THE LITTLE WHITE PAPER

The case for toco currency

BETTER MONEY FOR A BETTER WORLD

Who are toco adopters?

- Those who want to manage their carbon footprint easily.
- Those who want to expand the voluntary carbon market responsibly to combat climate change.
- Those who want a new economic system that correctly assigns financial value to the our environmental assets through market action.
- Those who want to invest and trade in the carbon market because they recognise that the price of carbon will have to significantly increase if we are to meet the carbon reduction requirements that avoids the worst effects to climate change.
- Those who understand that the perverse incentives of our current political and economic structures will not find the agreements and cooperation required to tackle this global issue.
- Those who believe that we, ordinary people, have the means to easily unite across borders, and agree that removing carbon has intrinsic value, and that the simplest way to demonstrate such agreement would be to use such carbon removals as a means to exchange value amongst ourselves.

What are the toco adopter's goal?

- To prevent climate change by accelerating carbon reduction activities
- To fix the current economic model so it places a value on the environment.
- To unite a global community who share the belief that carbon reduction has intrinsic value.
- To bypass the institutions that are failing us and give communities the power to act.
- To collectively invest in environmental assets to create environmental wealth for all.

What do toco adopters believe?

1. **We believe climate change is one of the greatest existential threats to humanity**. Greenhouse gas (GHG) emissions is the main driver of global climate change. The world must urgently reduce these emissions to avoid the worst impacts of climate change.

2. **We believe that despite commitment by countries, companies and individuals to become carbon neutral, efforts are failing.** We do not meet The Paris Agreement goals to reduce greenhouse gas emissions (GHGs) and limit global warming below the 1.5°C target set by the international community.

3. **We believe economic activity and ambition is not inherently negative but leads to positive outcomes** such as reducing poverty, enhancing quality of life, enriching cultural heritage and improving health.

4. **We believe that these benefits have however come at a cost to the environment that has not been accounted for in our present economic model**. The effect of greenhouse gas emissions (GHGs) on the atmosphere's limited capacity has and continues to add undisclosed off-balance sheet liabilities that will be paid for by current and future generations.

5. **We believe this problem arises from market failure - a consequence of the price of goods and services not reflecting their true cost to society - what economists call a *negative externality*.** The cost is caused by a producer that is not financially incurred by that producer. In the case of emissions, a polluter makes decisions based only on the direct cost and the profit from production without consideration of the indirect costs to those harmed by the pollution.

6. **We believe greenhouse gas emissions (GHG), which lead to climate change, is such an externality.** GHG emissions are a side-effect of economically valuable activities. The problem is that much of the impact of these emissions do not fall on the entities conducting the activities. Instead, the impact is borne by the world at large, for generations to come. The adverse effects of greenhouse gases are external to the market: In the current economic system there is no economic incentive for business and individuals to reduce emissions.

7. **We believe it is unrealistic and unfair to expect economic activity to cease or diminish simply to lessen GHG emissions but it is realistic to expect an effective and efficient market to innovate**, to conserve, to change demand

patterns, invest and trade in carbon reduction activities once the true costs of our economic activity are discovered.

8. **We believe that the pricing of GHG emission such as in the carbon markets, where carbon emission reductions in the form of credits or offsets are traded is an important mechanism to value emission reduction activity and correct for this market failure.** Pricing carbon via market action should be one of the most effective and lowest-cost ways of incentivising atmospheric carbon reduction**.** We believe this allows the costs of climate impacts and the opportunities for low-carbon energy options to be better reflected in our production and consumption choices.

9. **We believe however that the carbon market in its current state has not succeeded due to its current limitations that stem primarily from their design rules - the result of nations' inability to find agreement is how they should operate.** Their failure to deliver is not a matter of opinion but objectively true in the sense that CO_2e concentrations continue to rise while carbon reduction demand and prices remain too soft to shift behaviour and stimulate significant investment to meet the internationally agreed targets. Carbon markets remain fragmented and overly concentrated by large players with limited liquidity and high transactional friction. They lack transparency and fungibility while the actual mitigation value of carbon assets are hard to ascertain. They have been susceptible to fraud, double counting and other risks that has damaged trust.

10. **We believe this inability of nations to find the required agreement and cooperation arises from a classic collective action problem, or a "tragedy of the commons",** a well-researched subject in economics where a shared resource tends to be rapidly depleted because no single actor considers how their actions affect other users of the resource.

11. **We believe this will not be fixed. Our institutions will not be able find the agreements and cooperation required to tackle this global issue.** There are simply too many inherent disparities and skewed vulnerabilities between the

nation states to expect this such as: (i) the inequality of economic welfare and ambition among different nation states, (ii) their respective historic contributions to emissions (iii) the variation in the planetary impact/cost felt by different geographies across the globe and (iv) the unfair inter-generational distribution of current economic benefit and the future environmental costs of emissions

12. **We believe we need an people driven solution, independent of governments, that gives every person, organisation, business and institution a simple and cost-effective ability to take climate action and transmit their climate needs in the market.** We believe we need a solution that everyone should participate to grow the carbon economy by creating an efficient marketplace for all participants. There is large pent up demand by people and organisations to take climate action, reduce or offset their carbon emissions but no efficient and easy way to do effect it.

13. **We believe expanding and improving on the current voluntary carbon markets will require a significant use case for carbon reductions that has everyday utility.** Up to now the demand for carbon have mainly been driven by the compliance needs of a handful of regulated industries in some countries or the ethical needs of organisations and individuals who which to reduce their carbon footprint or attain neutrality voluntary. To generate a significant expansion of the carbon markets we will need to create a source of demand that actual utility value to the market.

14. **We believe such a use case exists - that the properties of carbon reductions are well suited to be the basis for money supply.** It is currently traded as a commodity. There already exists an institutional market that provides a floor price at inception. it is costly and difficult to produce making supply reasonably inelastic and predictable which curtails sudden supply shocks. It has very limited real-world industrial usefulness so sudden demand shocks are almost certainly not possible. These are perfect properties to keep currency values stable – a prerequisite to any form of money is that the monetary supply be predictable. Crucially the supply of these carbon reduction are limited which provides the necessary scarcity which combined with the high effort to produce are the

requirements for it to be a good store of value. Lastly, we believe greater cultural value is being placed on the environment and being able to measure and demonstrate one's personal contribution to ensuring the sustainable future of our environment is increasingly becoming an important to individuals and organisations alike. This makes carbon reduction a unit of account that demonstrates environmental value creation.

What do toco adopters propose?

1. **We propose a new international monetary system (a carbon standard) based on a carbon currency** to tackle the two pressing externalities in today's global economic and political context: the dangerous and irreversible effects caused by unconstrained green-house gas emissions and the correction of the current limitations of the carbon market and its expansion.

2. **We propose a new unit of international trade, the toco –** short of tonnes OCO [molecular formula for carbon dioxide], or tonnes carbon dioxide, **where each toco in circulation represents one ton of carbon dioxide** that has been credibly removed from the atmosphere.

3. **We propose that the toco is represented by a portfolio of carbon mitigation assets held centrally** in the form of tradable certificates that represent credible carbon credits, carbon-offsets, carbon reductions or -carbon avoidances verified by independent accredited third parties.

4. **We propose a central carbon reserve that acts as an independent, non-profit and non-government institution and is responsible for toco issuance, purchases and the custody of the portfolio of carbon assets**. It aims to maintain the convertibility of tocos to carbon assets and aims to responsibly grow the toco supply and thus expand the voluntary carbon market.

5. **We propose a similar monetary framework to the gold standard where the money in circulation was linked to the gold held in a nation's central reserve.** The central reserve's function was to ensure that this relationship was maintained and that the convertibility of the currency into gold was maintained at a fixed rate per ounce of gold. In the carbon standard adopted by toco the relationship is maintained as 1 toco per tonne of carbon reduction achievable.

6. **We propose the carbon reserve perform a role analogous to that which reserve banks have in applying monetary policy within the monetary framework.** It will manage a portfolio reserve of carbon assets to support the

issue and support of currency and address any market risks and failures that may arise. In this manner it will provide a key source of liquidity to the market through the issue of its currency.

7. **We propose the carbon reserve follows a risk-based approach to assessing the mitigation value of the carbon assets it purchases.** The need to assess mitigation value arises from the fact that many different actions have mitigation outcomes, but that they don't necessarily have the same mitigation outcomes. Risk adjusted mitigation values is intended to provide a way to differentiate between assets that are generated from mitigation actions that vary in their design, implementation and impact.

8. **We propose the carbon reserve strives to fulfil a dual mandate (i) targeting exchange rates that achieve the Representative Concentration Pathway (RCP)** adopted by the IPPC (or other expert body) in an economically sustainable and responsible manner and (ii) to **maintain mitigation value stability for its currency**.

9. **We propose to introduce a new global settlements platform** to support both (i) the payments and receipts of its issued currency among account holders and (ii) the recording of carbon mitigation asset contracts and their exchange among market participants. Tocos are issued to unique digital wallets created by toco account holders.

10. **We propose to use blockchain technology to create the platform because it is a fast, cost effective, scales easily, results in immutable records, can deploy in a decentralised manner, and can be independently scrutinised by observers.** We oppose creation of traditional cryptocurrency on philosophical grounds. Current permission-less, fully decentralised and anonymous protocols suffer from volatility, performance constraints, moral hazards and lack consumer protections.

11. **We propose toco transactions take place on a low footprint, permissioned blockchain that is regulatory complaint (KYC and AMLA) in the jurisdictions it operates**. We believe in the ongoing stability of national currencies; in safe, secure, and stable banking systems and in strong consumer protections. We propose the carbon reserve work with policymakers as the financial network expands and as regulations change.

12. **We propose the blockchain protocol and design be focussed on being capable of handling the daily transactional needs of billions of people**. The network shall be secure while capable of high volumes with quick finality. Payment shall be a mobile capable and designed for low latency. The network shall be query-able, auditable, administrable and modular.

What do toco adopters expect?

1. **It will increase demand for carbon reduction and give ordinary people a simple means to participate in climate action**. Our money needs (i.e. to save, invest, or transact) is currently performed using fiat currencies. The more people choose to use toco for their daily money-needs the more demand is created for carbon assets which stimulates and incentivises investment in carbon removal activities and projects. In this manner it is possible for people to turn their everyday money needs such as transactions directly into climate action. Every toco in the toco economy is one tonne of carbon dioxide removed. By collectively growing the toco economy carbon reduction is accelerated.

2. **It will reduce friction in the carbon markets improving carbon price discovery.** The currency as a medium of exchange or international unit will make carbon fungible allowing for the exchange between different classes of carbon assets with differing attributes, prices and risks within and among jurisdictions. As a means for exchange between carbon assets in the carbon market and other financial assets, goods or services it allows markets to balance economic and environmental interests. As a unit of account, it will help define exchange rates between jurisdictions, transmit information inexpensively to counter parties in the

market and be a measure of “environmental wealth” at various levels in the marketplace. As a store of value, it would serve as a price discovery mechanism and an investment vehicle for the whole market to participate in mitigation activities.

3. **It will reduce risks in carbon markets leading to increased investment in mitigation activities.** The central reserve will provide a key source of liquidity to the market through the issue of its toco currency. Its intent is to support rather than replace jurisdictional market policy instruments. The intent is to be a tool for mitigating carbon risks via central intermediation services and buy/sell services by holding a pool of international carbon assets. The Carbon Reserve is premised on the fact that carbon markets and the mitigation of risks can be more efficiently done by linking markets and pooling risks on a global level.

Who benefits?

1. **Persons or organisations who wish to offset or lower their carbon footprint** can simply do so by purchasing the desired amount of toco and holding it in their account. By saving their earnings in it allows people to contribute to emission reductions directly by investing in mitigation activities. In essence, converting their economic wealth into a store of environmental wealth. Importantly, each toco is backed by carbon mitigation assets purchased and held by a reserve. By demanding to store wealth in a currency backed by carbon mitigation assets it directly increases the demand for carbon emission reductions. This increases the market price of carbon, which in turn not only incentivises investment in more carbon emission reductions but strengthens the economic exchange value of the toco. Thanks to the liquidity and the real world assets underpinning the currency, individuals whose needs change from time to time can easily convert their tocos back into fiat currency or eventually exchange them for their desired goods or services. Environmental contribution is made liquid and fungible which lowers the barrier to entry to participants. By pooling global demand for climate action into a single currency backed by emission reduction assets the collective environmental good can be served without sacrificing individual needs.

2. **Businesses who wish to become carbon neutral** can similarly either invest their earnings into tocos as a liquid asset on its balance sheet which accurately records and transmits the environmental value of investments made or they can directly exchange their goods and services for the new currency from their customers, or they can use tocos to purchase carbon assets from the reserve to permanently retire on their behalf.

3. **Carbon miners,** aka, originators or project proponents of offsets in qualifying schemes, programmes or projects who engage in legitimate mitigating activities can earn tocos directly by selling their carbon mitigation assets to the reserve at toco prices influenced by the demand of the toco market.

4. **Compliance entities & jurisdictions can trade it as a reference currency to link their markets and make heterogenous carbon mitigation assets**

fungible in this manner. It can be used as a trusted global transaction unit for exchanging mitigation value between different classes of carbon assets within and among jurisdictions. In addition, compliance entities can use tocos to purchase carbon mitigation assets from the reserve for their compliance needs. Similarly, jurisdictions can transmit environmental policies by either purchasing, accepting, burning tocos or taxing compliance entities.