



KARBON COIN

TURNING CO₂ INTO COINS

TECHNICAL PAPER

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Abstract. A purely semi-private and federated blockchain version of a reward system would allow rewarding peers with fully tradable digital assets for taken actions (such as certain purchases of certain items at certain stores). This can apply to any quantifiable action like recycling (Kg of material), advocating on social media (Accounts reached) and of course any purchase.

01 Introduction

A *karboncoin* is a digital asset given to organizations and individuals who takes ecofriendly actions that reduces their **yearly carbon emission** (YCE). The amount of *karboncoins* rewarded to ecofriendly parties depends only on the **yearly saved carbon emission** made by taking this action. This compared to the **average yearly carbon emission** (AYCE) of such actions.

To illustrate, the standard yearly emission of a washing machine is 24.79 Kg of CO₂ per year, a consumer buying a washing machine emitting less than 24.79 Kg of CO₂ per year will get a definite amount of *karboncoins*. This way, a *karboncoin* is a digital asset issued **for every Kg of CO₂ emission saved**, as more ecofriendly organizations start adopting, backing, storing, accepting Karboncoins and with the rise of the ecofriendly and “going green” trends, the value of this non-fiat money will rise, being even adopted in trading binaries traded by non-ecofriendly individuals like other cryptocurrencies. This reward system applies to everything from recycling kg of plastics to airplane tickets.

It is to say that instead of emitting “Carbon” in the air, individuals are emitting “karboncoins” in their wallets.

02 System elements

Blockchains and distributed ledger technologies will handle:

- The Karboncoins Issuance Order (**KIO**) holding the action’s data
- As well as Traditional Peer-to-peer transactions (**P2P transactions**) when needed
- **The average yearly carbon emission variables**

Proof of authority consensus (such as *Clique*) shall be reached over:

- A database of the **average yearly carbon emission** variables such as 24.79Kg of CO₂ per year for home washing machines. This to know how much karboncoins should be issued.
- Karboncoins Issuance Order (**KIO**).
- The **P2P transactions** and **Karboncoins issuance**.

Peers roles:

- **Endorsing nodes** (online stores, shops, airlines, recycling facilities, NGOs...)
 - These peers take part in the Proof of Authority consensus algorithms

- They support the network.
- **Ecofriendly nodes**
 - These peers get rewarded with karboncoins for their green actions.
- **Trader nodes**
 - These nodes might not be ecofriendly, they just buy and sell karboncoins.

They are all identical nodes.
 Everyone can trade karboncoins.
 Everyone can be rewarded on action.
 Endorsing nodes are selected by the community.

03 Actions and Karbon Coin Issuance Order (KIO)

Actions:

Some of the actions eligible for rewards are:

- Purchase of low carbon emission products
- Flying on low carbon emission airplanes
- Recycling
- Advocating on social media

As discussed in the introduction, each time an individual reduces his CO₂ emission, he'll get karboncoins according to the amount of Kgs of CO₂ he saved. A Karboncoins Issuance Order (KIO) for every single action will go as follow.

Karboncoin Issuance Order:

A first blockchain will deal with actions. Blocks are a set of KIOs

Once an ecofriendly consumer takes action at an endorser's business, a KIO will be submitted to the blockchain to fill a block, in a similar way to bitcoins transactions.

KIO will contain:

- Item ID
- **Proof of purchase**
- **Proof of ownership / use**
- Client's address
- Store's address
- Client's signature
- Store's signature

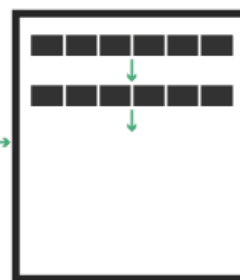
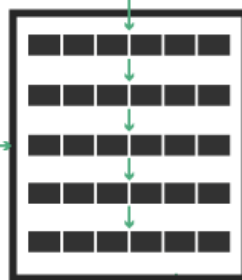
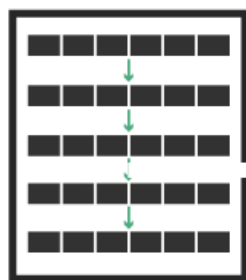
As follow

Consumer → **Buys Ecofriendly** ← **Store**



Public Key
Private Key
Wallet Address

Consumer's Wallet Address	Store Wallet Address	Item ID	Other infos for Validation	Proof of purchase	Proof of ownership
Signatures	Signatures				



Request KIO

Response
Item ID
Consumer's wallet

Item ID

Amount of Karbon
to be rewarded

**Issuance
Algorithm**

**Distributed
Database**

Reward

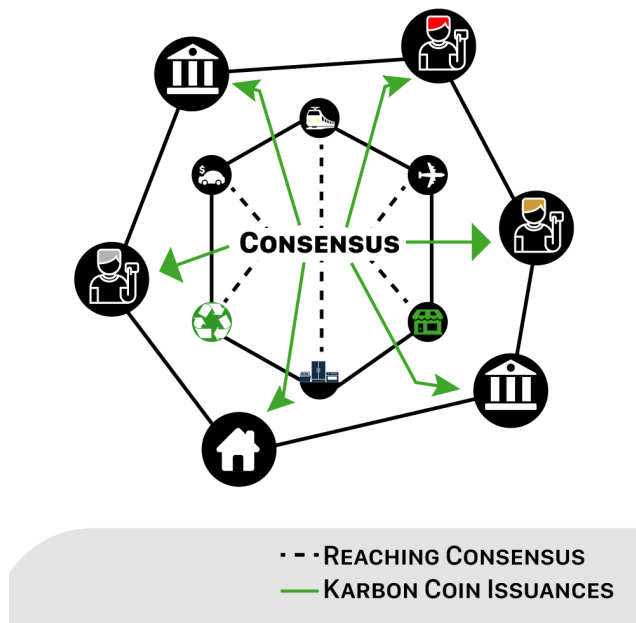
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To avoid fake actions entering the blockchain, rules will go as follow:

- All stores will participate in reaching consensus over blocks.
- A block can't be filled with KIOs of very few shops.

Once consensus is reached, and another block comes on top, an algorithm will read the data out of the block, issuing to each consumer the corresponding number of karboncoins. This according to a ledger of average **yearly carbon emission** called **Karboncoin index**

variables specifying the amount of karboncoin each item shall bring in rewards in proportion to the amount of saved CO₂.



04 Karbon Coin index

A distributed database that can be edited by the community and other trusted sources. It contains the standard yearly carbon emission of supported products.

05 Traditional Peer-to-peer transactions

Once ecofriendly consumers get their karboncoins, there will be able to trade them with the rest of the exchange market. This network being supported by the endorsers taking part in proof of authority algorithms.