

Planet, People, Profit

# OUTLOOK BUSINESS

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**CARBON CREDITS**

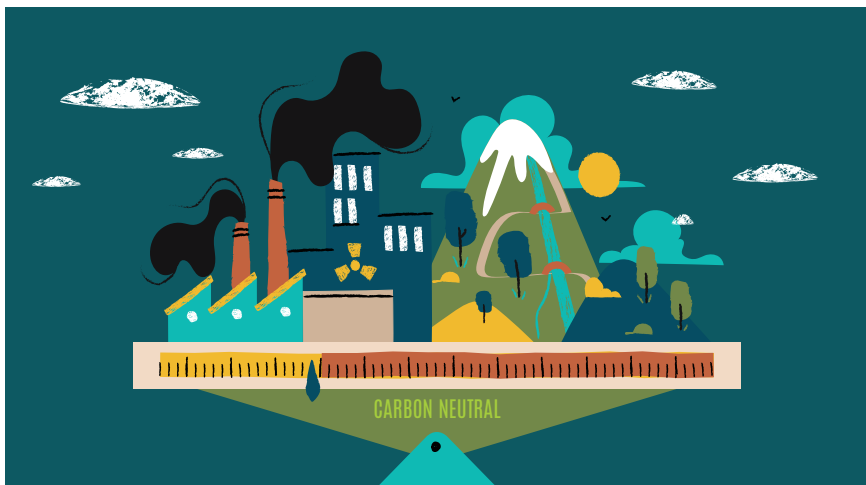
## Financing the Future

The Earth is stepping into an unpredictable phase of the climate crisis. At this critical juncture, carbon credits have emerged as a powerful tool in the climate armoury

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## AN INNOVATIVE INSTRUMENT

From trading floors to international summits, carbon credits are reshaping how we approach the preservation of the planet

**A**s our planet races toward a climate catastrophe, the urgency for action has never been clearer. Humanity stands at a crossroads and the window to reverse course is rapidly closing. In this critical moment, carbon credits have emerged as a powerful tool, offering a transformative solution in the fight against global warming.

### More Than a Buzzword

Once met with scepticism and dismissed as greenwashing, carbon markets have evolved into robust instruments for channelling capital into environmental initiatives.

As global markets and international governance systems develop, carbon credits are gaining traction as a key element in the broader strategy to combat climate change. Understanding the mechanics and global reach of carbon credits is now essential knowledge for anyone who wants to grasp how the world is taking serious steps to address the climate crisis.

As we explore this intersection of environmental urgency and financial innovation, one thing is clear: saving the planet and smart economics are no longer separate goals, but a unified pursuit.



## Gaining Momentum


At their core, carbon credits represent a straightforward concept: one credit is the equivalent of one metric tonne of carbon dioxide or other greenhouse gases, either removed from the atmosphere or prevented from being emitted.

Organisations that reduce their emissions can generate excess credits, which they can sell to others who may struggle to meet their reduction targets. This creates a dynamic marketplace where the incentive to reduce emissions is both environmental and financial.

The journey of climate finance began with the introduction of cap-and-trade systems. Early efforts focused on setting a cap on total emissions, with companies receiving allowances for the right to emit a specific amount of greenhouse gases.

These allowances could then be traded between companies, incentivising those that could reduce their emissions below their allocated limits to sell excess credits to those needing additional permits. This straightforward system laid the groundwork for a more sophisticated approach to tackling climate change.

Over time, the need for more flexibility and scalability in managing emissions led to the growth of more complex carbon markets. These markets evolved to accommodate a wider range of stakeholders, including governments, private companies and international organisations.

Today's carbon markets are far more intricate and encompass various types of carbon credits, from voluntary offsets to compliance credits, and reflect the nuanced strategies required to meet global emissions reduction goals. 





# MAKING IT WORK

The carbon marketplace has evolved to create incentives for businesses to lower emissions and support the transition to more sustainable operations

**T**he carbon credit market operates through a complex network of buyers, sellers, verifiers and regulators. Projects generating credits range from forest conservation to renewable energy installations.

rewarding. It also offers flexibility, as companies can buy credits if they are unable to meet their emission reduction goals. Ultimately, carbon credits create an economic incentive for businesses to lower their carbon footprint.

## Cleaner and Greener

Carbon credits operate as part of a cap-and-trade system designed to limit greenhouse gas emissions. Under this system, governments or regulatory bodies set a cap on the total amount of emissions allowed within a specific industry or region.

Each company within this framework is allocated a certain number of carbon credits, which represent the right to emit a specified amount of carbon dioxide or other greenhouse gases. If a company reduces its emissions below its allocated limit, it can sell the surplus credit to other companies that have exceeded their emissions cap.

This system encourages companies to adopt cleaner, more efficient technologies and practices, as reducing emissions becomes financially





## **Microsoft's Journey to Carbon-Negative**

**I**n 2020, Microsoft made an ambitious pledge: by 2030, the tech giant would become carbon negative. To achieve this, they invested heavily in carbon credit programmes. These credits came from projects like reforestation and soil carbon sequestration.

Second, Microsoft explored technologies, such as direct air capture. They didn't buy credits; they became part of the solution, investing in technologies to remove carbon at scale.



Illustratively, this is akin to a carbon marketplace, where companies act as buyers and sellers of the right to emit carbon. The market creates a dynamic where emission reductions are rewarded, incentivising both large corporations and smaller businesses to play a role in mitigating climate change.

## **Growth of the Marketplace**

The carbon credit market recognises two primary categories: first, compliance credits, which are mandatory credits used in regulated carbon markets.

The second category is voluntary credits, which are purchased by organisations that voluntarily choose to reduce their carbon footprint beyond regulatory requirements. This segment of the market is growing as more companies embrace CSR goals. **08**



# CARBON BAZAAR

The carbon credit market is expected to reach \$1trn by 2030.  
Enhanced government regulations will play a pivotal role



**T**he global carbon credit market has seen substantial growth in recent years, driven by increasing regulatory frameworks and a global shift towards sustainability. It was valued at \$103.8bn in 2023 and is projected to grow at a compound annual growth rate of 14.8% from 2024 to 2032.

The market has become essential for addressing environmental challenges.

With corporations committing to sustainability targets, the demand for carbon credits is fuelled by businesses seeking to offset greenhouse gas emissions, leading to the development of advanced trading platforms and diverse carbon offset projects.

## Major Carbon Markets

The European Union Emission Trading System (EU ETS) remains a cornerstone

of Europe's climate policy, driving demand for carbon credits through stringent regulations. It is one of the largest and most established carbon markets globally.

Launched in 2005, it covers approximately 40% of the EU's greenhouse gas emissions. The system operates on a cap-and-trade basis, where a total cap on emissions is set, and companies can trade allowances as needed. Recent reforms aim to tighten the cap and reduce emissions more rapidly, with a goal of 55% reduction by 2030 compared to 1990 levels.

The North American carbon credit market size was valued at \$20bn in 2024. Various carbon markets exist in North America, with California's cap-and-trade programme being the most prominent. The programme includes stringent emissions reduction targets and allows for the trading of carbon allowances.

The Regional Greenhouse Gas

Initiative (RGGI), which includes several northeastern US states is another key player, focusing on reducing emissions from the power sector through a cooperative cap-and-trade approach.

## In Asia-Pacific

Japan has implemented its carbon market through the Tokyo Cap-and-Trade programme and the Saitama Cap-and-Trade programme. The first mandatory carbon markets in Asia, these target facilities, aiming to reduce emissions from industrial and commercial sectors.

Japan's J-Credit Scheme allows companies to earn credits by implementing emission reduction and removal projects, which can then be traded. Japan is also actively involved in international carbon offset mechanisms, supporting its goal to achieve carbon neutrality by 2050.

South Korea operates the Korean Emissions Trading Scheme (K-ETS), launched in 2015. It is the first national







## Kenya's Cookstove Initiative

In rural Kenya, a cookstove project is transforming communities through carbon credits. Traditional cooking methods, which rely on open fires and inefficient stoves, contribute to harmful emissions and indoor air pollution. This initiative replaces these stoves with cleaner, more efficient cookstoves, significantly reducing carbon emissions.

As the project reduces emissions, it generates carbon credits, which are sold to fund the effort. The



revenue from these credits ensures the initiative's sustainability. The model not only helps the environment but also improves local health by reducing respiratory diseases and providing cleaner cooking options to families.

cap-and-trade programme in East Asia and the second-largest carbon market globally after the EU ETS.

The K-ETS covers around 70% of the country's total greenhouse gas emissions, with stringent caps and robust compliance mechanisms. The programme is a cornerstone of South Korea's strategy to meet its nationally determined contributions under the Paris Agreement, aiming for a 40% reduction in emissions by 2030 compared to 2018 levels. The market allows trading allowances and offsets to help regulated entities comply with emission limits.

### G20 Leadership

The group of 20 (G20) is an international economic cooperation forum with its member nations collectively representing 5% of the

global gross domestic product (GDP), over 75% of global trade, and about two-thirds of the world's population. G20 members account for around 80% of global greenhouse gas emissions.

In such a situation, the G20 becomes a vital forum for harmonising carbon credit mechanisms. Serious efforts have been made by G20 member states in recent years to transition towards a net-zero economy. The G20 Delhi Declaration, 2023 lays emphasis on the need to reduce greenhouse gas emissions by 43% by 2030 (relative to 2019 levels).

### Paris Agreement as Guide

Article 6 of the Paris Agreement, ratified in 2015 by 195 nations, talks of voluntary contributions among countries to achieve their nationally determined contributions. It established market

and non-market-based mechanisms which the parties can follow while trading in carbon credits.

Article 6.2 of the agreement establishes a process to allow parties to participate in emission trading voluntarily, whereas Article 6.4 establishes a new global baseline and credit mechanism by replacing the clean development mechanism (CDM) as defined under the Kyoto Protocol. Non-market approaches are discussed under Article 6.8 which introduces cooperation through finance, technology transfer and capacity building, where no trading of emission reductions is involved.

A rulebook for Article 6 was completed at COP26 in Glasgow. However, the decision regarding the definition, process and procedure was not finalised. At COP27, incremental progress was made on operationalising

technical elements of the Article 6 rulebook, including the establishment of reporting rules, registries and governing bodies. At COP28 in Dubai, countries failed to adopt decisions concerning Articles 6.2 and 6.4 due to a lack of consensus on key issues.

## Future Projections

Looking ahead, the carbon credit market is expected to expand significantly, potentially reaching \$1trn by 2030. Enhanced government regulations are expected to play a pivotal role. Governments are adopting stricter environmental policies and setting ambitious net-zero emissions targets. As countries implement carbon pricing mechanisms like carbon taxes and emission trading systems (ETS), companies will be compelled to offset their emissions, thus increasing demand for carbon credits. **OB**



## Amazon Rainforest

**I**n Brazil, conservation programmes in the Amazon rainforest show the impact of carbon credits in protecting one of the world's most vital ecosystems. Deforestation in the Amazon has long been a major contributor to global carbon emissions. To combat this, Brazil has implemented forest conservation initiatives that preserve large swathes of the rainforest.

These programmes generate



carbon credits by quantifying the amount of carbon emissions avoided through conservation efforts. The credits are then sold to companies aiming to offset their emissions.



# THE DESI CARBON MARKET

India is uniquely positioned to play a transformative role in the global carbon market



**T**he carbon market is one of the essential climate-mitigation policy tools used by nations in their emission-reduction strategies. India also opted to develop its carbon credit trading market to fulfil its nationally determined contributions (NDCs) by 2030 when it notified the Carbon Credit Trading Scheme in June 2023 under the Energy Conservation Amendment Act, 2022.

India has a precedent of using

market-based mechanisms to fight climate change and reduce greenhouse gas emissions through the Perform, Achieve and Trade (PAT) scheme. The scheme was launched in 2012 and was primarily aimed at reducing energy use in large industries, called 'designated consumers'.

## Using Existing Tools

Building upon the experiences of the PAT scheme, India's Carbon Credit

Trading Scheme (CCTS) aims to reduce greenhouse gas (GHG) emissions by quantifying and pricing GHGs through carbon credit certificates. The PAT scheme identified 1,333 designated consumers across 13 sectors that were given energy conservation targets.

The CCTS defines two tools: the compliance mechanism and the offset mechanism. Under the compliance mechanism, obligated entities must comply with notified GHG emission norms. Under the offset mechanism, non-obligated entities can register their emission-reduction targets for issuance of carbon credit certificates.

India intends to operationalise the trading of carbon credit certificates of mandatory sectors by October 2026 and of voluntary sectors by April 2026.

## **Markets Law & Policy**

The Energy Conservation Act, 2021 and the Environment Protection Act, 1986 confer powers upon the central government to establish a market-based mechanism and specify standards for trading carbon credits. The Energy Conservation Amendment Act, 2022, provided the legal and regulatory basis for establishing a carbon market in India.

The Act empowered the central government to specify a carbon trading scheme and issue carbon credit certificates (CCCs). On the other hand, the Energy Conservation Act, 1986 empowers the government to specify standards of emission or discharge of pollutants for obligated entities.

## **First Impressions**

The government notified CCTS in June



2023. According to media reports, the complete operations are expected to start late 2025 or 2026. Industry sentiment can be gauged once India's carbon market becomes operational.

However, the notification of CCTS has generated mixed responses from industry and analysts. Experts argue the potential of greenwashing and highlight the risk of allowing high-emitting industries to buy carbon credits to offset their emissions.

There are also concerns about financial benefits reaching actual emission reducers. Most emission reducers in the developing world are in poor and vulnerable communities. But a chain of mediators, comprising experts and consultants, between credit buyers and emission reducers take almost all the financial benefits.

But India's booming climate-tech ecosystem seems excited and is well poised to gain from the establishment of a global carbon market. The





proceeds from selling carbon credits gives an opportunity to climate-tech start-ups to have an alternative revenue stream.

### **Chance at Global Leadership**

The global momentum toward carbon pricing and emissions trading is increasing steadily, with 75 carbon pricing mechanisms in operation. This reflects a net gain of two carbon pricing instruments over the past year, covering roughly 24% of global emissions.

Middle-income nations such as Brazil, India and Türkiye are making significant strides in implementing carbon-pricing mechanisms. India is uniquely positioned to play a transformative role in the global carbon market with rising GDP, increasing incomes and rapid strides in renewable energy projects. The country is not achieving domestic carbon-reduction targets but also has

the potential to emerge as a major supplier of carbon credits to the world.

### **Finding Framework**

For India to establish itself as a global leader in carbon markets, a streamlined regulatory framework is essential. At present, the regulatory landscape for carbon credits in India is fragmented, with different agencies managing various aspects of carbon credit generation and trading.

This fragmented approach can lead to discrepancies in understanding and enforcement, causing uncertainty among investors. To address this challenge, the creation of a unified regulatory authority is imperative.

Such an agency would be responsible for formulating clear, comprehensive regulations governing carbon credit generation, verification, trading and exports. By consolidating governance under a single entity, the country can eliminate ambiguities,



build investor confidence and create a cohesive strategy for the carbon credit market.

### **Standards Challenge**

A major challenge in India's carbon market lies in the lack of standardised protocols for carbon credit verification. Inconsistent verification processes lead to varying credit quality, undermining the credibility of carbon credits in international markets. Establishing uniform verification standards is crucial to ensuring that Indian carbon credits meet global benchmarks.


The unified regulatory authority should develop these protocols, taking into account their applicability across sectors. Benchmarking these standards against international best practices will enhance uniformity and global acceptability. This will also foster transparency and trust among

investors and stakeholders, driving demand for Indian carbon credits in international markets.

Furthermore, technology can streamline the verification process, reducing costs and improving the scalability of carbon credit projects. By adopting innovative technological solutions, India can build a resilient and future-ready carbon market.

### **Global Collaboration**

Collaboration with other countries and international organisations involved in carbon markets can open up new opportunities for India.

Carbon credits have become a key component in achieving global net-zero targets, with a rapidly-growing market valued at \$103.8bn in 2023. Carbon credits are poised to play a crucial role in the transition to a sustainable, low-carbon future. 



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