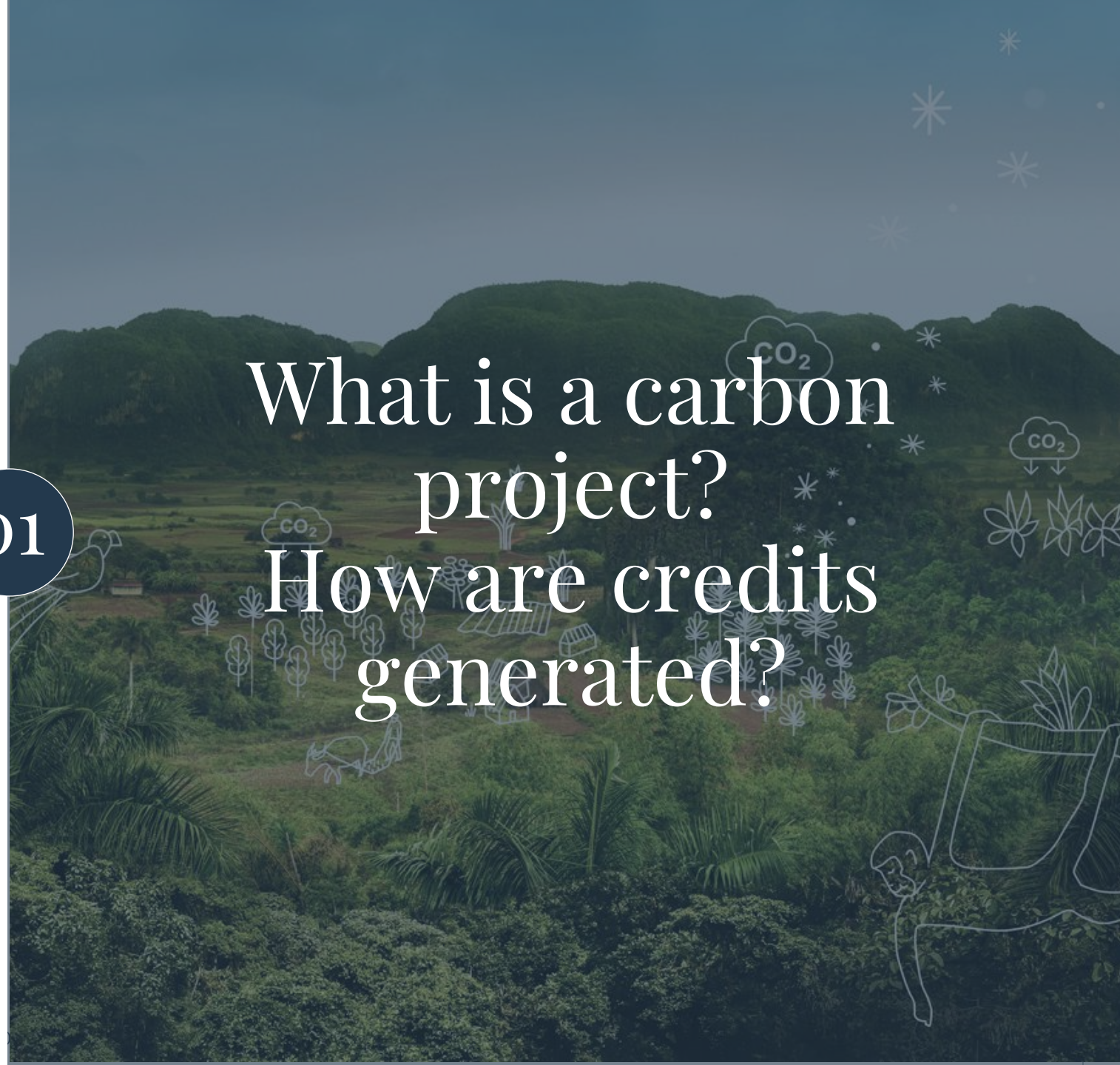
Voluntary  
**\$2B**

Sources: Refinitiv,  
Ecosystem Marketplace

As demand to cut emissions intensifies, voluntary carbon market volume has grown **five-fold in three years.**

01

# What is a carbon project? How are credits generated?



## What projects can create carbon credits in the voluntary market?

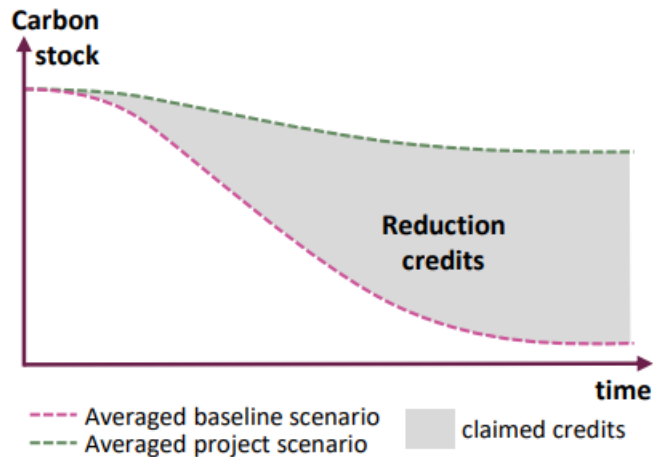
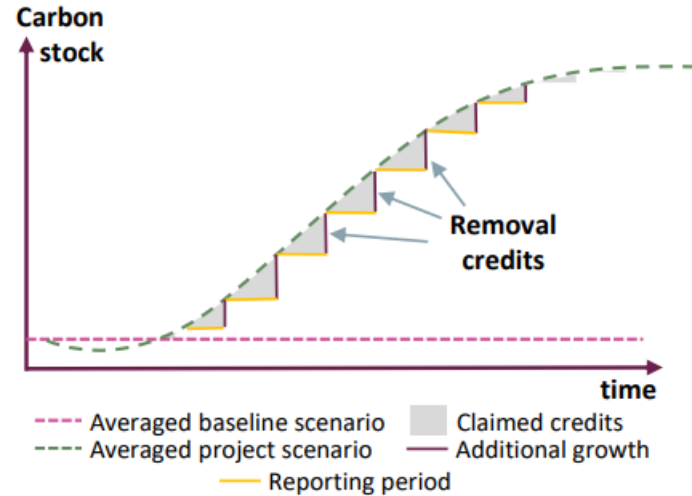
| Method           | Project Type                                    | Project Sub-Type                                         | Removals | Avoidance/<br>Reductions |
|------------------|-------------------------------------------------|----------------------------------------------------------|----------|--------------------------|
| Nature based     | Nature-based Solutions in Forestry and Land Use | Avoided Deforestation                                    |          | ✓                        |
|                  |                                                 | Forest & Landscape Restoration                           | ✓        |                          |
|                  |                                                 | Afforestation and Restoration                            | ✓        |                          |
| Technology based | Carbon Capture Use and Storage                  | Bioenergy with CCS                                       | ✓        |                          |
|                  |                                                 | Direct Air Capture                                       | ✓        |                          |
|                  |                                                 | Enhanced Oil Recovery                                    |          | ✓                        |
|                  |                                                 | Carbon Capture & Storage (CCS)                           |          | ✓                        |
|                  |                                                 | Mineralization, Enhanced Weathering, Biochar             | ✓        |                          |
|                  | Energy Efficiency                               | Clean cookstoves and others                              |          | ✓                        |
|                  | Renewable Energy                                | Wind, Solar, Hydro                                       |          | ✓                        |
|                  | Fuel Switch                                     | Biomass, Liquid Biofuels, Biogas, or Hydrogen and Hybrid |          | ✓                        |
|                  | Non-CO2 Gases                                   | N2O or Methane Abatement                                 |          | ✓                        |

- Most credits issued today are emission reduction credits.
- To reach global net zero, credit use must shift from reduction credits to removal credits to 'neutralise' unavoidable emissions.
- Nature offers a cost effective solution with many co-benefits
- Investment in removal technologies will be needed to create the necessary supply in the future.



## HOW DO YOU MAKE A CARBON CREDIT FOR THE VOLUNTARY CARBON MARKET?

# How do you measure carbon credits for Nature-based projects?

| Method                          | Reduction of Emissions from Deforestation and Forest Degradation (REDD+)                                                                                                                                                                                                                                                                                                                                                                                                     | Afforestation, Reforestation and Revegetation (ARR)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Baseline</b>                 | Gradual loss of forest carbon stock due to deforestation / forest degradation                                                                                                                                                                                                                                                                                                                                                                                                | Complete or significant lack of forest cover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Project scenario</b>         | <ul style="list-style-type: none"> <li>- Avoidance of deforestation and forest degradation</li> <li>- Conservation and enhancement of carbon stock</li> <li>- Sustainable forest management</li> </ul>                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>- Afforestation of non-forest land</li> <li>- Reforestation of deforested land due to fire</li> <li>- Agroforestry</li> <li>- Revegetation</li> </ul>                                                                                                                                                                                                                                                                                                                                                  |
| <b>Credit type</b>              | <b>Reduction:</b> credits are claimed for the avoidance of any further emission from forest cover loss.                                                                                                                                                                                                                                                                                                                                                                      | <b>Removal:</b> credits are claimed for any new sequestration of carbon via newly grown forest.                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Carbon stock projections</b> |  <p>Carbon stock projections for REDD+ projects. The graph shows carbon stock on the y-axis and time on the x-axis. A dashed pink line represents the 'Averaged baseline scenario' showing a gradual decline. A dashed green line represents the 'Averaged project scenario' showing a slower decline. The area between the two lines is shaded grey and labeled 'Reduction credits'.</p> |  <p>Carbon stock projections for ARR projects. The graph shows carbon stock on the y-axis and time on the x-axis. A dashed pink line represents the 'Averaged baseline scenario' showing a gradual decline. A dashed green line represents the 'Averaged project scenario' showing a steady increase. The area between the two lines is shaded grey and labeled 'Removal credits'. A yellow line segment on the x-axis is labeled 'Reporting period'.</p> |

# HOW DO YOU MAKE A CARBON CREDIT FOR THE VOLUNTARY CARBON MARKET?

## Who are the main standards bodies in the VCM?

Standards Bodies set the rules, and registries keep record of credit

| Standard                                                                                                            | Market Volume<br>(M = million) | Name of credits<br>(Representing 1 tCO <sub>2</sub> e) | Geographical Scope                                                                                                                                                                             | Sectoral Scope                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <br>Verified Carbon Standard (VCS) | 746 M credits, 70.44% share    | Verified Carbon Units (VCUs)                           | 1,792 registered projects in 82 countries. VCS is dominant in developing countries.                                                                                                            | Covers all project classes.                                                                                                                     |
| <br>Gold Standard (GS)             | 184 M credits, 17.37% share    | Verified Emission Reductions (VERs)                    | 1,313 registered projects in 80 countries. Credits are purchased especially by buyers in the European Union.                                                                                   | Covers most project classes, but excludes project-level REDD+. After 2025, will only cover credits backed by <b>corresponding adjustments</b> . |
| <br>American Carbon Registry (ACR) | 63 M credits, 5.95% share      | Emission Reduction Tons (ERTs)                         | 156 projects in the United States.                                                                                                                                                             | Covers industrial processes; land use, land use change and forestry; carbon capture; waste.                                                     |
| <br>Climate Action Reserve (CAR) | 66 M credits, 6.23% share      | Climate Reserve Tonnes (CRTs)                          | 26 projects in the US. <b>CAR serves as the Offset Project Registry for California's Cap-and-Trade Program.</b> CAR is also running a pilot Emissions Trading System in Mexico from 2020-2023. | Covers agriculture and forestry; energy; waste; and non-CO <sub>2</sub> GHG abatement.                                                          |



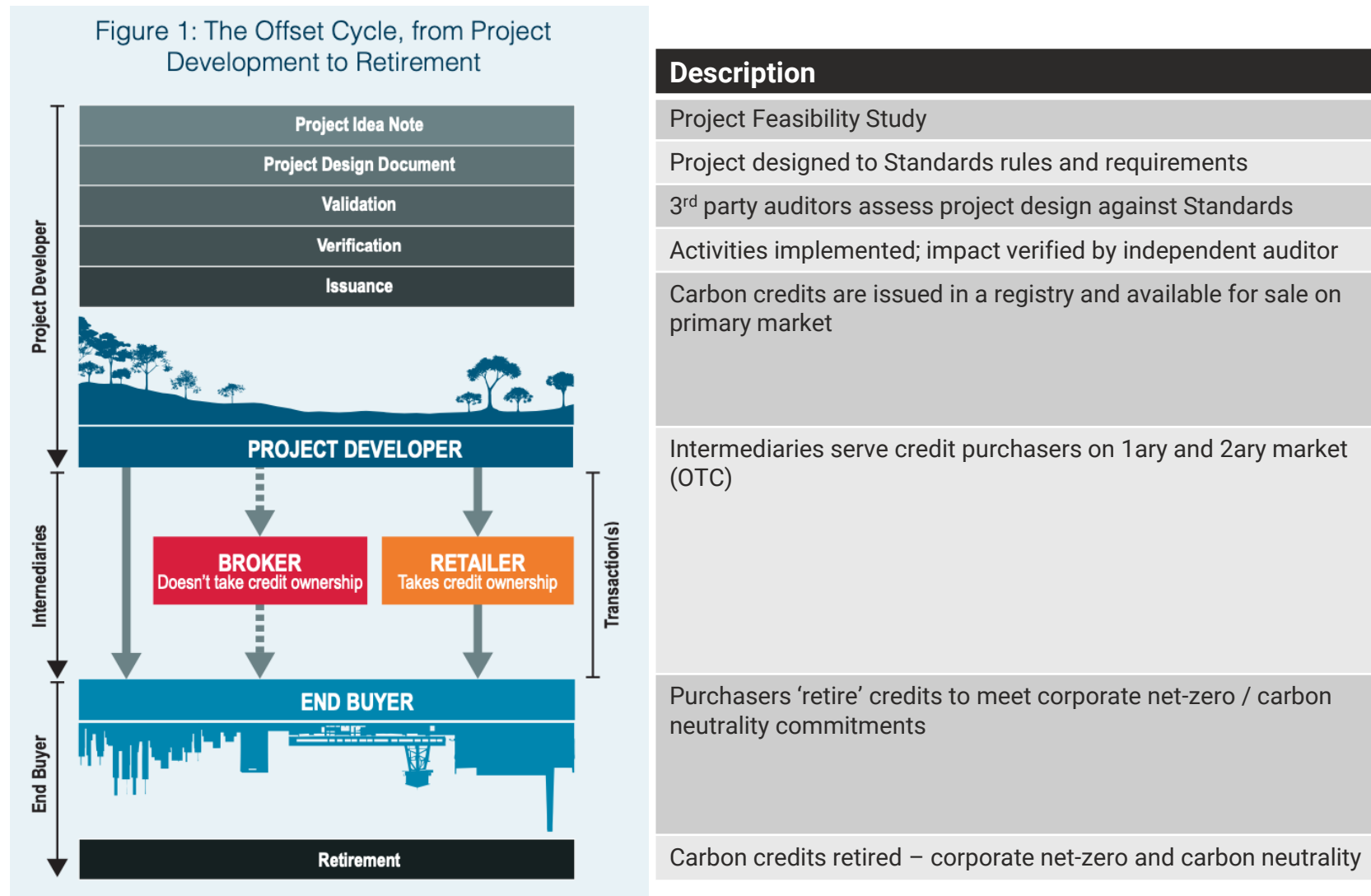
Over the past years a “label” for high-integrity carbon standards has emerged:

### The Core Carbon Principles

1. Effective governance
2. Tracking
3. Transparency
4. Independent validation/verification
5. Additionality
6. Permanence
7. Robust quantification
8. No double counting
9. Sustainable benefits
10. Net Zero transition

## HOW DO YOU MAKE A CARBON CREDIT FOR THE VOLUNTARY CARBON MARKET?

# How do you create a Carbon Credit and use it in the Voluntary Carbon Market?





02

# How is the market structured?



## HOW IS THE MARKET STRUCTURED AND WHAT ARE THE RECENT TRENDS?

Numerous organizations have emerged and are shaping the market



Source: Alex Prather, alexprather.co



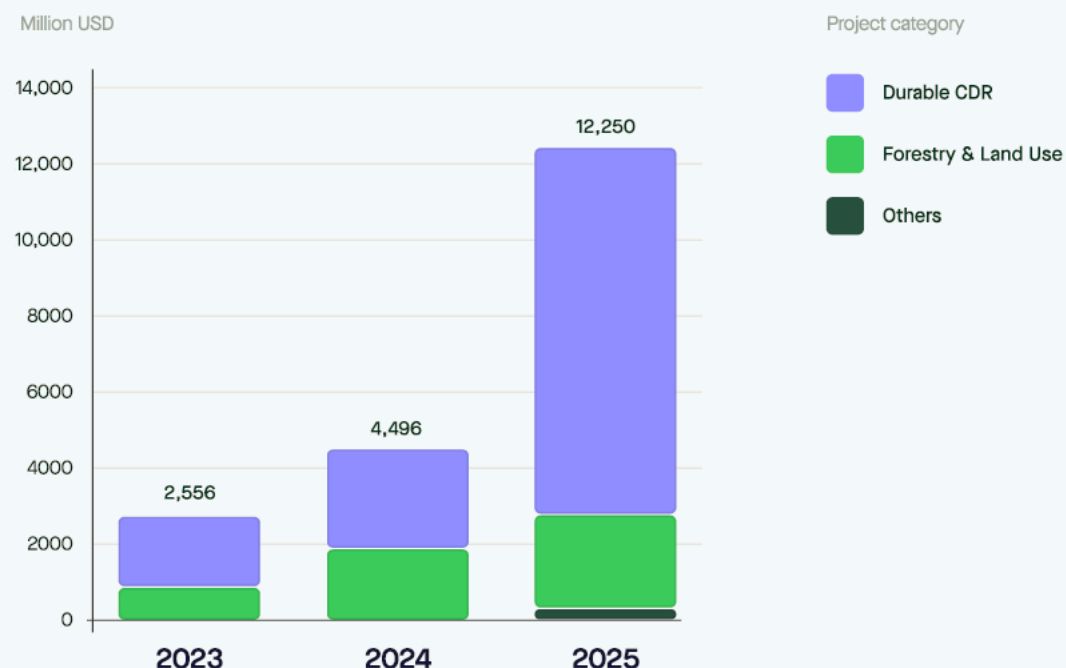
## HOW IS THE MARKET STRUCTURED AND WHAT ARE THE RECENT TRENDS?

# What is the size of the voluntary carbon market?

The market increase in value is driven by a rise in credit prices, and by a significant growth of the forward market

### Value of forward offtakes announced each year

Estimated contract value assuming full delivery



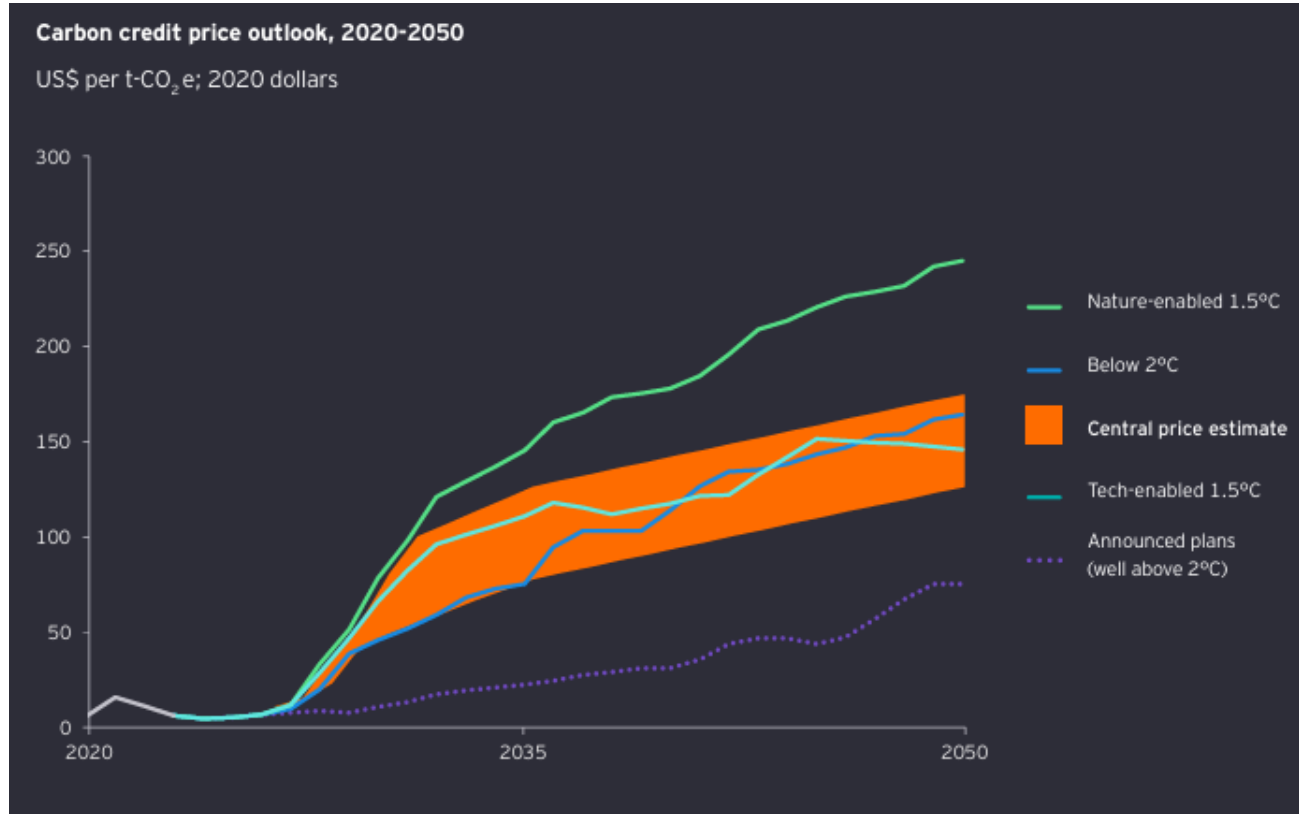
- Between 2023 and 2025 close to USD 20 billion was committed purchase carbon credits on a forward basis.
- The value of announcements rose from USD 2.5 billion in 2023 to USD 12.25 billion in 2025, marking a pivotal moment for the voluntary carbon-credit market.
- The value of such offtake contracts represents more than 12x the value of retired credits in 2025.



## HOW IS THE MARKET STRUCTURED AND WHAT ARE THE RECENT TRENDS?

# Price projections: Rising demand, high-quality supply costs could make carbon credits scarcer and more expensive

Credit prices are projected to rise to US\$75-125 per tonne in EY's central Paris-consistent outlooks



The central price estimate assumes:

- Nature-enabled 1.5°C Below 2°C Tech-enabled 1.5°C Announced plans (well above 2°C)
- Countries and companies move reasonably quickly to implement on-ground actions and policies consistent in aggregate with the Paris Agreement
- Action may be 'back-loaded' requiring additional effort after 2035
- Substantial market frictions and imperfections could persist past 2050
- Technology costs could fall more quickly than assumed in the Below 20C scenario

02

# How are Carbon transactions and investment structured?



### Different types of carbon purchase transactions

| PRE-PURCHASE AGREEMENT                                                                                                                      | STREAMING AGREEMENT                                                                                                                                                     | OFFTAKE AGREEMENT                                                                                           | SPOT / BROKERAGE AGREEMENT                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Buyer provides upfront capital to support project development and implementation in return for delivery of a given number of carbon credits | Buyer provides upfront capital to support project development and implementation in return for a percentage of delivery of carbon credits over a certain period of time | Buyer commits to purchasing a predetermined volume of carbon credits at a predetermined price in the future | A buyer commits to pay for a certain volume of carbon credits with immediate payment and delivery. Brokerage fees can apply on top of the purchase price |

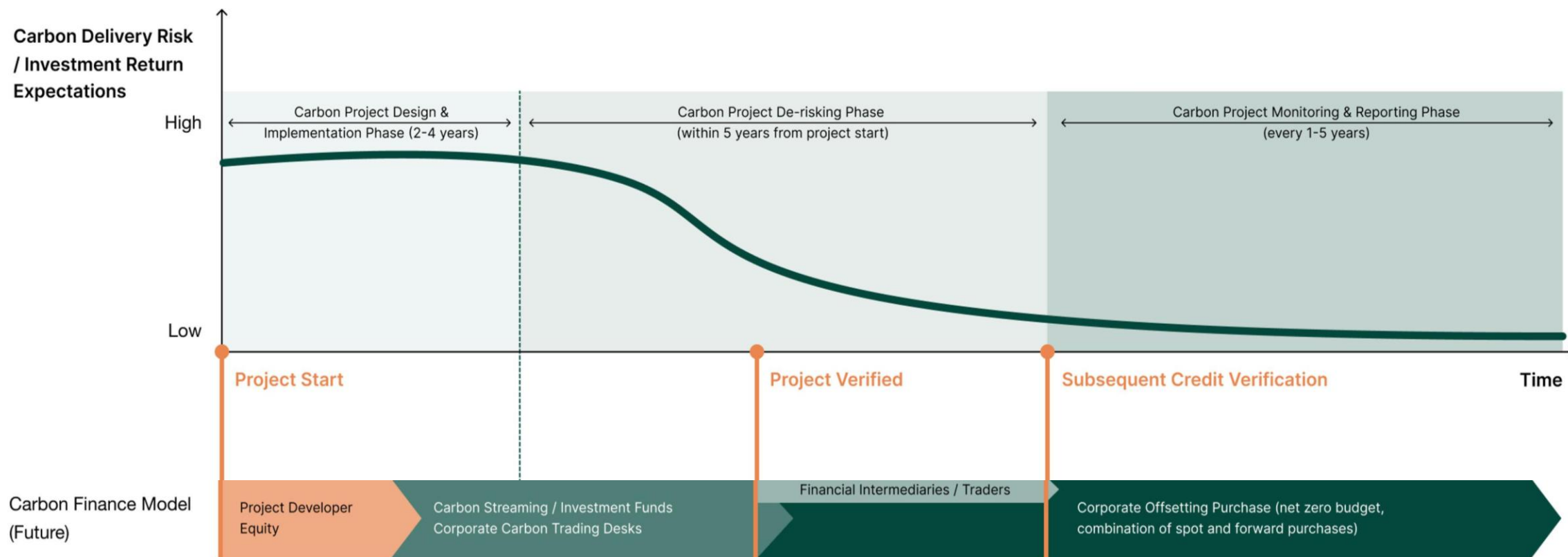
These are financing instruments that provide project capital upfront

These are tools enabling revenues which in turn support the mobilisation of debt or equity investments



## HOW ARE CARBON TRANSACTIONS AND INVESTMENT STRUCTURED?

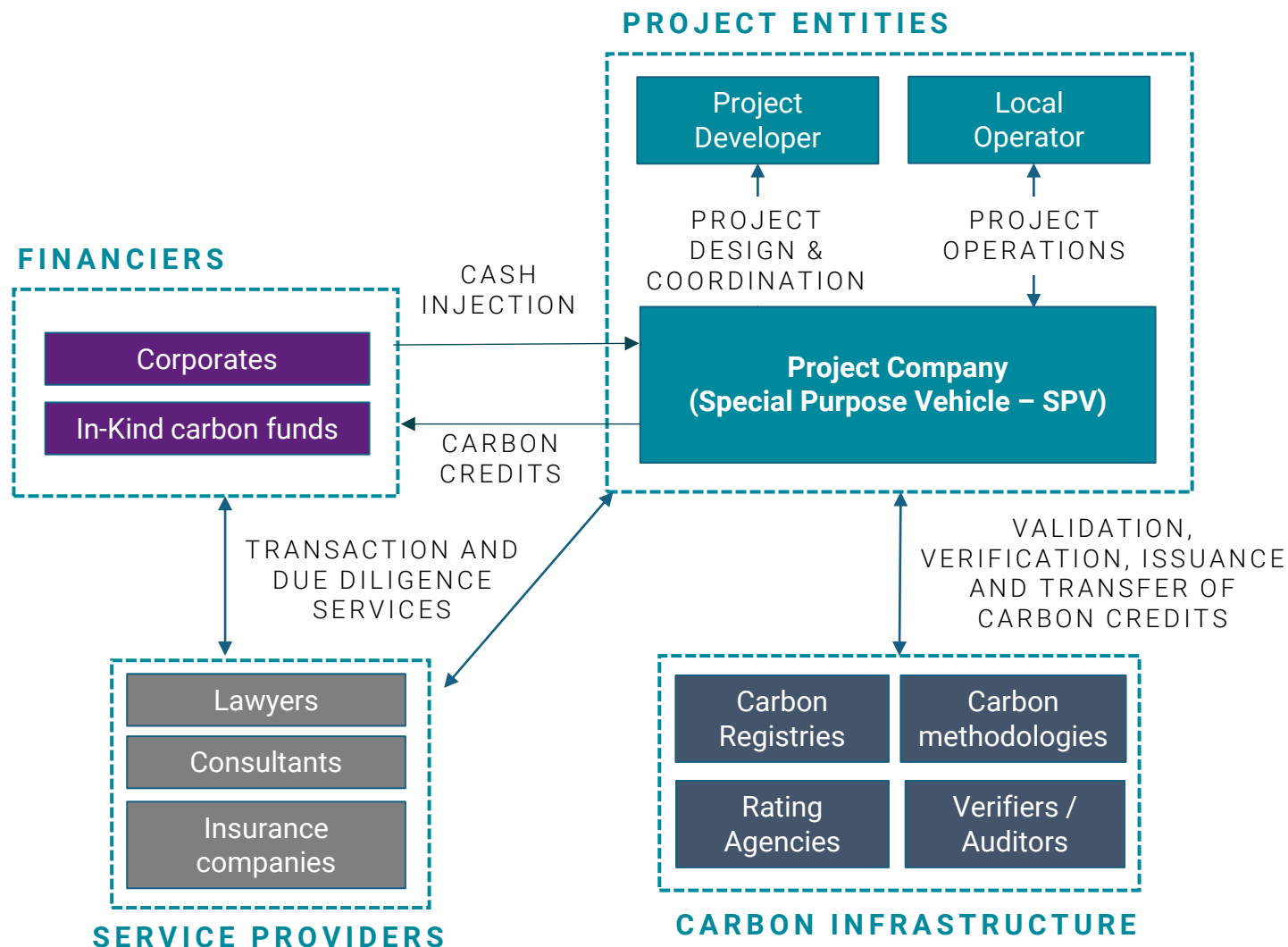
# Different types of financing needs to implement the projects



## HOW ARE CARBON TRANSACTIONS AND INVESTMENT STRUCTURED?

### Carbon pre-purchase approach

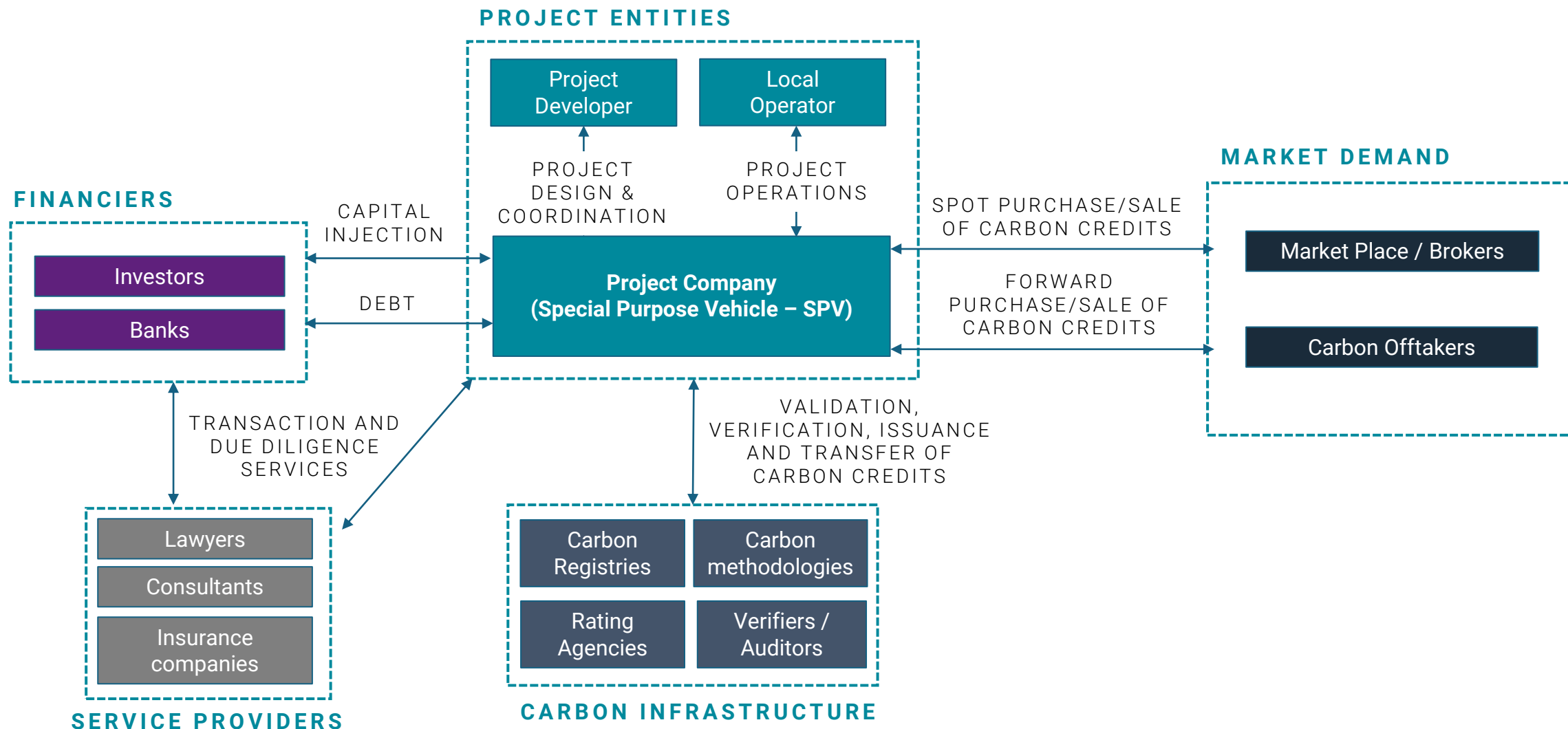
Many corporates and funds have emerged to provide pre-purchase funding to projects



## HOW ARE CARBON TRANSACTIONS AND INVESTMENT STRUCTURED?

### A project finance approach

The market is maturing and is progressively mirroring more mature markets (e.g. infrastructure)





03

# Project Illustration



# rePLANET : farmers-led reforestation & rotational grazing project in Costa Rica



Status



- rePLANET aims to restore **30,000 hectares** of degraded pasturelands in **Costa Rica** implemented on privately-owned farms.
- A total of **7,500 hectares** are **expected to be reforested**, focusing on riparian areas to create wildlife corridors. The remaining **22,500 hectares** are **planned to transition to rotational grazing**, a holistic planned grazing approach.
- ~5.2 million tons CO2e over 40 years** expected to be **sequestered** and **substantial social co-benefits** brought to the **farmers involved and local communities** (through a strong incentive model – ca **50% of project revenues**). **Biodiversity co-benefits** are also expected and shall be measured using the **Wallacea methodology**.
- Mirova is financing the Development Phase of the project, after having financed a Predevelopment phase, enabling the start of operations and scale-up, through a **long-term project financing** reimbursed with a carbon credits stream.
- The financing is intended to support, among others:
  - Long-term viability** through self-financing features and stress testing
  - Alignment of stakeholders' interests** through incentive mechanisms and ESAP/OTAP
  - Permanence** through appropriate and fair benefit sharing schemes

## Transaction Overview

|                   |                              |
|-------------------|------------------------------|
| Signing Date      | March 2025                   |
| Approach          | ARR (VM0047) & IALM (VM0042) |
| Instrument        | VERPA                        |
| Geography         | Costa Rica                   |
| Investment Amount | USD 20 million               |



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