



ENERGY EFFICIENCY SERVICES LIMITED
A JV of PSUs under Ministry of Power, Government of India



Innovating Energy

**Celebrating Sustainable
Independence**



Editor's Note

Animesh Mishra

CGM and Head (Sales & PR), EESL

Dear Reader,

The spectre of climate change looms large, casting long shadows of uncertainty and reminding us of the imperative to act. Rising temperatures, erratic weather patterns, and their far-reaching impacts have transcended geographical boundaries, underscoring the global nature of the crisis. In this challenging backdrop, India has emerged as a beacon of proactive resilience, exhibiting remarkable foresight and determination in combatting this global threat.

Over the past decades, India has masterfully balanced its developmental trajectory with safeguarding the planet's ecological equilibrium. Its efforts have been guided by innovation, backed by pioneering policies and cutting-edge technologies. The success of India's sustainable energy endeavours has been nothing short of revolutionary, paving the way for a future that is cleaner, more efficient, and ultimately, sustainable. As we commemorate India's Independence Day, this month's newsletter is themed "Celebrating Sustainable Independence". We set out to explore the myriad ways in which our nation is embracing cleaner energy avenues and fostering an environment of mindful energy consumption.

In our article, "Igniting independence from pollution with clean cooking solutions", we uncover how clean cooking technologies, propelled by innovation and policy support, hold the key to a healthier future. Through a synergy of advancements, awareness campaigns, and governmental initiatives, India stands poised to clear the air and illuminate a brighter path forward.

Shifting gears, we delve into the world of energy-efficient fans in "Cooling our nation: Energy efficient fans for a greener tomorrow". This piece underscores the pivotal role played by affordable and energy-efficient fans in curbing energy consumption, reducing greenhouse gas emissions, and cultivating sustainability. By embracing energy-conscious choices, we can collectively steer our nation towards a greener tomorrow.

At the heart of our climate change discussion lies a pivotal threshold – the target of limiting global warming to 1.5 degrees Celsius above pre-industrial levels. In "1.5°C: the pivotal threshold for global warming", we navigate the intricacies of this threshold and its far-reaching implications. By adopting sustainable practices, transitioning to electric mobility, and embracing energy efficiency, we not only enhance our chances of meeting this critical goal but also fortify a resilient global ecosystem.

Amidst the knowledge-sharing and insights, we pause to engage in a "Climate change chronicles: Did you know?" segment. This segment serves as a reminder that awareness is the first step towards change and explores some of the often-ignored facets of climate change and its repercussions.

It is through the combined efforts of individuals, communities, and nations that we can truly make a difference. I hope that the contents of this edition serve as a catalyst for your own journey towards a greener, more sustainable future. Let's celebrate the spirit of sustainable independence not just this month, but every day.



1.5°C: The pivotal threshold for global warming

Vishal Kapoor

Chief Executive Officer, EESL & CESL

In our fight against climate change, the target of limiting global warming to 1.5°C above pre-industrial levels stands as the lodestar. Emerging from the 2015 United Nations Paris Agreement, this threshold has become a symbol of our collective commitment to combat the devastating impacts of climate change. The urgency to achieve this goal is underscored by recent reports from the World Meteorological Organisation, which suggest a disconcerting 66% likelihood that the annual average global temperature between 2023 and 2027 will surpass the 1.5°C mark.

The Paris Agreement's central objective was to hold global temperature increases well below 2°C, with an aspirational target of 1.5°C. This ambitious goal reflects a recognition of the exponentially greater impacts that a mere half-degree rise can trigger. The pivotal nature of this threshold cannot be overstated – crossing it signifies a world 1.5°C warmer than during the late 19th century before the surge of industrialisation led to the rampant emissions of fossil fuels. Such an eventuality is not just a warning sign; it underscores an alarming trend of accelerating warming that demands our unwavering attention.

Exceeding the 1.5°C threshold, if sustained over a decade or two, would unleash a cascade of devastating consequences. Longer and more intense heatwaves, fiercer storms, and increasingly uncontrollable wildfires would become the new norm. The delicate equilibrium of ecosystems would be disrupted, leading to irreversible damage.

Climate hazards impact the human population and the ecosystem depending on exposure, vulnerability, and adaptive capacity. It is already aggravating food insecurity, displacement, and deaths. The adverse effects of climate change are also affecting crop yield negatively, and the risks posed by agricultural pests and diseases have also increased in the past few years. The global community is now at a crossroads, facing a choice between continuing down the perilous path of inaction or embracing a future where sustainability takes precedence.

Herein, energy efficiency can be a powerful force in our battle against climate change. The International Energy Agency's (IEA) Sustainable Development Scenario states that energy efficiency measures alone could account for over 40% of the emissions abatement required by 2040. This underscores the significant role that optimizing energy consumption patterns can play in mitigating global warming.

However, the benefits of energy efficiency extend beyond just emission reduction. They encompass tangible advantages such as energy and capital savings, job creation, enhanced economic competitiveness, and affordable energy access for consumers. The domino effect of energy efficiency on global emissions reduction cannot be understated.

While energy efficiency plays a vital role, another significant contributor to annual emissions is the transportation sector, primarily due to fossil fuel consumption. The shift towards electric mobility has emerged as a potent pathway to mitigating these emissions. As the global grid becomes progressively greener through the infusion of renewable energy sources, electric mobility assumes a central position in the clean energy transition.

The electrification of transportation aligns seamlessly with our efforts to achieve the 1.5°C target and sets the stage for a sustainable future. In alignment with these efforts, India has taken a bold step towards integrating energy efficiency into its cooling sector. The Energy Efficiency Services Limited (EESL) has initiated the Super-Efficient Air Conditioning programme. These remarkable ACs offer a cooling capacity of 1.5 tons at high ambient temperatures, simultaneously slashing cooling costs by 50%.

Furthermore, EESL has set its sights on a larger goal – to transition the entire stock of residential ceiling fans to super-efficient ones. By achieving this transition and capturing the annual market for super-efficient fans, India could potentially curtail its residential power consumption by a significant 15% each year.

To facilitate this sweeping market transformation, EESL has launched an ambitious program with the primary objective of deploying 10 million energy-efficient fans across the Indian market. Through these concerted efforts, EESL is not only addressing the escalating demand for cooling solutions but also effectively reducing the carbon footprint linked to energy consumption. Promoting the adoption of energy-efficient fans and ACs holds the promise of not only realising substantial energy savings but also paving the way for a more sustainable and environmentally conscious future.

The 1.5°C threshold stands as a pivotal moment in this collective struggle. Rooted in the Paris Agreement's aspirations, it symbolises our commitment to safeguarding our planet's future. While ominous signs may point towards a potential breach of this threshold, the emergence of pioneering solutions, like EESL's Super-Efficient Air Conditioning programme and energy-efficient fans initiative, offer a glimmer of hope. Embracing sustainable and energy-efficient practices, along with the shift towards electric mobility, amplifies our chances of not only meeting the 1.5°C target but also creating a resilient and thriving global ecosystem. The convergence of these strategies can act as a tailwind in our efforts to mitigate the adverse effects of climate change. As we navigate the path ahead, the decisions we make today will inevitably define the trajectory of our planet's future.





Cooling our Nation: Energy-Efficient Fans for a Greener Tomorrow

Bishal Thapa

Senior Director, CLASP

In India, nearly 41 million units of ceiling fans are sold every year, making them one of the largest-selling cooling appliances. However, only three in every 100 households use energy-efficient ceiling fans. As the nation grapples with sweltering summers, energy-efficient and affordable fans are essential for reducing energy consumption and greenhouse emissions; cutting energy costs; and promoting sustainability.

In a country that faces hot summers every year, cooling solutions are not a luxury but a necessity. Nearly 41 million ceiling fans sold every year in India, making it the second most commonly found service product in Indian households. These fans account for a significant 20% of India's residential electricity consumption. However, almost 97% of these fans are not energy-efficient and lead to high energy consumption, increased greenhouse emissions, and inflated energy bills.

India's demand for cooling solutions is expected to increase ninefold between the years 2018 and 2037, contributing to a fivefold increase in energy consumption under a business-as-usual approach as per the India Cooling Action Plan (ICAP). This surge in demand will place considerable strain on existing electricity systems and require certain additions that will result in higher emissions.

The Opportunity Gap

There is a massive opportunity for making India's ceiling fan market more energy-efficient. This will yield benefits for the environment, consumers, and ultimately the nation's energy consumption. With this view, India's Bureau of Energy Efficiency made it mandatory in 2022 for ceiling fans to be manufactured with star-rating labels. Fans with 5-star rating consume up to 50% less power as compared to unlabeled or lower-starred fans.

The Collaborative Symphony of Progress

Just like the blades of a fan run in unison to produce a cooling breeze, a similarly harmonious synergy of parts is required in the form of collaborations to cool India sustainably. The government, fan manufacturers, and other stakeholders are like the three blades of a fan, each with a crucial role to play in achieving energy efficiency.

Government: Setting the Pace

With the Bureau of Energy Efficiency's integral policy on raising the efficiency of fans and enabling market transformation, EESL launched an initiative to encourage the adoption of ten million energy-efficient fans in India. This initiative aligns perfectly with ICAP's mission, underlining a strong commitment to a greener future. India is projected to have a stock of 700 million ceiling fans by 2037-38. Ensuring that these units are energy-efficient will alone reduce the country's energy consumption by almost 15%, helping the country achieve its climate ambitions.

Manufacturers: Crafting Innovation

Fan manufacturers are responsible for transforming policies into tangible solutions. Under the Bureau of Energy Efficiency's mandatory star-label policy for ceiling fans, manufacturers are increasingly designing and producing energy-efficient fans that adhere to these standards without compromising performance. These fans not only reduce electricity consumption but also highlight the innovation potential of Indian manufacturing.

A Unified Movement led by Stakeholders

The stakeholders in this energy efficiency movement include consumers, retailers, and advocacy groups, among others. Their collective involvement is of paramount importance. By choosing energy-efficient appliances, spreading awareness, and advocating sustainable choices, these stakeholders can generate a groundswell of change, magnifying the impact of their efforts.

Collaborating for a Cooler Tomorrow

With various forces coming together to address the growing demand for cooling solutions, EESL has joined hands with CLASP and other civil society partners through a Memorandum of Understanding signed at the 14th Clean Energy Ministerial in July 2023, to bring about substantial change. EESL's vision to deploy ten million energy-efficient fans across India, if realized, has potential to significantly bring down energy consumption. With technical expertise and market transformation strategies provided by CLASP, this collaboration is a beacon of hope for a sustainable cooling revolution.

As temperatures rise, so do the energy requirements of cooling appliances. The need for sustainable cooling is thus non-negotiable. EESL's collaborative effort paves the way for other players in the ecosystem to unite in achieving India's sustainable cooling goals. The government, manufacturers, and stakeholders – like the three blades of a fan – must collaborate and complement each other to enable a greener, cooler tomorrow for India. Through energy-efficient fans and unwavering commitment to sustainability, India can usher in an era of responsible cooling that benefits both its present and future generations.



Clearing the Air: Battling Indoor Air Pollution in Indian Kitchens

Chandru Kalro

Managing Director, TTK Prestige Ltd



The Silent Menace: Indoor Air Pollution

For many years, the Government of India along with some NGOs, has been trying to address the issue of indoor air pollution. It is well-established that indoor air pollution is an even bigger problem than outdoor air pollution in India and claims over 3.5 million lives annually. A lasting solution to this problem can only be found by tackling its root cause – cooking with biomass fuels such as wood, crop residues, and dung cakes. The combustion of these fuels releases hazardous pollutants, including fine particulate matter (PM2.5), carbon monoxide (CO), volatile organic compounds (VOCs), and other noxious gases, into the air. Over time, prolonged exposure to these pollutants can lead to severe health problems, ranging from respiratory diseases to heart ailments.

The choice of fuels for cooking often stems from cultural practices, limited access to clean energy, and socioeconomic factors. Traditional cooking methods, which involve open fires or rudimentary stoves, release copious amounts of smoke directly into the living space. Lack of proper ventilation exacerbates the problem, as the pollutants get trapped indoors.

Providing Clean cooking solutions to everyone

It is important to promote the use of clean cooking solutions – such as improved cookstoves – and cleaner cooking fuels such as liquefied petroleum gas (LPG) and electricity. Improved cookstoves are designed to burn fuels more efficiently, thus reducing the amount of smoke generated. Furthermore, the adoption of cleaner fuels eliminates many harmful emissions at the source.

Challenges on the Path to Change

Affordability is a significant consideration for many households, as cleaner fuels and improved stoves can be more expensive upfront. Switching to clean cooking practices also calls for behavioural change, as generations of people have grown accustomed to traditional cooking methods. Building awareness about the health impacts of indoor air pollution is the first step towards facilitating a shift. Although many beneficiaries have adopted LPG, they have not yet done away with traditional chulhas. The problem, thus, has not yet been fully eliminated.

Technological Innovations and improved availability of electricity

Induction cooktops are a solution to this problem. They are especially relevant in view of the improved availability of electricity to all households. Induction cooking is safer, more efficient, and faster than LPG. It is like having a postpaid connection as opposed to the prepaid nature of LPG where the cylinder cost is payable upfront. Moving away from LPG use in kitchens can reduce India's import bill.

Moreover, if the power source used for the inducting cooker is renewable, it enables the accumulation of carbon credits and accelerates progress towards the nation's ESG goals. Induction cooktops are at least 25% more efficient than LPG stoves and can yield monthly savings of up to Rs 200 per month per household, going by today's LPG prices.

Educational Campaigns and Behavioural Shifts

Creating awareness and driving behavioral changes are fundamental to the success of campaigns around LPG use or induction cooking. Educational campaigns that highlight the health risks of traditional cooking methods should also emphasize the time savings associated with modern cooking methods. This will encourage families to embrace cleaner alternatives. Government-sponsored programs, NGOs, and community-based organizations can play a pivotal role in spreading information and motivating households to make the switch. The private sector can also add to the momentum by providing cost-effective, good-quality solutions products and services that are both accessible and affordable.

Conclusion

Tackling indoor air pollution in Indian kitchens calls for a multi-faceted approach that addresses cultural norms, economic constraints, and technological advancements. It is a challenge, no doubt, but it is certainly worth working towards. The benefits of clean air cannot be overstated. Protecting the health and well-being of millions of citizens, especially women and children, is a national responsibility that requires urgent attention. Through a combination of clean cooking solutions, technological innovations, awareness campaigns, and policy support, India has the opportunity to clear the air and pave the way for a healthier, brighter future.



Climate change chronicles: Did you know?

In this edition of the newsletter, we uncover intriguing facts that shed light on the current state of our planet and the path that lies ahead. From record-breaking temperatures to ambitious energy goals, join us as we explore the fascinating world of climate change.

The warming trend continues: Analysis by the National Oceanic and Atmospheric Administration (NOAA) revealed that the average global temperature in 2022 was 1.55 degrees Fahrenheit (0.86 degrees Celsius) warmer than the 20th-century average. This alarming increase in temperature solidified 2022 as the sixth-hottest year on record. Remarkably, a remarkable pattern emerges when we examine the data further – the ten hottest years on record from 1880 to 2022 have all occurred since 2010.

Deforestation's hidden impact: Did you know that up to 20 per cent of global greenhouse gas emissions caused by human activities are linked to deforestation? This percentage surpasses the emissions generated by all the passenger vehicles scattered across our planet.

Nature's workforce: Scaling up natural climate solutions, such as rehabilitating degraded forests, has the potential to usher in a wave of employment opportunities. Ecosystem restoration has the remarkable potential to create as many as 20 million new jobs. This figure dwarfs the job creation associated with oil and gas production, boasting 3.7 times more employment per dollar invested.

Biodiversity in the balance: The delicate dance of Earth's ecosystems faces an uncertain future as global temperatures rise. The United Nation's climate action arm warns that a warming of 1.5 to 2 degrees Celsius could lead to a dramatic reduction in the ranges of terrestrial species. This shift could prove detrimental to species conservation efforts, trigger rapid turnovers in local species populations, and escalate the risk of global extinctions.



Melting landscapes: The icy landscapes of Greenland and Antarctica are undergoing rapid transformations, as evidenced by NASA's Gravity Recovery and Climate Experiment (GRACE) data. Over the period of 1993 to 2019, Greenland lost a staggering average of 279 billion tons of ice annually, while Antarctica shed 148 billion tons each year – a mass equivalent to the awe-inspiring Mount Everest.

The economics of climate change: The implications of climate change extend far beyond the environment – they touch every aspect of our lives, including the economy. According to Earth.Org, if we stay on our current trajectory, climate change could extract a toll of 11 to 14 per cent from the global gross domestic product (GDP) by mid-century.

India's green pledge: Closer to home, the Indian government has committed to a monumental energy transformation. By the year 2030, India aims to generate a staggering 500 gigawatts of power from alternative sources, demonstrating its unwavering dedication to ecological preservation and sustainability.



Noteworthy Energy Developments

Intracity hydrogen buses in Leh

With the objective of achieving the goal of Carbon Neutral Ladakh, Leh will soon see intracity hydrogen buses. These buses will start operation on trial basis. Additionally, NTPC is setting up a Hydrogen Fuelling Station and a Solar Plant in Leh and will provide five Fuel Cell buses for intracity operation in Leh.

Foundation stone laid for Power Grid's sub-station at Lakhisarai, Bihar

Union Minister of Power, New & Renewable Energy Shri R.K. Singh, laid foundation stone for extension of Power Grid's 400/132 kV at Lakhisarai Sub-station in Bihar on 18th August 2023. As part of the project, 220 kV GIS will be constructed in existing sub-station premises along with installation of 2 transformers of 500 MVA capacity

Power Minister unveils 9 solar power demonstration projects in Uganda

During the 5th Regional Meeting of the International Solar Alliance (ISA) held in Kigali, Rwanda, President of ISA and Union Minister for Power and New & Renewable Energy, Shri RK Singh, virtually unveiled nine solar power demonstration projects in Uganda, Comoros, and Mali. These projects not only provide energy but also symbolize progress and global collaboration.

MNRE and US Energy Department launch US-India Renewable Energy Technology Action Platform

Under the Strategic Clean Energy Partnership, India's Ministry of New and Renewable Energy and the United States Department of Energy have together launched the US-India Renewable Energy Technology Action Platform (RETAP) to accelerate the deployment of renewable energy technologies and foster sustainable development.

UN announces International Day of Clean Energy

In a historic move towards achieving a just and inclusive energy transition, the UN General Assembly announced January 26th as the International Day of Clean Energy. This day also marks the anniversary of the foundation of the International Renewable Energy Agency (IRENA) in 2009

Government unveils Green Hydrogen Standards, sets emission thresholds for production

Indian Government unveils Green Hydrogen standards and sets emission thresholds for production of not more than 2 kg CO₂ equivalent / kg H₂. With this announcement, India becomes one of the first few countries in the world to announce a definition of Green Hydrogen.

India now has 70,000 MW of solar power generation capacity

India has reached a significant milestone by surpassing 70,000 Megawatts (MW) of solar power generation capacity. With the sole contribution of 17,839 MW, Rajasthan is leading the way with the highest installed base of renewable energy technology among all the states.

Independence Day Celebrations at EESL office





ENERGY EFFICIENCY SERVICES LIMITED

A JV of PSUs under Ministry of Power, Government of India

Address: **Energy Efficiency Services Limited (EESL)**
5th, 6th & 7th Floor, Core -III, Scope Complex,
7 - Lodhi Road, New Delhi - 110003

Phone: **011-45801260**

Website: **www.eeslindia.org**

