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EARTH C NNECT

The Newsletter brings out News , Views , Opinions, Trends , Policy Changes , Technology Advancements and other Developments in the Solar Industry





2nd Edition

Bharat Solar expo

2025



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17, 18 & 19, January 2025 | Jaipur
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(JECC), Jaipur, Rajasthan

New Delhi, January 6, 2025—In a landmark meeting held at the Parliament House today, Lok Sabha Speaker Shri Om Birla extended a warm welcome to Shri Nitin Agarwal, CEO of the Rajasthan Solar Association (RSA), to deliberate on India's advancements in renewable energy. The discussion prominently highlighted Rajasthan's leading role as the top solar energy producer in the country and the upcoming Bharat Solar Expo (BSE) 2025, a flagship event for the renewable energy sector. During the interaction, Shri Nitin Agarwal formally invited Shri Om Birla to inaugurate the Bharat Solar Expo 2025, scheduled to be held in Jaipur, Rajasthan, later this month. Shri Agarwal also extended invitations to Hon'ble Energy Minister Shri Heeralal Nagar and Mayor of Greater Jaipur Smt. Somya Gurjar, requesting their esteemed presence to honor the event and reinforce India's mission of sustainable energy development.

The Bharat Solar Expo 2025 is set to showcase cutting-edge solar technologies, innovative projects, and solutions poised to shape India's renewable energy future. It aims to serve as a platform for collaboration between policymakers, industry leaders, and innovators to accelerate India's transition to green energy.

Acknowledging Rajasthan's leadership in solar energy with a record-breaking 24 GW installed capacity, Shri Om Birla commended RSA's persistent efforts in fostering innovation and driving industry growth. He remarked, "Renewable energy is not just a necessity but a commitment to the environment and future generations. The Bharat Solar Expo 2025 will be a landmark event, inspiring India and the world to invest in green energy."

Accepting the invitation, Shri Om Birla expressed enthusiasm for participating in the expo and assured his unwavering support for the renewable energy mission. He encouraged the RSA team to actively engage stakeholders from across the country to foster a unified approach toward achieving India's ambitious Net Zero 2070 target.

Shri Om Birla further emphasized the critical role of public and private sector collaboration in expediting India's renewable energy transition. "Events like the Bharat Solar Expo bridge the gap between innovation, policy, and implementation. I look forward to being a part of this pivotal initiative," he added. This high-profile engagement underscores another milestone in RSA's journey, reinforcing Rajasthan's position as a hub for renewable energy and a key player in shaping India's clean energy future.





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1. Mr. Suman Kumar (Chairman, Rajasthan Solar Association):

"As we usher in 2025, Earth Connect reflects the strides we've made and the vision we hold for a sustainable future. Let this year be a testament to our unwavering commitment to renewable energy, innovation, and environmental stewardship. Wishing everyone a Happy New Year filled with light, progress, and possibilities."

2. Mr. Sunil Bansal (President, Rajasthan Solar Association):

"With each edition of Earth Connect, we chronicle the journey of Rajasthan's solar revolution. In 2025, let's aim higher, collaborate stronger, and lead the way in renewable energy. Together, we will make Rajasthan a global solar hub. A very Happy New Year to all our readers and stakeholders!"

3. Mr. Manoj Kumar Gupta (Senior Vice President, Rajasthan Solar Association):

"The pages of Earth Connect tell a story of growth, resilience, and innovation. As we turn to 2025, let's write new chapters of success, making Rajasthan a shining example of sustainable development. Wishing everyone a Happy and Prosperous New Year!"

4. Mr. Ramakant Jangid and Mr. Parteek Agarwal (Vice Presidents, Rajasthan Solar Association):

"Through Earth Connect, we bridge the gap between visionaries, innovators, and the community. Let 2025 be the year we amplify our efforts, illuminate new paths, and achieve unprecedented milestones in solar energy. Happy New Year to all who are part of this transformative journey!"

5. Mr. Nitin Agarwal (CEO, Rajasthan Solar Association):

"As the driving force behind Earth Connect, we are proud to showcase Rajasthan's leadership in the solar industry. In 2025, let us continue to connect ideas, share knowledge, and inspire change. Wishing a Happy New Year to everyone – together, let's power a sustainable future!"

GLOBAL LITHIUM-ION BATTERY PRICES DROP TO HISTORIC LOW OF \$115/KWH, PROJECTED TO DECLINE FURTHER BY \$3/KWH IN 2025

Lithium-ion Battery Prices Touch Historic Low of \$115/kWh. A significant milestone was reached in the lithium-ion battery sector as prices dropped to an all-time low of \$115 per kilowatt-hour (kWh), according to BloombergNEF (BNEF). This represents the most substantial annual decline in battery pack prices since 2017, reflecting a global average with regional variations depending on geography and application areas. BloombergNEF's recent analysis predicts an additional price reduction of \$3/kWh in 2025, driven by key factors such as overcapacity in cell manufacturing, economies of scale, and lower costs for essential metals and components. The adoption of lithium-iron-phosphate (LFP) batteries has further accelerated this downward trend, alongside slower growth in the electric vehicle (EV) market.

EXPANSION IN PRODUCTION CAPACITY

Battery manufacturers have ramped up production capacities in response to anticipated demand, particularly from the EV and stationary storage sectors. However, BNEF reports that current global production capacity of 3.1 terawatt-hours (TWh) now exceeds 2.5 times the annual demand for Li-ion batteries in 2024, signaling an overabundance that pressures manufacturers to reduce prices to remain competitive.

Despite year-over-year demand growth across all sectors, the EV market—the primary driver of battery demand—has shown slower growth compared to previous years. Evelina Stoikou, head of BNEF's battery technology team, explained, "The decline in battery cell prices this year was more significant than the drop in battery metal prices, highlighting the pressure manufacturers face on tighter margins."

IMPACT ON EV AND ENERGY STORAGE SECTORS

Battery prices for electric vehicles have fallen below the \$100/kWh threshold for the first time, averaging \$97/kWh. In regions such as China, this has resulted in EVs achieving price parity with combustion vehicles. However, markets like the U.S. and Europe still see significant price gaps—31% and 48%, respectively—demonstrating China's intensified competition and its influence on global pricing dynamics.

BNEF predicts that as lower-cost batteries become increasingly available, more segments will approach price parity worldwide. Meanwhile, the stationary storage sector, driven by increasing renewable energy integration, continues to benefit from falling battery costs, positioning itself as a significant growth area.

FUTURE OUTLOOK AND TECHNOLOGICAL ADVANCEMENTS

While current declines are partly attributed to low raw material prices, potential future price hikes may arise due to geopolitical tensions, tariffs, and stalled mining and refining projects. BNEF forecasts a further reduction of \$3/kWh by 2025, driven by ongoing investments in research and development, process improvements, and supply chain expansions.

ANTI-DUMPING DUTY ON SOLAR PANELS: A DOUBLE-EDGED SWORD FOR INDIA'S RENEWABLE GOALS?

The Directorate General of Trade Remedies (DGTR) has initiated an anti-dumping investigation on solar panels imported from China, a move that has sparked heated debate among stakeholders. While the measure aims to protect domestic manufacturers from unfair pricing, industry experts question whether this is the right time for such a policy, considering India's ambitious renewable energy targets and the ongoing global energy transition.

Timing Raises Concerns

With India striving to achieve 500 GW of renewable energy capacity by 2030, imposing anti-dumping duties could disrupt the sector's growth. "The timing couldn't be worse," said an industry expert. "High import tariffs would escalate project costs, delay installations, and hinder the adoption of solar energy across the country. This is counterproductive to our goal of making India a global solar leader."

Favoring a Few?

Critics argue that such duties appear to favor a handful of domestic manufacturers while ignoring the larger market's needs. Some suggest alternatives like Viability Gap Funding (VGF) to support local production without disrupting the industry. "We need solutions that ensure the sustainability of the entire solar ecosystem rather than benefiting just two or three companies," said a prominent solar developer.

Price Surge Fears

Domestic manufacturers have hinted at gradual price increases, citing reduced sales volumes due to the high costs of imported panels. This raises concerns that the anti-dumping duty could lead to

inflated prices for consumers and developers alike. Industry players warn that such actions could erode the demand for solar installations, further dampening the market.

Need for Consultation and Phased Implementation

Experts suggest that imposing such duties requires careful planning and a consultative process, involving all stakeholders, including manufacturers and developers. "A duty of this magnitude should take at least 6-8 months to implement, with inputs from manufacturers and developers. Abrupt decisions can destabilize the market," noted a policy analyst.

Atmanirbhar Bharat or Market Disruption?

While the anti-dumping duty aligns with the government's vision of Atmanirbhar Bharat, critics argue that it could have the opposite effect. Instead of promoting self-reliance, the policy might discourage investments and slow down India's transition to clean energy. A balanced approach is needed to ensure that domestic manufacturing grows without jeopardizing India's renewable energy ambitions.

As the debate unfolds, the solar industry awaits clarity on the government's roadmap, hoping for policies that prioritize long-term growth and sustainability over short-term gains. **STAY CONNECTED**



RSA KNOWLEDGE ADDA

SOLAR INVERTER: THE HEART OF SOLAR POWER SYSTEMS

A solar inverter is a critical component of any solar power system, converting the direct current (DC) electricity generated by solar panels into alternating current (AC), which powers most appliances and is compatible with the electrical grid.

TYPES OF SOLAR INVERTERS

1. String Inverters:

- Commonly used in residential and commercial systems.
- Connects multiple panels in series, feeding power to a single inverter.
- Cost-effective but sensitive to shading issues.

2. Microinverters:

- Installed on individual panels.
- Maximizes energy output, especially in shaded conditions.
- Offers greater flexibility but at a higher cost.

3. Hybrid Inverters:

- Combines solar energy with battery storage.
- Ideal for maximizing self-consumption and ensuring backup power during outages.

4. Central Inverters:

- Used in large-scale solar farms.
- Handles high power loads efficiently.

Key Features

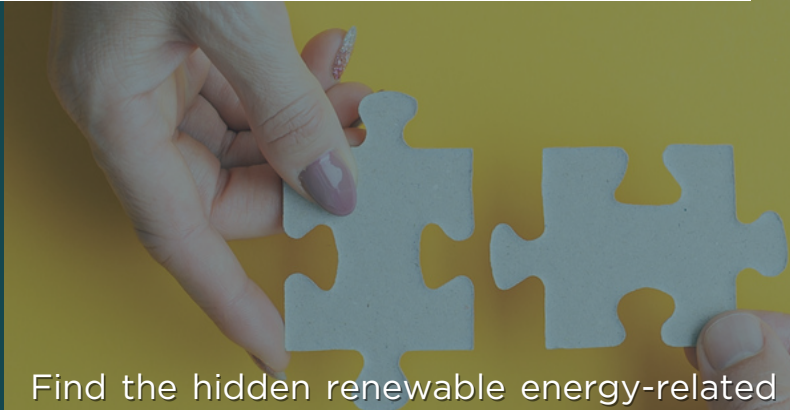
Maximum Power Point Tracking (MPPT): Ensures optimal energy harvest from solar panels. Efficiency Ratings: Modern inverters offer efficiency levels of 96-98%, minimizing energy loss. Smart Technology Integration: Equipped with monitoring capabilities for real-time performance tracking. Grid-Tied vs. Off-Grid Options: Supports seamless integration with the grid or independent systems for remote locations.

IMPORTANCE IN SOLAR SYSTEMS

- Converts unusable DC power to usable AC power.
- Enhances system efficiency through MPPT.
- Facilitates grid interaction and ensures compliance with regulations.
- Protects against power surges and optimizes energy output.

With advancements like bifacial panels, energy storage systems, and IoT-enabled inverters, solar inverters are evolving to meet the demands of smarter, more efficient energy solutions. Their role as a bridge between renewable energy generation and practical usage makes them indispensable in the journey toward a sustainable future.

Mind Marathon



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Find the hidden renewable energy-related words in the grid below. Words can appear **horizontally, vertically, diagonally, or backward**.

How to Play:-

1. Look for the words in the Word List hidden within the grid.
2. Circle or highlight the words as you find them.
3. Try to find all 12 words



RAJASTHAN VS. INDIA: RENEWABLE ENERGY FACTS AND FIGURES

1. TOTAL RENEWABLE ENERGY CAPACITY

Rajasthan: 29,855.43 MW (15% of India's total).
India: 1,99,548.63 MW.

Fact: Rajasthan alone contributes nearly 1/6th of India's renewable energy capacity, showcasing its leadership in the sector.

2. SOLAR POWER CAPACITY

Rajasthan: 21,815.82 MW (Ground-Mounted Solar).
India: 94,191.09 MW (all solar categories combined).

Fact: Rajasthan accounts for over 23% of India's total solar capacity, cementing its position as the solar hub of the nation.

3. WIND ENERGY CAPACITY

Rajasthan: 5,195.92 MW.
India: 47,192.53 MW.

Fact: Rajasthan contributes more than 11% of India's wind energy, leveraging its vast desert landscape for wind projects.

4. PM-KUSUM SCHEME

Rajasthan: 1,990 MW under solarization of agriculture pumps.
India: 3,764.61 MW.

Fact: Rajasthan leads the nation in PM-KUSUM implementation, with 53% of India's total capacity under this scheme, empowering farmers with sustainable energy solutions.



KEY TAKEAWAY

Rajasthan's renewable energy capacity is a shining example, driving India's green transition with unmatched leadership in solar and significant contributions in wind and other renewable sources.

With its vast potential and aggressive policies, Rajasthan is emerging as the engine of India's renewable energy revolution, contributing to national and global sustainability goals.

"Rajasthan doesn't just power India; it empowers the planet!"

ISTS Projects: A Boon for the Nation, But a Loss for Rajasthan?

Rajasthan has emerged as the backbone of India's renewable energy ambitions through large-scale Inter-State Transmission System (ISTS) projects. While these initiatives cater to national energy goals by transmitting renewable power across state borders, they raise pressing concerns about their benefits—or lack thereof—for the people of Rajasthan.

Despite Rajasthan's role as a renewable energy leader, local stakeholders have voiced multiple grievances:

- 1. Minimal Local Procurement Benefits:** A significant portion of procurement for ISTS projects is done outside Rajasthan, leaving local MSMEs without opportunities to contribute or benefit. Ensuring local procurement and prioritizing MSMEs would stimulate the state's economy.
- 2. Employment Concerns:** Employment generated by ISTS projects largely bypasses the local workforce. Mandating that all employment opportunities prioritize local talent could address this issue.
- 3. CSR in Project Areas:** Corporate Social Responsibility (CSR) activities under ISTS projects often lack focus on the areas directly impacted by these projects. CSR efforts should be undertaken in a cluster-based format, benefiting communities around the project areas.
- 4. Precious Land at Stake:** The extensive use of Rajasthan's precious land for ISTS projects raises sustainability concerns. Optimizing land usage and identifying alternative solutions is imperative to preserve the state's resources.
- 5. Government Land Policy:** From the state's perspective, ISTS projects should not be allowed on government land. Such land should be reserved exclusively for state-led renewable energy projects to prioritize Rajasthan's energy needs.
- 6. Stringent Developer Selection:** Given Rajasthan's limited land and infrastructure, ISTS projects should be awarded only to experienced and credible companies to ensure efficient use of resources.
- 7. Future Land and Infrastructure Limitations:** With the rapid consumption of land and infrastructure for ISTS projects, Rajasthan faces a potential crisis. In 8 to 10 years, the state may lack sufficient land and electricity infrastructure for its own use, making these projects a short-term gain but a long-term challenge.

Conclusion: ISTS projects, while beneficial for the nation, fail to provide adequate advantages to Rajasthan and its people. To balance national goals with state interests, there should be reservations for power generation within the state, distributed to the local State Transmission Utility (STU). Local procurement, employment, and CSR should be mandatory, while government land should be reserved for state-led projects. The focus must shift toward sustainable infrastructure and resource optimization, ensuring that Rajasthan's future needs are not compromised.

Jaipur, December 23, 2024 – In a significant move reflecting Rajasthan's progressive vision, Chief Minister Shri Bhajan Lal Sharma unveiled transformative initiatives to honor the contributions of the state's diaspora and strengthen global ties.

December 10 Declared as Pravasi Diwas

In a historic announcement, the Chief Minister declared December 10 as Pravasi Diwas, a day dedicated to recognizing and celebrating the invaluable contributions of Rajasthan's non-resident community to the state's development. This annual event will feature cultural programs, discussions, and initiatives aimed at leveraging the expertise and resources of the diaspora to propel Rajasthan's growth. Speaking on the occasion, the Chief Minister emphasized, "Pravasi Diwas is not just a celebration; it is a platform to reconnect with our roots and harness the immense potential of our diaspora to transform Rajasthan into a global hub of opportunity and innovation."

A New Department for Non-Resident Rajasthani Affairs

Adding to this landmark decision, the Chief Minister also announced the creation of a dedicated department for Non-Resident Rajasthani Affairs. This specialized body will focus on addressing the concerns of overseas Rajasthani communities, streamlining communication, and facilitating services

to strengthen their bond with the state. The department will serve as a bridge, fostering cultural and economic collaboration on a global scale.

Cultural and Economic Impact

These initiatives are expected to catalyze Rajasthan's growth by attracting investments, fostering innovation, and encouraging cultural exchanges. Pravasi Diwas will not only celebrate the achievements of the diaspora but also inspire them to contribute actively to the state's progress in areas such as education, healthcare, renewable energy, and infrastructure.

Celebrating Progress

The Rising Rajasthan initiative exemplifies the state's commitment to inclusive development and global connectivity. With a focus on integrating the contributions of its global community, Rajasthan continues to pave the way for a brighter and more prosperous future, solidifying its reputation as a land of culture, heritage, and opportunity. Rajasthan is rising, and its global community is leading the way!





RUN FOR GREEN ENERGY MARATHON WITNESSES GRAND INAUGURATION BY DIGNITARIES

Jaipur, December 23, 2024 – In a landmark event promoting sustainability and renewable energy, the **“Run for Green Energy Marathon”** was inaugurated by **Shri Heeralal Nagar**, Honorable Energy Minister, and **Smt. Somya Gurjer**, Honorable Mayor of Greater Jaipur. The event was further graced by the presence of RSA President Sunil Bansal, CEO Nitin Agarwal, and leading sponsors including Watt Power, Evren, Gautam Solar, Solar91, and Stockwell. The marathon, which aimed to raise awareness about the importance of green energy, saw enthusiastic participation from over 1,000 individuals from diverse backgrounds, including professionals, students, and green energy advocates.

A Remarkable Participant

Adding an inspiring touch to the event was 60+ year-old retired director of RECR, Sh. Naresh Parnami, who completed the marathon with remarkable energy and spirit. Sharing his experience, he said, “Started on the university sports track, ran 14.03 km there, and then participated in the ‘Run for Green Energy’ organized by the Rajasthan Solar Association on JLN Marg. Completed the 21.69 km run in 2:31:59 hours. Took a selfie with friends Vinod, Malaram, and Anil, whom I met during the run. One thought: Get going! Achieve the target!” His determination and message resonated deeply with the participants, symbolizing the essence of perseverance and commitment to a sustainable future.

Prizes and Highlights The winners of the marathon were felicitated with cash prizes:

- 1st Prize: ₹11,000- 2nd Prize: ₹5,100 -3rd Prize: ₹3,100

RAJASTHAN SOLAR ASSOCIATION HOSTS GRAND MEMBER MEET AT HOTEL HILTON, JAIPUR

Jaipur : The Rajasthan Solar Association (RSA) hosted a grand Member Meet on November 20th at the prestigious Hotel Hilton in Jaipur. The event brought together leading industry stakeholders, policymakers, and innovators from the renewable energy sector for a memorable evening of discussions, networking, and camaraderie.

Event Highlights:

Industry Insights: Esteemed speakers shared updates on Rajasthan’s growing role as a solar energy leader and explored strategies to accelerate renewable energy adoption.

Exclusive Networking: Over 250 RSA members, including solar developers, manufacturers, and R&D professionals, exchanged ideas and explored collaborations to advance the sector.

Strategic Announcements: RSA highlighted the progress of its R&D center at BAP, Jodhpur, and outlined its Vision 2030 roadmap to enhance solar capacity and promote sustainable innovations.

The event concluded with a grand dinner, offering members an opportunity to connect in an informal setting, celebrate shared achievements, and strengthen their commitment to building a greener future.

The RSA Member Meet once again demonstrated the association’s pivotal role in uniting the solar industry and solidifying Rajasthan’s position as India’s renewable energy hub.



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