

# Empowering Tomorrow Through Sustainable Energy Solutions



2024

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# EDITOR'S NOTE

## Nitin Bhatt

Deputy General Manager,  
Sales & PR, EESL



**Dear Reader,**

We bid farewell to a month marked by pivotal milestones, especially in the areas of energy conservation and climate leadership. As we step into the new year, I cannot help but look back at December, a month that encapsulated the urgency and promise that define our global energy landscape. From commemorating National Energy Conservation Day to witnessing India's influential role at the G20 and culminating with the end of COP28, the past few weeks have underscored both the progress made and the road that lies ahead.

Looking forward, the trajectory of our energy needs is in flux. Population growth and rapid urbanisation continue to propel an upward surge in energy demand. Yet, this demand must be met sustainably. The rising star of renewable energy signifies a seismic shift in our energy paradigm. Affordability in storage solutions and a collective pursuit of decarbonisation are reshaping policies and regulations, steering us closer to climate and net-zero objectives.

At the heart of this transition, a diverse array of solutions — from solar and wind energy to electric mobility, smart meters, electric cooking, grids, and battery storage — is redefining the energy sector. Our tailored initiatives are deeply entrenched in India's energy transformation, aligning with this evolving landscape. A prime example of this commitment is our endeavour to reform the cooking paradigm in the nation, fostering greener and more energy-efficient practices. As part of this initiative, we have recently distributed 2000 induction cookstoves to Anganwadi workers, childcare centers, and monasteries in the Union Territory of Ladakh. Additionally, we are planning to extend this distribution by providing induction stoves to Anganwadi workers in Tripura.

In this edition, we reflect on the profound lessons drawn from the words of Dr Gyan Vatsal Swami Ji in "Integrity, honesty & spirituality: Dr Gyan Vatsal Swami Ji's wisdom for a fulfilling professional life." Swami Ji's insights, blending spirituality with practical wisdom, provide a roadmap to not just professional success, but to a fulfilling, meaningful life.

Furthermore, "Energy efficiency should be at the core of our energy conservation efforts" delves into the catalytic role of energy efficiency in our pursuit of sustainable conservation practices, in the backdrop of National Energy Conservation Day.

"Building for tomorrow: The crucial role of energy-efficient buildings in mitigating climate change" emphasises the unparalleled opportunity presented by implementing energy-efficient measures in buildings over the coming decade. This strategic move not only secures long-term energy savings but also underscores a commitment to cost-effectiveness.

Lastly, "E-bicycles can be a viable and sustainable solution for intra-city mobility" introduces an innovative approach to green mobility. Embracing sustainable solutions like e-bicycles offers a glimpse into the future of environmentally conscious intra-city travel.

As we navigate the dynamic energy landscape, these insights spotlight the intersection of innovation, policy, and conscientious choices. Our journey toward a sustainable energy future demands continued collaboration, bold actions, and a deep commitment to effecting meaningful change. Together, let us forge ahead into the new year, armed with insights and resolve to shape a more sustainable tomorrow.

## Energy efficiency should be at the core of our energy conservation efforts

**Vishal Kapoor**  
CEO, EESL & CESL



Global energy consumption is projected to surge in the coming decades, outstripping advancements in energy efficiency, as stated by the US Energy Information Administration (EIA). This trajectory poses a significant challenge in balancing burgeoning energy demands with the imperative to safeguard our environment. Energy conservation and energy efficiency, though related, hold distinct roles in this pursuit. As we commemorate National Energy Conservation Day on December 14th in India, it becomes paramount to discern the criticality of prioritising energy efficiency in our conservation endeavours. Energy efficiency has also featured prominently in recent multilateral platforms, such as the G20 and COP28. Under India's G20 Presidency, countries representing 85% of the global economy have agreed to tripling renewable energy capacity and doubling energy efficiency by 2030. We also witnessed the launch of Global Renewables and Energy Efficiency Pledge at COP28. With the endorsement of 130 national governments, the Pledge stipulates that signatories commit to collectively double the global average annual rate of energy efficiency improvements from around two per cent to over four per cent every year until 2030.

Energy efficiency isn't solely about consuming less; it's optimising how we utilise energy. It encompasses practices and technologies that minimise energy waste while maximising output. Its significance lies not only in economic savings but also in its substantial environmental and societal benefits. Take the recent BEE report, revealing that the adoption of energy efficiency schemes has led to overall energy savings of 44.43 million Tonnes of oil Equivalent for the year 2021-22. These energy savings translate into monetary savings worth INR 115,702 crores. Meanwhile, the equivalent overall thermal energy savings in the order of 23.85 million Tonnes of oil Equivalent, while overall electricity savings are to the tune of 249.89 billion Units in the year 2021-22. This highlights the triad of advantages stemming from embracing energy-efficient practices.

A recent CLASP report also emphasises the importance of efficient appliances in reducing emissions and building climate resilience. It advocates for ten "Net Zero Heroes" appliances, which if made efficient, could avoid 9.2 Gt of CO<sub>2</sub> in 2050. This would also improve the quality of life for millions by providing access to critical appliances. A key avenue for catalysing the adoption of energy efficient appliances can be through e-marketplaces. These marketplaces can serve as centralised platforms that connect energy-efficient products and service providers with consumers, facilitating easy access to a wide range of energy-efficient options. By offering a diverse marketplace, consumers can compare and choose from various energy-efficient products, including appliances, lighting, heating and cooling systems, and smart home devices, tailored to their specific needs and preferences.



By promoting energy efficiency through a marketplace, governments, utilities, and organizations can achieve their sustainability and climate goals by reducing greenhouse gas emissions, mitigating energy demand, and enhancing overall energy security.

Energy conservation and efficiency are symbiotic. Conservation focuses on reducing overall energy consumption, while efficiency ensures we get the most out of the energy used. However, an exclusive emphasis on conservation overlooks the pivotal role efficiency plays. Case studies and statistics substantiate this, illustrating how prioritising efficiency enhances the impact of conservation efforts manifold.

The economic feasibility of energy efficiency measures is profound. Not only do they generate savings for individuals, businesses, and governments, but they also tangibly contribute to reducing carbon footprints. Industries experience long-term benefits by decreasing energy requirements and enhancing competitiveness. Energy conservation measures are diverse, ranging from building infrastructures to equipment optimisations, and they foster sustainable development while preserving resources.

There are numerous challenges to embracing energy efficiency, encompassing economic, behavioural, and technological barriers. However, government policies play a pivotal role in incentivising and promoting energy-efficient practices. Strategies to surmount these hurdles involve innovative approaches, educational campaigns, and incentivisation schemes that encourage widespread adoption.

EESL has been working towards mainstreaming energy efficiency and is implementing the world's largest energy efficiency portfolio. Driven by the mission of Enabling More, it is creating market access for efficient and future-ready transformative solutions that create a win-win situation for every stakeholder.



It has pioneered innovative business approaches to successfully roll out large-scale programmes that allow for incentive alignment across the value chain and rapidly drive transformative impact.

EESL's diligent efforts underline the transformative impact of energy efficiency initiatives. These initiatives showcase quantifiable outcomes such as energy savings, emission reductions, and the creation of positive community impacts. These examples serve as beacons, illuminating the potential benefits achievable through concerted efforts.

As technology evolves, so do avenues for energy efficiency. Innovations like smart grids, integration of renewable energies, and advancements in IoT are promising pathways. Education and awareness will empower individuals and businesses to embrace these practices, laying the foundation for a sustainable future. Collaborative international efforts remain pivotal in steering towards a greener, more energy-efficient global landscape.

Energy efficiency emerges as the catalyst in our pursuit of sustainable conservation practices. It beckons individuals, industries, and policymakers to prioritise and invest in its implementation. The envisioning of a greener future hinges on our collective commitment to embracing and advancing energy efficiency in every sphere of our lives. As we commemorate National Energy Conservation Day, let us recommit ourselves to this cause, forging a path towards a more sustainable tomorrow.



## Building for tomorrow: The crucial role of energy-efficient buildings in mitigating climate change

Mr. Milind Deore  
Secretary, Bureau of Energy Efficiency



Buildings, towering symbols of human progress and habitation, stand as witnesses to our civilisation's advancements. Yet, these structures carry a weighty responsibility, contributing significantly to global energy consumption and emissions. The urgency to enhance energy efficiency in buildings is paramount as we confront the challenges of climate change. Understanding the pivotal role of energy-efficient buildings in mitigating climate change is not merely an option but an imperative for a sustainable future.

Statistics paint a compelling picture: buildings account for roughly 40 per cent of global emissions, encompassing both material production and operational facets. Addressing the energy inefficiency of buildings demands collaboration on a global scale. It's not just about constructing greener buildings but also retrofitting the existing ones. This transition requires partnerships between governments, industries, architects, engineers, and the community at large. Joint efforts enable the implementation of innovative solutions and the dissemination of knowledge, fostering a collective responsibility towards our planet.

India, with its rapid growth, faces a unique challenge as it grapples with a burgeoning energy demand. The International Energy Outlook 2017 indicates that India will witness the fastest growth in buildings' energy consumption through 2040. Consequently, India has steered national programs like the National Mission on Sustainable Habitat and the National Mission on Enhanced Energy Efficiency, underscoring the significance of scaling building efficiency.

The Energy Conservation (EC) Act, 2001 provides the framework for publishing Energy Conservation Building Code (ECBC), which prescribes minimum energy performance standards for new commercial buildings having a connected load of 100 kW or more, or contract demand of 120 kVA or more. While the Central Government has powers under EC Act to publish ECBC, the State Governments have flexibility to modify the code to suit local or regional needs and notify them. The amendment of EC Act, i.e., the EC (Amendment) Act, 2022, provides the framework for revising ECBC Rules to Energy Conservation & Sustainability Building Code (ECSBC) Rules for commercial buildings and development of ECSBC Rules for residential buildings.

The integration of energy efficiency and sustainability extends across various facets of building design and operations, encompassing lighting, heating, electrical systems, waste management, and recycling. The implementation of energy-efficient appliances and analytics-based approaches further reduces energy wastage in centralised systems.

Furthermore, as temperatures rise, so does the necessity for cooling solutions inside buildings. Implementing sustainable cooling practices is imperative. This includes not just the design of energy-efficient cooling systems but also advocating for behavioural changes to minimise excessive cooling needs. Educating the public about setting appropriate temperatures and utilising energy-efficient cooling appliances becomes pivotal.

Cooling and refrigeration, historically major contributors to greenhouse gas emissions, receive due attention through India's National Cooling Action Plan (NCAP). Initiatives like Super-Efficient ACs and BLDC fans herald a shift towards sustainable cooling practices.

Energy efficiency in buildings also goes hand in hand with human well-being. Beyond the technical aspects, there needs to be a special focus on creating spaces that promote health, productivity, and comfort. Integrating elements like natural lighting, efficient heating and cooling systems, and ergonomic design not only reduces energy consumption but also enhances the quality of life for occupants.

Advancements in technology play a pivotal role in achieving energy efficiency. From smart sensors regulating energy use to the development of eco-friendly construction materials, innovation forms the cornerstone of sustainable building practices. Moreover, educating individuals and organisations on adopting sustainable habits within these spaces amplifies the impact of energy-efficient buildings.

The heart of the matter lies in the future. Implementing energy-efficient measures in buildings constructed over the next decade presents an unparalleled opportunity to secure long-term energy and cost savings. However, this transformation necessitates concerted efforts from all stakeholders - government, industry, and end consumers.

Collaborative action stands as the need of the hour. As efficiency initiatives mature, we inch closer to fulfilling climate commitments and paving the way for a sustainable future. The path to sustainable buildings is multifaceted, demanding commitment, innovation, and a collective resolve to usher in an era where buildings not only represent progress but also embody responsibility towards our planet's future.



## E-bicycles: A Sustainable and Viable Solution for Rural and Intra-City Mobility

### Ms Ritu Singh

Deputy General Manager  
(Business Development), EESL



India is committed to achieving net zero emissions by 2070. As one of the many ongoing efforts in this direction, transportation in India is undergoing a transformation, gradually shifting towards electric mobility (e-mobility), which is cleaner and greener. The central government has called for having electric vehicle (EV) sales penetration of 30 percent for private cars, 70 percent for commercial vehicles, and 80 percent for two-wheelers and three-wheelers by the year 2030. There is also a strong push for developing transportation and logistics infrastructure. If there is one area that deserves more attention than it is getting at present, it is e-bicycles.

E-bicycles are a viable and sustainable solution for short-to-medium-range mobility, particularly in rural and semi-urban areas of India, where large number of people – including women working in self-help groups and factories, as well as school children – depend on public transportation for their everyday commute. Public transportation in most of the low-density areas is either limited or unavailable, often leaving commuters with no choice but to walk long distances. In many villages, women walk several kilometers every day for various household purposes, often carrying heavy loads. Only a few families can afford to buy their own car or motorbike, especially amid the rising prices of petrol and diesel in the country.

E-bicycles, on the other hand, are convenient and environmentally friendly. The cost of running an e-bicycle is less than 10 paise per kilometre, which makes them a cost-effective option for daily commutes. Moreover, e-bicycles are easy to use and require very little maintenance. E-bicycles compared to conventional bicycles, get you to your destination a lot quicker and make it easier to navigate steep gradients or uneven terrain. At the same time, e-bicycles cannot go as fast as scooters or cars and are, therefore, safer for the riders. As e-bicycles are motor-driven, they are less physically demanding, requiring only 20 percent of human effort. There are four key parts to an electric bike: the battery, the motor, the frame & spokes and the brakes. There are two basic modes in an e-bicycle — throttle-assist and pedal-assist. Throttle-assist means the motor can be shifted on and the bike will move forward without pedaling, while Pedal-assist means the motor will only engage when the user is pedaling. Electric vehicles are not categorized as motor vehicles: hence, the transport rules (insurance, taxes, etc.) are not applicable for them and they become certified for exemption from license and registration.

E-bicycles can be largely categorized as i) Commute e-bicycle, ii) Cargo e-bicycle, and iii) Low-speed pedal assist e-mopeds. Commute e-bicycles can be used for the purpose of individual commuting, cargo cycles can be used for the purpose of product deliveries and low-speed pedal assist e-mopeds can be used for commuting while carrying a limited load (~15 kg). The starting price for a commute e-bicycle can vary from INR 30,000 to INR 40,000, for a cargo e-bicycle from INR 48,000-INR 70,000 and for low-speed pedal assist e-mopeds from INR 50000 – INR 60000.





EESL is advocating for electric bicycles as an eco-friendly micro-mobility option to reduce carbon emissions and offer convenient personal transportation for short-distance travel needs. This initiative began in February 2023 when the issue of mobility was raised during a discussion by the Head of the SEWA Foundation in Gujarat. She raised her concerns about the lack of mobility-focused programs for women, despite various efforts to enhance their skills and livelihoods. Following this, EESL conducted field surveys at multiple locations, including Chhattisgarh, Lucknow, Nalanda, and Trivandrum to assess the viability and identify potential beneficiaries of electric bicycles. A comprehensive survey was conducted along with showcasing the electric bicycles to local people of Manikkal Gram Panchayat in Trivandrum district, Kerala. The electric bicycles were placed for a duration of 21 days in June 2023 at Gram Panchayat Office for people to test ride the cycles and provide their feedback. The entire exercise was done to understand the requirements and purchasing power of the intended beneficiaries and seek their opinion on the design and specifications of e-bicycles.



The survey findings yielded valuable insights revealing a demand for affordable e-bicycles across diverse target groups, including SHG (Self-Help Group) women, Anganwadi and ASHA (Accredited Social Health Activist) workers. Despite this demand, the considerable upfront cost and the visibility of e-bicycles present a notable obstacle to their widespread adoption. These insights, gathered from field visits and surveys, have been compiled into a comprehensive report that includes recommendations. This report is slated to be presented to the government, providing them with the necessary information for potential action. Additionally, we showcased the electric cycles during the National Energy Conservation Award function held at Vigyan Bhawan, Delhi, organized by the Bureau of Energy Efficiency. The response from the visitors was overwhelmingly positive, with many expressing curiosity and eagerness to learn more about electric cycles.



## **Integrity, honesty & spirituality: Dr Gyan Vatsal Swami Ji's wisdom for a fulfilling professional life**



Dr Gyan Vatsal Swami Ji, a distinguished spiritual leader, motivational speaker, and social reformer associated with the Bochasanwasi Akshar Purushottam Swaminarayan Sanstha (BAPS), delivered a profoundly motivating address during the launch of EESL's National Efficient Cooking Programme and Energy Efficient Fans Programme. His insights, blending spirituality with practical wisdom, resonated deeply with the audience, emphasising values integral to both personal and professional growth.

In his impactful discourse, Swami Ji drew upon anecdotes from diverse life experiences to illustrate the significance of integrity and the pursuit of a balanced life. He underscored the pivotal role of science and technology as drivers of progress, urging for continual innovation in the field. Notably, he emphasised the fusion of science and spirituality, highlighting their collective power in shaping a brighter future.

Central to his message was the importance of ethical conduct in the workplace. Swami Ji emphasised that genuine success stems from honest and principled work, urging professionals never to compromise their ethics for fleeting gains. His words echoed a resolute stance against office politics, stressing that true advancement comes from uplifting oneself without pulling others down.

"Make work your dignity, not just labour," Swami Ji passionately expressed, urging individuals to approach their professions with a sense of purpose and pride. His guidance resonated, encouraging professionals to embrace failures as steppingstones to growth, emphasising the need to introspect on efforts rather than dwell on setbacks.



Time management emerged as a key theme, with Swami Ji advocating for the effective utilisation of time. He highlighted the critical balance between work and personal life, underlining the importance of quality family time in nurturing a healthier, happier tomorrow.

While emphasising the role of science and technology, Swami Ji also reminded the audience of the equally critical role of spirituality in fostering personal rehabilitation. His holistic approach encompassed the integration of religious and spiritual practices into one's life, underscoring their significance in achieving a harmonious existence.

The session left an indelible impression on the audience gathered at the event, offering a unique blend of philosophical depth and practical wisdom. Swami Ji's discourse transcended conventional boundaries, instilling a renewed sense of purpose, integrity, and holistic growth within the audience.

As the energy sector continues to evolve, Dr Gyan Vatsal Swami Ji's words serve as a guiding light, reminding professionals that success extends beyond achievements; it resides in the ethical fabric of their actions, the balance they strike in life, and the integrity they uphold in every endeavour.

His timeless wisdom reverberates as a call to embrace a harmonious amalgamation of science, spirituality, and ethical conduct—a roadmap to not just professional success, but to a fulfilling, meaningful life.



## Energy Efficiency Shenanigans: Unveiling 'Just Like That' - Making Sustainability as Easy as a Magic Trick

# Let's skip to the "FUN" part! EESL'S "JUST LIKE THAT"

**EESL** Just like that!

"I had a detailed discussion with DosaMan, even other food items can be cooked on this!"

"Mrs. Bulb is right!"

"CAPTAIN MOM, this Roti is so fresh and tasty!"

"That is because it has been made on the EESL Induction Cookstove"

"I am Roti Man!"

"Yes Superman is absolutely correct. I am as tasty and nutritious as a Roti made on a Gas Cookstove/tau"

The EESL Cookstove prepares delicious food and protects us from fire accidents at the same time!

**"Switch Karo, Save Karo!"**

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01-Jan	New Year Day
13-Jan	Lohri
14-Jan	Makar Sankranti
15-Jan	Magha Bihu/Pongal
17-Jan	GG Singh's B'day
25-Jan	Hazarat Ali's B'day
14-Feb	Basabt Panchami
19-Feb	Shivaji Jayanti
24-Feb	Guru Ravidas's B'day
06-Mar	Swami Dayanand Saraswati B'day
08-Mar	Maha Shivratri
24-Mar	Holika Dahan
25-Mar	Dolyatra



Closed Holidays	
26-Jan	Republic Day
25-Mar	Holi
29-Mar	Good Friday
11-Apr	Idu'l Fitr
17-Apr	Ram Navami
21-Apr	Mahavir Jayanti
23-May	Buddha Purnima
17-Jun	Idu'l Juha
17-Jul	Muharram
15-Aug	Independence day
26-Aug	Janamashtami
16-Sep	Milad-un-Nabi
02-Oct	Mahatma Gandhi B'day
12-Oct	Dussehra
31-Oct	Diwali
15-Nov	Guru Nanak's B'day
25-Dec	Christmas Day

Restricted Holidays	
31-Mar	Easter Sunday
05-Apr	Jamat-ul-Vida
09-Apr	Chaitra Sukladi/Gudi Padva/Ugadi
13-Apr	Vaishakhi/Vishu
14-Apr	Meshadi
08-May	Guru RN Tagore's B'day
07-Jul	Rath Yatra
15-Aug	Parsi New Year
19-Aug	Rakshabandhan
07-Sep	Ganesh Chaturathi
15-Sep	Onam
10-Oct	Maha Saptami

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11-Oct	Maha Ashtami/Navami
17-Oct	Guru Valmiki's B'day
20-Oct	Karva Chouth
31-Oct	Naraka Chaturdasi
02-Nov	Govardhan Puja
03-Nov	Bhai Duj
07-Nov	Chhath Puja
24-Nov	Teg Bahadur Martyrdom Day
24-Dec	Christmas Eve

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