End Global Warming

Tracer

Beyond the Blueprint: Vision, Solution, and Opportunities for a free-market based solution to restoring our climate

Wednesday June 26 2024
V1.2 public

Overview

A. Vision

B. Architecture

C. Deep dive

D. Financial instruments

Restoring climate is a huge opportunity but the market lacks essential instruments and mechanisms

Disruptive scalable blockchain innovation delivers both traceability and liquidity

Technical solution built on top of existing tools and standards, using disruptive technology

Sophisticated financial services unlock significant economic potential and value in a decentralized economy
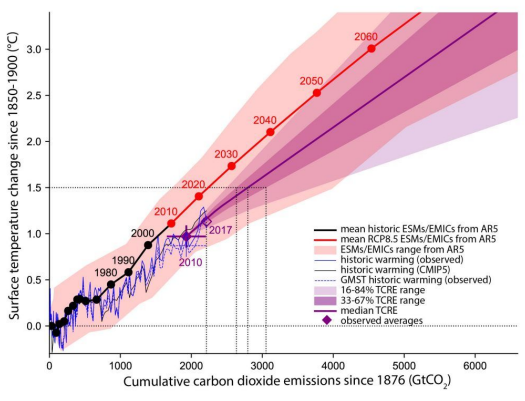
A. Vision

A gigantic ambition

Even with a carbon neutral economy, existing greenhouse gases will continue to warm the atmosphere and change the climate for thousands of years.

Tracer's architecture incentivizes and structures a functional Carbon Dioxide Removal (CDR) economy capable of restoring our climate.

Focus on removal

Avoidance and Reduction alone cannot remove the 2.2 trillion tons of CO2 already in the atmosphere.

Consensus is current efforts are insufficient: we are still emitting over 50 gigatons of CO2 annually and [even with net-zero emissions, temperatures will continue to rise](#)

+50Gt/yr

2200G
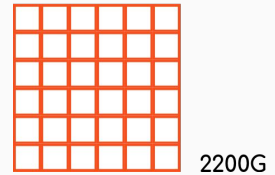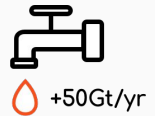
Tracer aims to help federate and accelerate scalable solutions to remove gigatons of CO2 per year.

Obligatory
AI image

A growing array of long-term carbon sequestration initiatives have the potential to restore our climate.

Typology of CDR approaches

approach vs. source	ocean	land	air
biological	Iron fertilization, Artificial upwelling, Floating islands	Biochar, Soil carbon sequestration, Microbial solutions	
chemical	Ocean alkalinization, Enhanced rock weathering in Oceans	Enhanced weathering, In situ carbon mineralization	Iron salt aerosols
mechanical	Direct ocean capture	Carbon capture and storage, Building materials	Direct air capture

Success factors

1. **Persistence Premium**

2. **Scalable approach**

3. **Robust traceability**

4. **High liquidity**

5. **Governance oversight**

Delivering on such an ambitious vision and supporting a successful carbon dioxide removal economy requires essential qualities

Tracer

1. Premium for persistence

Short term or reversing CDRs need to be purchased multiple times for the same climate impact. To compare the climate impact of various CDR solutions on a physical basis, the persistence of sequestration is the primary metric.
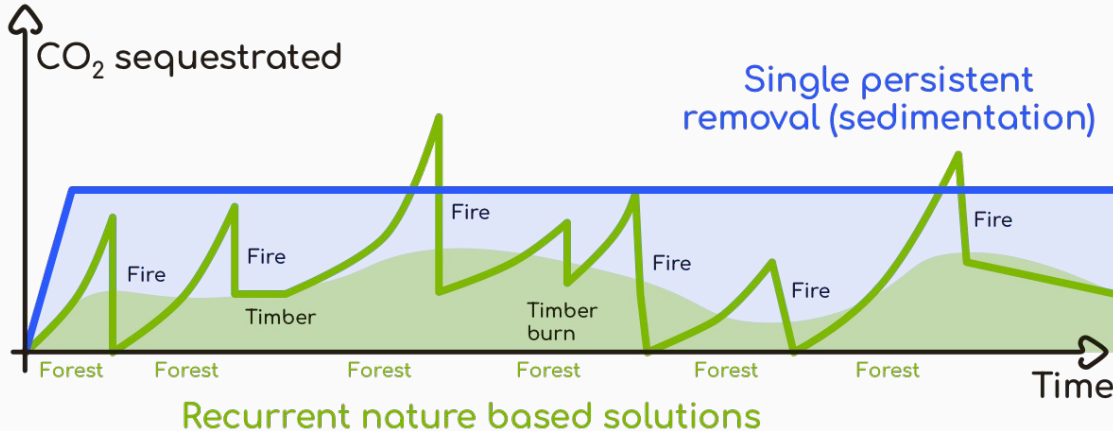
Introducing **"grade"** as an indicator of persistence, how close to permanent is sequestration, enabling the objective value comparison of projects.

2. Scalable approach

Scalability needed to reach critical mass
Achieving climate impact by removing 2.2 trillion tons of CO2 will take 2200 gigaton scale projects...

Tracer solution
Decentralization and low overhead help address the long tail of effective removal solutions.
Unite existing and novel methods by delegating project curation and management to **"Endorsers".**

3. Robust traceability

Tracing each CDR unit to its source using a blockchain token

- Essential to trust, the key factor influencing price,
- Enables decentralization while preventing double counting,
- Supports governance oversight and enforcement capabilities.

Tracer solution

Every token minted contains in its itself id both project and endorser information, ensuring complete end-to-end proof of lineage on-chain. Token ids are also tied to project specific immutable metadata.

4. Liquidity

Just like with any market, liquidity supports

- Price discovery and stability
- Volume, as OTC cannot scale
- Accessibility to long tail of buyer's market

Tracer solution

Single "**Carrot"** (**CAR**bon **R**em**O**val **T**oken) smart contract for all projects. Amenable to decentralized finance.

Liquidity and Traceability

Antagonistic qualities

Existing projects are either

liquid and untraceable
(fungible identical)

illiquid and traceable
(project specific OTC)

Resolving the paradox

Fungible tokens tied to each project keep track of their origin

Segmented by persistence

Grade based segmentation accounts for difference in underlying value.
Scaling delivers large baskets of tokens for each grade.

Prime   Second   Third   Fourth

5. Governance oversight

DAO Tracer holders' incentives **aligns** with the greater goal of removing CO_2, as their reward is a function of the volume of the Carrot economy: Number of tokens minted x Grade of tokens (persistence ≈ value). Essential foundation of trust

DAO's responsibilities

- **select** Endorsers
- **revoke** project or endorser that misrepresents performance
- **update** Carrot and Tracer smart contracts

B. Architecture

Two smart contracts

Four types of objects

- 1. Tracer
- 2. Carrot
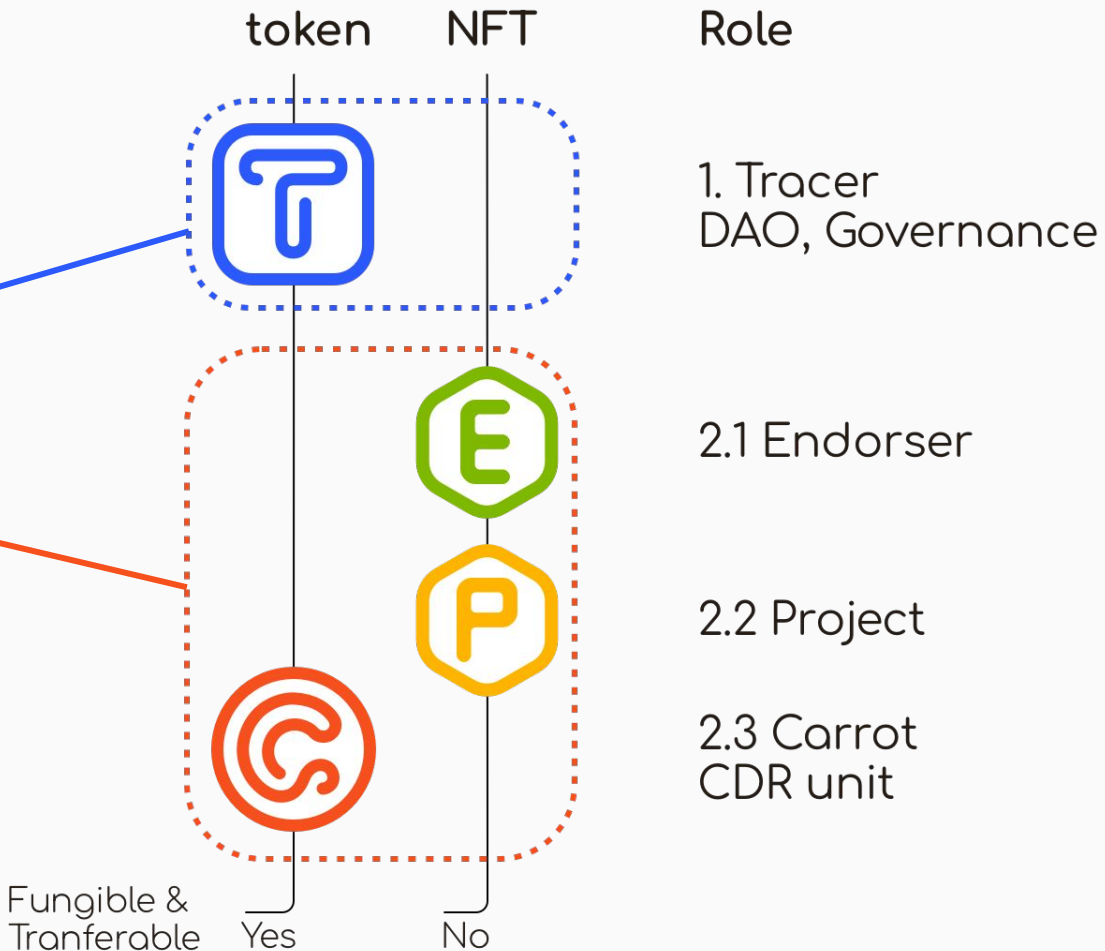
	token	NFT	Role
	T		1. Tracer DAO, Governance
		E	2.1 Endorser
		P	2.2 Project
	C		2.3 Carrot CDR unit
Fungible & Tranferable	Yes	No	

1. Tracer token

ERC20 token with a preminted supply

Locking mechanism to protect governance
(defense against Sybil attacks)

Tracer tokens are automatically bought and burnt using proceeds from a carrot minting commission, creating a deflationary pressure on its price.

Tracer DAO

Tracer token holders vote on issues related to both Tracer and Carrot (upgrades, revocation of NFT…) and to **mint Endorser NFTs** to Certification Authorities and organisations of similar nature.

Tracer DAO manages treasury of:

- Ethereum and stable coins
- Carrot tokens
- Tracer tokens for Ecosystem growth (20% of supply)
- Tracer tokens for Treasury (30% of supply)

2. Carrot smart contract

Manages 3 types of tokens

Carrot tokens

Project NFT

Endorser NFT

Based on ERC1155

[Fungibility-agnostic](#) token combine features of ERC20 and ERC721 to enable the management of **multiple tokens with a single contract**

Any id can be minted once (making it non-fungible) or multiple times (making it fungible, with a balance for each holder)

Gas-efficient batch transfers take arrays of token ids and values

The IERC1155MetadataURI extensions stores a **metadata uri per id**

2.1 Endorser NFT

Endorsers select CDR projects. Endorsers include certification authorities, registries or similar types of organisations recognized by the DAO as legitimate.

Endorser NFT is granted by DAO with a unique name.

Not transferable, but can be revoked.

Endorser NFT holder can **mint Project specific NFTs**.

2.2 Project NFT

A project is an initiative removing carbon from the atmosphere.

Project NFT is granted by endorser who specifies the grade (persistence of the carbon removal), name, and rate.

Not transferable, but can be revoked.

Project NFT holder controls the rate limited **minting of project specific Carrot tokens**.

2.3 Carrot token

A Carrot slice represents a gram of CO2 removed, while a carrot refers to a million slices, hence 1 ton of CO2 removed.

Carrots are fractionable and can be minted fractionally at no extra complexity.

There are as many Carrot tokens ids as there are projects.

Tokens identify project, endorser and grade on-chain, inside their id.

Percentage (2%) of minted Carrot tokens are transferred to the Tracer DAO.

Four grades of carbon sequestration

Tracer

Every project, hence token is graded by its endorser according to DAO set requirements.

Grade indicates persistence (how close to permanent the sequestration is) and accounts for risk of reversal.

Tokens can be sorted by grade to participate in liquidity pools or other financial instruments as grade is a proxy for the underlying value.

Prime
>10 000 years
No risk of reversal

Second
>1 000 years
Low risk of reversal

Third
>100 years
Fair risk of reversal

Fourth
<100 years
High risk of reversal

3. DAO incentive alignment

Tracer is subjected to deflationary pressure as Tracer tokens (in fixed supply) are bought with Carrot commission, to be burnt.

The greater the Carrot economy, the better for Tracer holders.

1. Project mints Carrots

2. DAO commission collected

3. Carrots are traded for Tracer

4. Tracer tokens are burned