Oxford Offsetting Principles Practitioners Forum

International Carbon Market Dimensions

International carbon markets, including the newly operationalised market-based mechanisms under Article 6 of the Paris Agreement and emerging aviation and maritime sectoral markets, present both opportunities and challenges in the design and implementation of Oxford Offsetting Principles (OOP) aligned portfolios. Both Articles 6.2 and 6.4 allow for the voluntary cooperation of governments and corporates to reach their respective Nationally Determined Contributions (NDCs) and other climate targets, by trading mitigation outcomes. Learning from the legacy of previous international carbon markets, carbon trading under Article 6 aims to set a higher standard of environmental integrity and further sustainable development goals. The international aviation and maritime sectors– whose emissions fall outside the scope of the Paris Agreement– have also introduced or proposed carbon pricing schemes of their own. Unlike international carbon trading via Article 6, compliance with the sectoral schemes will be mandatory for the emissions from the air carriers and vessels to which the respective schemes apply. Responsible engagement with international carbon markets of all kinds can meaningfully support net-zero-aligned offsetting practices. Misuse could likewise equally knock net zero off-course. Therefore, they must be approached with due care.

1) Cooperative Approaches under Article 6.2 of the Paris Agreement

The flexibility inherent within Article 6.2, which allows significant user discretion in establishing cooperative approaches, presents both opportunities and limitations for OOP alignment. Article 6.2 allows for the flow of investment, technology transfers and capacity building between buyer and host countries, which can be critical in unlocking global removal potentials in an equitable manner. On the one hand, the flexibility afforded by Article 6.2 could generate further room for cross-boundary collaboration necessary to design and develop the latest generation of projects. In this sense Article 6.2 could be a tool to catalyse finance towards truly transformational mitigation activities, including high-quality durable removals, which are critical for net zero aligned offsetting practices, including because of potentially lower transaction costs compared to Article 6.4 and compliance carbon markets. On the other hand, use of Article 6.2 could pose a risk of mitigation deterrence, undermining the goals of the Paris Agreement. Mitigation outcomes traded under Article 6.2 do not have to meet substantive environmental integrity criteria due to the self-determined nature of methodologies used in their generation. Ongoing questions related to the application of corresponding adjustments designed as a safeguard against double counting remain an ongoing concern for such "internationally transferred mitigation outcomes" (ITMOs). Most host countries have yet to develop robust Monitoring, Verification and Reporting (MRV) and other accounting requirements to enable removal activities to be eligible. The nascent nature of the framework, alongside these concerns, has created a holding pattern for organisational involvement although guidelines are emerging for responsible use of the mechanism.[1]

[1] Johnstone, I., Schneider, L., Michaelowa, A., Grandpré, J., Kuci, S., Ahonen, H., Probst, B.S., Lezak, S., Hale,T., La Hoz Theuer, S., Omukuti, J., Reséndiz, J.L., Fankhauser, S., Abebe, S., and Hepburn, C. Oxford Principles for Responsible Engagement with Article 6 (2025). Oxford: Smith School of Enterprise and the Environment, University of Oxford.

(2) The Paris Agreement Crediting Mechanism

The Paris Agreement Crediting Mechanism (PACM) developed under Article 6.4, departs from Article 6.2 by creating a centralised and standardised system for carbon trading under the United Nations Framework Convention on Climate Change. Approved PACM methodologies have to meet certain environmental integrity requirements, such as applying a downward adjustment to crediting levels and addressing reversal risks. The PACM is an innovation in international carbon markets through recognising that offsetting is not a zero sum game, by requiring a 5% share of proceeds directed towards the Adaptation Fund and 2% contribution towards overall global mitigation efforts: in this sense mirroring the OOPs recommendations to both compensate one's emissions and contribute beyond that to catalyse further climate action. Indeed, the PACM also enables the creation of mitigation contribution units (MCUs) for the dedicated purpose of contributing to the climate target of another nation.

While the PACM seeks to establish a higher baseline of integrity compared to other international market mechanisms, it risks being undermined by the carryover of legacy activities from the preceding Clean Development Mechanism under the Kyoto Protocol. Moreover, more robust methodologies do not fully alleviate the risk of new A6.4 activities not delivering on their mitigation benefits, speaking to the continued need for responsible use of it, including utilising ancillary services such as insurance providers and carbon credit rating agencies as appropriate.[2] Transaction costs via Article 6.4 can introduce additional administrative and cost barriers for the scaling of removals. Indeed, the number of these activities under its emerging development pipeline remains small; its lack of distinct pathways for removals and reductions has negative implications for net zero aligned offsetting portfolios.[3] Despite these concerns, the PACM could be the first international carbon market to facilitate durable carbon removal. The centralised and standardised nature of the mechanism further offers the opportunity for existing standards globally to converge with those under PACM, providing more clarity and certainty for corporations seeking to practice net zero aligned offsetting and accordingly ambitiously contribute to the Paris Agreement's long-term goals.

(3) Implications of international sectoral carbon markets

In contrast to the voluntary Article 6 framework, sectoral carbon markets covering international emissions from aviation and shipping are of a compliance rather than voluntary nature. The Carbon Offsetting and Reduction Scheme in International Aviation (CORSIA), was agreed in 2016 by the International Civil Aviation Organisation, and is currently in Phase One where some airlines are subject to mandatory obligations to offset the growth in their emissions. The International Maritime Organisation's (IMO) Net-Zero Framework, by contrast, was only endorsed in April 2025 and is set to enter into force from 2027. Although both are nascent in their operationalisation, these frameworks could stimulate further action to reduce industrial emissions and compensate for the rest. However, barriers persist. CORSIA, in particular, presents challenges for OOP alignment as it does not differentiate between credit types, and only very limited removal methodologies have been accepted for use under it. The IMO framework has also generated criticism that its target levels will not be sufficient to reach net-zero.[4] As these schemes evolve they must ensure net zero aligned decarbonisation pathways are in place for both sectors.

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[2] *Ibid.*

[3] See policy brief on available pathways toward a net zero aligned PACM which includes only durable removals in future here. Johnstone, I., Pelz, S. and Kuci, S. Towards a Net Zero Aligned Paris Agreement Crediting Mechanism (June 2025) <https://www.smithschool.ox.ac.uk/sites/default/files/2025-06/Towards-a-Net-Zero-Aligned-Paris-Agreement-Crediting-Mechanism.pdf>.

[4] European Federation for Transport and Environment. IMO Net-Zero Framework (April 2025) <https://www.transportenvironment.org/uploads/files/Impact-of-the-IMOs-draft-Net-Zero-Framework-April-2025.pdf>.