

CARBON CREDIT CRASH COURSE

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Many climate mitigation strategies rely on credits and offsets in the interim. Here's a quick rundown on how they work.

BASICS OF CARBON CREDITS AND OFFSETS

We can allow only so much greenhouse gases in the atmosphere if we want to keep climate change in check.

Activities that emit greenhouse gases create debits on that allowance.

CO₂ EQUIVALENT

There are many greenhouse gases, and their impact is measured on a common scale based on carbon dioxide.

Likewise, activities that mitigate climate change credit the balance.

Carbon credits represent measurable amounts of greenhouse gases that have been kept out or removed from the atmosphere. They allow climate mitigating projects to access funding from those who want to offset the impact of their emissions.

Reduction/Avoidance

- Avoiding forest clearing
- Energy-efficient cooking stoves

Removal/Sequestration

- Restoration of degraded mangroves

Voluntary carbon credit market size by type of credits* (Jan to Aug 2021)

Average price (US\$/tonne)

Credit Type	Average Price (US\$/tonne)	Traded Volume (MtCO ₂ e**)
Removal	7.98	5.6
Reduction	1.71	52.9

* Excludes projects with both reduction and removal aspects
** Million tonnes CO₂ equivalent

KEY PRINCIPLES FOR GOOD-QUALITY CREDITS

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Additionality

If a project will take place even without funding from credits, it should not be used to offset emissions. For instance, leading standards body Verra now excludes renewable energy projects in developed countries.

Permanence

If a project's mitigating impact no longer exists, offsets derived from it must be reversed. At-risk projects might contribute to a "buffer" pool of unsold credits that can be drawn upon to insure against reversal.

Avoid overestimation

Monitoring and verification ensure that projects do not over-claim their impact, and that they are accounting for indirect effects.

Exclusive claim

Coordination and verification help to avoid different parties claiming credit for the same reduction. New guidelines under Article 6 of the Paris Agreement specifically address double counting.

Avoid social and environmental harm

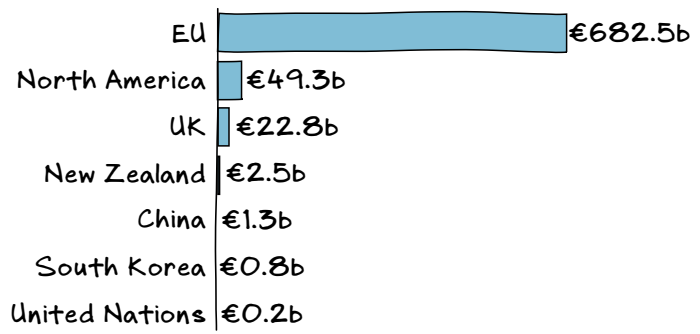
Offsets should minimise overall detrimental impact. Hydropower projects, for example, could displace local populations and damage ecosystems.

TRADING CARBON

There are broadly two types of markets for carbon credits.

Mandatory
These markets are created and regulated by compliance regimes, such as cap-and-trade schemes. European Union Allowances account for about 90 per cent of the mandatory carbon market.

Global mandatory carbon market value 2021



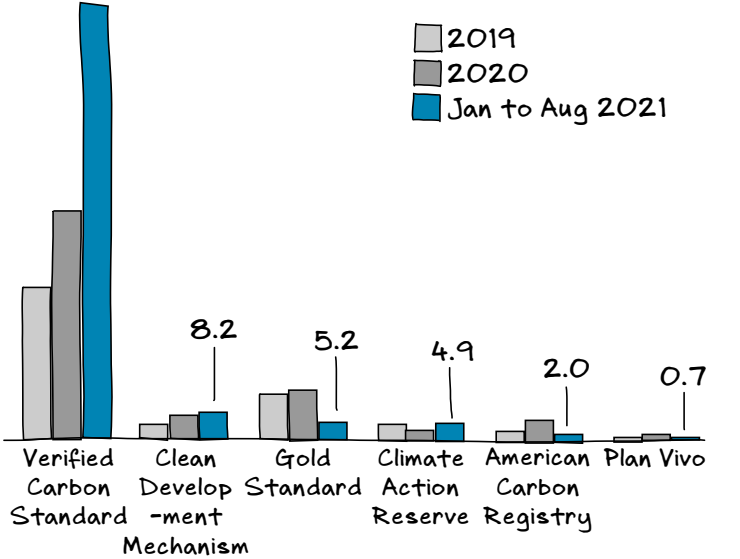
Voluntary
Those who want to mitigate their emissions even though they are not required to do so can use voluntary markets. Exchanges are beginning to gain ground, but most voluntary trading is still over the counter, which makes market share elusive.

Notable exchanges	Key backers
 CBL	Clean Energy Finance Corp, Commonwealth Bank of Australia (investors of CBL's parent, Xpansiv)
 Climate Impact X	DBS, Singapore Exchange, Standard Chartered, Temasek
 AirCarbon Exchange	Deutsche Borse

VERIFYING QUALITY CREDITS

The voluntary market relies on independent standard bodies to accredit good quality credits. The Verified Carbon Standard, set by Verra, has become the most widely used standard.

Transacted voluntary carbon offset volume by standard (MtCO₂e)



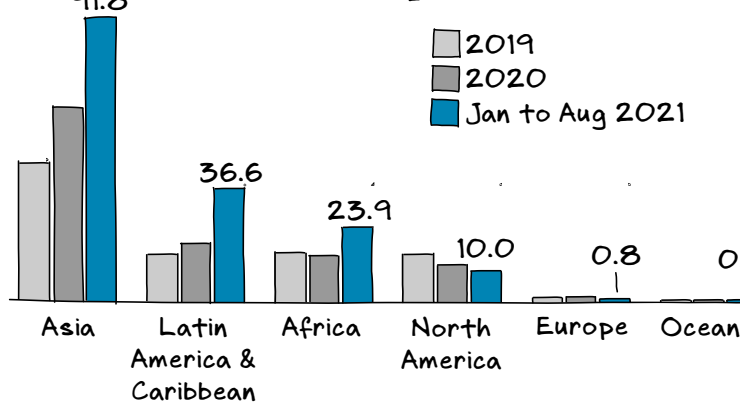
CHALLENGES

- Perverse incentives**
Over-reliance on offsets can delay the significant changes to human activity that are necessary to avoid the worst of climate change.
- Quality problems**
Poor-quality credits erode confidence in carbon markets, raising the importance of standards and verifiers like Verra.
- Undeveloped markets**
Reference contracts, futures, clearing and other trade infrastructure have been proposed to improve price discovery and comparability in a highly inefficient market.

SUPPLYING CARBON CREDITS

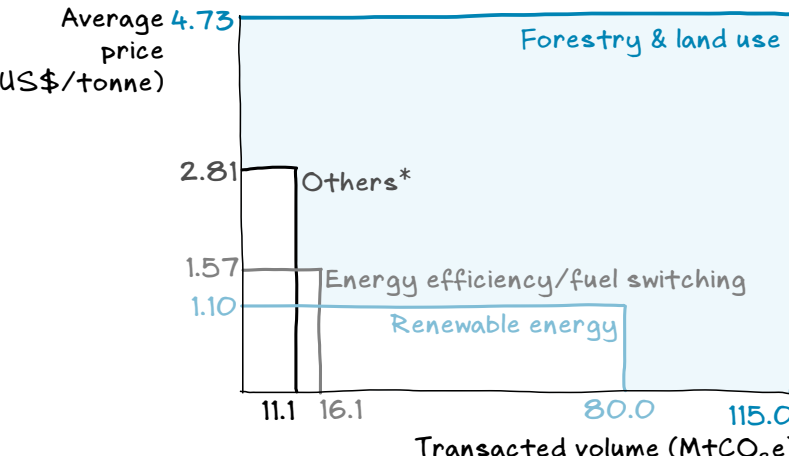
The volume of carbon traded has been growing, and Asia contributes most of the carbon traded.

Transacted voluntary carbon offset volume by project region (MtCO₂e)



Forestry and land use projects account for more than half of voluntary carbon credits, but they are also among the most expensive.

Voluntary carbon market size by project category (Jan to Aug 2021)



* Agriculture, waste disposal, transportation, household devices and chemical processes/industrial manufacturing