5. Greenhouse Gas Emission Intensity Target Rules

The Centre has notified the first legally binding Greenhouse Gas Emission Intensity (GEI) Target Rules, 2025, for four high-emission sectors—aluminium, cement, chlor-alkali, and pulp and paper. These Rules form a key part of the Carbon Credit Trading Scheme (CCTS), 2023, which operationalises India's domestic carbon market.

Overview

The GEI Target Rules, 2025 operationalize India's domestic carbon market under the Carbon Credit Trading Scheme (CCTS), 2023. They establish sector-specific emission intensity targets, i.e., tCO_2e per unit of product, for selected industrial units. This initiative aligns with India's Paris Agreement commitment to reduce the emissions intensity of GDP by 45% by 2030 relative to 2005 levels. The rules mark a shift from command-and-control policies to a market-based regulatory mechanism incentivizing industrial decarbonization.

Key Features of GEI Target Rules, 2025

Applicability -

Covers 282 industrial units across four sectors -

1. Aluminium
2. Cement
3. Chlor-alkali
4. Pulp & paper

Emission Intensity Targets -

1. Specific targets set for 2025–26 and 2026–27.
2. Measured in tCO_2e per unit of output (tons of CO_2 equivalent per product).

Carbon Credits - Units meeting or exceeding targets receive carbon credits, which are tradable in India's domestic carbon market.

Penalties & Enforcement - Non-compliance triggers environmental compensation and penalties enforced by the Central Pollution Control Board (CPCB).

Market Integration - Directly linked with the CCTS, 2023, enabling verification, issuance, and trade of carbon credits.

Linkage with Carbon Credit Trading Scheme (CCTS), 2023

Market Mechanism - The CCTS allows industries to earn, verify, and trade credits, creating a financial incentive for emissions reduction. Moves away from the Perform, Achieve, Trade (PAT) Scheme, which lacked a full-fledged market.

Cost-Effective Compliance - Industries can purchase credits if reducing emissions internally is costlier, providing economic flexibility while achieving environmental goals.

Encourages Innovation - Promotes technology adoption, energy efficiency, and investment in low-carbon processes.

Potential Benefits for India

Industrial Decarbonization - Encourages sectors to reduce energy intensity and carbon footprint per unit product.

Climate Commitment Alignment - Supports India's goal of 45% reduction in emissions intensity of GDP by 2030.

Technology Transfer & Innovation - Creates demand for clean technologies, facilitating knowledge transfer and R&D.

Economic Value Creation - Trading carbon credits generates financial incentives for industries meeting targets.

Strengthened Environmental Governance - Mandatory compliance, MRV requirements, and penalties reinforce regulatory credibility.

Challenges Ahead

Robust MRV Systems - Essential for credit integrity, preventing fraud or overestimation of reductions.

Digital monitoring, blockchain, and IoT sensors may be required.

Market Volatility - Price fluctuations or speculation could undermine the financial stability of the carbon market.

Transition Costs - Smaller industrial units may face financial or technical hurdles in reducing emissions.

Capacity Building - Need for institutional frameworks, training, and financial support for smooth implementation.

Comparison with International Carbon Markets

Aspect	GEI Rules & CCTS, India	EU Emissions Trading System (EU ETS)	China's National ETS
Market Start	2025 (pilot, legally binding in select sectors)	2005 (first major ETS globally)	2021 (national launch, phased sectors)
Sectors Covered	Aluminium, cement, chlor-alkali, pulp & paper	Power, industry, aviation	Power plants initially, planning expansion
Compliance Mechanism	Emission intensity per product unit; tradable credits	Cap-and-trade with annual emission caps	Cap-and-trade focused on absolute emissions
Regulatory Authority	Bureau of Energy Efficiency (BEE), CPCB	European Commission + national regulators	Ministry of Ecology and Environment, China
Carbon Credit Trading	Domestic market trading	Robust EU-wide carbon market, linked to global markets	Emerging domestic market, evolving in sophistication
Integration	Currently domestic only	Linked with global carbon markets	Domestic focused; exploring expansion

Observations - India's scheme is emission intensity-based, unlike EU ETS and China ETS, which are largely absolute cap-based systems. The CCTS is currently domestic-focused, while EU ETS is global-linkage ready, and China is gradually expanding sectors. India's phased approach allows for learning and capacity building before broadening sector coverage.

Way Forward

Phased Sector Expansion - Gradually include more industries beyond the initial four to scale climate impact.

Capacity Building & Financing - Provide technical, financial, and institutional support to enable industries to meet targets cost-effectively.

Strengthening MRV - Deploy digital monitoring systems, IoT, AI analytics, and blockchain to ensure credit authenticity and transparency.

Market Development - Encourage secondary trading, price discovery, and financial instruments linked to carbon credits for long-term market stability.

International Linkages - Explore potential integration with global carbon markets for enhanced trade, investment, and compliance flexibility.

Conclusion

The GEI Target Rules, 2025 and the CCTS framework represent India's transition to market-based environmental governance, supporting both climate goals and economic incentives. By incentivizing industrial decarbonization, enabling carbon trading, and building institutional and technological capacity, India aims to strengthen its leadership in climate action while maintaining economic competitiveness.

Source - https - //www.thehindu.com/sci-tech/energy-and-environment/india-notifies-first-emission-intensity-targets-for-carbon-intensive-sectors/article70147013.ece