

India's Carbon Market Policy Framework

Report number: LI-2025-002

May 5, 2025

Leap Insights director@leap-insights.org https://leap-insights.org/



India's Carbon Market Objectives

Executive Summary

India is set to launch its carbon market by mid-2026, driven by the Carbon Credit Trading Scheme (CCTS) which includes both compliance and offset mechanismsThe compliance mechanism targets emission reductions in energy-intensive industries with mandatory targets, while the offset mechanism incentivizes voluntary climate actions. This initiative aims to reduce India's greenhouse gas emissions, promote greener industrial practices, align with international carbon regulations, and unlock economic opportunities. Successful implementation will require addressing challenges in monitoring, regulation, financial sustainability, and global alignment, especially considering past low domestic demand for carbon credits.

Introduction

India is committed to its Nationally Determined Contributions (NDCs), aiming to reduce its GHG emission intensity by 45% by 2030 compared to 2005 levels.⁵ A carbon market is crucial for achieving these targets by pricing GHG emissions and incentivizing their reduction.⁶ This market-based approach supports a cost-effective transition to a decarbonized economy. India has prior experience with environmental market mechanisms like the Perform Achieve and Trade (PAT) scheme, which has significantly improved energy efficiency and reduced over 106 million tonnes of CO2 emissions since 2015.⁵ India has also participated in the Renewable Energy Certificate (REC) market and the Clean Development Mechanism (CDM).



Establishing India's Carbon Market

India's Carbon Market Policy Framework



Made with ≽ Napkin

Current Carbon Market Policy and Regulatory Framework in India

The **Energy Conservation (Amendment) Act, 2022** provides the legal foundation for the Indian carbon market (ICM) and the Carbon Credit Trading Scheme (CCTS). This act empowers the Central Government, in consultation with the Bureau of Energy Efficiency (BEE), to establish the carbon trading scheme and authorize agencies to issue carbon credit certificates (CCCs), each representing one ton of CO2 equivalent reduced or removed.

The **Carbon Credit Trading Scheme (CCTS) 2023**, notified by the Ministry of Power, outlines the mechanisms for reducing greenhouse gas emissions. The CCTS features two main components: the Compliance Mechanism and the Offset Mechanism.

The **Compliance Mechanism** targets obligated entities in energy-intensive industries by setting mandatory GHG emission intensity targets. It operates on a 'baseline-and-credit' principle. The Perform Achieve and Trade (PAT) scheme will gradually transition into the CCTS compliance framework starting in fiscal year 2026, initially including nine energy-intensive sectors. The Bureau of Energy Efficiency (BEE) has developed Measurement, Reporting, and Verification (MRV) procedures for this mechanism.

The **Offset Mechanism** allows non-obligated entities to undertake voluntary projects to reduce, remove, or avoid GHG emissions. Eligible entities can earn carbon credit certificates for these actions, incentivizing emission reductions in sectors like agriculture, forestry, and waste management. Plans exist to include carbon capture and storage. Recently, eight new methodologies were approved for the voluntary carbon market, potentially increasing the quality and price of carbon offsets and facilitating international trading under Article 6.2 of the Paris Agreement. Phase I of the offset mechanism will likely cover energy, industries, agriculture, waste handling, forestry, and transport.

The **Bureau of Energy Efficiency (BEE)** is the central administrator for the CCTS, responsible for institutionalizing the Indian carbon market, including identifying sectors, setting targets, managing CCC issuance, and overseeing verification agencies.

The National Steering Committee for Indian Carbon Market (NSCICM), constituted by the Central Government, provides strategic direction and oversight for the CCTS. This committee guides the ICM's development, establishes rules, sets targets, and recommends procedures for international carbon credit trading.

Challenges in India's Carbon Market



Made with 🖗 Napkin

Objectives and Goals of India's Carbon Market Policy

The primary objective is to decarbonize the Indian economy by pricing greenhouse gas emissions through Carbon Credit Certificate (CCC) trading. This aims to help achieve India's enhanced Nationally Determined Contributions (NDCs), targeting a 45% reduction in GHG emission intensity by 2030 compared to 2005 levels. The framework intends to support various entities in meeting these climate goals.

A key goal is to promote the adoption of greener technologies and sustainable

practices across sectors through financial incentives. The market mechanism encourages businesses to reduce emissions by rewarding those who do and imposing costs on those who exceed targets.

Establishing a robust carbon market is also crucial for complying with international carbon regulations, such as the EU's Carbon Border Adjustment Mechanism (CBAM). By incentivizing domestic industries, especially carbon-intensive sectors, to reduce emissions, India aims to maintain export competitiveness. Carbon credits will encourage manufacturers to use green energy, reducing their carbon footprint and improving compliance with EU regulations.

The policy also aims to incentivize voluntary climate actions from non-obligated entities, leveraging broader mitigation potential. This voluntary participation is vital for comprehensive emission reductions.

Strategically, India seeks to capitalize on the growing global carbon market by effectively implementing its CCTS, presenting a significant economic opportunity. Ultimately, the policy aims to foster low-carbon markets and support industrial decarbonization by assigning a price to greenhouse gas emissions through CCC trading.

Mechanisms and Instruments within the Indian Carbon Market

The core of India's carbon market is the **carbon trading scheme**, allowing companies to trade carbon credits, each representing an emission allowance. This market-based approach aims to make decarbonization more economically viable.

A significant aspect is the ongoing **transition from the Perform Achieve and Trade** (**PAT**) **scheme** to the CCTS compliance mechanism. The PAT scheme, initiated in 2012, focused on energy efficiency improvements through targets for designated consumers. The government has a plan to integrate these sectors into the CCTS compliance mechanism gradually, aiming for more comprehensive decarbonization.

The primary trading instrument is the **Carbon Credit Certificate (CCC)**, representing one metric ton of CO2 equivalent reduced or removed. Obligated entities achieving

below-target GHG emission intensity will receive these certificates.

The Indian carbon market may also interact with existing instruments like **Renewable Energy Certificates (RECs)** and **Energy Saving Certificates (ESCerts)**, especially in the voluntary market or as offsets. Initially, ESCerts and RECs might be tradable in the carbon market without conversion, offering flexibility in the early stages. However, the integration strategy is still under consideration.

The CCTS compliance mechanism uses an **intensity-based target setting** approach, defining targets as tonnes of CO2 equivalent per unit of product. This aims to decouple emissions from economic growth.



Economic Benefits of India's Carbon Market

Made with ≽ Napkin

Effectiveness and Impact of Existing Policies on Emissions Reduction

The **Perform Achieve and Trade (PAT) scheme** has shown effectiveness in improving energy efficiency in energy-intensive industries, facilitating the reduction of over 106 million tonnes of CO2 emissions from 2015 to June 2024. This demonstrates India's capacity for market-based environmental mechanisms.

However, the PAT scheme had **shortcomings**, including long compliance cycles, lenient targets, data transparency issues, an oversupply of Energy Saving Certificates (ESCerts), and limited penalties for non-compliance. The ESCert oversupply led to poor market liquidity and low prices, reducing the incentive for further improvements. Lessons from these limitations will inform the new CCTS regime.

The proposed **Carbon Credit Trading Scheme (CCTS)** is expected to have a greater impact on emissions reduction. Effective Emissions Trading Systems (ETS) globally have shown potential for 7-15% emissions reductions in regulated sectors. The CCTS aims to incentivize innovation and cleaner technologies by pricing carbon emissions and rewarding reduction efforts. However, the initial exclusion of major polluting sectors like electricity and agriculture may limit its immediate impact on national emissions and air quality. Significant air quality improvements may not be seen until 2031, as the initial phase covers only about 30% of emissions. The CCTS's ultimate effectiveness will depend on the ambition of targets and the robustness of implementation.

Future Developments and Reforms in India's Carbon Market Policy

The Indian government aims for **full operationalization of its carbon market by mid-2026**, with trading potentially starting earlier for some sectors. Sectors like iron and steel, cement, petrochemicals, and paper and pulp might begin trading as early as April 2025. Future plans include **expanding the scope** of the compliance mechanism to cover more sectors, notably coal-fired power generation, and potentially including other greenhouse gases beyond CO2 and PFCs.

The Bureau of Energy Efficiency (BEE) is developing detailed regulations for the **voluntary offset mechanism**, with Carbon Credit Certificate (CCC) trading from voluntary projects expected to begin in 2025. The BEE plans to release these regulations by the end of 2024.

There is strong potential for **linking India's carbon market with international carbon markets** under Article 6 of the Paris Agreement. Key decisions on international participation are expected in 2024. Integration with the global carbon market established at COP 29 could facilitate international partnerships and investments.

Long-term considerations include transitioning to a **complete auction-based system** for emission allowance allocation, similar to the EU ETS. This could help avoid issues like oversupply and low carbon prices associated with free allocation.

The regulatory framework for India's carbon market is continuously being developed, including procedures for CCC issuance, validity, and pricing, as well as market oversight and MRV requirements.



Comparison of India's Carbon Market Approach with Other Nations

Comparing India's approach to other major economies like the **European Union Emissions Trading System (EU ETS)** is valuable. While both use cap-and-trade, the EU ETS covers more greenhouse gases and has a declining absolute cap, whereas India's CCTS initially focuses on CO2 and PFCs with an intensity-based cap. The EU ETS has broader sectoral coverage and is moving towards auctioning allowances, a direction India may consider. A key lesson from the EU ETS is the importance of market stability mechanisms like the Market Stability Reserve (MSR), which India could consider given past low carbon prices.

China's Emissions Trading Scheme (China ETS), the largest in terms of emissions regulated, adopted a phased approach starting with the power sector. A challenge for China has been data quality, highlighting the need for robust MRV in India's CCTS.

The **EU's Carbon Border Adjustment Mechanism (CBAM)** significantly influences India's carbon market development. CBAM will impose tariffs on imports based on carbon intensity. India's domestic carbon market aims to allow exporters to claim credit for carbon prices paid in India, mitigating CBAM's impact.

India can also learn from other developing nations with carbon markets, such as South Korea's K-ETS. Understanding the challenges and successes of these systems can help optimize India's carbon market design and implementation.

Carbon Market Trading Processes



Made with ≽ Napkin

Key Stakeholders in India's Carbon Market Development and Implementation

India's carbon market involves various key stakeholders. **Government Agencies** like the **Bureau of Energy Efficiency (BEE)**, the administrator responsible for target setting, MRV, and CCC issuance ; the **National Steering Committee for Indian Carbon Market (NSCICM)**, which provides oversight and sets rules ; the **Grid** **Controller of India (GCI)**, the registry operator ; the **Central Electricity Regulatory Commission (CERC)**, which regulates trading ; the **Ministry of Power**, involved in policy and target recommendations ; and the **Ministry of Environment**, **Forest**, **and Climate Change**, responsible for notifying targets.

Industries are central, with **Obligated Entities** from nine energy-intensive sectors facing mandatory targets and **Non-Obligated Entities** participating voluntarily in the offset mechanism.

International Organizations like the **UNFCCC** (especially Article 6) and the **International Emissions Trading Association (IETA)** are involved. Voluntary carbon standards like **Gold Standard (GS)** and **Verra (VCS)** are also relevant.

Other stakeholders include **Power Exchanges**, the trading platforms , and **Accredited Carbon Verification Agencies (ACVAs)**.

Potential Implications of India's Carbon Market Policies for the Indian Economy

India's carbon market policies are expected to have significant economic implications, including **economic growth and job creation** through green technology development. The domestic market could stimulate technological advancements and attract **investment inflows** into climate mitigation projects.

The carbon market will impact the **competitiveness of Indian industries**, especially carbon-intensive sectors, in light of regulations like the EU's CBAM. It will incentivize the adoption of **cleaner and more efficient technologies**, potentially leading to cost savings. Businesses may also generate revenue from selling excess carbon credits.

New regulations could lead to a **potential increase in domestic carbon credit prices**, which could increase compliance costs but also incentivize emission reduction projects and broader market participation.

The market offers opportunities for **non-obligated sectors** to generate income

through the voluntary market.

However, establishing and maintaining the regulatory framework will involve **financial costs**. Obligated entities will face costs for monitoring, reporting, verification, and potentially purchasing carbon credits.

Micro, Small, and Medium Enterprises (MSMEs) may face challenges in participating due to limited resources , requiring targeted support.

The Process of Trading Carbon Credits in India

Trading of Carbon Credit Certificates (CCCs) will primarily occur on **designated power exchanges** approved by the Central Electricity Regulatory Commission (CERC), ensuring transparent price discovery.

A **national registry**, managed by the Grid Controller of India (GCI), will handle CCC issuance, tracking, and transfer.

Power exchanges will have two segments: a **Compliance market** and an **Offset market**.

Obligated entities achieving below-target emissions will be **issued CCCs** in their registry accounts, which can be traded on power exchanges. Entities exceeding targets must purchase CCCs to cover the shortfall.

CCC prices will be determined by **bidding on power exchanges**, potentially within a CERC-approved price range proposed by the BEE.

Detailed procedures for **registration**, **trading rules**, **and transaction settlement** will be established by the CERC and power exchanges. Entities must register and adhere to these rules. Sale bids cannot exceed CCC holdings, with registry verification.

The system will allow **banking of surplus CCCs** for future use or trading.

Challenges and the Way Forward for India's Carbon Market

Implementing a successful carbon market in India faces challenges. Setting ambitious yet realistic emission reduction targets is crucial. Ensuring sufficient market liquidity and stable carbon credit prices is vital. Addressing concerns about data quality, transparency, and fraud is paramount. The integration of offset credits needs careful management to prevent oversupply and ensure additionality. Establishing a robust market stability mechanism is essential. Ensuring effective monitoring, reporting, and verification (MRV) across diverse industries will be a significant undertaking. The successful inclusion of MSMEs requires tailored approaches. Expanding sectoral coverage to include major emitters like electricity and agriculture is crucial. Strengthening the legal infrastructure and regulatory oversight is essential. Building sufficient capacity and expertise within regulatory bodies and verification agencies is critical. Finally, ensuring the financial sustainability of the program is paramount.

The way forward involves aligning with international best practices, especially under Article 6 of the Paris Agreement. Implementing price stabilization mechanisms and targeted incentives will be crucial. Setting ambitious targets with robust standards and strong oversight will build market trust. Collaboration between the public and private sectors and providing support will be essential for impactful outcomes.

Conclusion

India's upcoming carbon market launch in 2026 is a significant step towards a low-carbon economy. The CCTS, with its compliance and offset mechanisms, offers a framework for incentivizing emission reductions. While the potential to contribute to climate goals, foster green growth, and enhance industrial competitiveness is substantial, effectively addressing challenges in target setting, market stability, data integrity, and implementation is crucial. By learning from other carbon markets and addressing India's specific context, policymakers can ensure the carbon market becomes a powerful tool in its climate action strategy.

References

- 1. Carbon Herald. (2025). India to launch carbon market in 2026, says power minister.
- 2. ETEnergyWorld. (2024). Domestic carbon credit prices may rise with new regulations: Report.
- 3. Green Earth. (2025). India to launch its own carbon market by 2026.
- 4. ICF. (2025). India carbon markets: Road to net zero by 2070.
- 5. Bureau of Energy Efficiency. (2025). Carbon market.
- 6. Sentra.World. (2024). Unveiling India's carbon credit trading scheme.
- 7. Policy Circle. (2025). Carbon market in India: Opportunity.
- 8. Policy Circle. (2024). India's carbon credit trading lags.
- 9. PIB Delhi. (2024). Detailed Procedure for Compliance Mechanism under CCTS.
- 10. IMPRI India. (2024). Carbon credits trading scheme 2023.
- 11. The Times of India. (2024). Carbon-heavy sectors handed green targets, liable to fines.
- 12. Energy Policy Columbia. (2024). India carbon market.
- 13. ICAP Carbon Action. (n.d.). Indian carbon credit trading scheme.
- 14. Bureau of Energy Efficiency. (2025). Carbon market.
- 15. BTG Advaya. (n.d.). Compliance mechanism under India's carbon credit trading scheme.
- 16. CERC. (2024). Draft Terms and Conditions for Purchase and Sale of Carbon Credit Certificates Regulations, 2024.
- 17. ICAP Carbon Action. (n.d.). Indian carbon credit trading scheme.
- 18. Carbon Credits. (2024). India revises its carbon credit trading scheme for voluntary players.
- 19. CEEW. (n.d.). How can carbon offsets programs play a role in carbon credit market compliance in India?
- 20. Power Exchange India Limited. (n.d.). Comments on Draft CERC (Terms and Conditions for Purchase and Sale of Carbon Credit Certificates) Regulations, 2024.
- 21. Spiceroutelegal. (n.d.). Navigating carbon credits in India.

- 22. CSE India. (2023). Carbon markets: Pathways for effective implementation of upcoming Indian carbon market.
- 23. ICAP Carbon Action. (n.d.). Indian carbon credit trading scheme.
- 24. Energy Policy Columbia. (2024). India carbon market.
- 25. Energy Policy Columbia. (2024). India carbon market.
- 26. Energy Policy Columbia. (2024). India carbon market.
- 27. NUALS Law Journal. (2025). Greens and greys: The Indian carbon markets conundrum.
- 28. EDF. (2025). EDF report unveils roadmap for unlocking business value in India's carbon market.
- 29. ICF. (2025). India carbon markets: Road to net zero by 2070.
- 30. Wood Mackenzie. (2024). Domestic carbon credit prices may rise with new regulations: Report.
- 31. CEEW. (2024). Implications of carbon emissions trading system in India's net-zero strategy.
- 32. Power Line. (2024). Expanding the carbon market: Key role in reducing emissions and meeting climate goals.
- 33. Energy Policy Columbia. (2024). Lessons for structuring India's carbon market to support a cost-efficient energy transition.
- 34. Energy Policy Columbia. (2024). India carbon market.
- 35. CERC. (2024). Draft Terms and Conditions for Purchase and Sale of Carbon Credit Certificates Regulations, 2024.
- 36. CERC. (2024). Draft Terms and Conditions for Purchase and Sale of Carbon Credit Certificates Regulations, 2024.
- 37. CEEW. (2024). Implications of carbon emissions trading system in India's net-zero strategy.
- 38. Asia Society. (n.d.). Carbon Credit Trading Scheme Could Help India's Climate Leadership Role.
- 39. Wikipedia. (2024). Carbon market in India.
- 40. ICAP Carbon Action. (n.d.). EU ETS.
- 41. UNFCCC. (n.d.). What is carbon offsetting?
- 42. Sentra.World. (2024). Unveiling India's carbon credit trading scheme.