CARBON BRIEF

CARBON MARKET MECHANISMS: AN OVERVIEW OF THE MECHANISMS AND OPPORTUNITIES

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Supported by:
Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety
based on a decision of the German Bundestag

IKI INTERNATIONAL CLIMATE INITIATIVE

Implemented by:
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

UKRAINIAN CLIMATE OFFICE

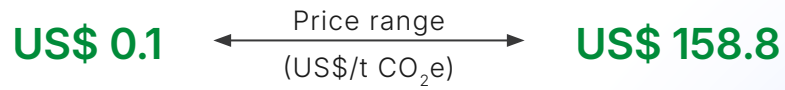
FEDERATION OF EMPLOYERS OF UKRAINE

WHAT ARE THEY?

Carbon markets are key policy instruments that limit the accumulation of greenhouse gas emissions in the atmosphere. As emissions contribute to the global greenhouse effect regardless of where they are released, carbon markets aim to reduce overall carbon dioxide (CO_2) by setting a total allowable emissions budget. Within this limit, emitters (entities that release greenhouse gases) receive a certain number of emission reduction credits for each tonne of CO_2 they produce. This allocation matches the emitter's reduction target. Market mechanisms allow emitters to buy or sell these credits as unused rights to emit. The goal is to use market-based approaches to encourage emissions reductions and achieve long-term climate targets.[1]

HOW DO THEY WORK?

On carbon markets, emitters purchase permissions to release a set quantity of emissions. The way this amount, or contingent, is determined depends on the market mechanism. Emission credits under Article 6 of the Paris Agreement help countries meet their nationally determined contributions (NDCs), which are climate targets each country sets under the Paris Agreement.[2] Voluntary carbon markets (VCMs) are markets where businesses opt in to buy credits to offset their emissions, usually to meet their own climate goals rather than national targets.[3] National systems, such as the European Emissions Trading System (EU ETS), are national or multilateral programs under which the overall emissions limit and trading rules are set by the government, or the EU in the case of the EU ETS. In these systems, emitters who stay below their allowance can sell remaining credits to fund further climate action, while those who exceed their allowance must purchase additional credits in a process known as "cap and trade." Instead of mandating emission reduction, the market mechanism provides an economic signal to emitters.[4] This system creates financial incentives: reducing emissions can generate income, and exceeding limits leads to extra costs. The price of credits is set by demand and supply and can range from below US$ 1 to over US$ 100 per tonne of CO_2.



Scheme 1.[4]

The key argument rests on the premise that market mechanisms encourage the reduction of emissions where it is least costly to do so, approaching emission reduction more efficiently.

1. UNEP Carbon Markets | UNEP - UN Environment Programme
2. UNFCCC What are Market and Non-Market Mechanisms? | UNFCCC
3. New Climate Institute Carbon markets | NewClimate Institute
4. World Bank Price | Carbon Pricing Dashboard

CHALLENGES

The effectiveness of carbon market mechanisms stands and falls with their implementation.[5]

First, the supply of emission credits must be capped.[6] The total amount of credits should be limited in line with the overall emission reduction target. If the total contingent of emission credits is too large, the pricing mechanism alone cannot mitigate the global greenhouse effect. To incentivise short-term investment in more sustainable operations, the overall emissions cap should be reduced over time. If emitting tomorrow is more expensive than today, emitters will reduce their emissions more quickly, and time is of the essence in reaching climate neutrality. Second, if countries fail to correct their reported emissions after selling unused emission credits to other countries, emission reductions may be double counted. When unused emission credits are sold on the carbon market, they cannot count toward reduced emissions, as they will be emitted by the buyer. Third, to avoid adverse impact on local stakeholders, for instance, by not considering regional developmental challenges, detailed rules for consulting local stakeholders must be adopted before emission reduction mechanisms are implemented. Including key local stakeholders ensures a collaborative nature within carbon market decision-making. Fourth, to reduce emissions beyond the zero-sum compensation, emission credits should be subject to partial cancellation over time. The more often emission credits are traded, the fewer emission entitlements they should entail. As emission credits become more costly in the long term, emitters are incentivised to operate more sustainably in the short term.

Altogether, to be successful, carbon markets must be accompanied by an institutional and financial infrastructure, as well as adequate social and environmental safeguards that ensure alignment with countries' NDCs, leading to overall mitigation in global emissions. Meanwhile, building transparency and integrity into carbon markets is fundamental to ensuring multilateral cooperation, particularly for VCMs.[7]

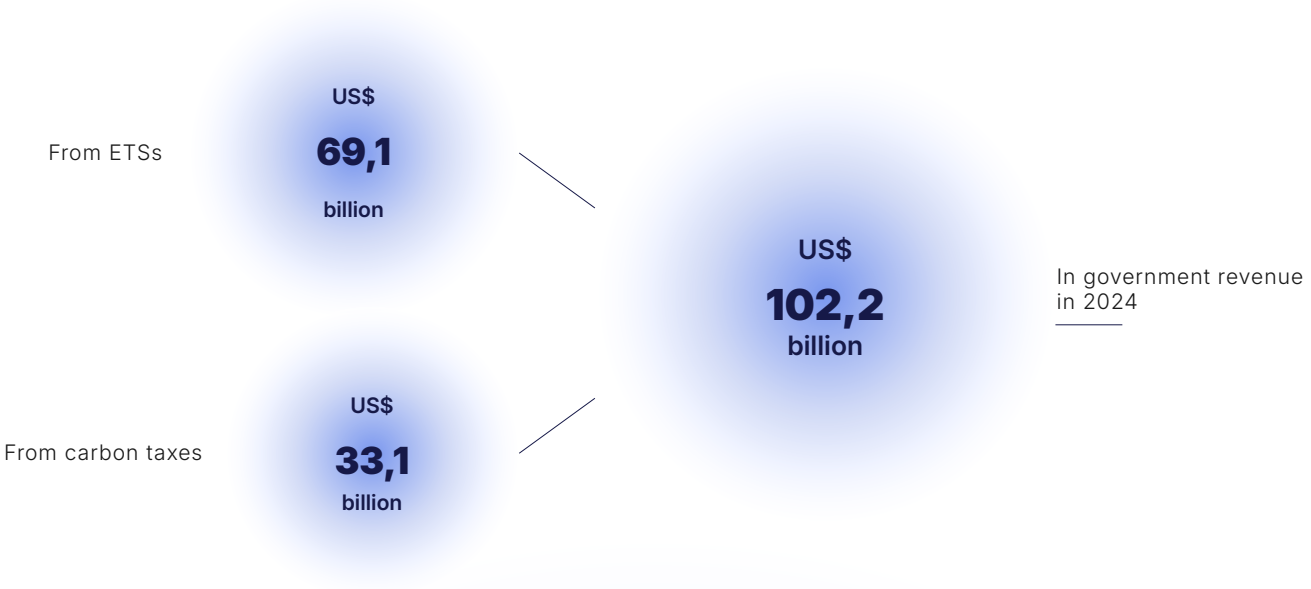
Scheme 2.[5]

5. CMW Carbon markets 101 — the ultimate guide to global offsetting mechanisms — Carbon Market Watch
6. IEF How can we strengthen the carbon market?
7. UNDP What are carbon markets and how do they work? | UNDP Climate Promise

OPPORTUNITIES

If implemented correctly, carbon markets can be powerful policy instruments for mitigating the adverse impact of climate change. Regulated by supply and demand mechanisms, carbon markets offer a cost-effective mitigation strategy by reducing emissions where the costs are lowest, while pricing additional emissions in the hardest-to-abate sectors to incentivise investment into emission reduction, where it is most needed.

A major advantage is that carbon markets generate government revenue that can be recycled into fiscal stimulus, for instance, to finance climate adaptation strategies. Such strategies may include mobilising investment for sustainable transitions across key sectors, such as energy, agriculture, water, and forest use. In 2024, carbon market mechanisms alone generated government revenues of nearly US$70 billion globally, which could be channelled into sustainable investment.



Scheme 3.[8]

CARBON MARKETS IN UKRAINE

As a signatory party to the Paris Agreement, Ukraine has commitment to reducing greenhouse gas emissions and updating its NDC every five years with the latest update made on October 29th, 2025. Given Ukraine's commitment to EU-accession and ongoing efforts to align national legislation with EU climate policy, the Ukrainian government adopted an action plan in February 2025 to establish a national ETS by 2028.[9] The introduction of a Ukrainian national ETS is expected to not only reduce emissions, but also to advance EU integration by raising legal and regulatory certainty over the country's climate targets. Ultimately, a structured framework for climate policy—including a national ETS—presents an opportunity to raise Ukraine's economic competitiveness, further paving the way toward its participation in the European Single Market.

8. World Bank Revenue | Carbon Pricing Dashboard
9. Ukrainian Cabinet of Ministers https://zakon.rada.gov.ua/laws/show/146-2025-%D1%80#Text

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