



1. Introduction

The social and economic impacts of global carbon dioxide emissions are becoming increasingly severe, yet they are rarely directly quantified in carbon footprint analyses. Carbon footprint is typically treated as a technical metric expressing emissions in tons (tCO₂), but it is not associated with the financial damage that emissions inflict on society as a whole. This deficiency is observable not only in political and civil spheres but also in scientific communities dealing with the root causes of the problem and its solutions.

Carbon footprint calculation protocols (e.g., ISO 14067, GHG Protocol) also do not include the application of Social Cost of Carbon (SCC), even though the relationship is mathematically trivial: the product of carbon footprint and SCC directly gives the social damage value of emissions. The absence of this creates systemic distortion, as emissions are not evaluated based on their real social cost, so carbon credit prices are often just a fraction of what social damage would justify.

This document aims to introduce a new standard, the ****SLCI Credit Price Standard™**** (Social Cost of Carbon–Linked Carbon Index), which directly connects carbon footprint with

the economic value of social damage, i.e., the Social Cost of Carbon (SCC) metric. This relationship is not only technically justified but also morally and economically necessary to ensure that carbon credit pricing, climate protection project financing, and emissions evaluation are based on real social foundations. If this relationship is not made public and applied, then the extent of social damage is practically concealed—and this has serious consequences for the effectiveness of climate change action.

2. Conceptual Foundations

- **Carbon Footprint:** Total lifecycle greenhouse gas emissions of a product, service, activity, or organization, expressed in CO₂ equivalent, in tons (tCO₂). Carbon footprint can be:
 - **Product Carbon Footprint:** emissions associated with the production, use, and disposal of a specific product.
 - **Service Carbon Footprint:** direct and indirect emissions arising from providing a service.
 - **Corporate Carbon Footprint:** all greenhouse gas emissions from an organization's operations, including Scope 1 (direct), Scope 2 (indirect energy consumption), and Scope 3 (supply chain and other indirect) categories. Corporate carbon footprint forms the basis for climate protection strategy and carbon credit applications.
- **Social Cost of Carbon (SCC):** Estimated social cost of one ton of CO₂ emissions, encompassing economic, health, and environmental impacts caused by climate change. Unit: USD/tCO₂. The SCC value is based on scientific modeling and expresses the long-term effects of climate change in monetary terms.
- **SLCI Credit Price Standard™:** A calculation and communication framework that determines the social damage value of emissions in USD by multiplying carbon footprint with SCC. The goal of SLCI Credit Price Standard™ is to ensure that carbon credit pricing, climate protection project financing, and emissions evaluation occur on real social foundations, in a transparent and comparable manner.

3. Calculation Formula

The basic formula of SLCI Credit Price Standard™:

$$\text{Social Damage (USD)} = \text{Carbon Footprint (tCO}_2\text{)} \times \text{SCC (USD/tCO}_2\text{)}$$

This formula makes it possible to directly assign monetary value of social damage to any carbon footprint value.

4. Application Areas

- **Carbon Credit Pricing:** SCC-based minimum price reflecting the real social cost of emissions. SLCI Credit Price Standard™ helps avoid underpriced compensation and ensures that carbon credits represent genuine social value.

- **Climate Protection Project Financing:** Emissions offsetting with SCC-proportional compensation enables sustainable financing of projects and achievement of climate protection goals.
- **Product Labeling and Consumer Information:** Displaying social damage alongside carbon footprint helps consumers make decisions based not only on environmental but also economic and ethical considerations.
- **Public Procurement and Investment Decisions:** Integrating SCC-based evaluation into decision-making processes allows the social cost of emissions to appear in economic considerations, particularly at governmental and institutional levels.
- **Corporate Valuation and Goodwill:** Social damage value associated with corporate carbon footprint can be incorporated into the company's financial and reputational assessment. Through SLCI Credit Price Standard™, emission reduction efforts and SCC-based compensation mechanisms contribute to increasing the company's **goodwill value**, especially in industries where social responsibility provides competitive advantage.
- **ESG Compatibility and Sustainability Reporting:** SLCI Credit Price Standard™ can be directly integrated into the "E" component of the ESG (Environmental, Social, Governance) framework, as it enables monetary evaluation of environmental impacts. SCC-based social damage value can be incorporated into corporate sustainability reports in auditable and comparable form.
- **Risk Management and Climate Risk Modeling:** Applying SLCI Credit Price Standard™ helps companies quantify social and financial risks arising from carbon emissions and integrate them into long-term strategic planning.

5. Methodological Sources

SCC values can come from various scientific and policy sources, for example:

- EPA (2015/2016): 42–138 USD/tCO₂
- RFF / Nature (2022): 185 USD/tCO₂
- Bilal-Kanzig (2024): 1056–1500 USD/tCO₂
- Potsdam / Nature (2025): ~1300 USD/tCO₂

Recommendation: Users should consider the latest scientifically grounded SCC value, as these best reflect current and future social risks. Value selection may be context-dependent, but the 1000–1500 USD/tCO₂ range can be considered a relevant benchmark for the 2025s.

6. Timeline and Carbon Credit–SCC Alignment

To achieve the 2°C global warming target, carbon credit prices **must align with SCC by 2035 at the latest**. This alignment is not only a technical but also a financial and ethical prerequisite for emissions offsetting to truly cover social damage.

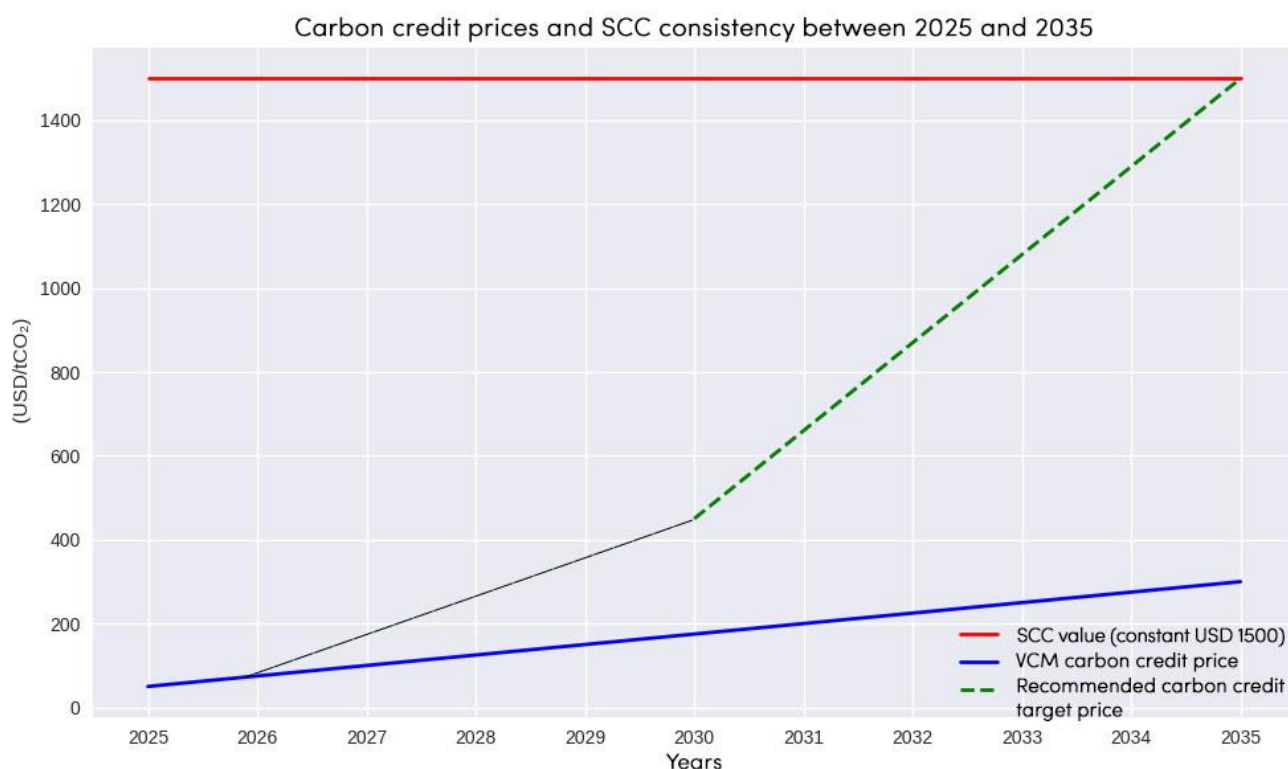
Current Situation – VCM Prices:

- On the voluntary carbon market (VCM), average carbon credit prices range between 30–50 USD/tCO₂.
- This value is **only 2–5%** of the latest SCC estimates (1056–1500 USD/tCO₂).
- Consequences:
 - Emissions offsetting **remains underfunded**.
 - Climate protection projects **do not receive sufficient resources**.
 - The 2°C target is **endangered** because market incentives **do not reflect real social damage**.

Recommended Target Values:

- **By 2030:** carbon credit prices should reach **at least 30–50% of SCC** (e.g., 450–750 USD/tCO₂).
- **By 2035:** carbon credit prices should reach the **full SCC value** (e.g., 1500 USD/tCO₂).

This price correction is necessary for carbon credits to represent genuine social value and for climate protection projects to be sustainably financed.



7. Communication Recommendation

The goal of SLCI Credit Price Standard™ is not merely technical calculation but promoting social responsibility. Presenting carbon footprint values as social damage helps decision-

makers, consumers, and market participants evaluate emissions not only from technical but also **ethical and economic perspectives**.

It is important to emphasize that **neither SLCI Credit Price Standard™ nor the voluntary carbon market (VCM) can consider market compliance as their goal**. On the contrary: the market must acknowledge that for effective climate change action, **adherence to standards based on the real value of social damage is essential**. The economic and ethical minimum required for survival is not determined by current market prices but by scientifically estimated social costs.

SLCI Credit Price Standard™ does not adapt to market compromises but serves as a **compass**: it shows what carbon credit prices are needed for emissions offsetting to truly cover social damage and for the 2°C target to remain achievable. The market must adapt to this—not vice versa.

8. License and Access

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