GBBC Global Blockchain Business Council

GBBC InterWork Alliance

Carbon Markets Overview

What are carbon markets?

"Carbon pricing mechanisms enabling governments and non-state actors to trade greenhouse gas emission credits." [1]

2 Types of Markets:

Compliance Markets

- Participation required by regulation
- Carbon credits are issued by a central authority and sold as allowances to emit
- If emitters use fewer credits than purchased, they can sell/trade the excess
- The number of credits decreases yearly, reducing the emissions cap (known as "Cap & Trade")

Voluntary Markets

- Participation driven by non-regulatory reasons, like achieving net-zero goals
- Credits are project-based, granted for activities that reduce, avoid, or remove carbon
- Credits can be sold and retired by buyers to offset emissions

It is anticipated that these markets will converge, with a mix of allowance and project based credits being utilized by organizations.

What is a carbon credit?

An amount of CO2 or CO2 equivalent (CO2e) which represents either the reduction, removal, or avoidance of greenhouse gas (GHG) emissions based on proven activities by a project.

Can be bought and sold by organizations for use in the offsetting of emissions or to meet climate-related goals.

What is carbon offsetting?

The process or action by which an entity reduces its overall carbon emissions profile through the purchase and retirement of carbon credits. These credits are matched to an equivalent amount of carbon emissions from the organization to lower its overall emissions profile.

Key Entities [2]

Validation/Verification Bodies (VVBs)

Contracted to conduct third-party assessments of environmental claims, based on a standard, to ensure that the protocols and methodologies were followed and that the evidence supports the claims.

Historically hired by project developers to provide a service and are authorized by the appropriate standards body (e.g., Verra, Gold Standard). VVBs do not carry legal liability for their assessments; that falls to project developers. Efforts are ongoing to establish legal frameworks around voluntary markets.

Quality Standards

Puts forth the requirements for the measurement of outcomes, based on approved methodologies or protocols, that result in high-quality credits being issued.

A Quality Standard can encompass a Standard Protocol or Methodology, a crediting program, measurement tools, and certification requirements for a VVB.

Project Developer

The entity which manages environmental projects, records environmental impacts, and reports those impacts to verifiers to facilitate the issuance of credits.

Certification Standards Bodies

Creates and certifies science-based standards, e.g., protocols and methodologies, for measuring environmental impacts and benefits. This may be an industry consortium, academic partnerships, or a single organization.

1 "Carbon Markets" (UN Environment Programme)

2 "Digital Measurement, Reporting & Verification (dMRV) Framework - Version 2" (GBBC InterWork Alliance)

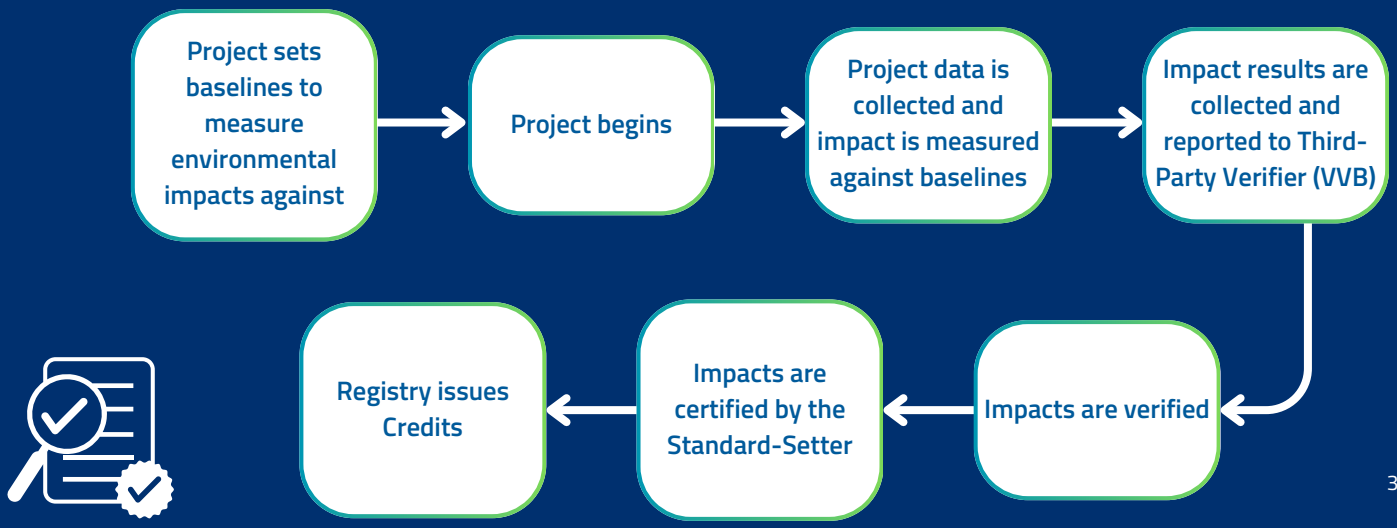
MRV & dMRV

What is MRV?

Measurement, Reporting, and Verification (MRV) encompasses the processes used to track, record, validate, and verify claims made about an environmental project and represents the origination process for carbon credits.

Allows for the assessment and evaluation of environmental projects to prove that the amount of carbon claimed to be reduced or removed is valid.

The data reported from the MRV process is then used by third parties to determine if the results can be certified and carbon credits can be issued.



What is dMRV?

Digital, or digitized, Measurement, Reporting, and Verification (dMRV) is an approach to MRV which implements digital technologies and automation to streamline the MRV process, increase the reliability and accuracy of environmental data, and increase transparency around environmental impacts and claims.

Examples of dMRV features: sensors and satellites used to collect data, blockchain to tokenize environmental claims and carbon credits, software to analyze environmental data and package it for validation/verification purposes.

What does dMRV enable?

- Improved market integrity
- Transparency around environmental actions
- Verifiable provenance of data for use in validation of climate impacts
- Traceability for carbon credits
- Scalability and process efficiency
- Prevention of double-counting (when a carbon credit is inadvertently or maliciously used multiple times for emissions offsetting)
- More granular and accurate data

What is tokenization?

The process by which something, e.g., an asset, is represented digitally and stored on a blockchain or other data storage. These tokens can represent any object of value, both tangible and intangible, and act essentially as a digital certificate of ownership. Organizations are able to better leverage new and emerging technologies, improve processes, and enable better accuracy, transparency, and reliability of data.[4]

3 "What You Need to Know About the Measurement, Reporting, and Verification (MRV) of Carbon Credits" (World Bank)

4 "Asset Tokenisation" (PWC)

The IWA's dMRV Framework

What is the InterWork Alliance's dMRV Framework? [5]

The IWA's dMRV Framework defines the terminology, roles, process workflows, generic evidence packaging, and attestations that digital MRV solutions should follow to originate environmental assets like carbon credits.

Features: Generic roles-based process, extensible data model for consistent taxonomy, definition of variables to enable the application of a wide variety of standards, protocols, and technologies.

How can organizations use the dMRV Framework?

The dMRV Framework outlines a multiparty, extensible workflow and data model for the creation, origination, or manufacturing of a credit. The involved parties use the dMRV Framework to form a supply chain, where each party assumes one or more defined roles.

This framework serves as an operating model for organizations to either form or join an existing dMRV supply chain and participate in the process. The use of the framework depends on the organization's role, whether as a project developer, financier, VVB, issuer, or buyer. The project developer, VVB, and issuing registry play the most significant roles in the process. The primary benefit of using the dMRV Framework is the establishment of a common foundation, terms, process, and data, enabling these organizations to form supply chains and participate in multiple ones simultaneously.

The dMRV Framework is designed to be extensible, allowing it to work with any credit issuing program and set of methodology or protocol modules. The framework and its extensions are designed to be highly reusable, maximizing returns on a shared technology foundation.

Final Note

dMRV extends beyond carbon credits; GBBC works in standards around Carbon Emissions Tokenization and Supply Chain that tie into this discussion. Stay tuned for more educational content around dMRV and carbon markets.

IWA is open to collaborating with other organizations looking at dMRV and related areas of sustainability. Please reach out to **iwa@gbbcouncil.org** if you are interested.

You can find the full dMRV Framework **HERE**.

5 "Digital Measurement, Reporting & Verification (dMRV) Framework - Version 2" (GBBC InterWork Alliance)