20 February 2022

Global Carbon Reward: Policy Summary

Climate Finance Gap

There is an urgent need for additional climate finance—beyond existing public and private investment—to achieve the 1.5-2.0°C goal of the Paris Climate Agreement. The climate finance gap is massive, and is approximately:

- US $3-6 trillion/year for additional clean energy and emissions reductions[1], and
- US $100 trillion to remove about 1000 $GtCO_2$ from the atmosphere this century[2].

This document introduces a new climate finance solution called a *Global Carbon Reward* (GCR)[3]. The GCR is a market-based policy that can—with the support of central banks—mobilise private finance to bridge the climate finance gap. The GCR combines the innovative potential of the marketplace with the scalability of monetary policy—to create a plausible pathway to the Paris goal.

Global Carbon Reward

The GCR will pay the "green premium" for achieving the Paris goal. The GCR is a proposed debt-free financial payment for mitigated greenhouse gases, including (a) carbon emissions reductions and (b) atmospheric carbon removal. This payment is called a "carbon reward" (see **Figure 1**). This payment takes the form of a performance-based grant linked to avoided or removed greenhouse gas emissions. The payment will be denominated in a "carbon currency" which has the units of *1 tonne of carbon dioxide equivalent (CO_2e) mitigated over the long-term*. The carbon currency is a financial "carrot" that complements existing policy "sticks", such as carbon taxes, cap-and-trade, and regulatory penalties (see **Figure 2**). By adopting a "carrot and stick"approach it is anticipated that societal cooperation will improve so that decarbonisation can accelerate across the globe.

The GCR will improve the profitability of actions that mitigate climate change. The carbon reward will be available to private businesses and public institutions in all economic sectors, including for energy production, construction, transport, agriculture, etc. The carbon reward will also be available for engineered and natural methods of removing carbon from the atmosphere, including for reforestation, restoring mangroves and peatlands, carbon farming, etc.

The carbon reward will be offered in every country in the world, and it will be proportional to the mass of carbon that is mitigated. Three types of climate action will qualify for the reward, namely:

- producing cleaner energy;
- developing cleaner businesses, industrial processes, and supply-chains; and
- removing carbon from the ambient atmosphere and storing it safely.

The rewards will be determined using rules that are aligned with the policy's objective. Awardees will be required to sign a *service-level agreement* (SLA) that defines their *emissions baseline* and the standard for measurement, reporting and verification. The SLAs will also include provisions for responding to carbon leakage and defaulting. The GCR will address the social and ecological dimensions of the climate crisis by incentivising the following co-benefits with reward adjustments:

- energy reliability;
- community wellbeing, such as clean air and green jobs; and
- ecological health, including the protection of biodiversity and the regeneration of habitats.

[1] Estimate based on reports by IRENA (2019) , IEA (2021), OECD (2018) and McKinsey & Company (2022)
[2] Estimate assuming an average price of US$100 per tCO_2 and the residual CO_2 estimate of Luderer et al. (2018)
[3] https://en.wikipedia.org/wiki/Global_Carbon_Reward

Carbon Currency

The *carbon currency* is the economic instrument for delivering the proposed carbon reward. The carbon currency will not replace or compete with national currencies. Rather, it will complement national currencies—and contribute to financial stability—by functioning as a financial asset and as a price signal for mitigating carbon emissions. The proposed *positive price* for mitigated carbon will combine with *negative prices* for carbon emissions that are created by taxes and cap-and-trade.

The carbon currency has a *unit of account* of 1 tonne of CO_2e that is mitigated for a 100-year duration. Based on this unit, the currency will:

- act as a global ledger for tracking the mass of mitigated greenhouse gases;
- create a predictable long-term reward price for mitigating greenhouse gases; and
- incentivise the mitigation of greenhouse gases on a global scale.

Importantly, the carbon currency will:

- not act as a carbon credit for the offsetting of greenhouse gas emissions;
- not act as a medium-of-exchange for the purchase of goods and services;
- not be prone to high-risk speculative trading like a "cryptocurrency"; and will
- not require energy-intensive computer "mining" to maintain data security.

The carbon currency will:

- be officially supported by governments and central banks to enable the *convertability* of the carbon currency into national fiat currencies;
- be an investment-grade financial asset with a predictable average *rate of return*;
- enable the voluntary redistribution of mitigation costs via private currency trading[4]; and
- integrate with central bank operations and foreign currency trading platforms for scalability.

Central Banks

The carbon currency is an economic tool that is guaranteed with *public finance* in order to mobilise *private finance* to achieve the Paris goal. This mobilisation of private finance will be managed with a collaborative international monetary policy for central banks, known as *carbon quantitative easing* (CQE)[5]. CQE is a monetary policy/protocol that will guarantee that the value (i.e. the exchange rate) of the carbon currency will never fall below a floor price that is sufficient to close the "finance gap" of the Paris goal (refer **Figure 1**). Accordingly, the monetary policy/protocol will:

- create a carbon pricing regime that explicitly communicates the cost of managing the climate-related systemic risk and thus addresses Article 2 of the Paris Agreement;
- support a global reward price for mitigated carbon that is referenced to national currencies;
- notify central banks when/how to trade the carbon currency for defending its floor price; and
- provide long-term carbon price guidance for businesses, investors, and other stakeholders.

Given that the floor price will be guaranteed to rise into the future, traders will be incentivised to buy the carbon currency as an investment. The floor price guarantee will be the "driving force" that ensures that private demand for the carbon currency is sufficient. The benefits of CQE will include:

- 100% funding of the carbon reward without imposing direct costs on stakeholders;
- a transfer of private wealth into effective climate action and at the required speed and scale;

[4] The redistribution of mitigation costs by private currency trading is explained with a concept called Coasian bargaining.
[5] Wikipedia: https://en.wikipedia.org/wiki/Carbon_quantitative_easing

- enabling central banks to reduce the likelihood of climate-related financial chaos while having the flexibility/independence to address their existing mandates, such as price stability;
- avoiding inequitable currency exchange rate shifts by sharing the CQE monetary stimulus amongst the world's central banks and across the world economy.

Duty of Care

Various carbon accounting, carbon crediting, and carbon offsetting schemes have been criticised for not adequately addressing the problem of "additionality", which is the need to prove that the mitigation benefit would not have happened in the absence of the incentive. The GCR policy addresses this problem with two key innovations: (i) avoiding carbon offsetting altogether with a fully funded reward policy; and (ii) focusing on comprehensive planning and a legal concept called *duty-of-care*. In order to qualify for the reward, private businesses and public organisations will be required to present a bold but feasible action plan for rapid decarbonisation. Awardees that qualify, will receive a service-level agreement that will include a specific rule for defining their emissions baseline, and the technical standard for monitoring, periodic assessment, accounting, verification, policing, and administration.

For carbon removal projects, the emissions baseline is simply zero emissions. For businesses and organisations that do not produce energy as their primary activity, the emissions baseline will be framed by the emissions intensity of their outgoing cashflow—to encourage perpetual decarbonisation. For energy producers, the emissions baseline will be calibrated for each energy commodity and for each unique energy market—so that the computed financial reward is sufficient to justify a rate of decarbonisation that is aligned with the Paris goal. Energy companies may be required to substitute their fossil energy reserves with a comparable amount of clean energy as part of their duty-of-care, thereby avoiding energy supply-shocks during the energy transition.

Benefits for Governments & Businesses

A weakness of the Paris Agreement, as currently experienced under the UNFCCC, is its reliance on *nationally determinedcontributions* (NDCs) when they are prone to the "free rider" problem. The Paris Agreement lacks a reliable mechanism for raising ambition. The GCR solution is to offer a debt-free reward for decarbonisation that can be managed with long-lived service-level agreements (SLAs) that define the rules and technical standards for assessment. The GCR solution should be attractive to governments, businesses, and citizens because it can mobilise private and public finance for targeted climate action while at the same time avoiding debt creation and limiting direct costs for stakeholders. The GCR will remove a significant portion of the total mitigation cost from the balance sheets of all stakeholders. Overall, this "carrot and stick" approach has the potential to maximise cooperation and reduce social dislocation for the rapid and orderly decarbonization of the world economy.

Ecological Civilisation

A key outcome of the GCR will be the creation of an international carbon accounting standard—called a *carbon exchange standard*[6] —that will contribute to an ecological civilization. The carbon reward will be adjusted to maximise the co-benefits and to minimise the harms that are created by climate actions. Co-benefits include energy reliability, community wellbeing, and ecosystem health. The reward adjustments will be determined through stakeholder consultation and consensus, and the entire process can support the UN's sustainable development goals for 2030[7].

[6] https://globalcarbonreward.org/carbon-currency/#currency_cc
[7] https://www.un.org/sustainabledevelopment/
[8] https://www.decadeonrestoration.org/

Theoretical Foundation

The GCR is not an ideological policy. It is formally related to standard market theory through the "carbon pricing matrix" (see **Figure 2**). The carbon pricing matrix highlights the complementary "carrot and stick" nature of carbon pricing. It corrects the market failure in carbon by addressing two externalized problems: (1) the *economic costs*, and (2) the *systemic risks* associated with anthropogenic carbon. Critically important, is that the matrix classifies the objective of a safe climate as a *positive externality*—a global public good—that should be priced into the financial system. The positive externality is complementary to the negative externality that is defined by standard theory.

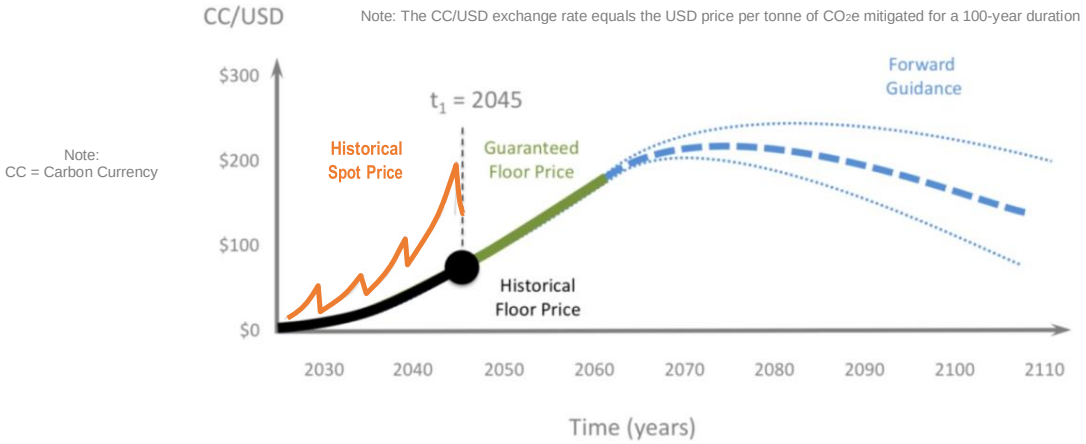

Figure 1. A hypothetical carbon reward price is indicated for 2045. The reward price is defined by the exchange rate of the carbon currency. The thick lines are the guaranteed floor price for achieving the Paris goal with defined probabilities.[9]

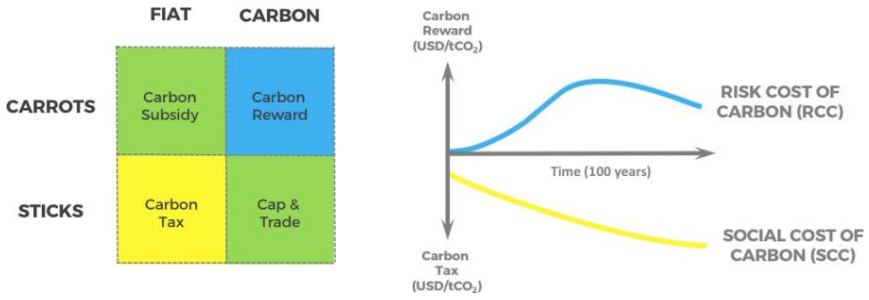

Figure 2. The carbon pricing matrix (see left) is a relational diagram for understanding carbon pricing. It delineates a binary option for the store of value (two rows) and a binary option for the unit of account (two columns). The matrix completes the symmetry in carbon pricing, and it delineates two externalities for the market failure in carbon (see right).[10]

Invitation to Collaborate

The GCR Initiative[11] is welcoming new partners and sponsors for a GCR demonstration and for advancing the GCR policy in China, Europe, United States, and elsewhere. To request information on partnership opportunities, please write to info@GlobalCarbonReward.org.

[9] https://globalcarbonreward.org/introduction/carbon-rewards/cleaner-energy/
[10] https://globalcarbonreward.org/carbon-currency/pricing-theory/
[11] The GCR Initiative is a project of Inquiring Systems, Inc., California, United States. https://globalcarbonreward.org/