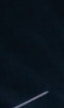


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Web3 - Climate

KYC in Web3 carbon markets

How can KYC be implemented in web3 carbon markets? Here, we explore what it means, and what the different moving pieces are



Toucan

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A brief overview

In May 2022, Verra, the largest carbon credit registry, brought the KYC debate to the forefront as it related to the voluntary carbon market. The registry released a [public consultation document](#), highlighting draft rules of engagement with third-party "crypto" instruments. Their primary focus for this consultation has been to seek feedback on KYC and fraud prevention measures from a broad set of market stakeholders.

KYC is a common step in most institutionalised business processes. As we are looking to institutionalise tokenised carbon credits that will help scale the market, we welcome this process to cover KYC sufficiently. We're working on this in collaboration with carbon standards bodies, so that all market stakeholders can build enough confidence for engagement.

Julian Sommer, Toucan Co-Founder

We recognized that a key characteristic of the nascent web3 world is that builders and users can remain anonymous, if they wish. Masking one's identity can have benefits, for example in cases where discrimination occurs based on race, gender, or social status. However, it also creates avenues for bad actors to profit from open and permissionless systems. As we develop Toucan Protocol to work productively with the established VCM, we are cognizant of their concerns, and are looking to make verification of KYC a condition for using our future two-way bridge in order to help scale carbon markets faster and better.

Explainer: What is KYC?

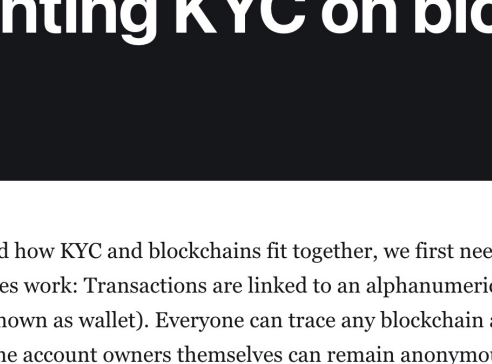
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Is KYC a part of the voluntary carbon market (VCM)?

Yes, KYC is a normal part of trading carbon credits in certain domains of the VCM. KYC happens when an entity onboards with standards. Brokers or traders, in particular publicly trading ones, are conducting KYC with the B2B-client segment. When it comes to the B2C interfaces, KYC application is less common, as it would prevent certain micro transaction use cases. While consumers are identified in various digital platforms, their carbon transactions and user data is not shared outside of the platform that they are using.

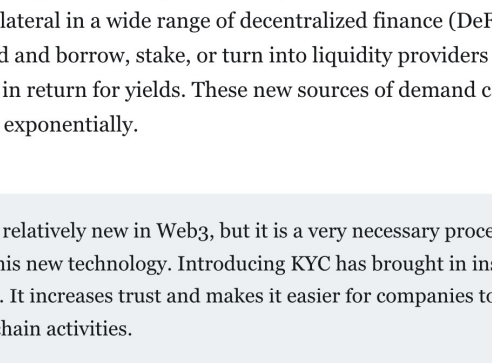
Let's look at two examples of where customer verification happens when you interact with carbon credits:



Scenario 1: Buying carbon credits via a broker

An entity is aiming to go net-zero by 2030, and they wish to purchase carbon credits from the country where their headquarters are located (say, Brazil). As they don't have the knowledge or time to identify the right credits to buy, they have enlisted the services of a local carbon broker. This broker does a couple of things: first, they find and buy verified carbon credits from project developers or other brokers. Second, they sell these credits to the entity. And finally, the broker interfaces with the registry in cases where the credits are retired. Most importantly, they are responsible for ensuring KYC compliance — from a KYC perspective, it is the broker who onboards the entity, as well as the project developer.

KYC is a normal part of trading carbon credits in the VCM. Corporates are used to this procedure — it doesn't pose a blocker, nor does it slow down adoption.



Scenario 2: Buying exchange-traded carbon contracts

Now, let's take the case of the second entity. Here, the entity does not approach a broker to purchase the carbon credits. Rather, it decides to purchase exchange-traded contracts — verified carbon credits listed on an exchange. In this scenario, the buyer or entity has to set up an account with the exchange, which includes a KYC process. Only then are they able to select and purchase the appropriate carbon credits.

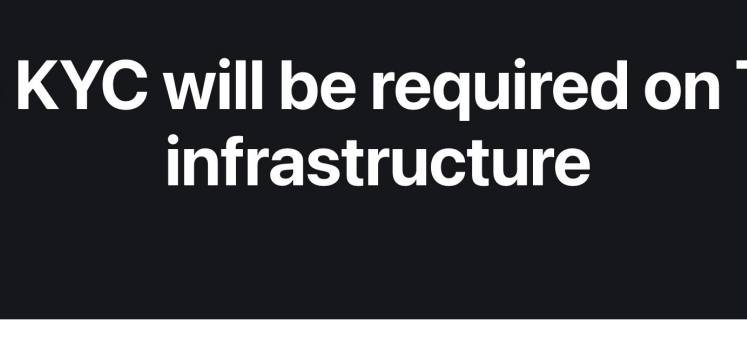
Both examples seem straightforward from a purchaser's perspective. Neither negates the fact that the VCM is inefficient and untransparent.

Open blockchains are perfectly suited to power carbon markets. This leads us to an important question: How and where can we implement KYC on blockchains to remain compliant without slowing down innovation and efficiency?

Excursion: Why current carbon markets are not efficient

Implementing KYC on blockchains

To understand how KYC and blockchains fit together, we first need to look at how on-chain trades work: Transactions are linked to an alphanumeric public address (commonly known as wallet). Everyone can trace any blockchain accounts' activity, but the account owners themselves can remain anonymous if they wish. This is the polar opposite of traditional finance where rigorous KYC is executed, but all trading activities are kept private.



A key trait of open blockchains is that they unlock innovation at scale. Everyone can permissionlessly build on what's already there, participate in trading activities, facilitate trading pools and more. This is great as it catalyses novel use cases and utility. However, simultaneously, anonymity can entice bad actors to take advantage of the system. The interesting question is: How can innovation be embraced and fueled, while implementing compliance mechanisms?

Yes! DeFi giant [Aave](#) recently launched AAVE Arc — these are pools that are only accessible to fully compliant entities. And NFT firm [Vitalik](#) (known for their Bored Apes collection) had made KYC mandatory for everyone who's interested in buying into a recent project.

How do permissioned blockchains work?

Permissioned blockchains often have compliance measures similar to the traditional financial system. Carbon credit access is then only available to their large KYC-compliant customer base.

How carbon markets benefit from permissionless blockchains

When tokenized offsets with similar attributes are 'pooled', they transform from a non-fungible asset to a fungible one with deep liquidity, which enables price discovery. In an open and composable ecosystem, tokenized carbon credits can be used as collateral in a wide range of decentralized finance (DeFi) applications. Users can lend and borrow, stake, or turn into liquidity providers (LPs) for specific pools in return for yields. These new sources of demand can help carbon markets scale exponentially.

KYC is relatively new in Web3, but it is a very necessary procedure to safely scale this new technology. Introducing KYC has brought in institutional money. It increases trust and makes it easier for companies to participate in on-chain activities.

Why we believe KYC is the right choice for Toucan

We are planning to implement reasonable KYC and AML measures, and work with top KYC and AML providers in the process. We are mindful of applying KYC to specific areas of the Toucan infrastructure, so we can achieve the best compliance while still allowing innovation to blossom.

"We view KYC as a required step to join forces with the carbon standards. It's helpful in our efforts to scale carbon markets in a safe way, in particular because we expect compliance and voluntary markets to become more interoperable, with implications on compliance requirements. Compliance ensures that the on-chain carbon market doesn't develop in isolation from the traditional market. Implementing KYC at certain points of our infrastructure also makes it easier for existing registries to work with us — something we are very excited about."

Raphaël Haupt, Co-founder & CEO of Toucan Protocol

Here are a few key items we're achieving with KYC:

Increased trust & transparency

KYC processes can increase the level of transparency and trust. They can keep out bad actors and create a safer environment for carbon credit sellers and buyers. Opportunities to launder money can be mitigated. This is important as studies have highlighted the possibility of carbon markets (like the EU Emissions Trading Scheme (EU-ETS)) [being misused for financial crimes](#).

Making it easy for standards bodies to work with us

We respect VCM standards bodies and are grateful for the work they are doing. To rapidly scale carbon markets, we need to make working together as easy as possible.

Help speed up mass-adoption

Corporates are already well-used to KYC practices — and they usually want to know who they are doing business with. By implementing KYC in certain areas of Toucan's infrastructure, we help big and small companies transition to implement their sustainability strategy to web3, which benefits them and climate project developers.

What we are mindful of

The KYC implementation needs to be modular. We believe that some parts of the Toucan infrastructure (like our carbon pools) should remain open to all parties (KYC'ed or not). Access to other parts (i.e. the carbon bridge) will require full compliance. Overkill from a regulatory perspective would make using on-chain carbon markets cumbersome and shut down avenues for individuals and smaller entities to innovate.

There is also a larger trend at play here: KYC is inevitably becoming a part of the web3 ecosystem. More and more protocols are building partitioned systems, with tiered access based on compliance.

We also recognize the issue of massive data overhead that comes with rigorous compliance, and do not want to become a registry of user data. There always exists the possibility of privacy breaches, and potential challenges with EU's General Data Protection Regulation (GDPR) compliance.

Where KYC will be required on Toucan infrastructure

In short, only KYC'd entities will be able to interact with the Carbon Bridge. Once tokenized, carbon credits can be used or sold by anyone on any web3 marketplace without KYC requirements.



Toucan doesn't believe in mandated compliance from all holders of a tokenized carbon credit, for a number of reasons. This can significantly slow down innovation, and hinder the levers of growth inherent to the Web3 space — liquidity provision on a permissionless basis is one example.

Let's look at this in more detail with the different parts of Toucan infrastructure.

Toucan Carbon Bridge

Tokenizing carbon credits

The tokenization process begins with the decision to move one or more carbon credits from a carbon standards body's registry, for example Verra, into web3. This is what we call "on-ramp via the Toucan Bridge". Any entity owning carbon credits in the registry will already have undergone KYC by their standards body — this is a requirement to having an account with the standards body. The only additional step needed prior to tokenization: a digital wallet needs to be attached to the entity's Verra KYC profile/account. Only after the wallet has been attached can the entity interact with the Toucan Bridge.

De-tokenizing carbon credits

This process, the "off-ramp via the Toucan Bridge", entails the de-tokenization of the carbon credits and brings them back to the standards bodies' registry. For off-ramping, the entity is required to have undergone KYC & AML — otherwise they will not be able to interact with the Toucan Bridge.

If the entity has previously tokenized credits and is now looking to de-tokenize them, they would have already undergone KYC prior to on-ramping, at the time when they set up an account in the standards body's registry. Therefore, they may not be required to undergo a new KYC process, unless the KYC is over 12 months old. If the entity hasn't bridged carbon credits before and is now looking to de-tokenize and place the carbon credit back into the standard's registry, they will be required to undergo KYC & AML. Only after successfully completing KYC, they can interact with the Toucan Bridge.

KYC will be undertaken by a third-party provider, and the details be shared with the Standard. This is necessary to use the Toucan Bridge, but also so that an account can be opened in the Standard's registry for this entity. Upon undergoing the KYC process, a KYC Token or KYC NFT will be minted and held on the entity's wallet. This will signal to the Toucan Bridge that KYC has been completed.

Toucan Carbon Pools

Everyone can deposit or redeem TCO2 tokens into Toucans Carbon pools. KYC will not be required in this case.

Carbon Marketplaces

Toucan will not be responsible for the implementation of KYC processes at on-chain carbon marketplaces or Decentralized Exchanges (DEXes). These protocols themselves will have KYC responsibilities, if they choose to implement them, either now or in the future.

Interacting with protocols that use tokenized carbon credits

Many protocols are permissionlessly building on top of Toucan infrastructure or are leveraging carbon credits that have been tokenized via Toucan's Bridge. Third-party protocols are independent of Toucan. They have their own obligations and decision-making processes when it comes to implementing any KYC & AML.

Carbon credit retirements

Carbon credits can be retired in the following ways:
(1) by bridging the credits back to a supported registry. This requires the holder to have an account with the Standard and thus having completed KYC
(2) by retiring the credits directly on-chain
We see that there is an inherent reason to provide identification around retirement if a user wants to claim its value. For example, if they want to be publicly associated with the retirement, Toucan will build features that encourage and possibly reward disclosure that are better suited for the market than a hard KYC requirement. Compliant wallets could, for example, be rewarded with specific badges.

Analogy: KYC and cash

KYC example in web3: USDC

A close web3 analogy for how we intend to implement KYC is [Circle](#). Circle issues the digital stablecoin [USDC](#), which is pegged to the USD, meaning 1 USDC will always be 1 USD. Every USDC token is fully backed by a corresponding US dollar-denominated asset in the Circle reserve.

How does Circle implement KYC?

There are two types of users: 'User A' is fully KYC-compliant. They have a Circle account, and they are allowed to redeem USDC for USD and vice-versa, directly from the reserves. This case is equivalent of using the Toucan Bridge.
'User B' is a non-KYC-compliant user. They don't have a Circle account, and aren't able to redeem USDC or purchase USDC directly from Circle. But user B can still send, receive and hold USDC directly from other holders of USDC to their wallets(s). This is the equivalent of users buying or selling tokenized carbon credits.

Compliance on blockchains is an especially pressing issue when real-world assets, like carbon credits, are introduced on the blockchain. An example: The [Centrifuse](#) platform hosts Tinkale pools, where users can finance real-world assets like invoices, mortgages and royalties. They have joined hands with Securitize to ensure investor KYC.

KYC in Web3: Conclusion

The only way to address the climate emergency is by leveraging open participation and unbridled innovation in the climate tech space. Unlocking the potential of open blockchains is key to this process.

Toucan's role is to build technology to finance climate action at scale. We do this by developing infrastructure to help make carbon markets more transparent, accessible, and efficient. KYC is a necessary part to this, and it will in fact make carbon markets more accessible and inclusive. We're carefully mapping out how to implement KYC embedded in known processes and with minimal friction. Reasonable KYC standards keep registries safe and protect buyers and sellers, all while allowing the whole ReFi ecosystem to thrive and scale.

Toucan is closely working with institutions like [JETA](#) and the [World Economic Forum](#). Through these discussions, we are forming valuable connections that help us strike the delicate balance between compliance and an open and trustless system that everyone can participate in.

What is Toucan?
Toucan is building the technology to bring the world's supply of carbon credits onto energy-efficient blockchains and turn them into tokens that anyone can use. This paves the way for a more efficient and scalable global carbon market.

Sign up for more like this.

Open Source + Cedar

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Today, we're thrilled to announce two significant updates: Toucan Protocol is becoming an open-source project.
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