UNITED NATIONS DEVELOPMENT PROGRAMME

High-Integrity Carbon Markets Toolkit

Module 1 Part 1

Carbon Markets 101

Introduction

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UNDP's Climate Promise is the UN system's largest portfolio of support on climate action, working with more than 140 countries and territories and directly benefiting 37 million people. This portfolio implements over US$2.45 billion in grant financing and draws on UNDP's expertise in adaptation, mitigation, carbon markets, climate and forests, climate risk and security, and climate strategies and policy. Visit our website at climatepromise.undp.org and follow us at @UNDPplanet.

About this publication

This publication was developed with support from the UN-REDD Programme. UN-REDD is the UN knowledge and advisory platform on forest solutions to the climate crisis. It supports nationally-led REDD+ processes and promotes the informed and meaningful involvement of all stakeholders, including Indigenous Peoples and local communities, to mobilize finance for and implement REDD+ activities agreed under the UNFCCC. UN-REDD builds on the convening capacity and technical expertise of FAO, UNDP and UNEP, serving 65 partner countries. UN-REDD is made possible through support from the European Commission and the governments of Denmark, Luxembourg, Norway, Japan, Republic of Korea, Spain, Switzerland and United Kingdom.

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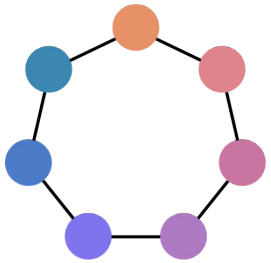

High-Integrity Carbon Markets Toolkit

The Toolkit serves **supply-side** actors—governments, project developers, companies, NGOs, Indigenous Peoples and local communities—and **demand-side** actors, including investors, corporates and individuals. It equips them to **design, implement and scale** high-integrity carbon market activities that **deliver real and equitable climate outcomes**.

It also supports institutions **that shape and uphold market quality**—including standard-setters, rating agencies, validation and verification bodies, and integrity initiatives—helping to build a **trusted global framework** for carbon markets that deliver lasting benefits for **climate, people and nature**.

The Toolkit **offers flexible, multimedia content**—from webinars and case studies to guidance notes and presentations—for both self-paced and group learning.

Developed with **leading international partners**, the Toolkit focuses first on **social integrity**, an area where UNDP brings deep expertise and global relevance.

Explore: climatepromise.undp.org/carbonmarketstoolkit
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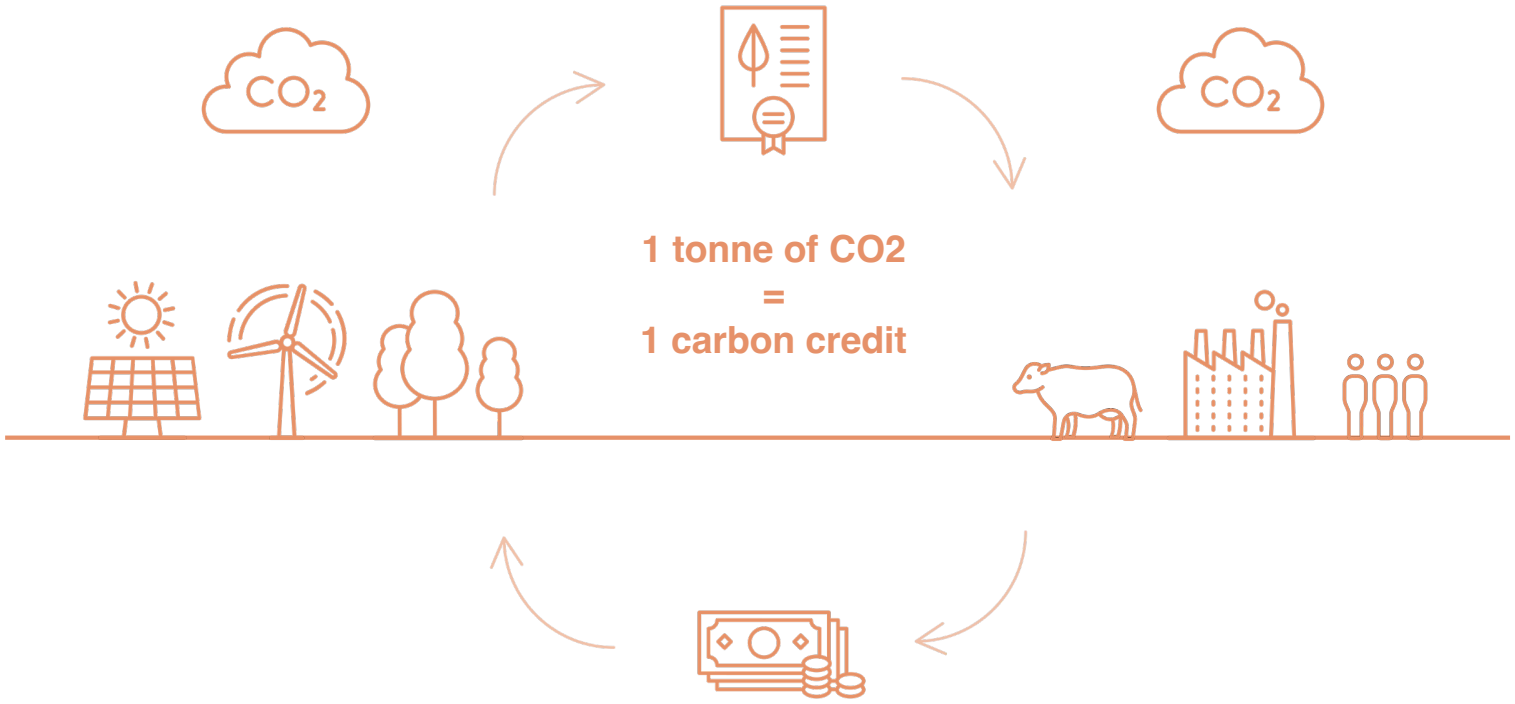
Content

Chapter 1

Introduction

What are carbon markets?

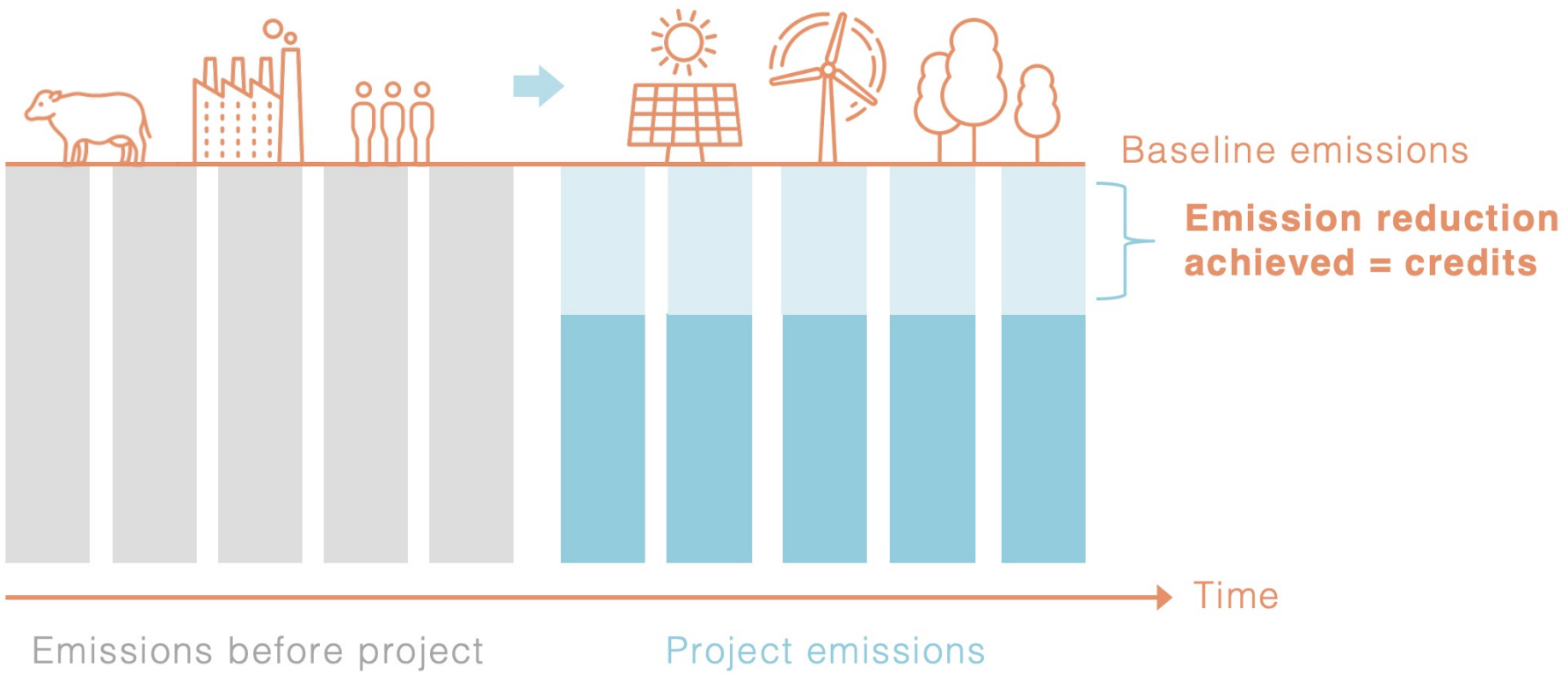
- **Carbon markets** enable the trading of **carbon credits**—each representing a verified reduction, removal or avoidance of greenhouse gases (GHGs).
- Credits are generated by projects and programmes* in sectors ranging from clean energy, land use, forests and agriculture to industrial gases and waste through actions like **forest protection, clean energy deployment, methane capture** and **energy efficiency improvements**.
- Once verified, credits can **be bought, sold or retired** to help governments, companies and individuals **meet climate goals cost-effectively**.



* Note on terminology throughout, the term “project” is meant to capture both projects and jurisdictional-scale programmes.

What are carbon credits?

- Verified units equal to 1 tonne of CO_2e reduced, removed or avoided.
- Bought by companies, governments and individuals to offset emissions or for compliance with regional, national and international carbon schemes.



Carbon market typologies

Feature	Compliance	Regulated (opt-in but rules-bound)	Voluntary
Obligation / target	Yes – entities are legally obligated to meet a cap or target.	No mandatory target; but once you participate, you must follow binding rules.	No target; participation is entirely voluntary.
Who sets the rules?	Governments / international bodies (laws, directives, treaties).	Governments / multilateral agreements set frameworks.	Independent standards (Verra, Gold Standard, ACR, Plan Vivo, etc.).
Scope	Domestic or international.	Domestic or international.	Global, market-driven.
Credit / allowance type	Allowances (ETS) or recognized offset units (CERs under CDM, CORSIA-eligible credits).	Paris Agreement Crediting Mechanism (PACM) A6.4ERs, ITMOs under Article 6.2*, government-approved voluntary credits (e.g., Peru).	Carbon credits from private standards (REDD+, renewable, removals).

* PACM A6.4ERs subject to rules, modalities and procedures while Article 6.2 is decentralized and subject to participation and reporting requirements but not centralized UNFCCC rules.

Carbon market typologies

Feature	Compliance	Regulated (opt-in but rules-bound)	Voluntary
Claims enabled	Legal compliance with cap/target.	Contribution to NDCs, recognized reductions under regulated scheme.	Corporate climate neutrality, net-zero pledges, voluntary offsetting.
Examples	EU ETS, UK ETS, California Cap-and-Trade, RGGI, CORSIA.	› Article 6 cooperative approaches › Peru's regulated VCM framework › Singapore's VCM import regulations	› LEAF Coalition (jurisdictional REDD+) › Private purchases via Verra, GS, ACR › Corporate net-zero portfolios
Penalties for non-compliance	Yes – fines, legal consequences.	Yes – if you choose to participate, misreporting or non-compliance is penalized.	Legal penalties by courts if projects violate, e.g. land rights and standards can also sanction non-compliant projects and VVBs; reputational risks can also arise.

Supply and demand for carbon credits

Supply

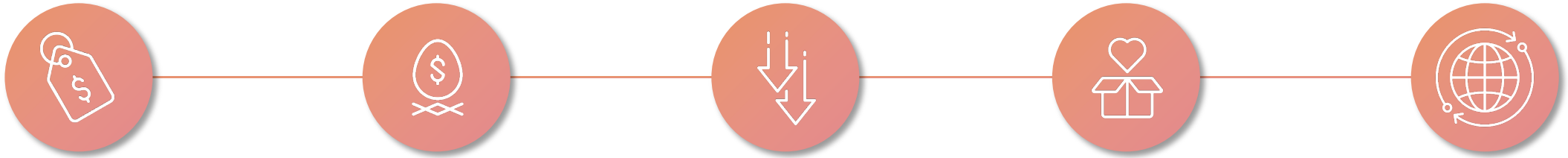
- Refers to the availability of carbon credits from projects that generate verified emission reductions.
- Carbon credits are supplied by projects that reduce emissions or remove carbon from the atmosphere.
- Supply is influenced by technical potential of emission reductions, access to finance for project developers, methodology availability, project development, validation and issuance processes.

Ideally, the carbon price should make carbon projects viable while reducing the mitigation cost for the buyer.

Demand

- Represents the need for or interest in carbon credits by entities seeking to offset their emissions or for compliance.
- Increased demand drives market growth and incentivizes emissions reduction projects.

Potential benefits of carbon markets



Puts a price on carbon

to drive cost-effective emission reductions.

Mobilizes investment

and shapes long-term business and policy decisions while promoting the deployment of clean technologies.

Reduces costs

and accelerates progress toward climate goals through market efficiency.

Delivers benefits

for communities, creates jobs and protects biodiversity.

Advances global action

toward net zero under the Paris Agreement.

Potential risks associated with carbon markets

Risks	Description
Poor quality credits	Non-additional, non-existing (false claims); overestimated reductions; projects not delivering benefits
Greenwashing	Companies use credits to appear responsible without undertaking emissions cuts in their operations
Non-permanence	Stored carbon released by fire, pests or logging
Lack of additionality	Credits issued for projects that would have happened anyway
Double counting	Same reductions claimed by multiple entities
Price volatility	Fluctuations undermine confidence, deter investment
Market fragmentation	Carbon price fluctuations, non-fungible credits, fragmented registries limit reliability
Harm to communities	Land grabs, evictions, exclusion of Indigenous Peoples and local communities, unfair benefit sharing arrangements, human rights violations
Harm to environment	Adverse impacts on biodiversity, natural habitats, ecosystems
Cybersecurity threats	Registries vulnerable to hacking, fraud, disruption
Regulatory risk	Policy changes can devalue or invalidate credits

Chapter 2

Compliance markets

Tools used in compliance carbon markets

Tool/mechanism	How it works	Examples
Cap-and-Trade (Emissions Trading Systems, ETS)	Sets an overall emissions cap and issues tradable allowances. Companies buy or sell permits to meet their targets cost-effectively.	EU ETS, California Cap-and-Trade, Korea ETS, China ETS, New Zealand ETS
Baseline-and-Credit Mechanisms	Projects that reduce or remove emissions below a defined baseline generate credits that can be used for compliance or traded.	Article 6.4 Mechanism, Japan's J-Credit, California Compliance Offsets
International Cooperative Approaches (Article 6.2)	Countries trade Internationally Transferred Mitigation Outcomes (ITMOs) to meet NDCs, applying corresponding adjustments to avoid double counting.	Switzerland–Peru, Singapore–Ghana, Japan–Thailand bilateral agreements
Carbon Taxes with Offset Options	Applies a fixed carbon price; regulated entities may use offsets to lower their tax obligations.	South Africa Carbon Tax, Mexico Carbon Tax, Colombia Carbon Tax
Sectoral Crediting Mechanisms	Sets emission benchmarks for entire sectors; entities performing better earn tradable credits.	Article 6 pilot programmes, China's intensity-based allocation system
Linked or Hybrid Systems	Combines multiple mechanisms (e.g., ETS + offsets + international credits) for greater flexibility and scale.	California–Québec linkage, EU–Swiss ETS linkage

How does cap and trade work?

	Step	Process	Key points
01	**Cap is set**	Regulator sets a maximum emissions limit for covered sectors, companies and/or plants.	Ensures total emissions cannot exceed the cap.
02	**Allowances created**	Cap is divided into allowances (1 allowance = 1 tonne CO_2e). Distributed by auction or free allocation.	Defines how emissions rights enter the market.
03	**Compliance obligation**	Companies must surrender allowances equal to their actual emissions.	Aligns emissions with available permits.
04	**Trading**	Companies can buy or sell allowances in the market.	Creates flexibility and cost efficiency.
05	**Market price emerges**	Price of allowances determined by supply and demand.	Incentive: emit less if it's cheaper than buying allowances.
06	**Compliance and enforcement**	At period end, firms surrender allowances; penalties for shortfall.	Ensures credibility of the system.
07	**Flexibility and linkages**	Offsets may be used; systems may link across regions.	Expands liquidity and lowers costs (but integrity of offsets should be high so that the effectiveness of the cap and trade system is not undermined).

How does a carbon tax work?

Definition	A fixed price per tonne of CO_2e emitted — companies pay for each unit of GHG released.
Objective	Create a clear economic incentive to reduce emissions and shift toward cleaner technologies.
How it works	Government sets a carbon price; emitters either reduce emissions or pay the tax.
Who pays	Typically large emitters, fuel producers or importers — costs may pass to consumers through energy prices.
Revenue use	Funds can support climate project, tax rebates or social programs to offset higher energy costs. In some cases, tax revenue is also allocated to the general budget of countries.
Flexibility	Some systems allow offsets to reduce tax liability.
Advantages	Simple to administer, predictable price signal, generates revenue for climate and social goals.
Challenges	Doesn’t guarantee specific emission levels; may raise costs for energy-intensive sectors or low-income groups.

Compliance markets at different levels

Level	Examples
Subnational	California Cap-and-Trade Program: Covers about 85 percent of the state's total GHG emissions. Québec Cap-and-Trade System: Linked with California's programme to create a larger, integrated market. Regional Greenhouse Gas Initiative (RGGI): A cooperative effort among several U.S. Northeast and Mid-Atlantic states that caps and reduces power plant emissions.
National	China National ETS: The world's largest carbon market in terms of covered emissions, launched in 2021. United Kingdom ETS (UK ETS): Established after Brexit to replace the UK's participation in the EU ETS. South Korea ETS (K-ETS): The world's largest national cap-and-trade programme by trading volume and market value. Colombia's Carbon Tax: Imposes a national carbon tax on the combustion of fossil fuels.
Regional	European Union Emissions Trading System (EU ETS): The world's first and largest carbon market (trading volume and value), covering more than 11,000 power plants and industrial sites across the European Economic Area. The EU ETS is a key tool for the European Union to achieve its climate targets.
International	Article 6 of the Paris Agreement: Establishes a framework for international cooperation, allowing countries to use internationally transferred mitigation outcomes (ITMOs) to meet their NDCs. As of October 2025 there are 102 bilateral agreements covering 62 countries. Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA): Implemented by the International Civil Aviation Organization (ICAO), CORSIA requires airlines to offset emissions from international flights that exceed a baseline.

A closer look at select cap and trade programmes*

System	Launch year	Coverage	Key results
EU ETS	2005	Power, heavy industry, aviation (~40% of EU emissions)	Largest and most mature market; ~40% emissions cut in power sector since 2005; strong price signal driving clean energy transition.
New Zealand ETS	2008	Economy-wide, including forestry and agriculture (unique)	Incentivizes forestry carbon sinks; among the most comprehensive ETS globally.
RGGI (US)	2009	Power sector in 11 Northeast & Mid-Atlantic states	~50% reduction in power-sector emissions vs 2005; billions raised for state climate programmes.
California Cap-and-Trade	2013	Economy-wide: power, industry, fuels (~85% of state emissions)	Linked with Québec; helps meet state climate targets; integrates with renewable and efficiency policies.
Korea ETS	2015	Power, steel, cement, aviation, petrochemicals (~70% national emissions)	Asia's first national ETS; expanding auctions and compliance coverage; building regional market capacity.
China National ETS	2021	Power sector (expanding to steel, cement, aluminum, etc.)	World's largest by covered emissions (~5 Gt CO_2e); shifting from intensity- to cap-based limits by 2027.

* Selected based on combination of scale, liquidity, price strength, coverage, institutional robustness and demonstrated emission reductions.

Factors influencing carbon price

Factor	High price effect	Low price effect	Examples
Cap stringency (allowance supply)	Tight cap reduces available allowances → higher demand.	Loose cap leaves surplus allowances.	EU ETS tightened cap → €80–90; RGGI's initial surplus kept prices ~$5–15.
Sector coverage	Broad coverage (power, industry, aviation) increases allowance demand.	Narrow coverage (e.g., only power) limits demand.	EU ETS broad; RGGI narrow.
Allowance allocation	More auctioning → companies must buy allowances.	More free allocation → dampens demand for purchases.	EU ETS shifting to auctioning; China and Korea still heavy on free allocation.
Complementary policies	Fewer overlapping policies → ETS does the 'heavy lifting.'	Strong renewable/efficiency policies reduce allowance demand.	EU ETS prices higher; California's renewables + efficiency keep ETS prices moderate.
Political and economic context	Strong political will + climate ambition → tighter caps.	Concern over costs/competitiveness → looser design.	EU leaders tightened post-2015; RGGI states balance price with political acceptability.
Market design features	Price stability mechanisms (reserves, floor/ceiling) keep system credible and prices steady.	Lack of stability can cause volatility or persistently low prices.	EU ETS Market Stability Reserve boosted prices; California has floor/ceiling.

Article 6: Unlocking cooperation to meet global climate goals

What is Article 6?

Article 6 of the Paris Agreement (UNFCCC) lays the foundation for **international cooperation** to achieve countries' NDCs and LT-LEDS while raising ambition and supporting sustainable development. It is divided into three distinctive mechanisms.

- 6.2 Decentralized mechanism
- 6.4 Centralized mechanism
- 6.8 Non-market approaches

Article 6: Unlocking cooperation to meet global climate goals

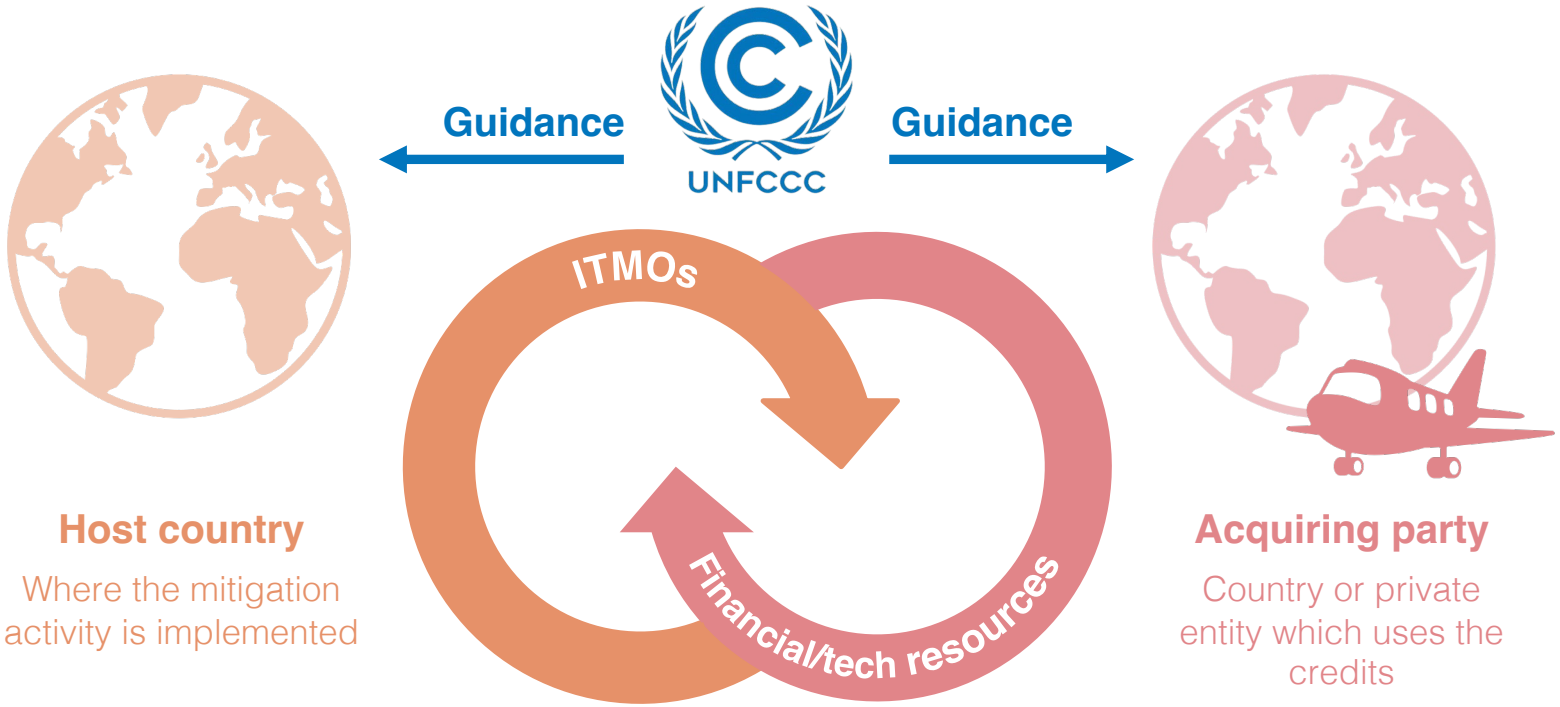
	Article 6.2	Article 6.4	Article 6.8
Mechanism type	**Decentralized mechanism**	**Centralized mechanism**	**Non-market approaches**
Type of cooperation	Bilateral or plurilateral	Project-based, open to public and private actors	Collaborative, non-market cooperation
Governance / administration	Party-driven with UNFCCC guidance on requirements and reporting	Supervised by Article 6.4 Supervisory Body	Framework and work programme implemented by Glasgow Committee on Non-market Approaches
Host country role	Requires **authorization** by the host country regarding use of ITMOs	Requires **approval** by the host country before registration and issuance of A6.4ERs Host country can decide whether to **authorize** A6.4ERs or not.	Host country **endorsement or facilitation** may be required depending on national context
Units / outcomes	Internationally Transferred Mitigation Outcomes (**ITMOs**)	**A6.4ERs** (Article 6.4 Emission Reductions) **If authorized:** A6.4 Authorized Emission Reductions (A6.4 AER) which become ITMOs **If not authorized:** Mitigation Contribution Units (MCUs)	No tradable units; outcomes delivered via support to host countries, including finance, technology transfer and capacity-building
Use cases	NDC achievement, other international mitigation purposes (OIMP, e.g. CORSIA)	**If authorized:** NDC achievement, OIMP **If not authorized:** Results-based climate finance, domestic mitigation pricing schemes, or domestic price-based measures	NDC support; adaptation, resilience and sustainability; mitigation measures to address climate change and contribute to sustainable development; development of clean energy sources

Article 6 market mechanisms in a nutshell

Article 6.2 – Cooperative approaches

Countries can **voluntarily work together** to reduce emissions and meet their climate targets. They decide the **rules of cooperation themselves**.

The **UNFCCC provides guidance** to ensure transparency and avoid double counting, and countries must **report** on how they're using this cooperation to help achieve their climate goals.

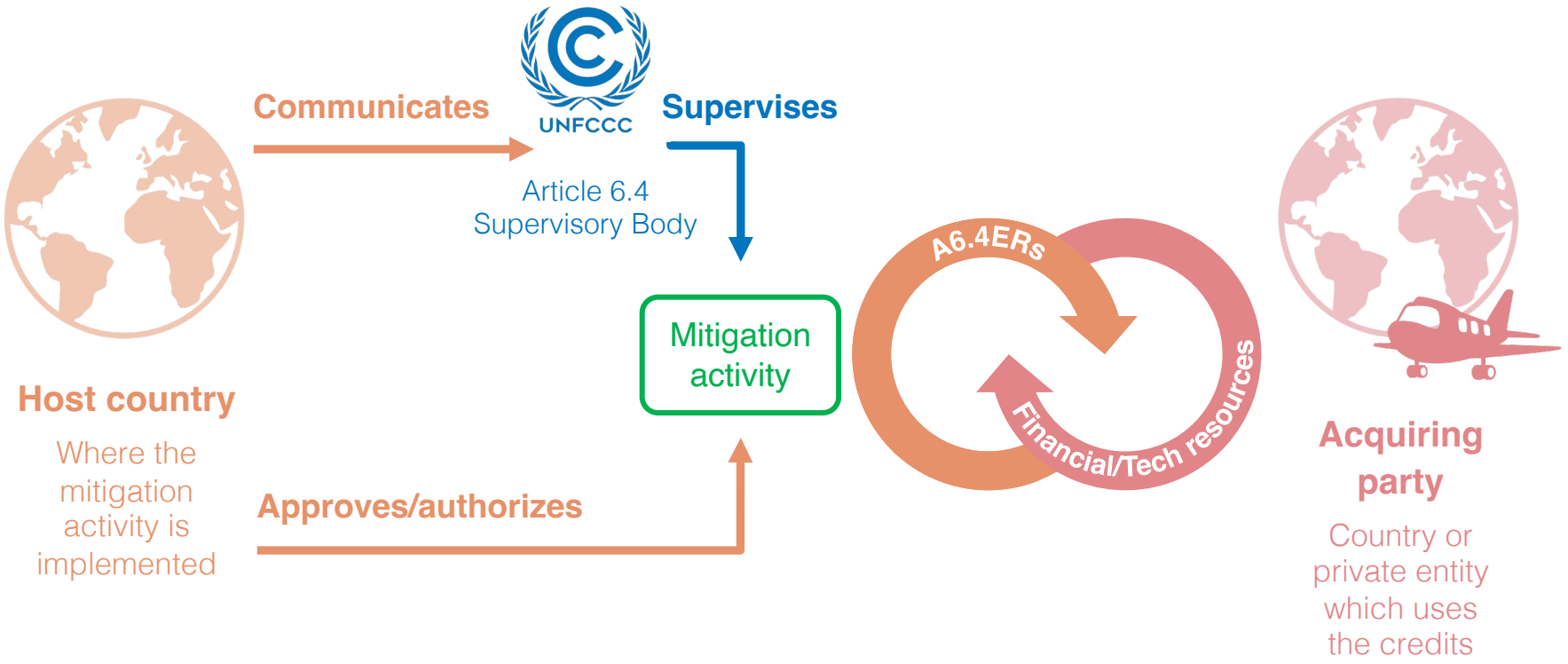


Article 6 market mechanisms in a nutshell

Article 6.4 – The Paris Agreement Crediting Mechanism (PACM)

Article 6.4 creates an **UN-led centralized system** through which countries, companies and organizations can develop emission-reduction projects and generate credits, called A6.4 ERs.

It works like the Clean Development Mechanism (CDM), but under stricter rules. All activities must be approved by the host country and reviewed by the Article 6.4 Supervisory Body.



Positioning Article 6 units within the carbon market ecosystem

Compliance markets

UNIT TYPE
Internationally Transferred Mitigation Outcomes (ITMOs)

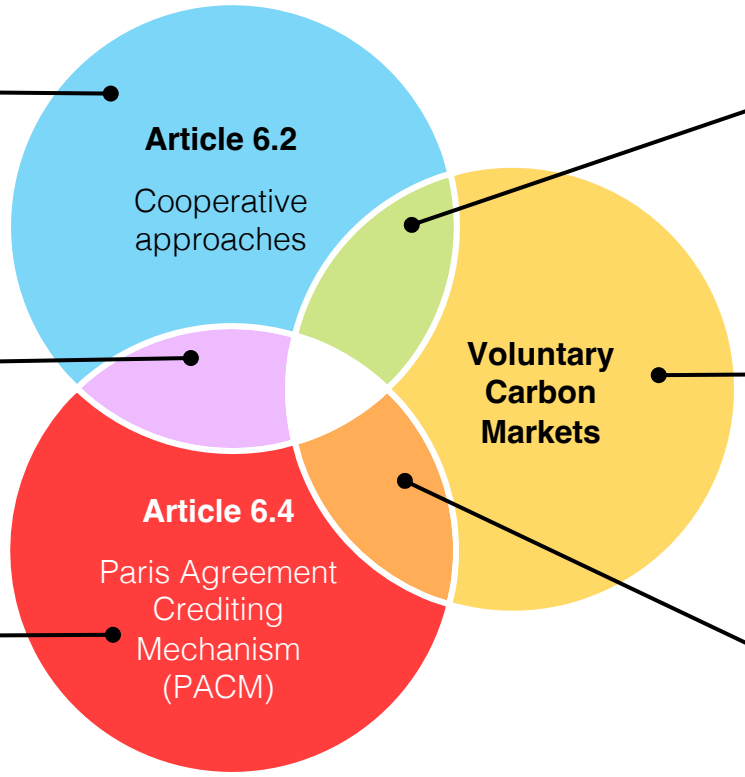
USE
Acquiring Party NDC or Other International Mitigation Purposes (OIMP, e.g. CORSIA)

UNIT TYPE
Authorized Article 6.4 Emission Reduction (A6.4ER) (they become ITMOs once authorized)

USE
Acquiring Party NDC or Other International Mitigation Purposes (OIMP, e.g. CORSIA)

UNIT TYPE
Mitigation Contribution Units (MCU) or non-authorized A6.4ER

USE
Results-based climate finance, domestic mitigation pricing schemes or domestic price-based measures



Voluntary markets

UNIT TYPE
VCM credits with Article 6 label (they become ITMOs once authorized)

USE
Acquiring Party NDC, Other International Mitigation Purposes (OIMP) or voluntary purposes

UNIT TYPE
Verified Emission Reduction (VER)

USE
Voluntary purpose (mitigation contribution claim)

UNIT TYPE
Mitigation Contribution Units (MCU) or non-authorized A6.4ER

USE
Voluntary purpose (mitigation contribution claim)

KEY

Authorized:
With corresponding adjustment

Non-authorized:
Without corresponding adjustment

Where are compliance markets headed?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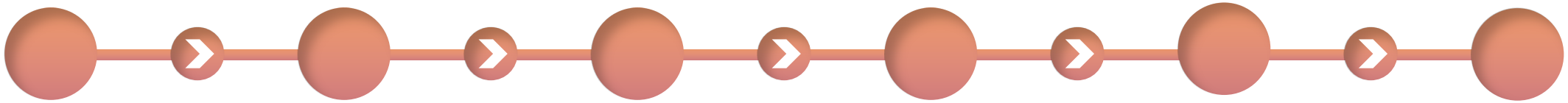
Topic	Potential trends
Expansion	More countries adopt ETS; broader sector coverage (transport, buildings, agriculture) incorporated into NDC pledges as tool/mechanism to achieve their targets.
Carbon prices	Prices rise as caps tighten (EU ETS projected €100–150/tonne by 2030+).
Allowance allocation	Shift from free allocations toward full auctioning.
Linkages	Growth of regional/cross-border connections; integration under Paris Article 6.
Hybrid models	Greater use of ETS + carbon tax blends for balance of price certainty and cap integrity.
Market design and integrity	Adoption of stability mechanisms; stricter offset rules; stronger enforcement. As sectors like renewable energy mature and become cost-effective, their role in supplying carbon offsets is expected to decline.

Chapter 3

Voluntary carbon markets

Brief history of voluntary carbon markets



Early 1990s

Voluntary offsets emerge for CSR and individual action

First carbon offsets appear as part of corporate social responsibility (CSR) and niche individual action. These were largely bilateral transactions, with limited oversight or standards.

2000s

Third-party standards (VCS, CCB) appear; market growth

Verified Carbon Standard (VCS, now Verra) and Climate, Community and Biodiversity (CCB) standards established to bring credibility. Market grows alongside Kyoto Protocol's Clean Development Mechanism (CDM).

2010s

Project diversification

Expansion beyond forestry into renewable energy, cookstoves, water purification and, later, carbon removals. VCM starts to serve corporate climate pledges beyond CDM scope.

mid-2010s

Credibility and verification frameworks strengthen (post-CDM uncertainty)

With the CDM winding down, integrity concerns rise. Independent standards and registries strengthen methodologies and monitoring, reporting, verification (MRV) frameworks to sustain credibility.

2020–2022

Rapid market growth; integration with Paris Article 6

Explosion in demand driven by net-zero pledges. VCM begins aligning with Paris Agreement Article 6 (ITMOs, corresponding adjustments). High-integrity discourse emerges (IC-VCM, VCMI, SBTi).

2022–Present

Decreased investment; scrutiny intensifies

Media and academic criticism on quality and additionality lead to declining corporate purchases. Consolidation toward higher-integrity projects, removals and jurisdictional REDD+. Growth slows, investor caution increases.

Key actors in the voluntary carbon market

Actor	Role
Project developers	Design, finance and implement projects that generate carbon credits.
Standards and registries	Set governance mechanism to secure credibility of the carbon credits issued, provide methodoogies, certify credits and maintain registries that track issuance, ownership and retirement.
Auditors / validation and verification bodies (VVBs)	Independently validate project design and verify monitoring reports before credits are issued.
Brokers and intermediaries	Facilitate transactions between project developers and buyers; may bundle credits or provide financing.
Exchanges and trading platforms	Enable standardized and transparent trading of carbon credits, providing liquidity and price benchmarks.
Buyers	Purchase credits for voluntary climate action, CSR or investment (corporates, investors, individuals).

Key actors in the voluntary carbon market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Actor	Role
Market integrity and governance initiatives	Set principles and guidelines to improve transparency, quality and trust (e.g., ICVCM, VCMI, SBTi).
Rating agencies and data providers	Assess project quality, risks and integrity; provide analytics to buyers (e.g., Calyx, Sylvera, BeZero).
NGOs and civil society	Advocate for and support implementation of environmental and social safeguards, respect for the rights of Indigenous Peoples and local communities, equitable benefit sharing, etc.
Indigenous Peoples and local communities	Often hold land and resource rights critical to project success; act as land stewards, implement on-the-ground activities and are key beneficiaries of carbon revenue and co-benefits. Can also be project developers.
Host country governments	Approve projects, regulate and authorize credits under Article 6; prevent double counting with national targets (NDCs). Can also be project developers.

Project developers: Who develops carbon projects?

Type of project developer	Role in project development
Specialized carbon project developers	Lead the full project cycle: design, baseline assessment, methodology selection, financing, monitoring, verification and credit issuance. Often partner with landowners and governments.
Indigenous Peoples and local communities	Act as project proponents when they hold land or resource rights; implement on-the-ground activities, lead stewardship and ensure equitable benefit-sharing. Often co-develop with technical partners.
Local NGOs and community-based organizations	Initiate and manage projects focused on social and environmental co-benefits; often collaborate with technical developers for carbon accounting and market access.
Private companies / landowners	Develop projects on their own land or assets, often as part of a sustainability strategy or to generate credits for sale.
Governments and public agencies	Design and implement large-scale or jurisdictional programmes; approve and authorize projects, especially under Article 6 or ART-TREES.
Hybrid partnerships	Combine technical expertise, financing, land rights and regulatory authority; often the most effective approach.

Project developers: How do they choose a carbon standard?

Factor	Description
Market recognition	Some standards are more widely accepted by buyers (e.g., Gold Standard, Verra VCS).
Methodology availability	The standard has a carbon accounting methodology suitable for the proposed project type (e.g., the project/technology is eligible under the requirements of the methodology).
Project type suitability	Certain standards are optimized for specific projects (e.g., Plan Vivo for smallholder forestry).
Verification rigor and credibility	Buyers may pay a premium for credits under stringent standards.
Cost and complexity	Some standards have higher registration, monitoring and verification costs.
Co-benefit requirements	Standards like Gold Standard emphasize social and environmental co-benefits, which may attract premium buyers.
Alignment with compliance or future Article 6 markets	Developers may choose standards recognized for potential future integration with ITMOs.

What is the broader role of governments?

Key functions in carbon markets

Policy and regulation	Set national climate targets (NDCs); establish legal frameworks; design compliance systems (ETS, carbon taxes, Article 6); define eligible project types; ensure alignment with national priorities.
Authorization and oversight	Approve projects/transactions; prevent double counting; supervise registries and MRV systems; ensure environmental integrity and policy compliance.
Benefit sharing and safeguards	Establish policy, legal and regulatory frameworks for Article 6 transactions and guidance in the context of the VCM, to ensure project developers active in their countries and carbon projects taking place in their countries are aligned with robust safeguards and applicable international obligations.
Capacity-building and support	Strengthen institutional and technical capacity; coordinate across ministries; co-finance or co-develop projects; provide technical and legal guidance to local actors.
Market participation	Issue and sell credits at jurisdictional/national level; buy credits to meet compliance targets; broker bilateral Article 6/ITMO agreements.

Key enablers for community participation in carbon projects


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Factor	Description
Legal and land tenure rights	Clear, recognized rights to land, forests and resources are essential. Ambiguous tenure risks disputes, leakage and exclusion from benefits.
Institutional capacity	Communities need accountable governance structures to manage finances, enforce rules and ensure transparency.
Technical expertise	Carbon projects require knowledge of accounting, baselines, monitoring and reporting, as well as nested frameworks and approaches, where relevant. Communities can request NGO, consultancy or government support, if needed.
Financing	High upfront costs (feasibility, validation, monitoring) usually require external grants, loans or forward purchase agreements with buyers.
Benefit sharing and trust	Fair, transparent revenue distribution prevents elite capture and ensures community buy-in.
Government role	Approval may be required; national registries or benefit-sharing laws can shape community participation.

What are the steps to develop a carbon project?

Project ideation

- Emission reduction or removal project idea developed.
- Feasibility study validates assumptions of project idea, including emission reduction or removal potential.

Project validation

- Third-party validators assess project eligibility and adherence to carbon market standards.
- Validates project design, methodologies and expected emissions reductions.

Project implementation

- The mitigation project is implemented.
- Project proponent monitors the activities according to a monitoring plan.

Project verification

- Independent verifiers ensure that emissions reductions are accurately quantified and monitored.
- Verification confirms that the project meets established criteria for carbon credit issuance.

Issuance of carbon credits

- Issuance occurs after successful verification.
- Carbon credits are allocated based on verified emissions reductions.
- Credits are then available for trading in carbon markets.

Carbon standards: What are they?

Function	Description	Purpose
Define methodologies	Provide detailed, project-specific rules and formulas for how to calculate emissions reductions or avoided emissions.	Ensures consistency, accuracy and credibility of carbon credit calculations across projects.
Set project cycle procedures	Outline the full lifecycle steps for carbon projects — from design and validation to ongoing monitoring, third-party verification and credit issuance.	Creates a transparent, repeatable process and ensures projects meet integrity standards at each stage.
Accredit third-party verifiers	Establish requirements for independent auditors and approve those who meet strict competency and quality standards.	Builds trust that project results are objectively assessed and verified.
Manage registries	Operate or oversee digital registries where issued credits are uniquely serialized, tracked, transferred and ultimately retired.	Prevents double counting, improves transparency and provides public traceability of credits.

Carbon standards: Methodology

What is a carbon standard methodology?

A carbon standard methodology defines the technical requirements and procedures for quantifying, monitoring and verifying emission reductions or avoided emissions under an approved carbon standard.

Key elements of a carbon methodology

Scope and eligibility	Defines which project types qualify (e.g., reforestation, cookstoves, renewable energy).
Baseline setting	Establishes the “what would have happened without the project” scenario.
Additionality tests	Sets the criteria to prove the project goes beyond business-as-usual (financial, technological or regulatory barriers).
Quantification methods	Offers formulas, emission factors and data requirements to calculate emission reductions.
Monitoring requirements	Specifies what data must be collected over time (e.g., fuelwood use, tree growth, energy generation).
Verification guidance	Instructs third-party auditors how to confirm data accuracy and calculations.

What is a carbon registry?

What is a carbon registry?

- **Tracking:** Monitors project progress, credit issuance and credit use.
- **Issuance:** Creates carbon credits for verified reductions/removals.
- **Transparency:** Publicly displays project data and credit status.
- **Integrity:** Prevents fraud and double counting by allocating serial numbers and clearly identifying carbon credit status.

What is the difference between a carbon standard and a carbon registry?

	Carbon standard	Carbon registry
Role	Sets the **rules and methodologies** for carbon projects.	**Tracks and manages** issued carbon credits.
Focus	Project design, validation, verification.	Credit issuance, transfer, retirement.
Example	VCS, Gold Standard.	Verra Registry, Gold Standard Registry.

Leading carbon standards

Carbon standard	Full Name	Focus areas / project types	Key features
ACR	American Carbon Registry	Forestry, agriculture, methane, industrial gases, energy	One of the oldest voluntary standards; often bridges voluntary and compliance markets in the U.S. and Latin America.
ART – TREES	Architecture for REDD+ Transactions – The REDD+ Environmental Excellence Standard	Jurisdictional-scale REDD+ (avoided deforestation and forest degradation)	Designed for large-scale national or subnational forest programmes; results-based payments; used by the LEAF Coalition.
CAR	Climate Action Reserve	Forestry, landfill gas, livestock methane, ozone-depleting substances	Strong focus on North America; widely used in California's compliance offset programme.
CCB Standards	Climate, community and biodiversity standards (often used with VCS)	Forestry and land-use projects	Provides additional certification for projects with strong social and biodiversity co-benefits.
Gold Standard (GS)	Gold Standard for the Global Goals	Energy efficiency, renewable energy, community projects, some nature-based solutions	Strong emphasis on sustainable development co-benefits and alignment with United Nations SDGs; high-integrity reputation.
Plan Vivo	Plan Vivo Standard	Community-led forestry, agroforestry, sustainable land use	Focuses on smallholder and community projects with strong livelihood and biodiversity benefits.
Verra (VCS)	Verified Carbon Standard	Broad: forestry (REDD+), agriculture, energy, industrial gases, transport	Most widely used; large number of approved methodologies; compatible with Article 6; often used by private sector buyers.

What distinguishes carbon standards?

Governance	Eligibility	Accounting rules	Safeguards	Co-benefits	Scale	Recognition
Ensure no conflict of interest in the process to issue credits and robust QC/QA procedures	Which project types qualify (e.g., forestry, renewable energy, cookstoves, industrial gases).	How emissions are measured, reported and verified (MRV), including approved methodologies.	Social, environmental and governance protections (e.g.: benefit-sharing; free, prior and informed consent (FPIC); grievance mechanisms).	Whether standards require or incentivize contributions to SDGs, biodiversity or community livelihoods.	Scope of the standard — project-level, programmatic or jurisdictional approaches.	Where credits are accepted (compliance schemes, CORSIA, voluntary markets, Article 6 under the Paris Agreement).

Verification and validation bodies: What is their role?

Validation and verification bodies (VVBs) play one of the most critical roles in the carbon market: these bodies act as **independent, third-party auditors** that ensure carbon projects are **credible, accurate and compliant** before carbon credits can be issued.

In short, **VVBs are the gatekeepers of integrity** — without their approval, no project can generate verified credits.

Function	When it happens	Purpose	Key deliverable
Validation	At the project design stage (before registration)	Confirms that the project design meets all standard requirements, including methodology, additionality, baseline, leakage and monitoring plan.	Validation report and statement – required for project registration.
Verification	After project implementation (every 1–5 years)	Confirms that reported emissions reductions/removals actually occurred as claimed in monitoring reports.	Verification report and statement – required for credit issuance.

What do validation and verification bodies do in practice?

Document review	Examine Project Design Documents (PDDs), monitoring reports and data sources for accuracy, completeness and consistency with methodologies.
Field audits and site visits	Conduct on-site inspections to verify that project activities are occurring as described, confirm physical evidence and engage with local stakeholders.
Data verification and sampling	Cross-check GHG measurements, baseline assumptions and sampling methods; apply statistical checks and uncertainty analysis.
Stakeholder engagement review	Confirm that consultations with affected communities, including Indigenous Peoples and local communities, were conducted appropriately.
Leakage and permanence assessment	Ensure the project has accounted for potential displacement (leakage) and risks of reversal (permanence).
Monitoring system evaluation	Verify that data collection methods, QA/QC systems and equipment calibration meet standard requirements.
Reporting and sign-off	Issue a validation or verification statement – a mandatory document the carbon standard requires before registration or credit issuance.

Some concerns around effectiveness of VVBs

Criticism	Impact	Emerging response
VVBs lack expertise on social and environmental safeguards.	Projects risk violating rights or harming biodiversity while still being validated.	Adding specialized auditors, split audits, stricter safeguard criteria.
Safeguards treated as a checklist.	Social issues overlooked, legitimacy undermined.	Deeper evidence requirements, grievance mechanisms, stakeholder engagement standards.
Conflict of interest (VVBs paid by developers).	Potential bias undermines trust.	Impartiality rules, rotation requirements.
One-size-fits-all audits ignore local nuance.	Missed risks and context-specific failures.	Inclusion of local experts, region-specific audit protocols.
Lack of transparency/ accountability.	Hard to evaluate VVB performance.	Publishing reports, public consultations, performance reviews of VVBs.

Credit rating agencies: What is their role?

Function	Description	Purpose
Independent quality assessment	Evaluate whether a carbon credit is credible, additional and permanent; assign a standardized quality score or rating (e.g., AAA–D or numerical scale).	Helps buyers and investors understand the integrity and reliability of credits before purchase.
Reduce information asymmetry	Provide trusted, expert assessments to buyers who often lack the technical capacity to evaluate project quality.	Prevents the purchase of ‘junk credits’ and reduces risks of greenwashing.
Market transparency and trust	Publish methodologies, data and ratings, shedding light on a market often criticized for opacity.	Builds buyer confidence and supports the scaling of voluntary carbon markets.
Price discovery	Create differentiation between high- and low-quality credits; higher-rated credits may command price premiums.	Moves the market beyond treating all credits as commodities, aligning price with quality.
Standardization pressure	Encourage project developers and carbon standards to improve methodologies and raise quality.	Elevates overall market integrity and incentivizes best practices across the ecosystem.

Credit rating agencies: What do they assess?

Dimension	What they look at
Additionality	Would the emissions reductions/removals have occurred without the project?
Permanence	Are reductions/removals durable over time (e.g., risks of reversal like fire or logging)?
Baseline integrity	Is the ‘business-as-usual’ scenario realistic and conservative?
Leakage risk	Could emissions simply shift elsewhere as a result of the project?
Monitoring and verification quality	Are data collection and reporting robust, transparent and frequent?
Social and environmental safeguards	Were Indigenous Peoples’ rights, FPIC, biodiversity and community benefits addressed?
Host country context	Are national policies, NDC alignment and Article 6 considerations factored in?

Some concerns raised about rating agencies

Criticism	Description	Emerging repsonse
Lack of standardization across agencies	Different methodologies, scoring systems and rating scales make it hard for buyers to compare results.	Industry bodies are pushing for shared quality benchmarks; agencies are publishing more transparent methodologies.
Over-reliance on project documentation	Many ratings are based solely on registry documents, not on-the-ground verification, which can miss implementation issues.	Agencies are increasingly integrating remote sensing, satellite data and third-party datasets to supplement project documents.
Limited project coverage	Not all projects or credit types are rated, leaving buyers without information on large parts of the market.	Agencies are rapidly expanding coverage and prioritizing high-volume methodologies and regions.
Not all agencies include social and environmental safeguards or SDG impacts	Many ratings focus narrowly on carbon integrity and ignore crucial elements like biodiversity, community rights, FPIC and SDG co-benefits.	Some agencies (e.g., Calyx) are starting to integrate social and environmental criteria; buyer demand is pressuring others to expand scope.

Buyers: Categories of carbon credit purchasers

Corporates

Companies buy credits to meet climate goals, offset emissions or bolster sustainability claims.

Examples:
Microsoft, Amazon, Eni, Shell, Walmart, PetroChina, Woodside Energy

Investors and funds

Investors such as pension funds, insurance companies, and asset managers buy credits as a financial asset or for resale, betting on price appreciation.

Examples:
Private equity funds

Individuals

People offsetting personal emissions (e.g., flights, lifestyle).

Examples:
Flight offset platforms, direct offset websites

Governments and sovereigns

Buy for compliance with NDCs under Article 6 or bilateral agreements.

Examples:
Singapore, Switzerland

Intermediaries and brokers

Buy in bulk to bundle, resell or create structured financial products.

Examples:
Climate Impact X, South Pole

Buyers: What are they looking for?

Buyer priority	What they look for	Objective
Integrity and quality	Verified, additional, permanent and accurately measured reductions.	Protects against accusations of greenwashing.
Transparency and data	Clear information on project design, monitoring and verification.	Builds trust and supports due diligence.
Co-benefits / SDG impact	Biodiversity, community development, water, Indigenous Peoples' rights.	Adds reputational and social value beyond emissions.
Alignment with Article 6	Credits that can be used toward national targets or with corresponding adjustments.	Future-proofs purchases and increases utility.
Price and liquidity	Competitive pricing and ease of buying/selling.	Important for investors and large buyers.

What corporates can claim regarding the purchase of credits

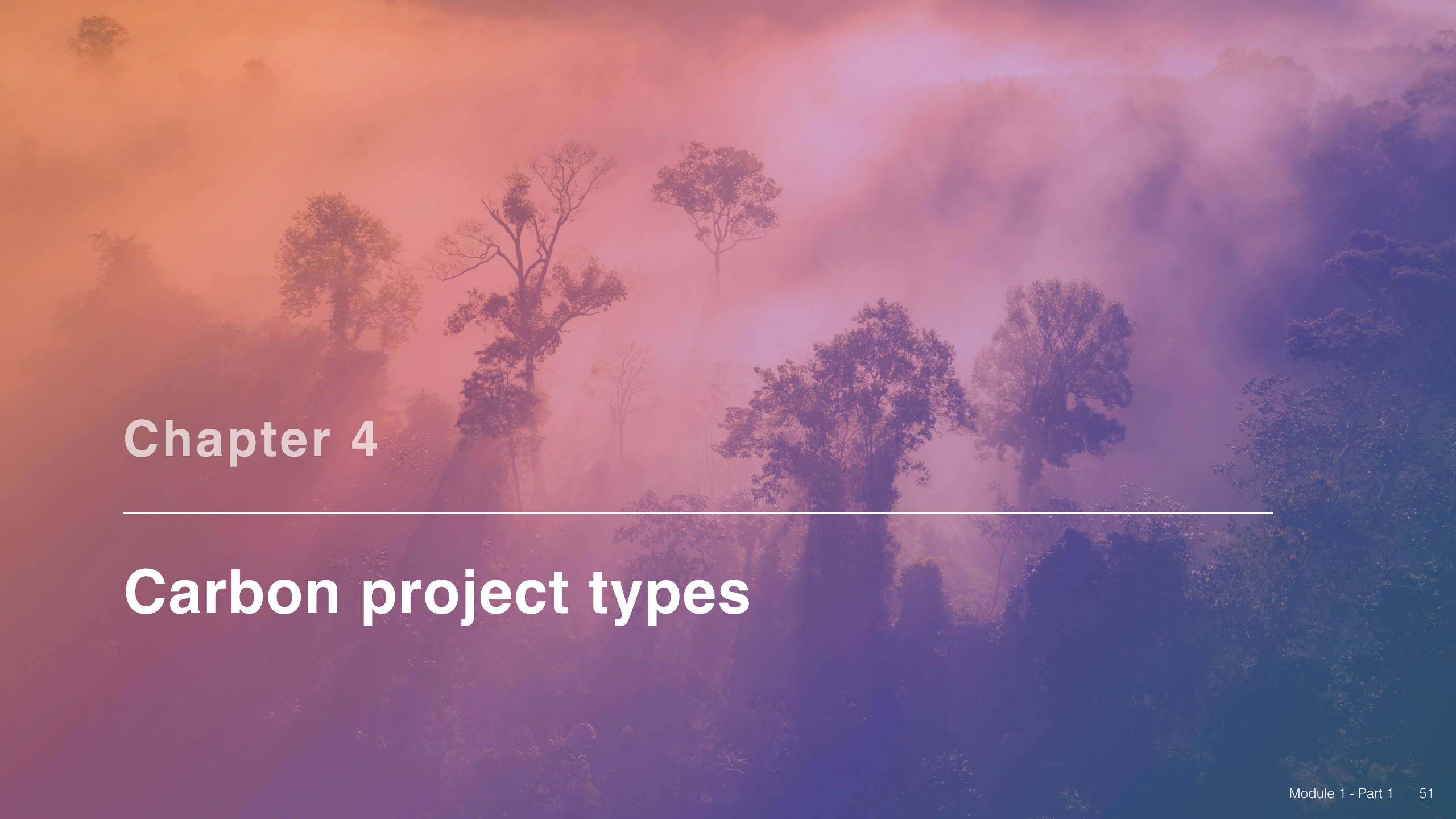
Claim type	Description	When it's appropriate	Examples
Carbon credit purchase/support claim	Acknowledge that the company has purchased and retired carbon credits from verified projects.	Anytime a company buys and retires credits. This is the most basic and safest claim.	"We purchased and retired 50,000 verified carbon credits from a forest conservation project in Peru."
Contribution claim	Declare that the company is contributing to global climate mitigation beyond its value chain by financing verified carbon projects.	Increasingly encouraged by integrity initiatives (e.g., VCMI 'Silver/Gold' labels). Does not imply the company itself is carbon neutral.	"We are contributing to climate action beyond our value chain by supporting forest protection projects that avoid 100,000 tCO_2e."
Beyond value chain mitigation (BVCM)	Explicitly state that credits support climate action in addition to internal decarbonization efforts.	Only when the company is also working to reduce its own Scope 1–3 emissions in line with science-based targets.	"We have reduced our operational emissions by 42 percent since 2020 and are financing 300,000 tCO_2e of emissions reductions beyond our value chain."
Project-specific claim	Describe the impact of the project supported (not the company's own footprint).	When highlighting co-benefits (biodiversity, Indigenous Peoples' rights, water).	"Our carbon finance supports mangrove restoration that improves biodiversity and local livelihoods."

Claims that are increasingly discouraged or risky

Claim	Why it's risky	Notes
Carbon neutral or net-zero company (based solely on offsets)	Suggests the company's emissions are fully neutralized by carbon credits — often misleading if internal emissions haven't been deeply reduced.	Regulators (e.g., EU, UK, U.S. FTC) are moving to restrict these claims unless strict conditions are met.
Carbon neutral product / carbon neutral flight (based solely on credits)	Creates false equivalence between a one-time credit purchase and ongoing emissions.	Only acceptable if based on robust lifecycle accounting and combined with emissions reduction measures.
"Our emissions are offset" (without context)	Oversimplifies complex mitigation efforts and can imply equivalence that doesn't exist.	Better to say "we financed projects reducing X tCO_2e" than "we offset X tCO_2e."
'Net zero' without a science-based pathway	Voluntary net-zero claims must align with credible targets (e.g., SBTi).	Many corporates now use credits only for residual emissions (<10%) after internal cuts.

What integrity initiatives say about claims

Framework	Guidance on claims
Voluntary Carbon Markets Integrity Initiative (VCMI)	Encourages ‘contribution claims’ — stating that a company is financing mitigation beyond its value chain — rather than blanket ‘carbon neutral’ language. Offers Silver / Gold / Platinum labels based on ambition.
Integrity Council for the Voluntary Carbon Market (ICVCM)	Focuses on supply-side integrity but supports demand-side claims that are transparent, precise and backed by high-quality credits.
Science Based Targets initiative (SBTi)	Credits can’t be used to meet Scope 1–3 reduction targets but can be used for Beyond Value Chain Mitigation after deep internal reductions.
EU and UK regulators	Moving toward banning or tightly regulating unqualified ‘carbon neutral’ or ‘offset’ marketing claims. Transparency and specificity are key.



Chapter 4

Carbon project types

Common carbon project categories and subcategories

Broad categories	CDM (Kyoto) sectoral scopes	Verra VCS – project categories	Gold Standard – activity types	Article 6 (Paris) – emerging taxonomy
Renewable energy	Sector 1: Energy industries (renewable / non-renewable)	Energy industries (electricity, heat, mechanical)	Renewable energy	Renewable energy (grid, household, industrial); mini-grids; fuel switch
Energy efficiency	Sector 3: Energy demand	Energy demand (energy efficiency)	Energy efficiency	Energy efficiency (household, industry, buildings)
Fuel switching	Sector 1 or 4 (depending on fuel/process)	Industrial processes or energy	Renewable energy / energy efficiency (depending on context)	Fuel switch (coal/oil → biomass, renewable gases, hydrogen)
Transport	Sector 7: Transport	Transport	Transport	Transport (modal shift, EVs, fuels)
Waste management and methane avoidance	Sector 13: Waste handling and disposal	Waste handling and disposal	Waste management	Waste & circular economy (landfills, wastewater, manure, biogas)

Common carbon project categories and subcategories

Broad categories	CDM (Kyoto) sectoral scopes	Verra VCS – project categories	Gold Standard – activity types	Article 6 (Paris) – emerging taxonomy
Agriculture (non-forestry)	Sector 15: Agriculture	AFOLU: Agricultural land management	Agriculture / sustainable agriculture	Agriculture (methane reduction, soil carbon, N_2O management)
Forestry and land use	Sector 14: Afforestation / reforestation (A/R)	AFOLU: REDD+, ARR, IFM, wetlands, soil carbon	Forestry and land use, blue carbon	AFOLU, forestry, blue carbon
Industrial processes	Sector 4: Manufacturing industries; Sector 5: Chemical industries	Industrial processes	Limited scope except industrial fuel switch	Industrial processes (cement, chemicals, HFCs, CCS, hydrogen)
Household energy	Sector 1 or 3 (depending on baseline)	Energy demand (cookstoves, lighting, household renewables)	Household Energy / Improved Cookstoves / Solar Home Systems	Household energy (renewable, efficiency, access)
Blue carbon / wetlands	Not separately defined (occasionally under A/R)	AFOLU: wetlands restoration, tidal wetlands, mangroves	Blue carbon	Blue carbon, coastal ecosystems
CCS / CCU / novel tech	Rare / project-based	Industrial processes (emerging methodologies)	Not typically covered	Industrial/energy sectors (emerging)

Energy efficiency at the household level – Efficient cookstoves

© UN Photo/Albert Gonzalez Farran

How does it work?

- Efficient cookstoves replace traditional biomass stoves that burn large amounts of wood, charcoal or crop residues.
- These stoves use improved designs and materials to burn fuel more completely, transfer heat more effectively and reduce smoke production.

Energy efficiency at the household level – Efficient cookstoves

How does it reduce emissions?

- By using less fuel to cook the same meal, efficient cookstoves lower CO_2 and black carbon emissions from combustion.
- They also reduce pressure on forests by cutting demand for firewood and charcoal, leading to long-term carbon and ecosystem benefits.

Who benefits?

- Households—particularly in rural and off-grid communities—gain from lower fuel costs, cleaner air and reduced exposure to smoke-related illness.
- Women and children benefit most, as improved stoves reduce time spent collecting fuel and create a safer, healthier cooking environment.
- Communities: Cleaner air, reduced urban heat and healthier living spaces.

Who invests and why?

- NGOs, governments and carbon finance programmes invest to reduce emissions, improve health outcomes and support sustainable livelihoods.
- Investors value these projects for their high social impact, strong alignment with the SDGs, and verifiable carbon reductions.

Energy efficiency in buildings

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How does it work?

Focuses on reducing energy demand through building upgrades and system optimization.

Key measures include:

- Improved insulation and windows to reduce heating and cooling needs.
- Efficient lighting and HVAC systems to cut electricity use.
- Smart energy management systems to monitor and optimize consumption in real time.
- Building retrofits and energy-efficient design in new construction.

Energy efficiency in buildings

How does it reduce emissions?

- Lower energy consumption reduces demand for electricity and heating fuels, much of which still come from fossil sources.
- This leads to direct CO_2 reductions from on-site fuel use and indirect reductions through lower grid emissions.
- Improves load management and peak demand, further reducing strain on fossil-based power generation.

Who benefits?

- Building owners and occupants: Lower energy bills, increased comfort and higher property values.
- Governments and utilities: Reduced demand on energy infrastructure and faster progress toward climate and efficiency targets.
- Communities: Cleaner air, reduced urban heat and healthier living spaces.

Who invests and why?

- Property owners and developers invest to cut operating costs and boost asset value.
- Governments and development agencies offer incentives or low-interest financing to accelerate energy-efficient housing and commercial buildings.
- ESCOs (Energy Service Companies) often finance and implement retrofits, earning returns from shared energy-cost savings.

Energy efficiency in industry

How does it work?

Targets energy-intensive processes in manufacturing and heavy industry.

Typical measures include:

- Upgrading production equipment, motors and boilers.
- Recovering waste heat from industrial processes.
- Improving process control systems and automation for optimal energy use.
- Switching to more efficient fuels or feedstocks where feasible.

Energy efficiency in industry

How does it reduce emissions?

- By reducing total fuel and electricity consumption, facilities lower direct CO_2 emissions from combustion and indirect emissions from the power grid.
- Enhanced process efficiency can also reduce non-CO_2 gases (e.g., methane, nitrous oxide) in certain industrial sectors.
- Improves resource productivity, reducing both emissions and material waste.

Who benefits?

- Industrial operators: Lower energy and production costs, increased competitiveness, improved reliability.
- Governments and utilities: Progress toward industrial decarbonization goals and reduced grid demand.
- Communities: Reduced local air pollution and improved environmental performance of industrial zones.

Who invests and why?

- Manufacturing firms and industrial owners invest to enhance profitability, comply with emissions or efficiency standards, and modernize assets.
- Development banks and government programmes fund large-scale industrial decarbonization and energy-transition projects.
- ESCOs and private investors support performance-based efficiency projects with shared-savings models.

Fuel switching – Biomass energy

How does it work?

- Biomass projects generate energy by using organic materials such as agricultural residues, wood waste or other sustainably sourced biomass to produce heat, electricity or combined heat and power (CHP).
- These projects often replace fossil fuels in industrial boilers, power plants or district heating systems. When managed sustainably, biomass can be a renewable, carbon-neutral energy source.

Fuel switching – Biomass energy

How does it reduce emissions?

- Biomass energy displaces coal, oil or gas used for heat and power generation.
- Because the carbon released during combustion is part of the natural carbon cycle, emissions are offset by carbon absorbed during plant growth—leading to significant net reductions in fossil CO_2 emissions when biomass is sustainably sourced and efficiently used.

Who benefits?

- Industrial facilities and utilities benefit from a renewable alternative to fossil fuels and more stable long-term energy costs.
- Rural communities benefit from job creation and income opportunities in biomass supply chains, such as collection, processing and transport.
- Governments benefit from reduced dependence on imported fossil fuels and progress toward national renewable energy and climate targets.

Who invests and why?

- Energy companies, utilities, and industrial firms invest in biomass to lower fuel costs, diversify energy sources, and cut emissions.
- Governments and development banks support projects that promote rural development, energy access and renewable energy deployment.
- Private investors are drawn by the stable, long-term returns of biomass power and heat projects, especially under carbon crediting schemes or renewable energy incentives.

Waste management and gas flaring

How does it work?

- Waste management projects capture methane emissions from landfills and wastewater treatment.
- Gas flaring projects convert harmful gases released from oil and gas operations into usable energy or prevent them from being released into the atmosphere.

Waste management and gas flaring

How does it reduce emissions?

- Methane capture prevents potent GHGs from being released, reducing overall emissions.
- Gas flaring reduces methane emissions and pollutants from oil extraction.

Who benefits?

- Municipalities and industries gain from reduced landfill volume, cleaner energy and the potential sale of captured gases.
- Local communities benefit from improved air quality and less environmental pollution.

Who invests and why?

- Energy companies, governments and investors interested in methane capture invest in these projects to mitigate emissions, meet environmental standards and monetize waste streams.
- They also seek to reduce environmental liabilities and improve corporate responsibility profiles.

Low-carbon agricultural practices

© UNDP Pakistan

How does it work?

- Practices include no-till farming, crop rotation, water management, cover crops and agroforestry.
- These techniques improve soil carbon sequestration, reduce synthetic fertilizer use and limit GHG emissions from agricultural activities.

Low-carbon agricultural practices

How does it reduce emissions?

- By reducing soil disturbance and increasing organic matter, more carbon is stored in the soil.
- Lower use of fertilizers results in reduced nitrous oxide emissions.

Who benefits?

- Farmers benefit from improved soil health, resilience to climate change and potential carbon credits.
- Local communities benefit from enhanced food security and biodiversity.

Who invests and why?

- Corporations seeking carbon offsets, governments promoting sustainable agriculture and NGOs focused on food security invest in these projects.
- They invest to reduce supply chain emissions, enhance sustainability credentials and meet regulatory goals.

Low-carbon agriculture: Rice methane mitigation

© Claudia Fernández Ortiz

How does it work?

- Rice methane projects reduce GHG emissions from paddy rice cultivation, which is a major source of methane (CH_4).
- These projects promote improved water and soil management practices, such as alternate wetting and drying (AWD), mid-season drainage, and intermittent irrigation, instead of continuous flooding.
- Some also introduce improved rice varieties, organic soil amendments or optimised fertiliser use to further reduce emissions and maintain yields.

Low-carbon agriculture: Rice methane mitigation

How does it reduce emissions?

- Traditional flooded rice paddies create anaerobic (oxygen-free) conditions where methane-producing microbes thrive.
- By periodically draining fields or controlling water levels, these projects introduce oxygen into the soil, disrupting methane formation.
- The result is a significant reduction in methane emissions while maintaining or even improving productivity and water efficiency.

Who benefits?

- Farmers gain from improved water management, lower input costs and potential carbon credit revenues.
- Communities benefit from better water use efficiency, reduced air pollution and greater climate resilience.
- Governments advance their national mitigation targets and improve sustainable agriculture practices.

Who invests and why?

- Corporations and agri-businesses invest to decarbonise supply chains and generate high-integrity agricultural carbon credits.
- Governments, development agencies and NGOs support such projects to improve food security, conserve water and meet climate commitments.
- Investors value these projects for their dual climate and development benefits, linking emission reductions with sustainable rice production.

Jurisdictional REDD+

© UNDP Central African Republic

How does it work?

- Large-scale, government-led initiatives designed to reduce emissions from deforestation and forest degradation, conserve and enhance forest carbon stocks, and promote sustainable forest management across an entire political jurisdiction—such as a state, province or nation—rather than at the individual project level.

Jurisdictional REDD+

How does it reduce emissions?

- Forests act as carbon sinks, absorbing and storing CO_2 from the atmosphere.
- Provides financial and technical incentives for countries and subnational jurisdictions for measurable and verified reductions in forest-related emissions or increases in carbon storage compared to a baseline scenario.

Who benefits?

- It can benefit Indigenous Peoples and forest dependent local communities.
- National and subnational governments through financial incentives and environmental protection.
- Biodiversity and ecosystems via preserved habitats.

Who invests and why?

- Investors include governments, corporations and NGOs looking to offset emissions.
- Motivation: to meet carbon reduction targets, enhance environmental credentials and participate in sustainable development initiatives.

Reforestation

How does it work?

- Reforestation involves planting trees in deforested areas to restore ecosystems and enhance carbon sequestration.

Reforestation

How does it reduce emissions?

- Trees absorb CO2 as they grow, capturing carbon and storing it in biomass and soil.
- Reforestation helps restore ecosystems, which can mitigate future emissions from land degradation.

Who benefits?

- Local communities benefit from improved ecosystem services, including water regulation and soil stability. Wildlife benefits from restored habitats.

Who invests and why?

- NGOs, governments and corporations invest in reforestation to offset emissions, improve biodiversity and promote environmental stewardship.
- Reforestation projects are attractive to investors seeking to balance economic development with environmental conservation.

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