

THE GREEN CLOCK

ESG MATTERS

MONTHLY NEWSLETTER

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Editor's Note

Dear Readers,

Welcome to the Ninth Edition, Vol. 2 of our Newsletter, **'The Green Clock: ESG Matters'**.

The global energy and sustainability landscape is undergoing a transformative shift, with renewable energy, climate finance, and corporate accountability taking centre stage. The latest IEA outlook highlights the accelerating role of solar PV in doubling global renewable capacity by 2030, underscoring both opportunities and challenges in grid integration, storage, and supply chain diversification. India can emerge as a critical growth market with robust policy, financing, and domestic manufacturing strategies.

Beyond energy, studies reveal the urgency for more precise, high-integrity climate solutions in sectors such as healthcare. Towards carbon offsetting, Countries like Indonesia are unlocking carbon credits via international standard partnerships, signaling an evolving carbon finance ecosystem.

At the national level, initiatives such as Kerala's ESG policy and India's domestic carbon market demonstrate proactive strategies to align industrial growth with sustainability. Coupled with landmark renewable projects like Adani Green Energy's 112.5 MW deployment in Gujarat, these developments illustrate India's growing role in global decarbonisation.

This issue emphasises the interconnected nature of energy, policy, finance, and technology in driving a resilient, low-carbon future.

Warm regards,

[T S Vishwanath]

Solar Energy Dominance Driving Global Renewable Expansion

The International Energy Agency's (IEA) latest outlook¹ on global renewable energy presents an optimistic assessment of the ongoing energy transition. According to the IEA, renewable power capacity worldwide is set to more than double by 2030, with solar photovoltaic (PV) technology emerging as the dominant driver of this growth. The report underscores a decisive global shift toward clean energy systems, driven by declining technology costs, strengthened policy commitments, and growing concerns over energy security and climate resilience.

However, the IEA also highlights that this expansion is uneven across regions and technologies. While solar PV and wind are surging ahead, progress in renewable heating, transport, and industrial decarbonization remains modest.



This note provides an analysis of the IEA's findings and examines their broader implications for global and regional energy transitions, technology development, and policy frameworks.

Renewable Energy Forecast

- The IEA expects global renewable power capacity to increase by ~ 4,600 GW by 2030, more than doubling current levels.
- Solar PV is projected to account for ≈ 80 % of the increase in renewable capacity over the next five years.
- Other contributors include wind, hydro, bioenergy, and geothermal.
- Pumped-storage hydropower is also expected to grow strongly (≈ 80 % faster than in the previous five years) to support system flexibility.

Regional Highlights

- Growth forecasts in the United States have been revised downward compared to earlier expectations.

¹ IEA, October 2025. <https://www.iea.org/news/global-renewable-capacity-is-set-to-grow-strongly-driven-by-solar-pv>

- In China, a shift from fixed tariffs to auction systems is expected to affect project economics, reducing growth projections.
- Conversely, India, Europe, and many emerging/developing economies see upward revisions arising from stronger policies, faster permitting, and expanded auctions.
- India is projected to become the second-largest renewables growth market globally (after China).

Drivers & Constraints

- Solar PV may continue its dominance, which can be attributed to very competitive costs and faster permitting in many jurisdictions.
- Supply chain concentration, particularly in the manufacturing of solar PV and rare earth elements (for wind turbines), remains a vulnerability. Most key production segments remain concentrated in China (over 90%) through 2030.
- Increasing shares of renewables (solar, wind) are placing stress on grids: issues like curtailment (i.e. when generation must be curtailed because supply exceeds demand) and negative electricity price events are already appearing.
- There is a growing need for storage, flexibility, grid investments, and regulatory reforms to integrate large shares of renewables.
- In the energy use for transport and heating, the role of renewables is expected to rise only modestly: from ~ 4 % to ~ 6 % in transport, and from 14 % to 18 % in heat (buildings/industry) by 2030.

Potential Impact

- Acceleration of energy transition: The prediction of doubling renewable capacity by 2030 suggests an accelerating shift away from fossil generation in many markets.
- Technology and supply chain geopolitics: The concentration of components and critical minerals manufacturing in China means energy security, trade policy, and industrial strategy will be central in many countries' renewable programs. Countries may push to diversify or localise manufacturing (e.g., solar module assembly, battery and storage, rare earth supply chains) to reduce their vulnerability.
- Strain on grids & system resilience: As the share of variable renewables rises, power systems will require more flexibility, including grid expansion, storage (batteries, pumped hydro), demand response, microgrids, and dynamic pricing.
- Carbon markets, finance & investment flows: Growing renewables create robust demand for capital. Risk perception changes (policy risk, dispatch risk) will affect financing terms.
- Grid expansion, modernisation & digitalisation: Transmission and distribution networks will require reinforcement, expansion, integration of smart grid technologies, high-voltage interconnectors, and congestion management systems.

Implications for India

Given that India is specifically cited as becoming the second-largest growth market in renewables, India needs to make interventions in the following areas:

- India must ensure grid and storage readiness to absorb large-scale solar additions (curtailment has been an issue in some states already).
- Policies enabling hybrid auctions, storage + solar/wind co-located projects, and reforms in state utilities to absorb renewables will be vital.
- Building domestic manufacturing for solar modules, inverters, batteries, and the supply chain (raw materials, critical minerals) can reduce dependence on imports (especially given global concentration in China).
- Financing mechanisms (e.g. viability gap funding, concessional lines, credit guarantees) remain crucial for scaling in less affluent states or difficult geographies.
- Integrating renewables across sectors – coupling solar–green hydrogen, EV charging infrastructure – can further strengthen its position.

News From the World

Healthcare Carbon Footprint – Asthma Inhalers Produce Carbon Emissions Equal To 530,000 Cars Annually

Inhalers are essential medical devices used to treat asthma and chronic obstructive pulmonary disease (COPD). However,



a recent study², led by researchers at UCLA and published in *JAMA*, raises a climate concern: inhalers used in the U.S. may contribute significantly to carbon emissions. As per the study, over the past decade, these medical devices have produced emissions comparable to those from over half a million gasoline-powered cars.

Methodology & Data

- Researchers used a national prescription database (National Drug Code / NDC level) to capture inhaler usage across the U.S.

² NDTV, 8 October 2025. <https://www.ndtv.com/science/asthma-inhalers-produce-carbon-emissions-equal-to-530-000-cars-annually-study-finds-9415186>

- Emissions estimates were derived by combining usage data with emission factors based on prior academic studies, accounting for device type, propellant type, brand status, manufacturer, and payer ecosystems.

Major Findings

- The study estimates that inhalers in the U.S. generate more than 2 million metric tons of carbon dioxide equivalent emissions annually.
- Over the ten-year period (2014–2024), cumulative emissions from inhalers reached approximately 24.9 million metric tons of CO₂-equivalent.
- On an annual basis, this emissions volume is equated to that from about 530,000 gas-powered cars on the road.

Contribution by Inhaler Type

- Metered-dose inhalers (MDIs) are the dominant emitters, responsible for 98 % of inhaler-related emissions over the studied period. These devices release hydrofluoroalkane (HFA) propellants—powerful greenhouse gases—to deliver medication.
- The other inhaler types—dry powder inhalers (DPIs) and soft mist inhalers—do not use propellants and have a far smaller carbon footprint.

Recommendations

- The study urges health providers, insurers, and policymakers to promote lower-emission alternatives (e.g. DPIs, soft mist inhalers) wherever clinically feasible. Ensuring that such alternatives are covered by insurance and affordable is vital to avoid limiting access to care.
- Future research directions include:
 - assessing inhaler emissions in specific populations (e.g. Medicaid recipients),
 - comparing clinical outcomes across inhaler types in the same therapeutic class, and
 - investigating pricing and patent strategies to facilitate adoption of greener inhaler technology.

Carbon Offsets Have Failed to Reduce Global Warming

A new study reviewed by SadaNews³ concludes that carbon offset systems—intended to compensate for greenhouse gas emissions—have largely failed to reduce global warming. Despite billions of dollars in investment, offset



³ SadaNews, 7 October 2025. <https://www.sadanews.ps/en/news/238130.html>

markets have produced limited genuine climate benefits due to poor quality standards, weak oversight, and flawed methodologies.

Key Findings

Researchers found that less than 16% of carbon credits issued globally represent real, additional emission reductions. Many offset projects were credited for activities that would have occurred regardless, such as existing forest protection schemes. Others suffered from non-permanent risks, like forest fires that reverse carbon storage gains. The study highlights conflicts of interest in certification and verification processes, which enable over-crediting and false climate claims by corporations.

Policy and Market Response

Although recent UN climate summits and voluntary initiatives—like the Integrity Council for the Voluntary Carbon Market—have introduced tougher rules, the study argues these steps are insufficient. Existing reforms fail to tackle structural weaknesses in governance and transparency. Rating agencies now assess credit quality, but coverage remains uneven.

Recommendations

The findings question the credibility of corporate “net-zero” pledges and signal the need for a systemic shift from offsetting to genuine decarbonization strategies.

In view of this, the study calls for:

- eliminating offset projects that do not demonstrably absorb carbon or provide enduring reductions.
- shifting market focus toward high-quality carbon dioxide removal (CDR) and long-term storage, rather than conventional offsets.
- a contribution-based system, where funding is directed to climate mitigation but not used to underwrite claims of neutrality.
- the need for greater transparency, accountability, and stricter standardisation in offset markets.

Indonesia to unlock 50 million carbon credits via standard partnerships

Indonesia has taken a significant step to integrate its domestic carbon market with global standards. Through a newly signed Mutual Recognition Agreement (MRA) with Verra — one of the leading carbon credit certification bodies — Indonesia aims to unlock as many as 50 million tonnes of carbon credits for international trade. This arrangement allows projects to

register both under Verra’s Verified Carbon Standard (VCS) and Indonesia’s national registry (SRN-PPI), with shared data and interoperability between registries. This move comes ahead of COP30, positioning Indonesia as a major supplier of carbon credits from its vast forest and nature-based assets.



This development carries implications for climate finance, credibility of the carbon market, Indonesia’s climate ambition, and potential risks around integrity and governance. Below is an analytical breakdown.

Key Elements of the Partnership

- **Mutual Recognition & Dual Registration:** The MRA permits Indonesia-based projects to register in parallel under Verra’s VCS program and the Indonesian national registry (SRN-PPI).
- **Data Sharing & Registry Interoperability:** Verra will mirror project and credit information to SRN-PPI, giving Indonesia oversight of project status and enabling government tracking.
- **Scope & Scale:** The deal is projected to unlock up to 50 million tonnes of credits that could be brought to market (not necessarily all immediately). Some early projects already identified are expected to yield ~17.27 million tonnes by mid-2026.
- **Support from Other Standard Bodies:** Indonesia is also extending partnerships/recognition with Gold Standard, Puro.earth, Plan Vivo, and the Global Carbon Council.

Drivers & Motivation

- **Access to International Climate Finance:** The MRA opens pathways for Indonesian carbon projects to tap into global voluntary and compliance markets with recognised standards.
- **Enhancing Market Credibility & Integrity:** By aligning with Verra’s standards and ensuring government oversight through registry linkage, Indonesia hopes to boost credibility of its carbon credits.
- **Meeting International Commitments:** The move helps Indonesia track and integrate crediting into its Nationally Determined Contributions (NDCs) and participation in Paris Agreement mechanisms.
- **Leveraging Natural Assets:** With extensive tropical forests and rich biodiversity, Indonesia is well placed to generate high-integrity nature-based credits.

Opportunities & Benefits

- **Scale & Market Presence:** Positioning Indonesia as a leading exporter of carbon credits could generate significant revenue and foreign inflows, especially in the run up to COP30.
- **Institutional and Regulatory Strengthening:** Integrating standards with the government registry may improve governance, transparency, and oversight of projects.
- **Investor Confidence & Quality Signals:** Association with a respected standard like Verra adds a “trust label” to Indonesian credits, which can attract more buyers.
- **Domestic Capacity & Local Benefits:** More predictable market rules may encourage domestic project developers, capacity building, local employment, and sustainable land practices.

News From India

112.5 MW renewable energy project operationalised in Gujarat⁴

Towards strengthening its footprint in renewable energy and contributing to India’s target of net-zero by 2070, Adani Green Energy Limited (AGEL) has commissioned 112.5 MW of new renewable power projects at Khavda, Gujarat, comprising an 87.5 MW solar plant and a 25 MW hybrid (solar-wind) plant.

With this, AGEL’s total operational renewable capacity has reached 16,598.6 MW. Khavda, which already hosts some of India’s largest renewable projects, is emerging as a major hub for clean energy. This development supports India’s push towards renewable energy expansion, reduces dependence on fossil fuels, and aligns with its long-term clean energy goals. It follows the company’s recent addition of 408.1 MW at the same site.



⁴ <https://bioenergytimes.com/gujarat-adani-green-energy-announces-operationalisation-of-112-5-mw-of-renewable-energy-projects-at-khavda/>

Project Highlights and Its Significance

Key Highlights:

- Project Commissioned: 112.5 MW of renewable energy capacity operationalised in Khavda, Gujarat.
 - 87.5 MW Solar Plant.
 - 25 MW Hybrid Plant (solar + wind).
- Developer: Adani Green Energy Limited (AGEL), part of the Adani Group.
- Cumulative Capacity: AGEL's total operational renewable capacity now stands at 16,598.6 MW.
- Strategic Location: Khavda in Gujarat – emerging as a hub for India's largest renewable energy projects.
- Context: Follows another 408.1 MW addition at the same site, reinforcing the area as a renewable power cluster.

National and Regional Significance

- Energy Security: Contributes to reducing India's dependence on coal and fossil fuels.
- Alignment with National Goals: Supports India's target of 500 GW non-fossil capacity by 2030 and net-zero by 2070.
- State-Level Advantage (Gujarat):
 - Reinforces Gujarat's position as a renewable energy leader in India.
 - Strengthens the state's industrial and investment appeal, particularly in green energy infrastructure.
- Technology Mix: The hybrid model improves grid stability, ensuring round-the-clock renewable power supply.

Kerala Sets Benchmark with Industrial ESG Policy



Kerala has become the first Indian state to adopt a comprehensive Environmental, Social, and Governance (ESG) policy aimed at aligning industrial growth with sustainability and global responsible investment standards. The policy seeks to position Kerala as a model for low-carbon, inclusive, and transparent development while strengthening investor confidence through credible ESG frameworks.

Vision and Objectives

The policy is guided by the principles of “Nature, People, and Industry” and envisions achieving:

- 100 % renewable energy use by 2040, and
- Carbon neutrality by 2050.

Its overarching objective is to integrate ESG values into industrial planning, operations, and investment, ensuring that economic progress complements environmental protection and social equity.

Key Features

- **Incentive Framework:** Financial support, including tax reimbursements, concessional loans, and preferential procurement for ESG-compliant enterprises.
- **Institutional Mechanism:** The Kerala State Industrial Development Corporation (KSIDC) is the nodal agency for implementation, capacity building, and certification facilitation.
- **Global Alignment:** Policy aligned with leading international ESG standards such as GRI and SASB, ensuring compatibility with global investor expectations.
- **Industrial Transition Support:** Encourages adoption of renewable energy, green technologies, and sustainable business practices, especially in manufacturing and infrastructure.

Strategic Significance

The initiative gives Kerala a first-mover advantage in sustainable industrial governance in India. It could help attract green investments, strengthen the state’s climate credentials, and promote job creation in renewable and circular economy sectors. It also demonstrates how sub-national governments can operationalise India’s national commitments on climate change and sustainability.

Implications

Kerala’s ESG policy can serve as a replicable model for other states seeking to balance industrialisation with sustainability. It reflects a broader shift in India’s development paradigm—where environmental integrity, social inclusion, and governance transparency are seen as economic enablers, not constraints. The real test will be how effectively Kerala operationalises the policy through measurable targets, credible reporting, and stakeholder engagement.

India to Launch Domestic Carbon Market to Curb Industrial Emissions

India is set to launch its own domestic carbon market by the end of October 2025, aiming to regulate emissions from high-polluting industries. This initiative is part of a broader strategy to align with global climate commitments and attract international climate finance. The market will initially focus on sectors such as steel, cement, aluminium, and pulp & paper.



Key Features

- **Cap-and-Trade System:** The market will operate on a cap-and-trade mechanism, setting emission limits for industries and allowing them to trade carbon credits. This system incentivizes companies to reduce emissions and invest in cleaner technologies.
- **Sectoral Focus:** The first phase targets four major sectors: steel, cement, aluminium, and pulp & paper. These industries are among the highest emitters in India, contributing significantly to the country's carbon footprint.
- **Integration with Global Markets:** India plans to join an inter-governmental carbon market supervised by the United Nations, starting in January 2026. This move aims to enhance the credibility of India's carbon credits and facilitate international trade.

Strategic Significance

- **Climate Commitment:** As the third-largest emitter of CO₂ globally, India's participation in a domestic carbon market demonstrates its commitment to addressing climate change and meeting its national determined contributions under the Paris Agreement.
- **Attracting Investment:** The establishment of a credible carbon market is expected to attract international climate finance, estimated at \$467 billion by 2030, to support emission reduction programs in key sectors.
- **Economic Opportunities:** The carbon market is anticipated to create economic opportunities by promoting the adoption of clean technologies and fostering innovation in low-carbon solutions.

Challenges and Considerations

- **Implementation Complexity:** Setting up a robust carbon market infrastructure requires significant planning and coordination among various stakeholders, including government agencies, industries, and financial institutions.
- **Monitoring and Enforcement:** Effective monitoring and enforcement mechanisms are crucial to ensure compliance and prevent issues such as carbon credit fraud or misreporting.
- **Market Liquidity:** The success of the carbon market depends on its ability to attract sufficient participation from industries and maintain liquidity to facilitate trading.

Conclusion

India's upcoming domestic carbon market represents a significant step towards integrating environmental sustainability into industrial growth. While challenges exist, the initiative holds promise for reducing emissions, attracting investment, and positioning India as a leader in the global transition to a low-carbon economy.



VeK is a policy advisory and research firm, distinguished by its data-driven approach to analyse policy and regulatory developments in India and globally. For Further Information, please contact: Suresh P. Singh, Senior Director at +91 94607 36459 or email at suresh@vekpolicy.com



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