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Introduction to Emission Reduction Credits , Photo co2 reducing icon inside magnifier glass on greenery background

Policy Context of Emissions Reduction Credit

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On this page: *Global ERC markets remain fragmented and heterogenous across sources of both supply and demand and are shaped by evolving policy and regulatory developments. Read more below, or visit Strategic Guidance for Country System Assessments, Guidance for Countries in Assessing ERC Projects, or Mobilizing ERC Finance.*

Global ERC markets remain fragmented and heterogenous across sources of both supply and demand and are shaped by evolving policy and regulatory developments. Demand for ERCs spans different market segments, each with a distinct set of policy considerations:

International Compliance Markets

International compliance markets primarily respond to commitments made under international treaties or agreements under which parties can purchase and use ERCs to help meet emissions reduction commitments.[1] Two prominent examples are compliance with NDCs under the Paris Agreement, such as through the operationalization of Article 6, or with commitments by the international aviation industry under CORSIA.[2]

Article 6 of the Paris Agreement recognizes that countries may pursue voluntary cooperation in the implementation and achievement of their NDCs to allow for greater ambition, promote sustainable development, and advance environmental integrity.[3] In November 2021 at COP26, countries adopted the foundational guidance for operationalizing Articles 6.2, as well as the rules, modalities, and procedures for the mechanism under Article 6.4,[4] collectively referred to as the Article 6 Rulebook. The Article 6 guidance and rules were elaborated in 2022 at COP27 and will continue to be refined by countries through ongoing negotiations. However, countries have sufficient guidance to build the national frameworks necessary to generate and exchange internationally transferred mitigation outcomes (ITMOs) under Article 6. ITMOs are a particular classification of ERCs that are authorized by a host government for international transfer under Article 6 of the Paris Agreement.

Articles 6.2 and 6.4 establish the foundation for future ERC transactions through operationalization of the international compliance market. The Article 6 Rulebook provides market participants, including financiers, with much-needed clarity on key considerations required to commercialize ERCs.

- Article 6.2 guidance grants Parties flexibility in the use of high-integrity market approaches to achieve their NDCs and has the potential to increase the global flow of carbon finance. Article 6.2 enables bilateral or multilateral trading of ITMOs.[5] ITMOs may be transferred at a sovereign-to- sovereign level to support the achievement of the acquiring country's NDC or transferred for other international mitigation purposes, such as international compliance markets (e.g., the Carbon Offsetting and Reduction Scheme for International Aviation or CORSIA) or the voluntary carbon market where an

authorized unit with a corresponding adjustment is desired by the voluntary buyer or required by the host country. Steps and safeguards on carbon transfers are required under this mechanism, including to avoid double counting of ITMOs. This is also consistent with and supported by requirements under Article 4 of the Paris Agreement, whereby Parties are to promote environmental integrity, transparency, accuracy, completeness, comparability, and consistency in relation to their mitigation contributions. To transact under the Article 6.2 mechanism, countries must 'authorize' ITMOs for international transfer, which triggers a 'corresponding adjustment',[6] an accounting measure to ensure that ITMO transfers have accounting integrity and are not double counted, regardless of whether the authorized ITMO is used toward an acquiring Party's NDC or other international mitigation purposes.[7] Since the adoption of the Paris Agreement, there has been progress made towards a number of Article 6 pilot transactions.

- Article 6.4 sets the foundation for the establishment of a centralized crediting mechanism that builds on the experience under the Kyoto Protocol's CDM. Under Article 6.4, a Supervisory Body hosted by the United Nations Framework Convention on Climate Change (UNFCCC) will be responsible for development and/or approval of methodologies, registration of activities, and the issuance of Article 6.4 emissions reductions (A6.4ERs).[8] A6.4ERs may be: (1) Authorized toward the achievement of an acquiring country's NDC or for other international mitigation purposes, which are known as Authorized A6.4ERs and, when transferred internationally, are also governed under the Article 6.2 corresponding adjustment and reporting requirements to ensure no double counting;[9] or (2) Not authorized for use toward the achievement of an acquiring country's NDC or other international mitigation purposes, which are known as Mitigation Contribution A6.4ERs.[10] Unique to the Article 6.4 mechanism are a set of additional features designed to contribute to wider global ambition and to raise funds for climate change adaptation activities. As specified under the Article 6.4 rules, modalities, and procedures, 2% of all A6.4ERs generated will be automatically cancelled with the objective of supporting the overall mitigation of global emissions (OMGE). Additionally, 5% of A6.4ERs issued will be transferred to a separate registry account for the Adaptation Fund, which will distribute funds to assist vulnerable countries to meet the costs of adaptation.[11]

Domestic Carbon Pricing

Domestic market-based carbon pricing instruments are increasingly adopted by countries as a tool to drive investment in mitigation activities in support of NDC achievement. The two primary types of carbon pricing instrument are:

- Carbon taxes, whereby a direct fee is imposed per ton of GHG emitted by a regulated entity, making it more expensive to continue with emissions-intensive activities; and
- ETS, also known as cap-and-trade systems, which put a cap on the total volume of GHGs that can be emitted by a particular entity or sector. In some ETS, regulated entities are allocated a certain number of allowances, permitting entities that emit an amount below their limit to sell their excess allowances to other entities that emit over their limit. In other ETS, allowances are not allocated for free to covered entities but instead auctioned.

Depending on the national context, some carbon pricing programs may permit entities to meet compliance obligations wholly or partially by purchasing and retiring ERCs to offset or compensate for their GHG emissions, creating one source of ERC demand. Two prominent examples that allow for limited use of certain kinds of ERCs are:

- The EU ETS was launched in 2005 as the world's first international ETS. It operates as a mandatory cap-and-trade system that covers several GHGs and sectors, including domestic aviation, industry, and power. In 2017, the EU and Switzerland signed an agreement to link their two ETS.[12]
- California's Cap-and-Trade Program was launched in 2012 and covers the transport, buildings, industry, and power sectors. In 2014, the California program linked with Québec's ETS.[13]

Voluntary Carbon Market

The VCM consists of mostly private entities purchasing ERCs for the purpose of complying with voluntary mitigation commitments, such as corporate net-zero targets.[14] VCM ERCs are typically issued through independent crediting mechanisms to the project generating the ERCs. Because it is a voluntary program and not compliance, buyers have more choice about their preferred ERC characteristics. These can include activity type, geographies, price, co-benefits, and whether ERCs represent GHG emissions reduced or removed from the atmosphere. As the VCM has grown, industry initiatives have emerged to promote and assess the integrity of VCM activity, both in terms of supply (e.g., the Integrity Council for the Voluntary Carbon Market (ICVCM)) and demand (e.g., the Voluntary Carbon Market Integrity Initiative (VCMI) and Science-based Targets Initiative (SBTi)).

Because Article 6.2 guidance does not require voluntary ERCs to be authorized under Article 6, countries are expected to develop policy positions regarding the role of VCMs in meeting their NDC. For instance, a host country will determine whether it will authorize the export of voluntary credits and require a corresponding adjustment. Alternatively, should a host country choose not to authorize the export of voluntary credits, the GHG reductions or removals underpinning the voluntary credits will be counted toward its own NDC (with the buyer, in this case, receiving a claim to have financed the mitigation outcome and NDC contribution, and not exclusive claim rights to the ERC). Governments may adopt an approach to this policy decision on an activity-by-activity or issuance-by-issuance basis or alternatively as a general policy position applicable to all VCM activities.

Results-Based Finance

In ERC markets, results-based finance refers to purchases of ERCs by sovereign governments or other entities for the purpose of incentivizing climate change mitigation or meeting NDCs.[15] Payments are made once pre-agreed milestones or interim targets have been met. The ERCs are often cancelled by the purchasing entity with the GHG benefits of the ERCs retained by the host country in which the emissions reductions or removals are achieved, which can then count towards that country's NDC. The terms and conditions for results-based financing are usually governed by bespoke bilateral or multilateral agreements.

Footnote 1: World Bank, *State and Trends of Carbon Pricing 2022*, 2022.
Footnote 2: World Bank, *State and Trends of Carbon Pricing 2022*, 2022.
Footnote 3: Studies suggest the economic benefits of Article 6 cooperation are significant. In a study by the International Emissions Trading Association (IETA) in collaboration with the University of Maryland, researchers estimate that cooperative implementation under Article 6 reduces the mitigation costs of achieving NDCs by 63% in 2030, saving US$250 billion per year. Additionally, if these estimated cost savings are reinvested into additional mitigation, then the world could double the current ambition of NDCs at the same costs as independent implementation in the absence of Article 6. See: International Emissions Trading Association (IETA), *The Economic Potential of Article 6 of the Paris Agreement and Implementation Challenges*, 2019; Environmental Defense Fund, *The power of markets to increase ambition*, 2019.
Footnote 4: UNFCCC, *"Decision 2/CMA.3, Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement," 2021*; *"Decision 6/CMA.4, Matters relating to cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement," 2021*; *"Decision 3/CMA.3, Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement"* ; *"Decision 7/CMA.4, Guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement," 2021*.
Footnote 5: UNFCCC, *"Decision 2/CMA.3, Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement," 2021*.
Footnote 6: UNFCCC, *"Decision 2/CMA.3, Guidance on cooperative approaches referred to in Article 6,*

paragraph 2, of the Paris Agreement," 2021.
Footnote 7: UNFCCC, *"Decision 2/CMA.3, Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement," 2021*.
Footnote 8: UNFCCC, *"Decision 3/CMA.3, Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement," 2021*.
Footnote 9: UNFCCC, *"Decision 2/CMA.3, Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement*; *Decision 3/CMA.3, Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement," 2021*.
Footnote 10: UNFCCC, *"Decision 7/CMA.4, Guidance on the mechanism established by Article 6, paragraph 4, of the Paris Agreement," 2021*.
Footnote 11: UNFCCC, *"Decision 3/CMA.3, Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement," 2021*.
Footnote 12: International Carbon Action Partnership, "*EU Emissions Trading System (EU ETS),*" 2022.
Footnote 13: International Carbon Action Partnership, "USA - California Cap-and-Trade Program," 2022.
Footnote 14: World Bank, *State and Trends of Carbon Pricing 2022*, 2022.
Footnote 15: World Bank, *State and Trends of Carbon Pricing 2022*, 2022.

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- **Strategic Guidance for Country System Assessments (Download PDF version)**
- **Guidance for Countries in Assessing ERC Projects (Download PDF version)**
- **World Bank Emissions Reduction Program: Mobilizing ERC Finance (Download PDF version)**

Additional Resources

- World Bank Group Climate Toolkits for PPPs
- Climate & Disaster Risk Screening Tools

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