



## India must continue its impressive domestic LED growth story, aim for global leadership

Light bulbs are one of the most widely used electric appliances in the world, consuming about 15% of the total electricity. Over the years, amidst growing awareness about the need for energy efficiency and smarter power consumption, Light Emitting Diode (LED) lights and bulbs have

come strongly to the fore. Up to 75% more energy-efficient than incandescent and compact fluorescent (CFL) bulbs, LEDs can play a key role in enabling smarter electricity access with a lower carbon footprint. They have already become the preferred choice in industrial, commercial, and domestic applications.

LEDs are integral to the digitalization of streetlights under the Smart Cities Mission by the Government of India. The goal is to have smart, energy-efficient streetlights whose intensity can be adjusted as required. Conventional streetlights can be switch on and off when needed, but their intensity remains the same throughout. In contrast, LEDs can be programmed for a flexible “dimming schedule” that adjusts the light intensity based on what is happening in the local environment.

LEDs can also help in reducing mercury pollution. In 2018, India committed to phasing out mercury-based fluorescent lighting products by 2025. In the five years before that, the market for LED lights in India had grown astronomically, from annual sales of 5 million bulbs in 2014 to about 670 million in 2018. The price of LEDs, meanwhile, dropped from Rs 400 to Rs 70 during this period. India has continued to strongly promote and adopt LEDs since then and has emerged as the world's second largest producer of LEDs.

The growing domestic demand for LEDs is driven as much by government initiatives as by the pro-environment sentiment among industrial, corporate and retail consumers of electricity across urban and rural areas. The Unnat Jyoti by Affordable LEDs for All (UJALA) scheme by the Government of India played a huge role in creating a thriving market for LEDs in India, bringing down the cost of LEDs even further and making them widely and easily accessible for the masses. The government's Street Lighting National Programme (SLNP) meanwhile, is replacing conventional streetlights with smart and energy-efficient LED lights. Both these programmes have enabled large-scale socioeconomic transformation and yielded significant benefits in terms of costs savings, and reductions in emissions and peak demand.

Moreover, LEDs can give a significant boost to India's exports, employment, and economic growth, and put the country at the forefront of the global transition to energy-efficient lighting. This entails improvements at all levels of the supply chain and the value chain, including the crucial functions of R&D manufacturing, which are the centre of attention. The Production Linked Incentive (PLI) scheme for white goods, approved by the Government of India, will help in making LED manufacturing globally competitive and creating economies of scale. The PLI scheme will also have a positive impact on sectors like automotive, which are finding many, new, diverse applications for LEDs. The stage is well set for LEDs to light the way ahead for India and the rest of the world in environment-and-business-friendly lighting.

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## Energy-intensive steel industry looks to push consumption, reduce emissions

India produced 118.1 million tonnes (MT) of steel in 2021, and the industry is poised to see tremendous growth in 2022. However, amidst growing urgency to reduce carbon emissions and limit global warming, the Indian steel industry is facing its biggest hurdle in the form of its high carbon footprint, owing to its dependence on iron ore and coal as steel feedstocks.

On the one hand, India is keen on increasing its per capita steel consumption, increasing its steel export, and attracting foreign investment. On the other hand, the production of clean steel, using processes with low carbon footprint, remains a concern.

### The steel industry's energy, emission, and consumption woes

In a report published in 2020, the IEA said that the iron and steel sector is responsible for a fifth of industrial energy consumption in India, with coal accounting for 85% of its total energy consumption. India's steel sector is also emissions-intensive and contributes almost a third of direct industrial CO<sub>2</sub> emissions. The processes in India use more primary iron ore versus scrap steel in terms of ratios as inputs compared to other countries. Moreover, the sector is heterogeneous and uses a wide range of equipment with dated and inefficient technology. The issue is compounded by the presence of numerous small-to-medium steel mills that are less efficient and more polluting.

India's steel consumption witnessed a seven-fold increase between 1991-92 and 2019-20. In the same period, the economy grew nine-fold, underlining the link between economic growth and steel consumption. Despite this growth, India's per capita steel consumption in 2019-20 was less than a third of the global average. The gap is even starker between rural and urban India. In 2020-21, per capita consumption of steel in rural areas was just 21.5 kg as compared to 176 kg in urban areas.

### Efforts to address the issues

The Ministry of Steel is working with the Ministry of Rural Development and the Ministry of Agriculture to increase awareness in rural areas about the usage of steel. The Centre has also constituted a Joint Working Group for developing standardised design and layouts of housing configurations with steel structures. At the same time, the government has also been making several policy interventions to meet its climate goals.

The National Steel Policy-2017 aspires to increase per capita consumption of steel to 160 kg and reduce average CO<sub>2</sub> emission intensity to around 2.4 t/tcs by 2030-31. In 2019, the government notified the Steel Scrap Recycling Policy with the aim of increasing scrap as raw materials for finished steel products. The Government has recently also announced the Green Hydrogen Mission for promoting the utilisation of green hydrogen in India. The use of green hydrogen in steel production can significantly reduce emissions.

The Perform, Achieve and Trade (PAT) is a flagship scheme under the National Mission for Enhanced Energy Efficiency (NMEEE). It is a market-based mechanism for enhancing energy efficiency, under which the government sets energy-saving targets and companies have to achieve them. The achievers get Energy Saving Certificates (ESCerts).

Meanwhile, the Steel Association of India (SAI) has prepared a list of policy enablers that can push green steel in the country. This includes preferential public procurement of green steel, introduction of standards for green steel, and more.

Steel production is concentrated in India's steel belt of Odisha, West Bengal, Jharkhand and Chhattisgarh owing to the presence of iron ore, coal deposits, and seaports. Any transition away from conventional steel-making processes in India will need to factor the implications for jobs, supply chains, production patterns, etc.

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Source: Mongabay



*India's Prime Minister Shri Narendra Modi delivered the National Statement at COP 26, in Glasgow, Scotland on November 01, 2021. Photo from Press Information Bureau.*

# Top energy trends from India & across the globe

- **Indian scientists design system for energy-efficient hydrogen production**

Indian scientists have designed an electrocatalyst system for energy-efficient hydrogen production with the help of electrolysis of urea, which is helpful towards urea-based waste treatment with low-cost hydrogen production. Compared to water electrolysis, urea electrolysis helps reduce the energy requirement for production of hydrogen by 70 percent. The energy-intensive counterpart of water splitting, oxygen evolution, can be replaced with urea oxidation in this process, in which low-cost, earth-abundant Ni-based catalysts are widely applied. The main challenge associated with urea oxidation is retaining the prolonged activity of the catalyst as the strong absorption of the reactive intermediate (COx) on the active site, referred to as catalyst poisoning, causes activity loss.

- **At IEA Ministerial Meeting, global energy leaders vow to strengthen energy security and accelerate clean energy transitions**

Global energy leaders met in Paris this week for the International Energy Agency's 2022 Ministerial Meeting, sending a strong message of unity on the need to strengthen energy security, reduce market volatility, and accelerate clean energy transitions worldwide. Chaired by US Secretary of Energy Jennifer M. Granholm, the two-day meeting took place amid the severe energy market turmoil and energy security concerns triggered by Russia's unjust and unprompted invasion of Ukraine last month. In addition to ensuring global energy security, the IEA has a new guiding principle: supporting countries in the global effort to attain net zero greenhouse gas emissions in the energy sector by mid-century. The new IEA mandates cover areas such as ensuring energy security during the energy transition and leading the global energy sector to fight against climate change, with a notable emphasis on expanding the IEA's work on the critical minerals needed for clean energy technologies.

- **Energy transition holds key to tackle global energy and climate crisis**

Short-term interventions addressing the current energy crisis must be accompanied by a steadfast focus on mid- and long-term goals of the energy transition. High fossil fuel prices, energy security concerns and the urgency of climate change underscore the pressing need to move faster to a clean energy system. International Renewable Energy Agency (IRENA) launched the World Energy Transitions Outlook at the Berlin Energy Transition Dialogue. The report sets out priority areas and actions based on available technologies that must be realised by 2030 to achieve net zero emissions by mid-century. It also takes stock of progress across all energy uses to date, clearly showing the inadequate pace and scale of the renewables-based transition.

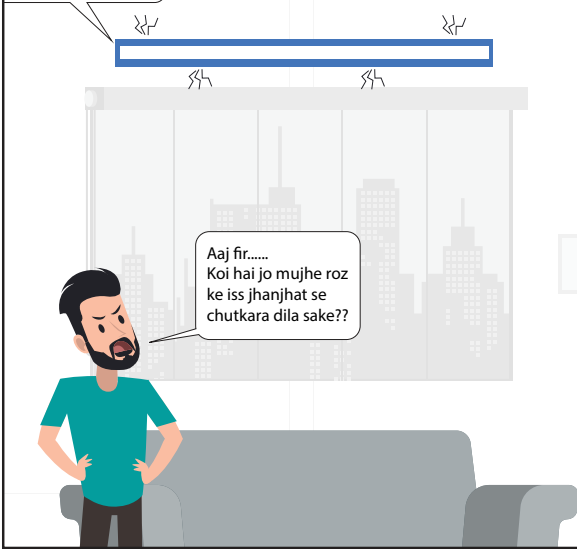
- **How declining coal plants efficiencies are jeopardizing India's COP26 emission targets**

As in many developing countries, fossil fuels dominate in India's electricity generation. Coal still plays a major role in meeting the country's burgeoning energy needs, but there are gaping inefficiencies in energy use and carbon dioxide emissions. On the efficiency front, reduction targets for energy use specified for coal plants under the existing policy i.e. Perform Achieve and Trade (PAT) introduced in 2012, were less than the energy saving potentials, resulting in substantial inefficiencies in energy use. As per Central Electricity Authority (CEA) estimates, annual emissions in electricity generation are likely to increase from 922 million tonnes in 2018 to 1287 million tonnes by 2030. To meet India's COP 26 targets, it is imperative that existing coal plants lift their performance in energy use and CO<sub>2</sub> emissions. Given the lack of CO<sub>2</sub> emission targets for electricity generation and the current lax energy saving targets, it is likely that energy and emissions performance will continue to deteriorate.

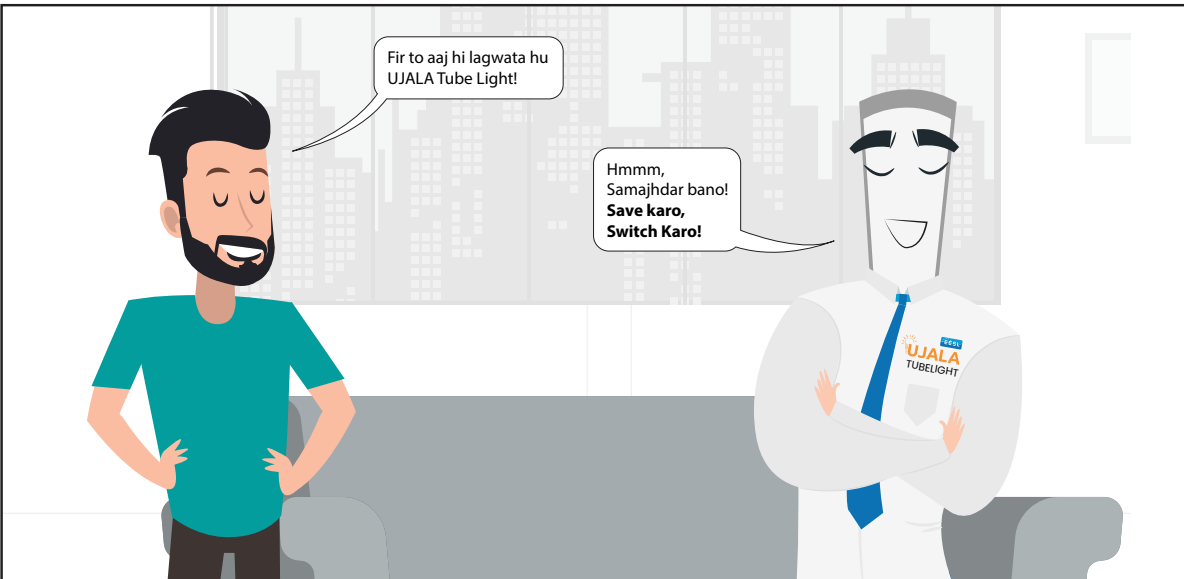
- **Russia-Ukraine war shakes Europe path to energy independence, climate goals**

Before Russia's war in Ukraine, Europe's most pressing energy policy goal was reducing carbon emissions that cause climate change. Now, officials are fixated on rapidly reducing the continent's reliance on Russian oil and natural gas. To wean itself from Russian energy supplies as quickly as possible, Europe will need to burn more coal and build more pipelines and terminals to import fossil fuels from elsewhere. This dramatic shift comes amid soaring fuel costs for motorists, homeowners and businesses, and as political leaders reassess the geopolitical risks from being so energy-dependent on Russia. While some are calling for an immediate boycott of all Russian oil and gas, the EU plans to reduce Russian gas imports by two-thirds by the end of this year, and to eliminate them altogether before 2030.

Flickering Tubelight



\*T&C applied  
For more detail visit [www.eesmart.co.in](http://www.eesmart.co.in)

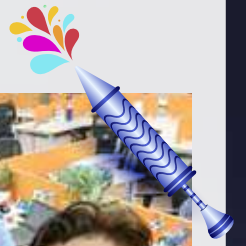


**UJALA**

Unnat Jyoti by Affordable LEDs for All

**Lighting New India With  
Affordable And  
Environment Friendly LEDs.**

# Holi Celebration



Colours are what make us feel alive.  
Fill your life with colours of happiness.