

UNDERSTANDING THE ROLE AND COMPLEXITIES OF VOLUNTARY CARBON CREDITS

Goals of Today

- What is the Voluntary Carbon Market
- Evolution of the market
- Position within carbon markets and pricing mechanism for emissions
- Types of credits creation methodology
- ✓ How are credits generated from projects
- ✓ What and who is involved in their creation and retirement



DEFINITION OF VOLUNTARY CARBON CREDITS

Voluntary carbon credits serve as a market-based instrument that provides certificates representing a reduction of 1 metric ton of carbon dioxide or equivalent of other GHG's allowing individuals and organizations to compensate for their carbon footprint by investing in projects that reduce or remove greenhouse gas emissions from the atmosphere

STORAGE



Important to note that although it is called a carbon credit, it represents credits generated for all the noted GHG's that are generated and reduced

FUN FACT

Joseph Priestly

He discovered O2 and CO. a German chemist discovered CO2, but Joseph figured out how to use it to carbonate drinks and published a pamphlet in 1772 called impregnating water with fixed air. J.J. Sweppe used the process. Priestly is considered the father of the soft drink.



GHG DEFINITIONS AND RELATIVITY

What is CO2e: GHG type factored by the Global Warming Potential (GWP) scale over a specified period, typically 100 years.

Greenhouse Gas	Chemical Formula	Global Warming Potential (GWP) over 100 years
Carbon Dioxide	CO2	I
Methane	CH4	28
Nitrous Oxide	N2O	265
Fluorinated Gases (F-gases)	Various	7,000 – 12,200
Chlorofluorocarbons (CFCs)	Various	3,700 – 12,000



WHAT ARE CREDITS AND OFFSETS

- Credits
- Offsets

HISTORY

1990

Early experimentation with carbon offsetting and voluntary carbon markets First carbon offset projects emerge, primarily in the forestry sector Initial standards and guidelines for carbon offsetting are developed

2006

The Verified Carbon Standard (VCS) is re-launched with a new governance structure Becomes one of the leading standards for voluntary carbon credits

2018

The Taskforce on Scaling Voluntary Carbon Markets (TSVCM) is established Aims to scale up the voluntary carbon market to support global climate goals

2000

The Gold Standard for carbon credits is launched Focuses on high-quality, communityled projects with sustainable development benefits

2002

The Voluntary Carbon Standard (VCS) is established Provides a widely recognized standard for voluntary carbon credits

2005

The Chicago Climate Exchange (CCX) is launched First voluntary carbon market exchange, providing a platform for buying and selling carbon credits

2008

The Clean Development Mechanism (CDM) is established under the Kyoto Protocol While not exclusively a voluntary market, the CDM sets a precedent for large-scale carbon offsetting

2020s

Growing interest in REDD+ (Reducing Emissions from Deforestation and Forest Degradation) and other land-use sector projects

Increased focus on high-quality, highintegrity carbon credits Emphasis on additionality, permanence, and sustainable development benefits

2010s

Growth and consolidation in the voluntary carbon market New standards and registries emerge (e.g., SocialCarbon, Plan Vivo)

Existing standards and registries evolve and expand

2015

The Paris Agreement is adopted, setting a global goal to limit warming to well below 2°C

2020

The International Carbon Reduction and Offset Alliance (ICROA) is launched

A global alliance of voluntary carbon market stakeholders promoting best practices and integrity



Growth through companies voluntarily working to reduce their carbon footprint



PARIS AGREEMENT

Article 6

- Nationally Determined Contributions (NDC)
- Global Stocktake
- Article 6 Global Carbon Market
- Sustainable Development
 Mechanism
- Climate Change Adaption
 Provisions

VCM FUNDAMENTALS

Still under negotiation

Linkage of carbon trading systems

International transfer of mitigation outcomes (ITMO)

Corresponding Adjustments

Sustainable Development Mechanism (SGD)



Scope I

Direct GHG emissions that occur from sources that are owned or controlled by the organization.



Scope 2

Indirect GHG emissions that result from the generation of purchased electricity, steam, heating, and cooling consumed by the organization.



Scope 3

All other indirect emissions that occur in the value chain of the reporting company, including both upstream and downstream emissions - INSETTING

GHG EMISSION CLASSIFICATIONS



AVOIDANCE CREDITS

Avoidance:

Reducing emissions by avoiding activities that release CO2, including Renewable Energy: Transitioning from fossil fuels to solar, wind, and other low-carbon



Electrification:

Switching from fossil fuels to electricity for heating, transportation, and industry.



Energy sources



Carbon Capture and Storage (CCS):

Technologies that capture CO2 emissions from power plants and industrial processes, followed by storage in geological formations, including:



Energy Efficiency:

Improving energy efficiency in buildings, transportation, and industry.



Post-combustion capture:

Capturing CO2 from flue gas emissions. <u>Pre-combustion capture:</u>

Capturing CO2 from fuel before it is combusted. Oxyfuel combustion: Burning fuel in pure oxygen to produce a CO2-rich gas stream.

CDR REMOVALS

CDR Removals are technologies that remove CO2 from the atmosphere including;

Nature-based CDR



Afforestation/Reforestation: Planting trees that absorb CO2 as they grow.



Soil Carbon Sequestration: Practices that enhance soil's ability to store carbon.

Tech-based CDR

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Bioenergy with Carbon Capture and Storage (BECCS):

Producing energy from biomass and capturing the CO2 emissions.



Direct Air Capture (DAC): Technologies that capture CO2 directly from the air.





KEY PARTICIPANTS FOR PROJECT DEVELOPMENT

Independent Auditors	
Measurement, Reporting, Validation (MRV, dMRV)	
Investors	
 Rating Agencies	
Insurance	
 Standards and Registries	
 Brokers & Traders	
 Government – policy & regulation	
 Key Associations	

IMPACTS OF OFFERING CREDITS AS PART OF PROJECT DEVELOPMENT VERSUS ISSUANCE AFTER VERIFIED PROJECT MEASUREMENTS

Buying Carbon Credits for Future Supply

Purchasing carbon credits for a project that has not yet been implemented or has not yet generated emissions reductions.

Typically, less expensive than buying verified credits

May support project development and financing

May not guarantee actual emissions reductions

Buying Carbon Credits for Verified Emissions

Purchasing carbon credits that have already been verified by an operational project.

Typically, more expensive than buying future supply credits

Guarantees actual emissions reductions May have a lower risk of project nondelivery or under-performance

