

Voluntary Carbon Market

an overview

*focusing on
Nature-based Solutions / Natural Climate Solutions*

- Concept / Structure
- Project types
- Standards
- Credibility & Abuse
- Emerging developments
- References

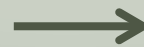
Concept / Structure

The voluntary carbon market (VCM) facilitates the creation and sale of greenhouse gas (GHG) reduction/removal projects which make it possible for individuals, organizations, companies, and governments to offset their GHG emissions which they're unable to reduce themselves.

Because the VCM is self-regulating and market-driven, offset quality varies.

- Currently no over-arching standard to regulate offset quality
- Even within a portfolio of high-quality offsets, market ultimately drives their construct.

In the VCM, 'credits' are generated for project owner when the project is verified/certified. Project programs use their own terms for them. Once they are sold, they're retired by the registry (so they can't be used twice) and become *offsets* for their purchaser(s).



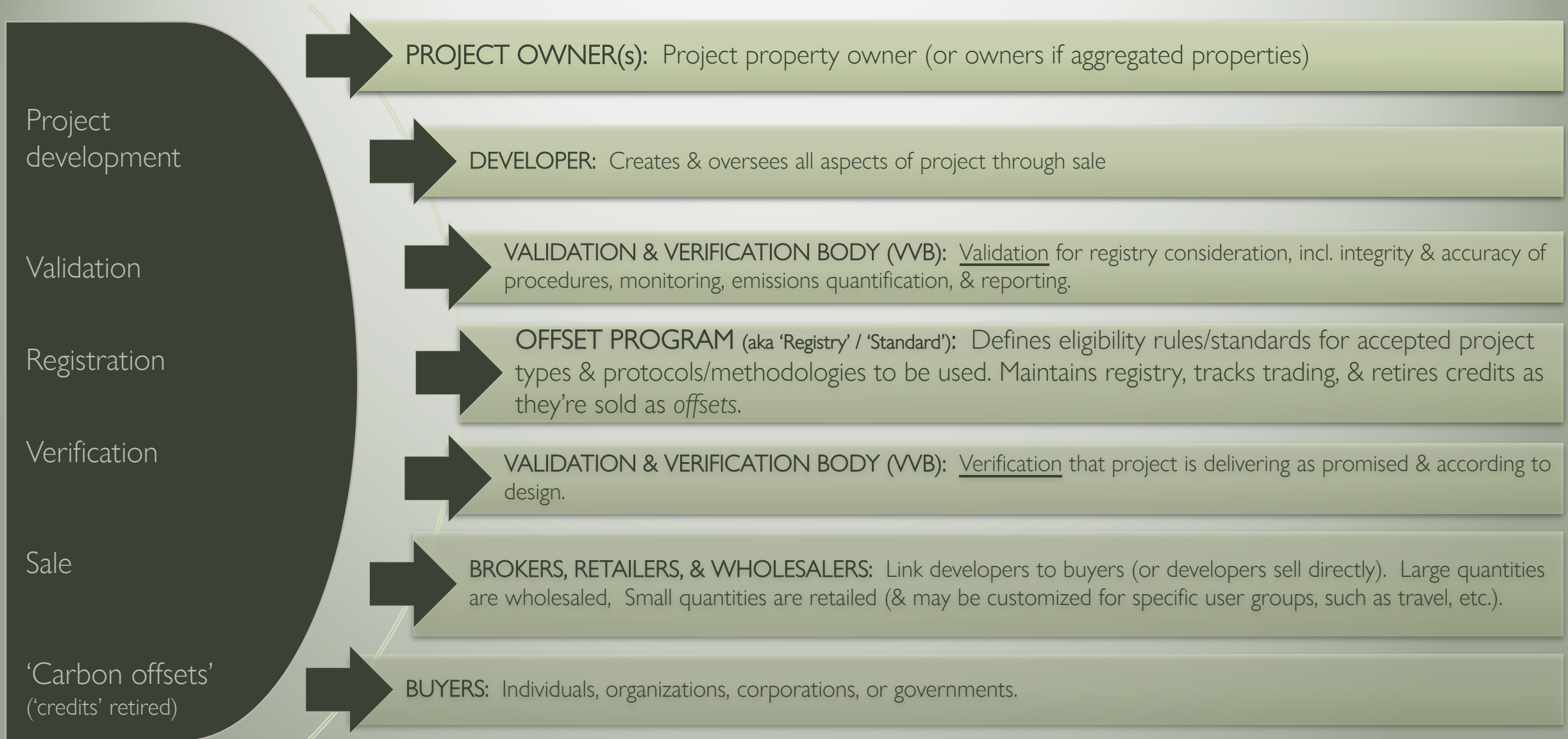
Terms used for 'credits' by the top project programs:		
CRT	Climate Reserve Tons	Climate Action Reserve
ERT	Emissions Reduction Tons	American Carbon Registry
VCU	Verified Carbon Units	Verra
VER	Voluntary Emissions Reductions	The Gold Standard

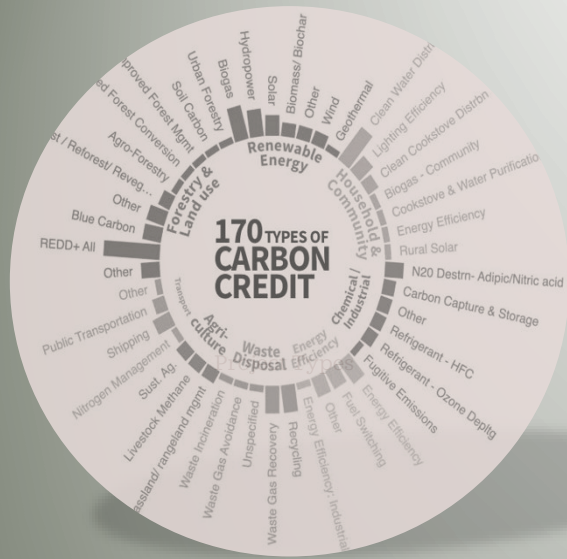
Often used interchangeably...

Carbon Offset: The term given to represent the removal of 1 metric ton of carbon dioxide/equivalent (MTCO₂e) after it's been purchased and retired through the VCM.

Carbon Credit (aka Carbon Allowance): The term given to represent the reduction of 1 MTCO₂e that is tradeable in regulatory/compliance markets such as the California Air Resources Board (CARB) cap-and-trade program and others.

Process and Participants





Project types in the overall category of AFOLU (Agriculture, Forestry, & Other Land Use) which are considered Natural Climate Solutions (NCS) &/or Nature-based Solutions (NbS), currently comprise the largest share of project types in the VCM.

Offset programs offer several accepted project types in AFOLU categories such as:

- Afforestation, reforestation, revegetation
- Agricultural land management
- Agroforestry
- Avoided conversion of grasslands and shrublands
- Improved forest management
- Livestock Management
- Reduced emissions from deforestation and degradation
- Wetland restoration and conservation

Natural Climate Solutions (NCS)

are actions that increase carbon storage and/or avoid greenhouse gas emissions by conserving, restoring, or improving the use or management of ecosystems.

While maximizing the climate mitigation potential of nature, they also provide co-benefits including:

- Improved soil
- Improved air and water quality
- Increased biodiversity habitat
- Increased resilience to climate change

Forests & Woodlands	<ul style="list-style-type: none"> • Reforestation • Avoided Forest & Woodland Conversion • Natural Forest Management • Improved Forest Plantations • Deferred Timber Harvest • Avoided Wood Fuel Harvest • Fire Management
Agriculture	<ul style="list-style-type: none"> • Biochar • Nutrient Management • Compost Amendments • Cover Crops • Trees in Croplands aka Agroforestry • Conservation & Regenerative Agriculture • Grazing: Animal Management / Legumes / Improved Feed / Optimal Intensity • Improved Manure Management • Improved Rice Cultivation

Grasslands & Shrublands	<ul style="list-style-type: none"> • Grassland Restoration • Avoided Grassland Conversion • Sagebrush Restoration • Avoided Sagebrush and Brushland Conversion
Riparian Reforestation	<ul style="list-style-type: none"> • Interior and Coastal
Urban	<ul style="list-style-type: none"> • Reforestation • Grassland/Pollinator Restoration
Wetlands & Peatlands	<ul style="list-style-type: none"> • Peatland Restoration/Re-wetting • Avoided Peatland Impacts/Loss • Avoided Coastal Wetlands Impacts/Loss • Tidal Wetland Restoration & Reconnecting/Re-wetting
Intertidal Zone	<ul style="list-style-type: none"> • Seagrass Restoration • Avoided Seagrass Loss

STANDARDS* DETERMINE QUALITY

Quality offset credits must be:

- **Additional**
 - The amount of emissions captured, stored, or prevented from reaching the atmosphere compared to what would happen without the project.
 - Subjective & can rely on owner's intent
- **Accurately measured & monitored** ... in order to avoid:
 - Over-estimating baseline emissions (affects additionality)
 - Under-estimating actual emissions (affects reductions promised)
 - Failing to account for 'Leakage' (indirect effects of a project on GHG emissions)
 - Intended – emissions increases caused by project
 - Unintended – emissions increases caused by project outside of its boundaries (ex: shifting timber production)
- **Permanent**
- **Claimed only once**
- Able to ensure there are **no significant harms to society or environment** ... some may require conformance with UN Sustainable Development Goals (SDGs) and/or inclusion of co-benefits



* Program standards have origins in the U.S. Clean Air Act's (1977) concepts of being real, quantifiable, & verifiable. Many follow similar guidelines as those in the Clean Development Mechanism (CDM) of the United Nations Framework Convention on Climate Change (UNFCCC). Stand-alone standards do not guarantee the quality of offset credits without a regulatory body for certification/verification or the registration and enforcement systems to track them and ensure legal ownership.

Abuse

Recent growth of the VCM has brought it under increased scrutiny raising issues relating to the credibility of offsets and how they're used. Offset quality can be compromised at any step in the process by any participant.

The main & most frequent criticisms:



NO OVERARCHING STANDARD
to regulate offset quality facilitates 'race to the bottom' for questionable offsets



ADDITIONALITY
"The Existential Axe"
(owner's intent)
Over-estimated baseline emissions



FAILURE TO DELIVER
Improper accounting for baseline emissions, actual emissions, and/or 'leakage'



LICENSE TO POLLUTE
Paying someone else to reduce emissions so you don't have to reduce your own



GREENWASHING
Marketing products/services as eco-friendly in order to continue and/or increase their use.



DELAYS GHG REDUCTIONS
PERPETUATES BAU: license to pollute & greenwashing. DISINCENTIVIZES: industry R&D, regulating GHG emissions

Important but less frequent criticisms:



CLAIMED ONLY ONCE:
International transactions involving countries' climate pledges are most problematic.



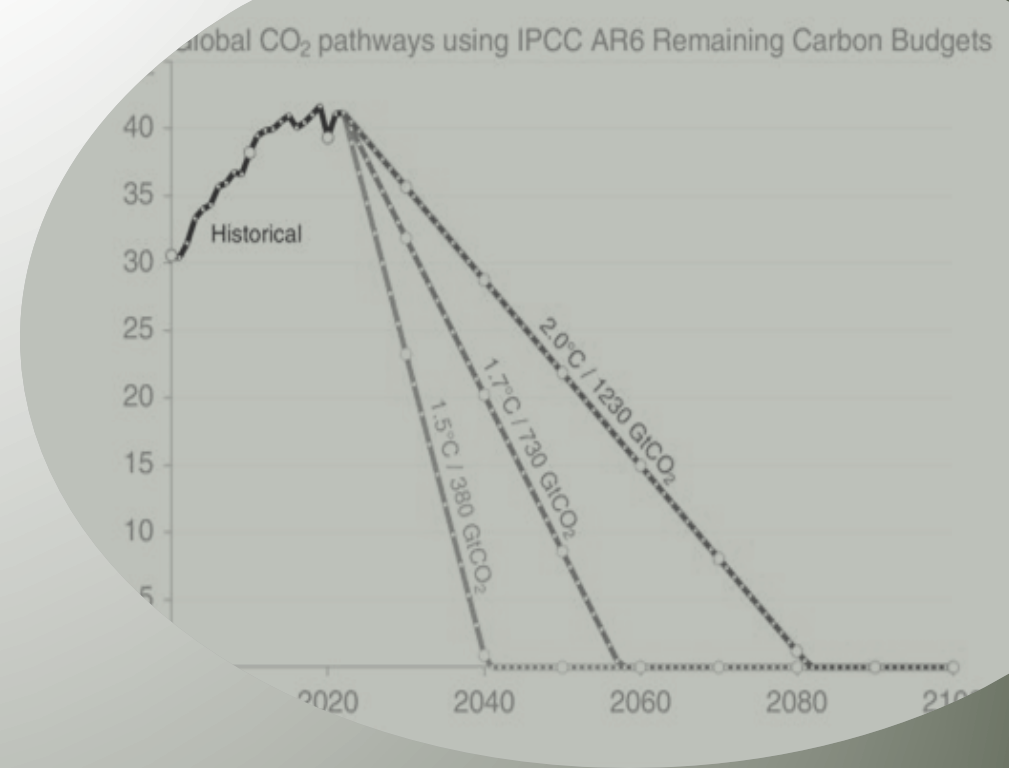
PERMANENCE
Ex: Are 'buffer reserves' for natural disturbances adequate to face increasing climate impacts?



SOCIETAL &/OR ENVIRONMENTAL HARM
Exs: Impacts to Indigenous Peoples & perpetuating BAU impacting frontline communities

Until high quality offsets become the norm and are used more responsibly (to reduce impossibly unavoidable emissions), critics of the market will understandably continue to call attention to the VCM's flaws and the danger of relying on inflated projections and masking inaction for progress. There remains a desire from both a financial perspective and an environmental one for the VCM to increase its credibility so that it can succeed:

- The VCM stimulates participation among larger & more diverse groups of stakeholders than compliance markets and expands the reach of mitigation projects through aggregation.
- With standards for quality, guardrails for integrity, and principles for use, the current \$2B market is projected to grow to as much as \$50B by 2030, providing much needed funds for climate mitigation efforts.



“Companies and organizations will need to use every tool at their disposal to achieve emission reduction goals. ‘Carbon offsets’ are one such tool that – if used responsibly – can accelerate action to avert dangerous climate change.”
~ Stockholm Environmental Institute

Emerging **Developments**

US Federal interest in increasing participation, addressing barriers to entry, technical assistance, improved standards/protocols, & market scrutiny:

- “Consolidated Appropriations Act of 2023”: After review of markets and initial assessment, the USDA is expected to create the “Greenhouse Gas Technical Assistance Provider and Third-Party Verifier Program” with online resources.
- US Commodity Futures Trading Commission (CFTC): increasing scrutiny for both derivatives and underlying cash market.

The Integrity Council for the Voluntary Carbon Market was established in March 2022, to act as an independent governance body of the VCM. After public consultation launched in July of 2022, this industry-led effort will unveil its Core Carbon Principles (CCP) and Assessment Framework (AF) in 2023 accompanied by high-integrity labels for carbon credits and resources for CCP-approved programs.

United Nations Framework for Convention on Climate Change (UNFCCC) passed Article 6 during COP26 in 2021. This created a mechanism to avoid double counting of Nationally Determined Contributions (NDCs) resulting from the international investment in and transfer of carbon offsets.

Carbon Offset Rating Providers are emerging and may become part of the VCM supply chain.

New methodologies & technologies continue to improve measurement accuracies & monitoring.

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