



Gold Standard - Tokenization Recommendations - Updated 22.09.22

KlimaDAO proposes a phased approach to implementing infrastructure that immobilizes carbon credits that have been bridged onto the blockchain. This approach can enable continued development of the blockchain-based carbon credits market without introducing risks to the integrity of the market, as more sophisticated solutions are developed.

The implementation of an immobilized state for carbon credits that have been bridged onto the blockchain will enable data flow between on-chain and off-chain systems, increasing understanding of the rate of retirements on-chain, and delivering clarity to the market in terms of at what point the environmental benefit of tokenized carbon credits are claimed.

Phase 1

The implementation of an immobilized state that allows tokenization to continue using existing Direct bridges such as Toucan, C3, Moss. In this initial phase, credits can be immobilized but cannot be “unimmobilized”. This would be achieved by implementing a boolean into the Gold Standard Registry which dictates whether a credit is mobilized or unimmobilized. [One could also consider this ‘tokenized’ if the mobilization of a credit after tokenization occurs is not possible]

It would be the responsibility of the bridge provider to provide this information to the Gold Standard Registry during the tokenization process. As per IETA’s guidance, this would be completed under a ‘direct’ tokenization scheme, wherein the environmental attributes of the credit are transferred to the tokenized carbon credit.

Phase 2

A mechanism will be added for two-way bridges to ‘detokenize’ already tokenized carbon credits, that avoids risk of double-counting and/or fraud. Again, the responsibility will be on the Tokenizer to ensure integrity by e.g. batching retirements, providing a publicly auditable inventory of immobilized credits, and undergoing necessary KYC checks from the Gold Standard Registry.

Note that Directly tokenized credits (i.e. those described in Phase 1) should NOT be allowed to be detokenized at a later date. Hence, an additional flag may be required on the Gold Standard Registry at a later date to describe tokens that have been bridged using ‘Direct’ infrastructure, or ‘secured’ infrastructure.

Phase 3

The introduction of event-driven architecture where a listener process is established in the Gold Standard Registry system that responds to blockchain events involving tokenized credits: batching retirements incrementally and handling tokenization/detokenization through a standard process. This Phase shifts responsibility for integrity onto Gold Standard rather than the Tokenizer.



A detailed guide for implementation of this final phase:

- A 'reverse bridge' should take the form of an open-source Smart Contract that allows a user to destroy their unretired tokenized carbon credits and trigger the release of the corresponding off-chain Gold Standard registry credits from the immobilization state, which are then transferred to a provided Gold Standard registry account to allow the user to take custody.
- Whenever a token is destroyed in this manner, the blockchain would record this event as an immutable and public record.
- Tokenized credit retired on-chain are prevented from being reverse bridged because the tokens are "burned" (i.e. destroyed) during the on-chain retirement process.
- These events would contain all relevant data such as the target registry, target registry account, offset vintage, project data, token origin, token quantity and more. Note, that events could also include the type of burn event: 'retirement' (with environmental benefit beneficiary and retirement reason details) or 'reactivation' (with delivery details, such as, for example, Gold Standard Default Sub-Account ID).
- These events would be emitted in real-time and would signal to the Gold Standard system (or any other registry) that offsets can safely be 're-mobilized' in the database, without risk of double-counting or tampering.
- This solution would enable Gold Standard's registry to respond to these events at Gold Standard's own discretion, and ensure that Gold Standard can apply its own respective Terms of Service to the process. For example, Gold Standard would retain the power to implement restrictions on wallets and recipient accounts, offset credit criteria, quantities, fees, and more. This same smart contract could also serve as a trusted and transparent way to transfer qualified credits from other registries directly into the Gold Standard system.