ENERGY WINDOW

AEE KOLKATA CHAPTER NEWSLETTER

IISWBM

Association of Energy Engineers

CWEEL

March
2026

TABLE OF

Contents

Student Editorial Team
Debdeep Ghosh (Designer), Anish Kandar

It gives me immense pride to witness the launch of the latest issue of "Energy Window". Since its inception in 1953 as India's first management institute, IISWBM has been at the forefront of bridging social responsibility with professional excellence. Our MBA in Public Systems (Energy Management) - the only course in India recognized by the Association of Energy Engineers (AEE), USA - is a testament to our commitment to creating world-class energy professionals.

The 2026 energy landscape is defined by "brutal execution". As we navigate record-breaking renewable growth and unprecedented geopolitical supply shocks, the dialogue between academia and industry becomes our most critical asset. Whether we are discussing the "50% non-fossil capacity milestone" in India or the commercial debut of "sodium-ion batteries", our students must be the ones translating these headlines into actionable strategy.

This news bulletin is more than just a publication; it is a platform for "traditional ecological intelligence". I urge our student members to use this window to showcase their capabilities on the global stage, collaborate with international fellows, and lead the charge toward India's "Net-Zero" goals.

I wish the Student Editorial Team every success in this endeavor.

PROF (DR.) KM AGARWAL
DIRECTOR, IISWBM
PRESIDENT, AEE KOLKATA CHAPTER

It is heartening to see the student community at IISWBM taking another proactive role in fostering academic-industry dialogue through the ‘Energy Window’ newsletter both of our Professional as well as the Student Chapter. As the global energy sector has transitioned from a period of "headline ambition" to one of “robust execution"—balancing record-breaking renewable additions with the resurgence of fossil fuel volatility—the need for skilled, visionary energy professionals has never been more urgent for both 3Ps and all three verticals of ESG.

Our department’s mission has always been to bridge the gap between social welfare and professional management. In 2026, this mission manifests as an "energy trilemma": balancing security and equity while meeting strict environmental sustainability targets. Publications like this serve as a vital platform for the next generation of leaders to explore transformative tools—from ‘Energy Auditing’ and ‘ESCO models’ to emerging technologies like ‘carbon sequestration’ and ‘green hydrogen’.

I encourage all students to remain ambassadors of efficiency. Use these pages to spark innovation, challenge the linear "extract-use-discard" model, and champion the transition toward a resilient, Net-Zero Circular-Economy future.
Congratulations to the student editorial team for documenting this pivotal moment in our industry’s history.

Prof. Dr. Binoy Krishna Choudhury
Professor – Energy Management (PS Department), IISWBM
Vice President – AEE Asia Subcontinent
Accredited Energy Auditor (BEE) & CEA/CEM/REP Trainer (AEE)

To the Student Editorial Team,

It is a matter of great satisfaction to witness the continued publication of Energy Window, a platform that reflects the intellectual curiosity, commitment, and professional spirit of our student community. In a time when the global energy sector is undergoing rapid transformation, initiatives such as this newsletter play an important role in connecting classroom learning with real-world developments.

The year 2026 presents both challenges and opportunities for the energy fraternity. Nations are accelerating renewable energy deployment, industries are adapting to carbon disclosure requirements, and new technologies such as battery storage, hydrogen ecosystems, smart grids, and digital energy management are reshaping the future. Alongside these developments, issues of affordability, reliability, and sustainability remain central to policy and business decisions.

In this evolving environment, young professionals must go beyond academic knowledge and cultivate analytical thinking, industry awareness, and the ability to communicate ideas effectively. Energy Window provides exactly such an avenue. It enables students to interpret emerging trends, share insights, and contribute meaningfully to discussions on energy efficiency, ESG, decarbonisation, circular economy practices, and sustainable growth.

I encourage the editorial team to continue this excellent effort with originality, discipline, and vision. Let this publication become a forum where ideas are exchanged, leadership is nurtured, and future energy professionals find their voice.
My best wishes to the entire Student Editorial Team for the success of this edition and for many more milestones ahead.

Dr. Arindam Dutta
Associate Professor & Coordinator
Department of Energy Management, IISWBM
Certified Energy Auditor | Lead Auditor (ISO 50001, 14064, 14067)
Secretary, Association of Energy Engineers (AEE–USA), India/Kolkata Chapter

To the Student Editorial Team,

It is a pleasure to witness the release of the latest issue of Energy Window, a platform that reflects the enthusiasm, analytical thinking, and commitment of our student community toward the evolving energy sector. Initiatives like this play a vital role in connecting academic learning with real-world energy transitions and sustainability challenges.

As Treasurer of the AEE Kolkata Chapter and Lead Officer of CWEEL, I strongly believe in promoting capacity building, inclusive leadership, and knowledge exchange that empower young professionals—particularly emerging leaders - to actively participate in the global energy transition. I especially encourage young energy leaders, and women professionals in particular, to actively engage, lead conversations, and shape a more inclusive and sustainable energy future.

The contemporary energy landscape is shaped by rapid renewable expansion, technological innovation, and an increasing emphasis on sustainability and resilience. Students must therefore move beyond theory and translate emerging developments into practical insights and actionable solutions.
Energy Window serves as an important medium for fostering collaboration, encouraging research-driven dialogue, and nurturing leadership among future energy professionals. I encourage the editorial team to continue using this platform to share ideas, build professional networks, and contribute meaningfully toward India's sustainable energy and Net-Zero aspirations.
My sincere congratulations and best wishes to the entire Student Editorial Team for this commendable initiative.

Prof. Piyali Sengupta
Assistant Professor – Energy Management
PS Department, IISWBM
Treasurer, AEE (USA) Kolkata Chapter
Lead Officer, CWEEL (USA) Kolkata Group

To the Student Editorial Team,

It is truly encouraging to see Energy Window evolving as a thoughtful and engaging platform that reflects the analytical depth and commitment of our student community. The current energy landscape is marked by rapid transitions, driven by renewable expansion, technological innovation, and the pressing need to balance sustainability, energy security, and affordability.

In this context, your work goes beyond a conventional newsletter. It serves as a bridge between academic learning and real-world energy challenges, effectively capturing key developments, from global energy shifts to India's significant progress in non-fossil capacity and clean energy initiatives. Such efforts are essential in shaping informed, future-ready energy professionals.

I encourage you to continue exploring emerging domains like energy efficiency, green hydrogen, storage technologies, and digital energy systems. More importantly, strive to critically analyze developments and translate them into actionable insights.

As future leaders in the energy sector, you have a vital role in driving innovation and contributing to a sustainable and resilient energy future. My sincere appreciation and best wishes to the entire editorial team for this commendable initiative.

Dr. Dipanjan Bose
Assistant Professor, Energy Management
IISWBM, Kolkata

ABOUT **AEE**

Empowering the professionals who power the world through efficiency and innovation

The Association of Energy Engineers (AEE) is a leading professional society dedicated to the advancement of the energy industry and the promotion of sustainable development. Founded in 1977 by Albert Thumann, it has grown into a global network of over 18,000 members across more than 100 countries. The organization serves as a vital hub for engineers, architects, government officials, and corporate energy managers who are focused on energy efficiency, decarbonization, and power management.

AEE's primary mission is to promote the scientific and educational interests of those engaged in the energy industry and to foster action for sustainable development. As the global landscape shifts toward "Net Zero" targets and renewable integration, AEE provides the technical framework and professional standards necessary to navigate these complex transitions.

Association of Energy Engineers®

Kolkata Chapter

NetZero Conference Held in IISWBM, Kolkata on 30th August 2025, attended by AEE Preident Mr. Kaushik Bhattacharjee, Mr. Ashok Kumar Deputy Director General of BEE India, Er. Brajesh Singh MD (Generation) CESC, Mr. Tapan Kumar Bandopadhyay Executive Director Sustainability Environment NTPC

The Association of Energy Engineers (AEE) offers a suite of specialized certifications designed to validate expertise across various niches of the energy sector. The Certified Energy Manager (CEM) remains the global gold standard, focusing on a holistic approach to energy management, encompassing electrical systems, HVAC, and energy procurement. For those more technically inclined toward diagnostics, the Certified Energy Auditor (CEA) credential focuses on the rigorous processes of identifying energy-saving opportunities and calculating the ROI of energy-efficient retrofits.

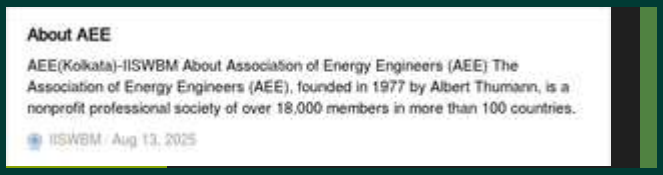
In the realm of sustainability, the Renewable Energy Professional (REP) certification addresses the integration of solar, wind, and bioenergy into existing grids. Meanwhile, the Certified Carbon Auditing Professional (CAP) is increasingly vital for firms navigating "Net Zero" mandates and carbon footprint reporting. To ensure that projected savings are actually realized, the Certified Measurement & Verification Professional (CMVP) provides the standardized framework (IPMVP) for quantifying performance. These programs are often integrated into university curricula, such as the MBA in Public Systems at IISWBM, providing students with an elite dual-qualification that bridges technical auditing skills with high-level corporate energy strategy.

Every year students from IISWBM Energy Management get selected for AEE Foundation Scholarship of $1000, this year our students Doddy Daniel Murthy and Arpan Singha selected for this prestigious award.

IISWBM

The Indian Institute of Social Welfare and Business Management (IISWBM) in Kolkata holds the historic distinction of being the first management institute in India, established in 1953. Formally inaugurated by Pandit Jawaharlal Nehru, it was founded to bridge the gap between social welfare and professional management.

Affiliated with the University of Calcutta, the institute is widely respected for its flagship MBA program, as well as specialized courses in Human Resource Management, Public Systems, and Supply Chain Logistics. Its location in the academic heart of College Square reinforces its legacy as a premier destination for students seeking quality management education with a strong emphasis on social responsibility and industry integration



The MBA in Public Systems (Energy Management) at IISWBM is a premier two-year, full-time program approved by AICTE and affiliated with the University of Calcutta. Launched in 1993, it is uniquely recognized as the only course in India approved by the Association of Energy Engineers (AEE), USA.
The curriculum harmonizes technical and managerial skills, focusing on energy conservation, renewable energy, carbon markets, and green building. Students benefit from a strong industry interface, including international scholarships from AEE. With a consistent placement record in consulting firms like the "Big 4" and power trading sectors, it remains a top choice for aspiring energy professionals.

Shaping a Sustainable Future: Navigating the Global Energy Transition

Debdeep Ghosh
Student, MBA (PS) Energy

The global energy landscape is currently navigating one of the most significant shifts in modern history. As nations grapple with the dual challenges of meeting rising demand and mitigating the escalating climate crisis, the "energy trilemma" balancing security, equity, and environmental sustainability - has become the focal point of international policy and industrial strategy.

Currently, the world is in a state of rapid transition. While fossil fuels still account for a significant portion of the global primary energy mix, their dominance is being challenged by an unprecedented surge in clean energy investment. Volatile fuel prices and geopolitical instabilities have accelerated the drive toward energy independence, pushing many regions to fast-track their decarbonization goals.

According to recent data, global renewable capacity additions are reaching record highs annually. Solar PV and wind power have emerged as the cheapest sources of new electricity generation in a majority of countries. However, the transition isn't just about adding new capacity; it’s about a fundamental redesign of how energy is produced, distributed, and consumed.

Electricity is the backbone of modern society, and as we move toward the electrification of transport (EVs) and heating, the demand for power is set to skyrocket. Sourcing this electrical energy from renewables is no longer an "alternative" choice; it is a necessity for several reasons:

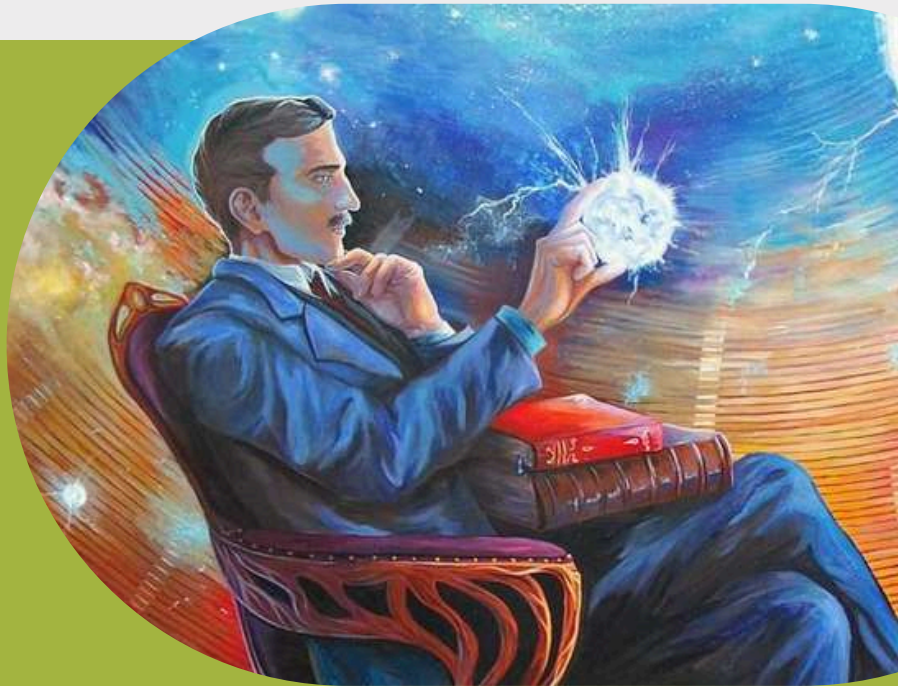
- To limit global warming to 1.5 Degree C, the power sector must be the first to reach net-zero emissions.
- Utilizing localized renewable resources - sun, wind, and water -reduces dependency on complex global supply chains and imported fuels.
- Renewable energy creates jobs and stabilizes long-term energy costs, protecting economies from the "price shocks" associated with oil and gas markets.

While the source of energy is vital, its efficient utilization is equally critical. For those of us studying Energy Management, we recognize that the cleanest kilowatt-hour is the one that is never used. This is where the discipline of Energy Auditing becomes a transformative tool.

An energy audit serves as a diagnostic roadmap for any organization. By systematically analyzing energy flows, identifying leakages, and evaluating the performance of equipment, audits turn "invisible" waste into actionable savings. In the context of MSMEs and large-scale industries alike, implementing low-cost efficiency measures and optimizing micro-cluster energy use can lead to substantial reductions in carbon footprints without compromising productivity.

As we delve deeper into these shifts, staying informed on localized and global developments is essential for the next generation of energy professionals. In this issue of Energy Window, we will explore some of the latest news related to energy, ranging from breakthroughs in storage technology to new policy frameworks. Furthermore, we are proud to feature two insightful articles by our students that tackle specific challenges and innovations in the field.

If you want to find the secrets of the universe, think in terms of energy, frequency and vibration.



The Ancestral Blueprint

By Anwesha Roy
Student (1st Year), MBA (PS) Energy

Sustainability is often framed as a modern response to the climate crisis, yet its foundations are as old as humanity itself. Since the dawn of the first humans, survival was predicated on a symbiotic relationship with nature. Hunter-gatherer societies operated on a "take only what you need" philosophy, a primitive but profound form of resource management. As we navigate the complexities of the 21st century, the path forward requires us to look backward, integrating ancestral wisdom with modern innovation.

Sustainability is often framed as a modern response to the climate crisis, yet its foundations are as old as humanity itself. Since the dawn of the first humans, survival was predicated on a symbiotic relationship with nature. Hunter-gatherer societies operated on a "take only what you need" philosophy, a primitive but profound form of resource management. As we navigate the complexities of the 21st century, the path forward requires us to look backward, integrating ancestral wisdom with modern innovation.

In the pre-industrial era, humans viewed themselves as a part of nature rather than its masters. Ancient civilizations mastered "circularity" long before it became a corporate buzzword. The Maya used the "Three Sisters" (maize, beans, and squash) polyculture to maintain soil health, while the Incas engineered terraces to prevent erosion. These were not just survival tactics but intentional behaviors rooted in an understanding of carrying capacity and ecological limits.

As we transitioned into the industrial age, this connection fractured, replaced by a linear "extract-use-discard" model. Today, incorporating sustainability into daily life means reclaiming that lost mindfulness—choosing repair over replacement, seasonal consumption over globalized convenience, and community sharing over individual excess.

India stands as a unique repository of living sustainability. Historically, Indian ethos has been defined by Prakriti (Nature) and the principle of Ahimsa (non-violence) toward all living beings. From the sophisticated rainwater harvesting systems of the Indus Valley to the sacred groves (Devrai) protected for centuries, India's contribution is a model of "frugal innovation."

The concept of "Jugaad" or resourcefulness—repurposing an old saree into a quilt or using copper vessels for natural water purification—reflects a deeply ingrained culture of waste minimization. Furthermore, India's global leadership in the "International Year of Millets" (2023) highlights a return to climate-resilient, indigenous crops that require minimal water compared to modern staples. In the modern age, India's "LiFE" (Lifestyle for Environment) mission, introduced at COP26, formalizes these traditional habits into a global movement for mindful consumption.

The Western Perspective: Modern Adaptations

While Eastern traditions emphasize continuity and spiritual connection, the Western world has popularized sustainability through structured "Green Living" movements. The most popular trends currently include:

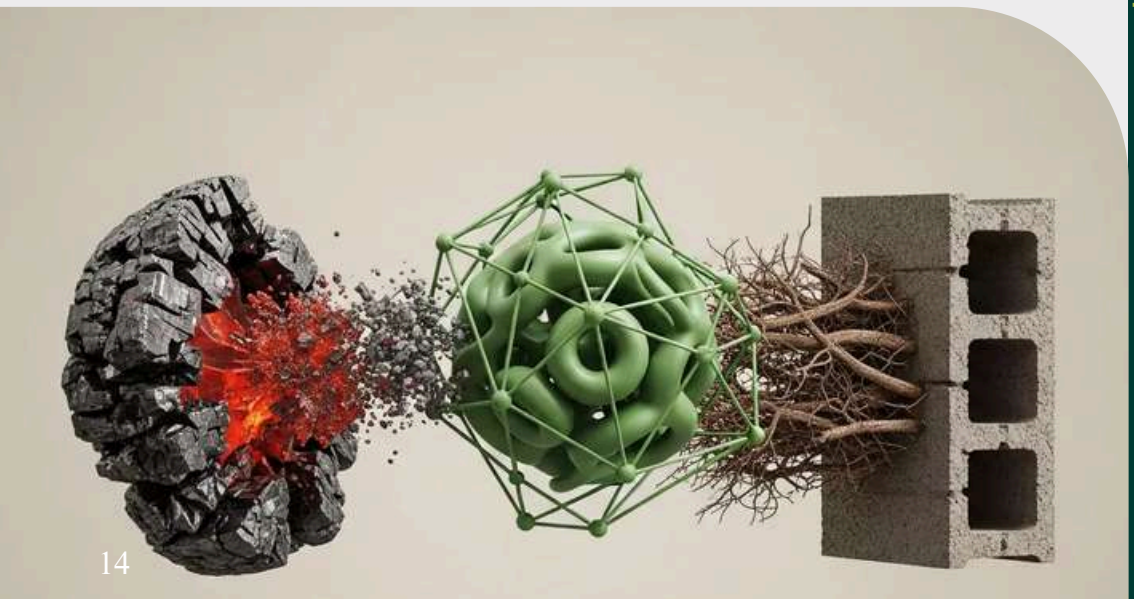
- Zero-Waste Movement: Popularized in Europe and North America, focusing on eliminating single-use plastics and embracing the "5 Rs": Refuse, Reduce, Reuse, Repurpose, and Recycle.
- The Minimalist Movement: A psychological shift away from consumerism, emphasizing that "less is more" to reduce one's carbon footprint.
- Plant-Based Transition: A significant shift in Western diets toward veganism or "flexitarianism" to mitigate the environmental impact of industrial meat production.

Conclusion

Incorporating sustainability in the modern age is not about regressing to a primitive state; it is about "traditional ecological intelligence." Whether it is adopting the Indian habit of bucket baths to save water or the Western practice of carbon tracking, the goal remains the same: to live within the Earth's means. For the modern student, the challenge is to blend these ancient values with contemporary technology, ensuring that our progress does not come at the cost of our planet's future.

Sustainability is no longer about doing less harm. It's about doing more good.

JOCHEN ZEITZ



YEAR

Top 50 Energy Updates

1 GLOBAL RENEWABLE CAPACITY SURPASSES 5 TW MILESTONE

In 2025, global renewable power capacity reached a historic 5149 GW after a record increase of 692 GW, reflecting a 15.5% annual growth rate. This achievement underscores a clear market preference for decentralized, homegrown energy sources that mitigate exposure to volatile international fuel markets. Renewables now account for 49.4% of total installed global electricity capacity as of early 2026.

2 THE 2026 GLOBAL SOLAR INSTALLATION SLOWDOWN

Forecasters project the first annual decline in global solar additions in 2026, with installations expected to drop by nearly 10%. This reversal is primarily attributed to a sharp contraction in the Chinese market, where annual additions are falling from 300 GW to 200 GW following a mid-2025 shift from guaranteed pricing to competitive bidding and ultra-thin supply chain margins.

3 AFRICA'S RECORD-BREAKING RENEWABLE GROWTH

Africa experienced its largest renewable capacity growth on record in 2025, adding 11.3 GW, a 15.9% increase. Driven by major projects in Ethiopia, South Africa, and Egypt, this expansion highlights the continent's potential to leapfrog traditional fossil fuel infrastructure. Solar imports to Africa rose 60% by mid-2025, signaling a rapid shift toward sustainable, decentralized power in emerging markets.

4 MIDDLE EAST LEADS IN PERCENTAGE GROWTH RATE

The Middle East recorded the world's highest regional growth rate for renewables in 2025 at 28.9%, adding 12.7 GW. Saudi Arabia accounted for the majority of this expansion, reflecting a strategic pivot by traditional oil exporters to diversify domestic energy mixes. This growth underscores how energy security concerns are driving even resource-rich nations toward rapid solar and wind deployment.

5 EU SOLAR POWER AS AN ECONOMIC SHIELD

During the 2026 Middle East energy crisis, EU solar power installations saved the bloc over 100 million per day by reducing the need for expensive gas-fired generation. In June 2025, solar became the single largest source of power in the European Union, demonstrating that renewable energy acts as a critical hedge against geopolitical instability and fossil fuel price spikes. The divergence in regional performance suggests that the global energy transition is no longer a monolith. While China and the West navigate policy swings and market volatility, emerging economies in Africa and the Middle East are beginning to accelerate their own deployments, driven by the realization that solar and wind are the fastest and cheapest ways to build resilient national grids.

6 INDIA REACHES 50% NON-FOSSIL CAPACITY TARGET

In June 2025, India achieved a landmark milestone by reaching 50.08% of its total installed electricity capacity from non-fossil fuel sources. Out of a total 484.82 GW, non-fossil capacity stood at 242.78 GW. This accomplishment, reached five years ahead of schedule, underscores India's steadfast commitment to climate action and positions the nation as a premier destination for global green investment.

7 INDIA'S PEAK POWER DEMAND PROJECTIONS

India successfully met an all-time maximum power demand of 250 GW in FY 2024-25. However, the Ministry of Power expects peak demand to escalate to 345 GW by 2030 and 388 GW by 2032. To meet this surge, the government is implementing Resource Adequacy Plans (RAPs) across all states, ensuring that generation capacity remains ahead of the projected consumption curves.

8 EXTENSION OF ISTS CHARGE WAIVERS IN INDIA

The Indian government has extended the 100% Inter-State Transmission System (ISTS) charge waiver for solar and wind projects commissioned by June 30, 2025. The waiver will taper off by 25% annually until 2028. This policy is designed to facilitate the seamless inter-state sale of renewable power, making large-scale projects in resource-rich states like Rajasthan and Gujarat more economically viable. The rapid growth of India's renewable sector is increasingly being tested by the country's surging electricity demand, which is growing at a rate far above the global average. The interplay between adding massive amounts of variable renewable energy and maintaining grid stability is the primary challenge for Indian policymakers in 2026.

9 INDIA'S MASSIVE UNDER-CONSTRUCTION RE PIPELINE

As of early 2026, India has a robust under-construction renewable capacity of over 154 GW, including 64.6 GW of solar and 59.9 GW of hybrid power. An additional 47.9 GW is in various stages of planning. This pipeline ensures that India remains on track to meet its long-term net-zero goals while addressing the immediate energy needs of its expanding industrial base.

10 INDIA'S STRATEGIC COAL CAPACITY ADDITIONS

To ensure grid stability during the transition, India's Ministry of Power plans to add 97000 MW of new coal and lignite-based thermal capacity by 2034-35. This strategy recognizes that while renewables are the future, firm baseload power remains essential for managing peak demand and providing frequency regulation until long-duration energy storage reaches commercial maturity and scale.

11 PM SURYA GHAR REACHES 2.6 MILLION INSTALLATIONS

As of March 19, 2026, the PM Surya Ghar Muft Bijli Yojana has facilitated over 2.6 million rooftop solar installations across India. Since its launch in February 2024, the government has disbursed ₹17967 crore in Central Financial Assistance. The scheme aims to reach 10 million households by FY 2026-27, potentially reducing 720 million tons of CO2 over 25 years.

12 GUJARAT LEADS NATIONAL ROOFTOP SOLAR ADOPTION

Gujarat remains the top-performing state under the PM Surya Ghar scheme, with 594899 installations and over ₹4330 crore in released subsidies as of March 2026. The state's success is attributed to its mature solar ecosystem, streamlined approval processes, and high consumer awareness, serving as a blueprint for other states to accelerate their own distributed energy transitions.

13 ZERO ELECTRICITY BILLS FOR 7.7 LAKH INDIAN HOUSEHOLDS

The PM Surya Ghar scheme has already enabled more than 7.7 lakh households across India to achieve zero electricity bills. By generating their own power, these residential consumers are effectively insulated from rising grid tariffs. This tangible economic benefit is driving a massive surge in applications, with the average processing time for subsidies now reduced to 15 days.

14 AUTOMATED LOAD ENHANCEMENT FOR INDIAN SOLAR

To expedite rooftop solar adoption, the Indian government has introduced automatic load enhancement of up to 10 kW for residential consumers. This eliminates the need for prior technical feasibility studies for small-scale systems, significantly speeding up the approval process. This policy shift reflects a move toward "presumptive approval" to meet the ambitious 10-million-household target.

15 EMPLOYMENT GENERATION VIA INDIA'S SOLAR PUSH

The PM Surya Ghar Muft Bijli Yojana is estimated to have created over million jobs in the rooftop solar value chain, including manufacturing, installation, and maintenance. This localized job creation is a critical component of India’s energy transition strategy, ensuring that the shift to renewables provides broad-based economic opportunities across both urban and rural areas.

16 ELECTROLYSER MANUFACTURING AWARDS IN INDIA

Under the National Green Hydrogen Mission, India has awarded 3000 MW of annual electrolyzer manufacturing capacity to 15 companies. This initiative is designed to build a robust domestic supply chain, reducing reliance on imported components and lowering the overall cost of green hydrogen production for both domestic use and international export markets.

17 INDIA’S GREEN HYDROGEN PRODUCTION INCENTIVES

The Indian government has awarded incentives for a total production capacity of 862000 Metric Tonnes per Annum (MTPA) of green hydrogen to 18 different companies. These projects are strategically located to serve key industrial clusters, including refineries and steel plants, facilitating the transition toward low-carbon manufacturing and heavy-duty transport.

18 SECI DISCOVERS PRICES FOR GREEN AMMONIA SUPPLY

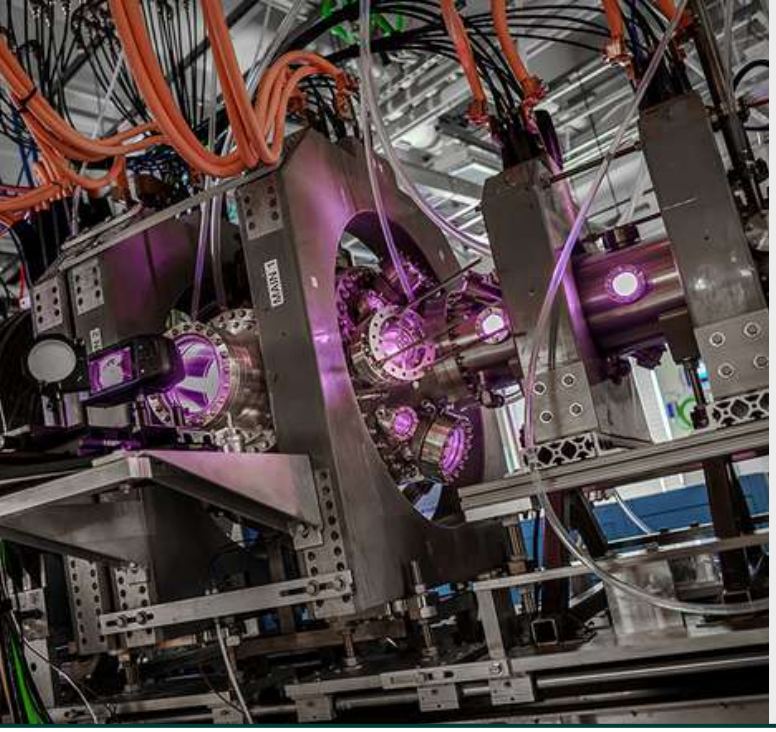
The Solar Energy Corporation of India (SECI) has successfully discovered prices for the supply of 724000 MTPA of green ammonia to 13 fertilizer units across the country. This marks a significant step in decarbonizing India's agriculture sector by replacing fossil fuel-based ammonia with green alternatives, thereby improving the nation's food and energy security simultaneously.

19 GREEN HYDROGEN INTEGRATION IN INDIAN REFINERIES

India has awarded contracts for the supply of 20000 tonnes per annum of green hydrogen to major refineries, including Indian Oil Corporation (IOC), Bharat Petroleum (BPCL), and Hindustan Petroleum (HPCL). Additionally, 10000 tonnes per annum have been allocated to the Numaligarh Refinery in Assam, demonstrating the feasibility of hydrogen for industrial-scale decarbonization.

20 NTPC REL GREEN AMMONIA DEAL FOR FERTILIZER UNITS

NTPC Renewable Energy Limited (NTPC REL) executed a Green Ammonia Purchase Agreement (GAPA) with SECI in April 2026 to supply 70000 tonnes per annum of green ammonia. This supply is earmarked for Krishna Phoschem Limited in Madhya Pradesh, representing one of the first major commercial-scale green ammonia transactions in the Indian industrial sector.

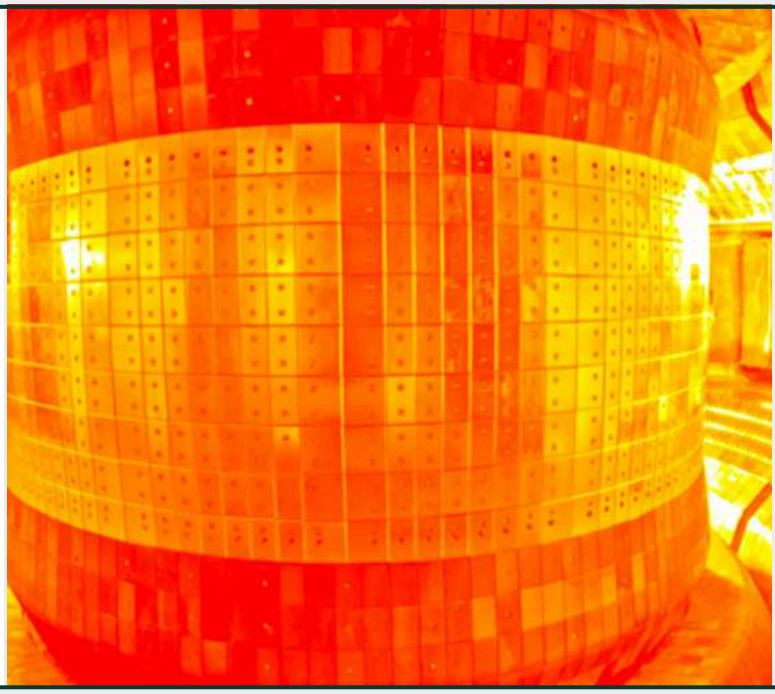


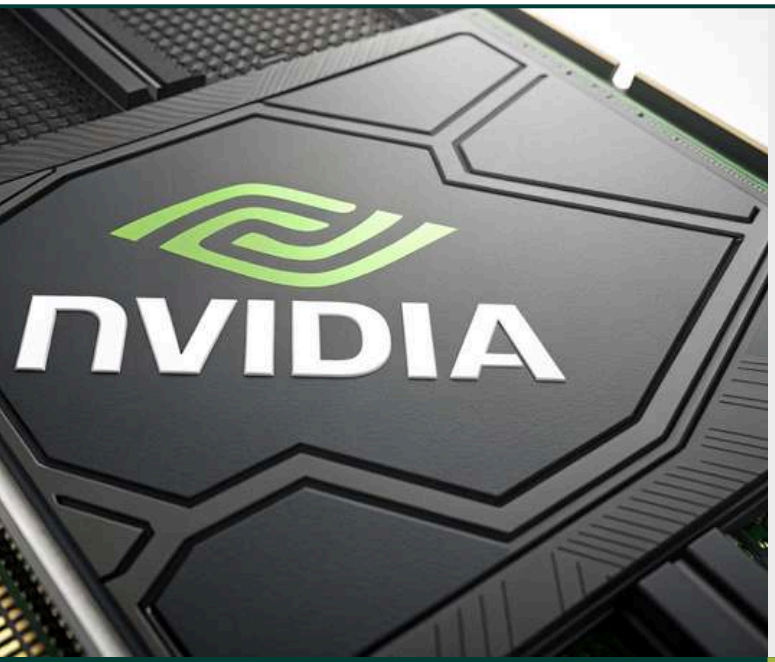
21 HELION'S LANDMARK FUSION INDUSTRY RECORD

In early 2026, fusion energy company Helion announced that its Polaris prototype became the first private machine to achieve plasma temperatures of 150 million degrees Celsius. Furthermore, Helion demonstrated measurable deuterium-tritium (D-T) fusion, validating its path toward delivering commercial electricity to the grid for Microsoft as early as 2028.

22 CHINA'S EAST REACTOR OVERCOMES DENSITY OBSTACLES

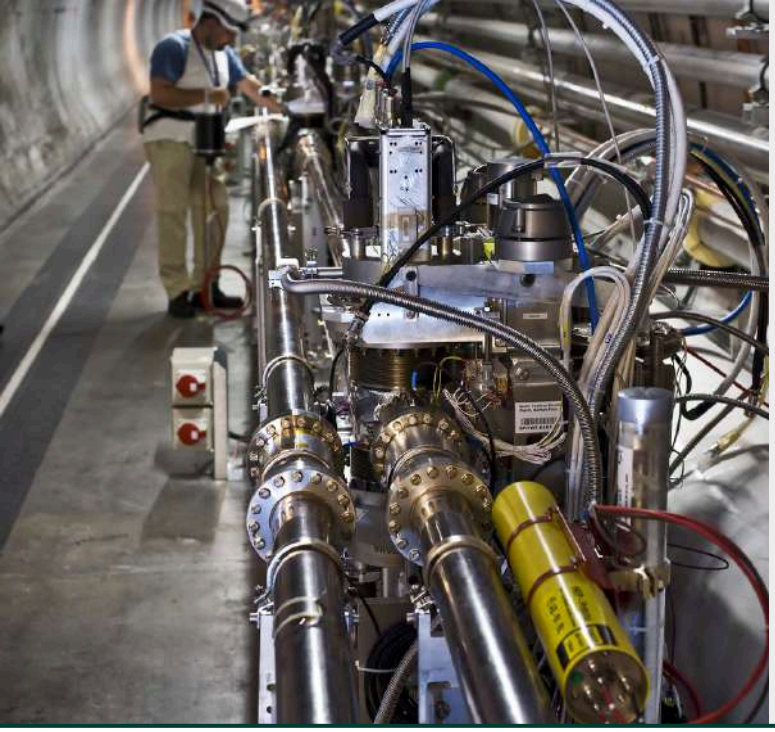
China's Academy of Sciences reported that its "Artificial Sun" fusion reactor, the Experimental Advanced Superconducting Tokamak (EAST), has overcome a major obstacle to scalable fusion by maintaining plasma stability at extreme densities. This scientific breakthrough moves the field closer to sustaining long-duration, high-output fusion reactions for potential utility-scale power generation.





23 GLOBAL PRIVATE FUSION INVESTMENT HITS $10.6 BILLION

Between 2021 and 2025, private funding for fusion projects surged to over $10.6 billion, with the number of involved companies more than doubling to 53. Strategic investments from tech giants like Nvidia and Google, alongside traditional energy firms like Eni, are accelerating the commercialization of magnetic confinement and laser-based fusion technologies.

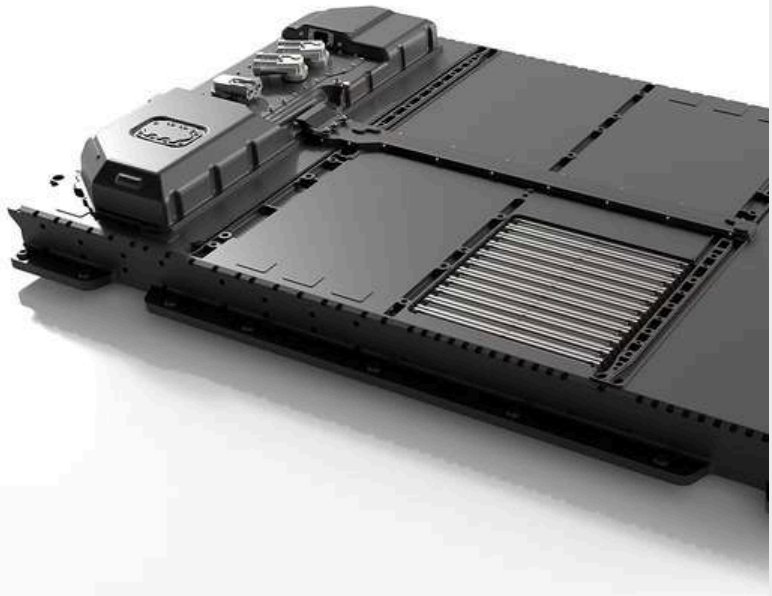


24 UK NUCLEAR ROADMAP AND ROLLS-ROYCE SMRS

The British government has published its "Civil Nuclear Roadmap," aiming to expand generation capacity to 24 GW by 2050. As part of this push, the state-owned Great British Energy-Nuclear has selected Rolls-Royce as the preferred bidder to build the nation's first small modular reactor (SMR) at the Wylfa site, supported by significant government funding.

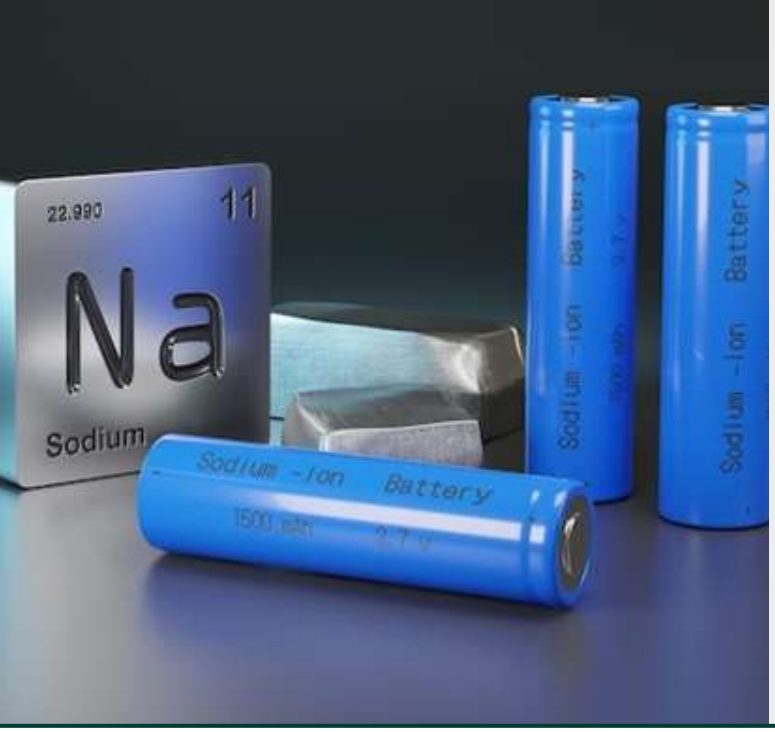
25 FRANCE MAINTAINS HIGHEST NUCLEAR SHARE GLOBALLY

As of 2026, France continues to lead the world with a 66.8% share of nuclear energy in its national electricity mix. With the connection of Flamanville-3 to the grid in late 2024, the French government is moving forward with plans for six to fourteen new EPR-2 reactors to ensure long-term energy sovereignty and climate compliance.



26 SOLID-STATE BATTERIES ENTER PILOT PRODUCTION

In 2026, solid-state battery technology has reached a commercial turning point, with cells targeting energy densities of – Wh/kg. These batteries, which utilize solid electrolytes instead of flammable liquids, offer – more range for EVs and inherent safety. Companies like NIO have already begun deliveries of kWh semi-solid packs.



27 SODIUM-ION BATTERIES' COMMERCIAL DEBUT IN 2026

The year 2026 marks the mass-market debut of sodium-ion batteries, particularly in the Chinese EV and stationary storage sectors. Offering a lower-cost alternative to lithium-ion by utilizing abundant sodium, this technology is critical for mitigating the supply chain risks and price volatility associated with lithium, cobalt, and nickel.

28 NTPC REL VANADIUM REDOX FLOW BATTERY TENDER

In February 2026, NTPC Renewable Energy Limited floated a tender for a 100 MWh vanadium redox flow battery energy storage system (BESS) at the Khavda solar park in Gujarat. This technology is preferred for long-duration grid storage due to its non-degrading nature over thousands of cycles, representing a major pilot for India's storage strategy.

29 MASSIVE BATTERY STORAGE AUCTION RESULTS IN INDIA

India's storage market saw significant activity in April 2026, with TGGENCO and NTPC Limited announcing results for auctions totaling over 3800 MWh of BESS capacity. These systems are intended to support grid stability and enable the "round-the-clock" (RTC) supply of renewable power, which is increasingly demanded by industrial consumers and data centers.

30 LG ENERGY SOLUTION AND TESLA $4.3 BILLION DEAL

In early 2026, LG Energy Solution secured a $4.3 billion supply agreement with Tesla for battery electric stationary storage (BESS) cells. This deal underscores the rapid growth of the utility-scale storage market, which is now expanding faster than the EV battery sector as global grids struggle to integrate record amounts of solar power.

31 MIDDLE EAST WAR TRIGGERS 30% OIL PRICE SPIKE

Following the outbreak of hostilities between the U.S., Israel, and Iran in early March 2026, global oil prices skyrocketed by more than 30% in less than a month. Brent crude peaked at $120/bbl as military actions targeted regional energy infrastructure and led to a "near-total halt" of tanker movements through the Strait of Hormuz.

32 IEA RELEASES 400 MILLION BARRELS OF EMERGENCY RESERVES

On March 11, 2026, IEA member countries unanimously agreed to release an unprecedented million barrels of oil from emergency reserves. This massive intervention was aimed at mitigating the economic fallout from the Middle East supply disruption, which removed approximately million barrels per day from the global market.

33 GLOBAL OIL DEMAND FORECAST CUT FOR 2026

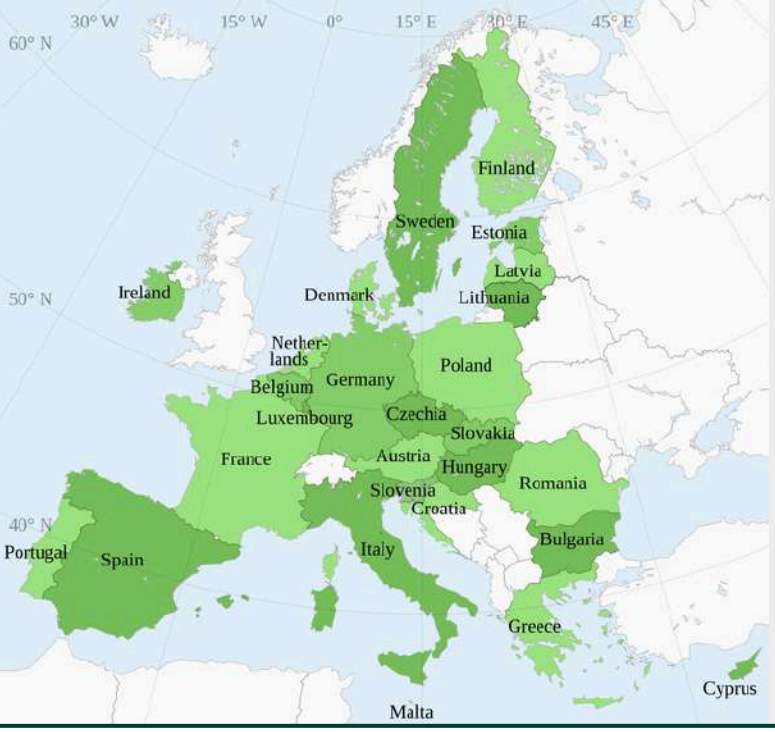
In response to soaring prices and a precarious economic outlook, the IEA has reduced its 2026 global oil demand growth forecast to 640000 barrels per day, down from previous estimates. Widespread flight cancellations and industrial slowdowns in the Middle East are expected to curb demand by an additional 1 mb/d in the short term.

34 NATURAL GAS BENCHMARK PRICES SPIKE IN EUROPE

European natural gas prices (TTF) saw extreme volatility in early 2026, rebounding from a 2025 downward trend to spike rapidly following the Middle East conflict. The cessation of Qatari LNG production and the Hormuz blockade have highlighted Europe’s continued vulnerability to global LNG market shocks as it attempts to move away from Russian gas.

35 MONSOON WIND POWER PROJECT CONNECTS LAOS TO VIETNAM

The Monsoon Wind Power Project, featuring a 500 kV transmission line, has successfully begun connecting the energy grids of Laos and Vietnam. This first-of-its-kind cross-border project provides 600 MW of interconnected capacity, utilizing Laos' strong wind resources to provide clean, reliable energy to Vietnam’s rapidly growing industrial base.



36 EU SUPERGRID AND THE 15% INTERCONNECTION TARGET

By early 2026, sixteen EU countries had exceeded the 2030 interconnection target of at least 15%. However, nine countries remain below the previous 10% target. The European Commission is fast-tracking projects like the Pyrenean crossing between Spain and France to increase interconnection capacity to 8 GW and better integrate the Iberian Peninsula's renewable surplus.

37 PHILIPPINES FAST-TRACKS 1.4 GW OF APRIL 2026 GRID ENTRY

In March 2026, the Philippines' Department of Energy announced the fast-tracking of 1471 MW of new renewable and storage projects for April 2026 grid entry. This move is part of an executive effort to strengthen energy security amid global oil volatility, focusing on 1284 MW of solar and 190 MW of battery storage.

38 GREAT SEA INTERCONNECTOR LINKS CYPRUS TO EUROPE

Work on the Great Sea interconnector has achieved a key milestone with the completion of the undersea cable linking the Greek mainland to Crete. Once fully operational, this project will connect the electricity grids of Cyprus, Israel, and continental Europe, significantly enhancing energy security and renewable integration in the Eastern Mediterranean.

39 ONE-SUN-ONE-WORLD-ONE-GRID PROGRESS

India’s Prime Minister continues to champion the "One-Sun-One-World-One-Grid" (OSOWOG) initiative, promoting major east-west interconnections across continents. The core concept is that cheap solar energy is always available somewhere in the world, and a global super-grid utilizing Ultra-High Voltage (UHV) technology could sustainably connect world power supply and demand.

40 FERVO ENERGY SECURES $421 MILLION FOR CAPE STATION

In March 2026, Fervo Energy successfully closed $421 million in non-recourse debt financing for its Cape Station project in Utah. As the world’s pioneer in next-generation enhanced geothermal systems (EGS), Fervo’s giga-scale project represents a new paradigm for providing clean, firm power to data centers at a competitive scale.

41 INVESTMENT IN NEXT-GEN GEOTHERMAL SURGES 80%

Financing for the next-generation geothermal sector reached nearly $2.2 billion in 2025, an 80% year-over-year increase. Unlike conventional geothermal, which is limited to volcanic hotspots, these new technologies (EGS and closed-loop) enable economically viable geothermal development nearly anywhere by drilling deeper into hard-to-reach reservoirs.

42 CCS SECTOR REACHES VISIBLE INFLECTION POINT IN 2025

The global Carbon Capture, Utilization, and Storage (CCUS) industry entered a decisive scale-up phase in 2025, with total operating projects reaching 77 and another 47 under construction. The ecosystem is moving from isolated pilots to connected, gigaton-scale carbon management hubs, driven by new commercial deals and expanded policy toolkits in North America and Europe.

43 EXXONMOBIL'S GULF COAST CCS EXPANSION

ExxonMobil's Low Carbon Solutions business contracted two new customers in late 2025, AtmosClear and Lake Charles Methanol II, to transport and store up to 2 MTA of CO2 emissions in Louisiana. This brings Exxon's CCS portfolio to six customers and approximately 9 MTA of contracted CO2, focusing on hard-to-abate heavy industries.

44 FIRST CARBON CAPTURE UNITS FOR HARD-TO-ABATE CEMENT

In early 2026, several first-of-their-type carbon capture units for cement and waste-to-energy plants began commissioning or were scheduled for startup. These projects, such as the Heidelberg Materials plant in Norway, mark a critical shift toward addressing emissions in industrial sectors that cannot be easily electrified. The second-order insight for CCUS in 2026 is the creation of "hubs" where technology vendors and storage-asset developers partner to provide turnkey solutions for industrial clusters. This "networked CCS" model is proving to be more bankable than isolated projects.

45 TOTALENERGIES AND MASDAR RENEWABLES $2.2 BILLION JV

French energy major TotalEnergies and the Emirati firm Masdar announced a $2.2 billion joint venture in early 2026. The deal involves merging their onshore renewable activities across nine Asian countries, creating a powerhouse capable of competing with domestic Chinese developers in high-growth emerging markets.

46 LG ENERGY SOLUTION SELLS U.S. BATTERY ASSETS TO HONDA

In December 2025, LG Energy Solution agreed to sell $2.86 billion in U.S. battery factory assets to Honda Development and Manufacturing of America. This move repositions manufacturing capacity in the U.S. for dedicated EV battery production, highlighting the trend toward strategic asset acquisitions over traditional financial plays to ensure supply chain control.

47 U.S. MANUFACTURING M&A FOCUSES ON SUPPLY CHAIN SOVEREIGNTY

U.S. manufacturing M&A volumes are projected to rise in 2026, driven by national interest in manufacturing sovereignty. Dealmakers are prioritizing AI-enabled manufacturing systems and domestic supply chain strength in critical areas like semiconductors and batteries to hedge against tariff uncertainty and global supply chain risks.

48

Global Renewable Capacity Statistics (2025-2026)

Region	Total Capacity 2025 (GW)	2025 Addition (GW)	Annual Growth Rate (%)
Asia	2,891	513.3	21.60%
Europe	934	-	-
North America	612	42.1	7.40%
Middle East	56.6	12.7	28.90%
Africa	82	11.3	15.90%
Global Total	**5,149**	**692**	**15.50%**

India's Projected Capacity and Demand (NEP 2032)

Parameter	Current (FY 2025-26)	Projected (FY 2029-30)	Projected (FY 2031-32)
Peak Demand (GW)	250	345	388
Energy Requirement (BU)	-	2,388	2,703
Installed Capacity (GW)	484.82	-	874
Non-Fossil Share (%)	50.08%	-	>50%

The implications of this slowdown are profound. China currently accounts for more than half of global renewable additions, and no other region possesses the immediate capacity to compensate for a 100 GW reduction in Chinese demand.

This creates a "survival of the fittest" environment for solar manufacturers, where quality and brand positioning are superseding pricing as the primary determinants of market share.

49 INDIA'S OFFSHORE WIND SETBACK AND RE-TENDERING

In late 2025, India's offshore wind segment faced a setback when SECI cancelled two major tenders —a 500 MW project in Gujarat and a 4000 MW seabed lease allocation—due to a lack of developer participation. However, the MNRE plans to issue a new offshore tender for the Tamil Nadu coast by February 2026, supported by more encouraging wind assessment data.

50 DIGITALIZATION OF INDIA'S RE DATA MANAGEMENT

The Ministry of New and Renewable Energy has issued a tender to select an agency for the operation and maintenance of the National Renewable Energy Portal (NREP). This initiative aims to centralize data collection and validation across India's diverse RE projects, improving transparency for investors and enabling more accurate grid management.

PROUD MOMENT
INDIA REACHED 2ND STAGE OF IT'S 3STAGE NUCLEAR PROGRAM

India has recently achieved a historic milestone in its nuclear energy journey. On April 6, 2026, the 500 MWe Prototype Fast Breeder Reactor (PFBR) at Kalpakkam, Tamil Nadu, successfully attained first criticality. This event marks the initiation of a sustained, controlled nuclear fission chain reaction, officially transitioning India into the second stage of its ambitious three-stage nuclear power program.

Developed indigenously by the Indira Gandhi Centre for Atomic Research (IGCAR) and built by BHAVINI, the PFBR is a technological marvel that "breeds" more fuel than it consumes by converting Uranium-238 into fissile Plutonium-239. This achievement makes India only the second country in the world, after Russia, to operate a commercial-scale fast breeder reactor. This milestone is a critical bridge to the third stage, which will utilize India's vast thorium reserves, eventually securing long-term energy independence and supporting the nation's goal of reaching Net Zero by 2070.

Global Energy Crisis: Challenges and Opportunities for India

By Bidhan Chandra Ghosal
Student, MBA (PS) Energy

On a hot summer afternoon, as air conditioners hum across Indian cities and factories run at full capacity, few pause to think about the invisible force powering it all - energy. Yet, behind this everyday convenience lies a growing global crisis that is reshaping economies and testing the resilience of nations like India.

An energy crisis emerges when demand outpaces supply, but today's situation is far more complex than a simple imbalance. It is the result of geopolitical tensions, rising consumption, and deep-rooted dependence on finite fossil fuels. For India, one of the fastest-growing economies in the world, this crisis is both a challenge and a turning point.

The roots of the problem lie far beyond India's borders. Conflicts in energy-rich regions, particularly in West Asia, have disrupted critical supply routes such as the Strait of Hormuz. A significant portion of India's oil and gas imports passes through this narrow channel, making the country highly vulnerable to global uncertainties. When tensions rise, supply chains tighten, and prices surge almost instantly.

This vulnerability is further amplified by India's heavy dependence on imports. With nearly 85-88% of its crude oil sourced from abroad, even minor fluctuations in global prices can have major economic consequences. A sudden spike in oil prices does not just affect fuel costs; it ripples through the entire economy, increasing transportation expenses, raising production costs, and ultimately driving inflation.

At the same time, demand for energy within the country continues to rise sharply. Rapid urbanization, industrial expansion, and extreme weather conditions such as prolonged heatwaves have pushed electricity consumption to new highs. The pressure on the energy system is immense, and existing infrastructure often struggles to keep pace. Even as renewable energy capacity grows, limitations in grid connectivity and storage prevent its full utilization.

The consequences of this crisis are visible across multiple sectors. Businesses, particularly small and medium enterprises, face rising operational costs, forcing some to scale down or shut operations. For households, higher fuel and electricity prices translate into an increased cost of living. The broader economy also feels the strain, as high import bills widen fiscal deficits and slow down growth.

Energy security based on clean & reliable sources is essential for India's future. Nuclear energy has a key role in India's energy strategy

Prime Minister of India

Key sectors such as agriculture and transportation are not immune either. Fertilizer production becomes costlier due to limited gas supply, affecting farming output. Public transport systems face fuel shortages, leading to disruptions in daily life. Even the aviation industry grapples with rising fuel costs, making air travel less affordable.

Yet, within this crisis lies a significant opportunity. India stands at a crucial crossroads where the right choices can transform vulnerability into strength. One of the most important steps is diversifying energy sources. By reducing dependence on a few regions and expanding partnerships with multiple suppliers, India can safeguard itself against geopolitical shocks.

Equally important is the push towards domestic energy production. Expanding exploration activities and tapping into untapped reserves can gradually reduce reliance on imports. At the same time, the country has a unique opportunity to lead in renewable energy. Solar and wind power, supported by advancements in energy storage technologies, can provide sustainable and reliable alternatives to fossil fuels.

Among emerging solutions, green hydrogen holds immense promise. As a clean fuel, it has the potential to revolutionize sectors like industry and transportation while reducing dependence on imported fuels. Combined with improved energy efficiency - through smarter technologies and better infrastructure - India can significantly reduce overall demand. Strong policy support and increased private sector participation will play a critical role in this transition. Investments in innovation, infrastructure, and clean energy solutions can accelerate progress and build a resilient energy system.

In the end, the global energy crisis is not just a challenge to overcome—it is a moment of transformation. For India, it is an opportunity to rethink its energy strategy and move towards a future that is not only secure but also sustainable. The choices made today will determine whether the country remains vulnerable to external shocks or emerges as a global leader in the energy transition.

Smart Energy Systems: Powering the path to Net Zero

By Anish Kandar
Student, MBA (PS) Energy Management

As the global energy sector undergoes a structural transformation, achieving net zero emissions has become a central priority for governments, industries, and institutions alike. In this transition, smart energy systems are emerging as a critical enabler, combining advanced digital technologies with conventional energy infrastructure to drive efficiency, resilience, and sustainability.

At the core of this evolution lies the integration of Internet of Things (IoT), artificial intelligence (AI), and data-driven analytics into energy systems. These technologies enable real-time monitoring, predictive control, and optimization of energy flows, shifting the paradigm from reactive energy management to proactive and intelligent decision-making.

One of the most impactful developments is the expansion of smart grids, which facilitate two-way communication between energy providers and consumers. This allows for improved demand-side management, peak load optimization, and seamless integration of distributed renewable energy sources such as solar and wind. From a policy perspective, smart grids also support grid stability and energy security—key priorities in national energy planning.

In the built environment, smart buildings are contributing significantly to energy efficiency goals. Through automated systems and sensor-based controls, buildings can dynamically adjust lighting, HVAC, and other energy loads based on occupancy and environmental conditions. This aligns closely with energy conservation standards and green building certifications, reinforcing both regulatory compliance and operational efficiency.

From an industrial standpoint, the adoption of Industry 4.0 practices is enabling energy-intensive sectors to enhance performance through real-time monitoring and predictive maintenance. These advancements not only reduce energy losses but also support compliance with energy efficiency norms and carbon reduction targets.

However, scaling smart energy systems requires addressing key challenges, including high capital investment, cybersecurity risks, data governance, and skill gaps. Policy frameworks must therefore focus on incentivizing digital adoption, strengthening regulatory mechanisms, and fostering capacity building among energy professionals.

In India, initiatives such as the Smart Cities Mission, expansion of renewable capacity, and digitalization of power infrastructure indicate a strong policy push toward smarter energy ecosystems. For emerging energy professionals, this presents a unique opportunity to contribute to a technology-driven, sustainable energy future.

In conclusion, smart energy systems are not just a technological upgrade—they represent a strategic shift in how energy is managed and governed. Their widespread adoption will be instrumental in accelerating the journey toward a low-carbon, efficient, and resilient energy landscape.

Energy for All: Navigating the Intersection of LPG Affordability and India's Green Transition

Sohini Roy
Student, MBA PS (Energy Management)

Liquefied Petroleum Gas (LPG) is central to India's clean-cooking agenda, especially after the expansion of access through schemes such as the Pradhan Mantri Ujjwala Yojana (PMUY). However, rising global fuel prices, high import dependence, and domestic inflation have turned LPG affordability into a major socioeconomic challenge. While access has improved, sustained use has weakened, with many low-income households reverting to traditional biomass due to high refill costs. This undermines public health, environmental outcomes, and gender equity.

The sharp increase in international crude oil and gas prices has been the primary driver of the crisis, as India imports over half of its LPG needs. These external shocks have coincided with broader inflation in food and essential services, leaving households with limited disposable income. Temporary subsidies and price freezes have offered limited relief but have also strained public finances, highlighting the limitations of short-term interventions.

To restore affordability without imposing an undue fiscal burden, policy reforms must focus on structural solutions rather than blanket subsidies. A critical reform is the shift toward targeted subsidy delivery. Instead of uniform LPG pricing, support should be income and vulnerability-based, protecting low-income and rural households while gradually withdrawing subsidised support from consumers with viable alternatives. Price-smoothing mechanisms, such as stabilization funds, can also cushion sudden global price shocks and prevent abrupt increases that discourage LPG adoption.

Direct Benefit Transfer (DBT) is central to improving subsidy efficiency. By transferring subsidies directly into verified bank accounts, DBT reduces leakages, eliminates duplicate beneficiaries, and ensures fiscal savings. More importantly, DBT enables dynamic and flexible subsidies, allowing the government to increase support during periods of high inflation and reduce it when prices stabilize. Variable subsidies, linked to consumption thresholds, can protect essential use while discouraging excess, ensuring LPG remains affordable for basic needs.

For long-term energy security, India must reduce over-reliance on imported LPG by diversifying cooking-energy sources. Biogas and bio-CNG, particularly in rural and agricultural regions, offer locally produced, low-cost clean fuel while generating rural employment. In urban and semi-urban areas, electric cooking, powered increasingly by solar and wind energy, can provide a stable and inflation-resilient alternative. Piped Natural Gas (PNG) can act as a transitional fuel where renewable infrastructure is still developing.

In conclusion, India's LPG crisis reflects the intersection of global energy volatility, inflation, and inequality. A sustainable solution lies in a balanced strategy combining targeted DBT-based subsidies, price-stabilisation mechanisms, and accelerated adoption of renewable and alternative cooking fuels. Such an approach ensures that energy security remains affordable, resilient, and equitable—protecting the common citizen while aligning with India's broader clean-energy transition goals.

EVENTS @IISWBM

Net Zero Conference

30 August 2025

The **Net Zero Conference 2025**, hosted at the Indian Institute of Social Welfare and Business Management (IISWBM) in Kolkata, stands as a pivotal milestone in India's academic and industrial journey toward sustainability. Organized by the Association of Energy Engineers (AEE) India Chapters, the event brought together a diverse cohort of policymakers, energy professionals, and academics to address the urgent global mandate of carbon neutrality.

The Vision: Together Towards a Sustainable Future

The primary objective of the conference was to formulate actionable strategies for achieving "Net Zero"—a state where greenhouse gas emissions are balanced by their removal from the atmosphere. Held on August 30, 2025, the summit emphasized that the transition to a low-carbon economy is no longer optional but a necessity for survival and economic resilience.

Key Themes and Discussions

The conference was structured around four critical pillars that reflect the modern challenges of climate change:

1. S*trategic Frameworks*: Experts discussed decarbonization pathways specifically for hard-to-abate sectors like steel, thermal power, and tea.
2. E*nergy Transition*: Highlighting the role of agrivoltaics, renewable energy storage, and climate-responsive technologies.
3. D*igital Innovation*: Sessions explored how AI and data analytics can optimize energy consumption and build "smart" green infrastructure.
4. ESG and Finance: A deep dive into Environmental, Social, and Governance (ESG) metrics and the mobilization of climate finance.

IISWBM, as India's first management institute, served as the perfect crucible for these discussions.

By fostering a "Net Zero Academic Colloquium," the institute bridged the gap between theoretical research—such as energy efficiency in the Eastern Railways and battery cell techno-economics—and industrial application.

Conclusion

The Net Zero Conference at IISWBM was more than an academic exercise; it was a roadmap for the future. By integrating the "Indian Knowledge System" with cutting-edge green technology, the summit provided a comprehensive framework for India to meet its 2070 Net Zero commitment. It reaffirmed that through collaboration between academia and industry, a carbon-neutral world is not just a dream, but an achievable target.

ENCON DAY

14 December 2025

Energy Conservation (ENCON) Day 2025 was observed at the IISWBM Campus in Kolkata on December 14, 2025. The event served as a major gathering for industry experts, academics, and students to reinforce the national commitment to energy efficiency.
The event was centered around the theme:
"*Innovate, Conserve and Thrive: Energy Solutions for the Future*"
This theme emphasized that conservation is not merely about using less, but about innovating smarter technologies to ensure long-term industrial and economic growth.

The celebration was a collaborative effort between IISWBM, Energy Club Kolkata, the AEE Kolkata Chapter, and JAAI ER, drawing approximately 150 participants.

- Lifetime Achievement: Prof. (Dr.) Ashoke K. Dutta, the Founder President of the AEE Kolkata Chapter, was felicitated for his distinguished career as an innovative energy administrator.
- Annual Awards Ceremony: The AEE Kolkata Chapter recognized several professionals for their contributions:
- Energy Manager of the Year: Shri Kaushik Dutta (Executive Director, WBPDCL) and Er. Manas Bag.
- Energy Innovator of the Year: Shri Pramod Grover (Director, Science City) and Dr. Sanjay Chakroborty (DGM, CESC/HEL).
- Energy Professional Development: Mrs. Chaitali Mandal.

Technical Sessions:

- Session I: Focused on future-ready energy solutions and strategic innovation.
- Session II: Chaired by Dr. Tapan Saha, this session dove into specific conservation technologies and practices currently being adopted by major industries.

Student Engagement: An inter-college technical quiz on energy efficiency was held to foster competitive learning and awareness among the younger generation.

ASAR MSME Decarbonization

30 January 2026

The collaborative initiative between Asar Social Impact Advisors and IISWBM centered on a landmark study titled "Energy Assessment of MSME Micro-Clusters in West Bengal." This project culminated in a high-level working consultation titled "From Evidence to Action: MSME Decarbonization Pathways," held at the IISWBM Auditorium in Kolkata on January 30, 2026.

The event marked a significant step in identifying how small-scale industries can transition to low-carbon operations without compromising their economic survival.

The study focused on 15 representative units across four key sub-sectors in the Howrah and South 24 Parganas districts:

- Silver Filigree: A centuries-old artisanal heritage cluster in Magrahat.
- Galvanizing: Energy-intensive units relying on fuel-oil systems.
- Engineering & Wire Drawing: Sectors heavily dependent on electricity-intensive motors.

The assessment revealed that while MSMEs are the backbone of the state's economy (representing 99% of units), they face "stark" energy inefficiencies due to outdated furnace designs, under-loaded motors, and a lack of systemic monitoring.

To address this, the report proposed four practical, low-cost interventions with short payback periods:

- Motor Optimization: Through power factor corrections and improved load management.
- Rooftop Solar Integration: Offsetting high grid electricity costs with renewable energy.
- Thermal Efficiency: Improved insulation and furnace operations to reduce fossil fuel dependence.
- Systematic Monitoring: Implementing low-cost energy tracking to identify "avoidable" emissions.

During the consultation, Dr. Krishna Murari Agrawal (Director, IISWBM) emphasized that decarbonization does not have to be "expensive or disruptive." The initiative highlighted that for micro-enterprises, energy efficiency is a tool for competitiveness and survival. The event also featured insights from Mou Sen (Joint Director, Directorate of MSMEs, West Bengal), who noted that a "cluster-based approach" allows for structured support and economies of scale. By focusing on these micro-clusters, Asar and IISWBM have provided a blueprint for how local governance and technical expertise can unlock finance and cleaner technologies for the informal industrial sector.

Kolkata Climate Fest

27 - 28 February 2026

The Kolkata Climate Fest 2026, held on February 27 and 28, 2026, was a landmark event that redefined the traditional concept of a "fest" by transforming it into a high-impact academic and social platform for climate action. Organized by IISWBM in collaboration with Climate24 and Asar Social Impact Advisors, the event served as a critical meeting point for policymakers, researchers, students, and grassroots communities to address the specific environmental vulnerabilities of West Bengal and the wider region.

The festival was structured to bridge the gap between high-level policy and lived experiences. Its core themes included:

- Climate & Public Health: Addressing the intersection of rising temperatures, shifting disease patterns, and urban health resilience.
- Sustainability & Net Zero: Building on IISWBM's ongoing focus on decarbonization, sessions explored pathways for industries and academic institutions to reach carbon neutrality.
- Community-Led Governance: A significant focus was placed on "listening" sessions, where representatives from vulnerable regions—such as the Sundarbans and East Kolkata Wetlands—shared first-hand accounts of climate impacts.
- Environmental Reportage: Journalists and media professionals discussed the role of storytelling in making complex climate data accessible and actionable for the public.

A defining moment of the fest was the follow-up and expansion on the MSME Decarbonization research. By presenting evidence from micro-clusters (like the silver filigree and wire-drawing units), the fest showcased how small-scale industrial efficiency can be a major driver for regional climate goals.

The event moved beyond standard lectures to include:

- Townhalls & Roundtables: Interactive forums where students and experts debated climate-responsive urban planning.
- Exhibitions: Showcasing practical green technologies and artisanal products from climate-impacted areas.
- Youth-Centric Discourse: Placing students at the heart of the movement, the fest encouraged academic institutions to lead by example in adopting sustainable campus practices.

For IISWBM, the Kolkata Climate Fest 2026 reinforced its position as a leader in Energy and Environment Management. By bringing together diverse stakeholders—from WHO experts to village representatives—the fest successfully mainstreamed climate conversations, ensuring that technical solutions are grounded in social and economic reality.

Women in AI for Sustainability

17 April 2026

The intersection of Artificial Intelligence (AI) and sustainability represents one of the most significant frontiers of the 21st century. As the global community strives to meet the United Nations Sustainable Development Goals (SDGs), the role of technology has become indispensable. However, a critical bottleneck remains: the gender gap in STEM and leadership. The recent seminar, "Women in AI for Sustainability: Bridging the Gender Gap for Achieving Sustainable Development Goals," served as a vital platform to address how inclusive participation is not merely a social objective, but a technical necessity for a sustainable future.

The seminar opened with a powerful call for inclusivity. Binoy Krishna Choudhry, Head of Public Systems Management, emphasized that the evolution of AI must be guided by diverse perspectives to remain ethical and effective. When we speak of "Public Systems," we speak of structures that serve everyone; therefore, the absence of women in the design phase of AI leads to algorithmic biases that can marginalize half the population. This sentiment was echoed by the leadership of the Council for Women in Energy & Environmental Leadership (CWEEL). Prof. Piyali Sengupta highlighted that CWEEL's mission is to foster inclusive leadership, providing the career guidance and mentorship necessary to ensure women aren't just participants in the energy sector, but leaders of it.

The academic perspective, provided by Prof. Dr. Sharmistha Banerjee, linked these technological shifts to the urgent reality of Climate Action (SDG 13). It is a well-documented fact that women often bear the brunt of climate instability, yet they are frequently underrepresented in the rooms where climate solutions are engineered. By encouraging more women to enter STEM and AI, we ensure that sustainability strategies are informed by the lived experiences of those most affected. AI can optimize energy grids and track carbon footprints, but without a gender-diverse lens, these tools may overlook the socio-economic nuances of sustainable development.

From an industrial standpoint, the seminar delved into the practical applications of "Responsible AI." Industry experts like Arundhati Mukherjee and Debashish Ghosh illustrated how AI is revolutionizing grid moderation, ERP systems, and decarbonization strategies. The consensus was clear: the energy and manufacturing sectors—traditionally male-dominated—stand to gain immense innovative capital by diversifying their workforce. Whether it is managing complex energy transitions or implementing responsible AI that respects data ethics, the involvement of women leads to more robust and creative problem-solving.

Climate Awards

The Green Awards ceremony, a centerpiece of the Kolkata Climate Fest 2026 at IISWBM, served as a powerful tribute to those leading the charge for a sustainable future. By honoring trailblazers like Baitali Ganguly, recognized for her grassroots environmental leadership, and Piali Basak, whose mountaineering feats have brought global attention to fragile Himalayan ecosystems, the institute highlighted the diverse nature of climate action.

These awards are profoundly significant as they bridge the gap between academic research and real-world impact. By celebrating local icons, IISWBM inspires its Energy Management students and the broader community, proving that individual dedication is the catalyst for systemic environmental change.

As part of the **AEE Lecture Series** at IISWBM, industry stalwarts like Shri Sudeb Mondal (Head of QuiviaLabs) and Shri Ashish Narayan Chakraborty have provided invaluable experiential learning for Energy Management students.

These special lectures bridge the gap between academic theory and the complexities of the power sector. Shri Mondal has shared deep insights into power distribution, grid resilience, and state-level energy planning, while Shri Chakraborty has focused on the practicalities of energy auditing and industrial efficiency.

By engaging with these veterans, students gain a "shop-floor" perspective on the energy transition, turning complex regulatory and technical frameworks into actionable professional skills. These sessions are fundamental in shaping future-ready Certified Energy Managers and auditors.

UPCOMING EVENTS

Net Zero Conference 2026

Date will be announced soon

The Net Zero Conference 2026 aims to accelerate the global transition toward carbon neutrality by bringing together thought leaders from policy, industry, and academia. The conference will focus on practical decarbonization strategies, renewable energy adoption, and ESG-driven frameworks.

Organized by the regional chapters of the **Association of Energy Engineers (AEE)**, with the **AEE Pune Chapter** taking the leadership role, the event will emphasize innovation and collaboration. It will serve as a platform to exchange ideas, showcase solutions, and drive actionable change toward a sustainable future.

AEE World 2026

September 16-18, 2026

AEE World 2026 continues to be a premier global gathering for energy professionals, offering a dynamic platform for knowledge exchange and networking. The event will feature expert-led sessions, cutting-edge technologies, and real-world case studies across energy efficiency, clean energy, and digital transformation. It provides a unique opportunity for professionals to gain insights, build connections, and stay ahead in the evolving energy landscape.

ENCON Day 2026

December 14, 2026 @ IISWBM

ENCON Day 2026 celebrates the spirit of energy conservation and sustainable living. Through awareness initiatives, technical discussions, and collaborative activities, the event promotes the importance of efficient energy use across all sectors. It encourages individuals and organizations to adopt responsible practices and contribute toward reducing environmental impact, reinforcing the idea that collective efforts can lead to meaningful change.

GET UPDATES FOR UPCOMING AEE EVENTS

ACHIEVEMENTS BY ALUMNI

Ms. Madhura Mitra – Partner, PwC India

We are delighted to share a moment of immense pride for the AEE IISWBM Kolkata Chapter as our esteemed alumna, Ms. Madhura Mitra (Public Systems Management – Energy Management, 2006–2008 batch), has been elevated to the position of Partner at PricewaterhouseCoopers (PwC), India, effective 1 April 2026.

Ms. Mitra is a seasoned professional in the domain of sustainability and climate change, with extensive expertise in decarbonization strategies, carbon markets, energy transition, and climate policy advisory. Over the years, she has worked closely with government bodies, multinational organizations, and industry leaders, contributing significantly to the development and implementation of impactful sustainability frameworks and net-zero roadmaps.

Her elevation to Partner is a recognition of her leadership, deep domain knowledge, and consistent contributions toward advancing India's low-carbon and sustainable development agenda. She continues to be an inspiration for aspiring energy professionals and a proud representative of the institute's legacy of excellence.

The AEE IISWBM Kolkata Chapter extends its heartfelt congratulations to Ms. Mitra on this remarkable milestone and wishes her continued success in shaping a more sustainable and energy-efficient future.

Welcome to India's First Management Institiute

The Indian Institute of Social Welfare & Business Management (IISWBM), Kolkata was established through a resolution adopted by the Syndicate of the University of Calcutta on April 25, 1953.

Visionary Chief Minister of West Bengal, Dr. Bidhan Chandra Roy, was the first President of the Board of Governors and Prof D.K Sanyal was the first Director of the Institute.

Pandit Jawaharlal Nehru, the first Prime Minister of India, laid the foundation stone of IISWBM - India's first institute to introduce a program on management education.

Indian Institute of Social Welfare and Business Management

Management House, College Street
Kolkata 700073, West Bengal, India
www.iiswbm.edu

IISWBM

Looking Forward to work in Sustainability....

MBA (Public Systems Management) ENERGY MANAGEMENT

Admission Criteria & Selection Procedure

- The minimum qualification for admission to the Course is B.E/B. Tech/ BCA/BBA/AMIE with more than 50% from any University recognized by the University of Calcutta.
- The applicants for the admission to the MBA-PS Course with specialization in Energy Management are required to take MAT / CAT / CMAT / JEMAT / GATE/ GMAT. The candidates short listed on the basis of cut-off-marks in the above selection tests would be required to appear for a Group Discussion and Personal Interview at IISWBM, Kolkata. The final selection of candidates will be strictly on the basis of merit.
- Course Fee- Total Rs. 515000/- only (First year: Rs 273500/-, Second year: Rs 241500/-) Security deposit (Rs 5000/-) and Library deposit (Rs 5000/-) refundable

For details contact:

Dr. Arindam Dutta
B. E, M. Tech, Ph.D., MIBPSA (U.K), CEA
Associate Professor and Coordinator
Dept of Energy Management, IISWBM
Secretary of AEE(USA)-India Chapter
Phone No.- +917044626881,
Email: arindamd@iiswbm.edu

Prof. Piyali Sengupta
Assistant Professor – Energy Management
PS Department, IISWBM
Treasurer, AEE (USA) Kolkata Chapter
Lead Officer, CWEEL (USA) Kolkata Group
Phone No. - +919123395598

Association of Energy Engineers | Kolkata Chapter

For more than four decades, AEE certifications have set the standard for energy and sustainability professionals worldwide.

Founded in 1977, the Association of Energy Engineers (AEE) advances energy efficiency, decarbonization, and sustainable practices through education, professional certification, and industry leadership. With over 32,000 active certifications globally, AEE credentials are trusted by employers, governments, and institutions to validate expertise and drive measurable impact across the energy sector.

IISWBM launching the first ever CAP and REP courses in India and resuming the iconic CMVP courses as the only training partner of AEE in India.

Learn more about courses by AEE Kolkata Chapter IISWBM, Kolkata email to aeecourseswithiiswbm@gmail.com

CEM® BEP® EEP™ iEP CMVP® cea™ CBCP®

Editorial References & Compliance

1. All visual content, including photographs and illustrations featured in this issue, has been sourced from Open Source repositories or is covered under Creative Commons licensing. Every effort has been made to adhere to attribution requirements where applicable.
2. The Top 50 Energy Updates featured in this publication have been curated and prioritized based on either sequencing by the date of occurrence or official release or weighted importance regarding policy changes, technological breakthroughs, and market influence.
3. The news items and data points compiled in this edition are aggregated from publicly available open-source platforms. While we strive for absolute accuracy, the content reflects the data provided by the original primary sources at the time of publication.