

Web3 Carbon Database: Delving Deep

In the blossoming world of the ReFi industry, where the digital and environmental sectors intersect, the carbon tokenization domain stands out with its unique challenges and opportunities. However, navigating this expansive terrain requires clarity and precision. [ECOTA](#), in a collaborative effort with [PositiveBlockchain.io](#), rose to this challenge, employing the methodical approach of ecosystem mapping to decipher this vast domain.

Carbon Tokenization

Carbon or Environmental credits have existed since decades and started to see a growth in adoption and attention in the past two years because of their potential to solve some of our burning climate change issues. However, the current market is frequently judged opaque, unorganized, and fragmented.

Entrepreneurs and creatives in the blockchain and web3 space have seen opportunities since 2016 to address some of these issues. With the increase in maturity and democratization of technologies such as Smart Contracts, Tokenization, NFTs, Oracles, DAOs, and more, a real ecosystem has emerged in the carbon x web3 space – especially in 2021 when unknown projects started to bring up to 5% of Verra credits on-chain to create new carbon credit-backed cryptocurrencies.

We can now count hundreds of projects active in the carbon value chain, whether it is in the origination of funding of environmental projects, data verification (dMRV), tokenization and trading, or offsetting. Blockchain technologies can bring many benefits especially to increase transparency, integrity, and organize better, more efficient and liquid markets to help mobilize capital for positive climate outcomes.

Figure 1: Web3 Carbon Database by ECOTA and PositiveBlockchain

	A Project name	A Website	A Description	HQ City	HQ Country	Year Creation
1	Open Forest Protocol	https://www.openforestpr...	an open platform to trans...	Lausanne	Switzerland	2020
2	Gainforest	http://gainforest.net	a transparent, scalable pl...	Zurich	Switzerland	2017
3	Avano	https://linktr.ee/Avano_io	a regenerative NFT marke...	Distributed	Distributed	2021
4	Solid World DAO	https://www.solid.world/	a DAO liquidity solution to...	Tartu	Estonia	2021
5	Regen.network	https://regen.network/	Regen Network, an all-in-...	Delaware	United States	2018
6	Reneum	https://reneum.com/	a climate tech solution all...	Singapore	Singapore	2019
7	Earthbanc	https://earthbanc.io/	a project financing carbo...	Stockholm	Sweden	2019
8	Treejer	https://www.treejer.com	a decentralized reforestat...	Tallinn	Estonia	2018
9	ecoriseDAO	https://ecorise.finance/	a DAO investing in earth e...	Distributed	Distributed	2021
10	Coorest	https://coorest.eu/	a decentralized carbon cr...		Estonia	
11	dclimate	https://www.dclimate.net/	an immutable record for c...		United States	2021
12	Open Earth Foundation	https://www.openeearth.org/	an independent climate a...	Los Angeles	United States	2020
13	Climatetrade	https://climatetrade.com/	a service that allows indiv...	Valencia	Spain	2017
14	CO2ken	https://www.co2ken.io/	a project which tokenizes...	Berlin	Germany	2020
15	Nori	https://nori.com	a company on a mission t...	Seattle	United States	2017
16	Verity Tracking	https://www.veritytrackin...	a startup project developi...	Denver	United States	2020
17	Changeblock	https://www.changeblock...	a platform connecting pr...	North Lambeth	United Kingdom	2021

Source: Own research as of October 2023, current version available [here](#).

Understanding Ecosystem Mapping

At its core, ecosystem mapping is a structured representation of a domain, much like a cartographer would map uncharted territories. For our study at ECOTA, the primary aim was to provide a comprehensive overview of the blockchain-based carbon market. Each delineation, each node on our map, represented either a project, a relationship, or a specific dynamic within the broader framework of carbon tokenization. With the foundational map set, the stage was primed for a more in-depth exploration.

The working group kicked off in November 2022 with the following members:

- Maximilian Roesgen, ECOTA (Co-Head)
- Lucas Zaehring, PositiveBlockchain, Blocksize Climate (Co-Head)
- Alison Filler, ClimateCollective
- Nadine Wilke, Particula
- Dan Graf, Earthchain
- Michele Saovi, ImpactScope
- Thibaud Lepelletier
- Nura Linggih, Pleno

Our Methodology

We have established a list of more than 185 projects active along the carbon value chain, using existing PositiveBlockchain entries and additional research from working group members. The inclusion criteria focused on projects actively developing or implementing a technology solution using blockchain/DLTs related to carbon markets in the Climate/ReFi space. We have looked at project activity and set up a list of information to look for and register on simple spreadsheets: project's details, geography, year of creation, blockchain platform used, token type and launch status, role in the value chain, type of carbon project and methodologies, etc.

Our working group members have aligned on the approach to review and qualify projects, perform research and fill out the database. We have also opened a [form](#) and invite projects to continuously register their update by submitting a new form response.

Our subsequent analysis was both methodical and revealing. The data aimed at presenting a clear picture of the blockchain-based carbon market's evolution. [As discussed in a webinar](#) held in July, the sector has witnessed consistent growth, with an evident increase in projects and stakeholder engagement in recent years. Delving deeper, the multifaceted nature of the carbon tokenization sector became evident. Projects varied widely in their focus, objectives, and methodologies. Furthermore, the industry's adaptive nature was underscored by several projects that modified or expanded their core objectives in response to technological advancements, market demands, or shifts in stakeholder priorities. The adaptive nature of the industry leads to one of the most challenging tasks of the analysis to be able to account for the continual and quick evolution of the ecosystem.

The research further categorized specific initiatives within the broader realm of carbon tokenization:

1. **Financing:** financing/funding carbon-positive project development and/or investing into companies along the life cycle of a tokenized carbon credit. These are the engines that drive

carbon-centric projects, managing and allocating funds. By leveraging blockchain, they ensure a seamless and transparent financing journey.

2. **(d)MRV:** (Digitally/Decentralized) Measuring, Reporting, and Verifying tokenized carbon credits. The integrity of carbon credits is paramount. dMRV initiatives function as gatekeepers, ensuring that each credit is a genuine representation of emission reductions.
3. **Tokenization:** representing carbon credits in a blockchain-based token. These initiatives focus on translating carbon credits into digital tokens, facilitating their trade, and management in the digital marketplace.
4. **Trading:** purchasing and selling tokenized carbon credits, carbon-backed currencies and carbon-backed assets. The objective here is to create a marketplace for carbon tokens.
5. **Retiring:** enabling the retirement of carbon credits and claiming the associated carbon offsets or insets. Retiring ensures that tokens are properly accounted for post-usage, preserving the system's integrity.

Why This Analysis Matters

This analysis's significance extends beyond academic interest. By demystifying the carbon tokenization sector, it equips stakeholders with actionable insights. For developers, investors, or policymakers, a lucid understanding of the landscape proves invaluable. ECOTA's research offers an organized overview of the carbon tokenization segment within the broader ReFi industry. Through our map and subsequent insights, we endeavor to provide stakeholders with a reliable knowledge foundation. As this sector continues its upward trajectory, such informed perspectives remain instrumental for its informed and sustainable progression.

Given its dynamic nature and continuous evolution, the objective of ECOTA is to keep updating the database to maintain relevant knowledge and understanding of the evolution of the industry, counting also on the support of companies included in the dataset to refine their classification.