

ENERGY EFFICIENT LIGHTING (PART - 1)

Energy efficiency means reducing the energy usage of a product without diminishing its output or final response or user comfort levels. An energy efficient product consumes less energy to perform the same function when compared to the same product with more energy consumption. Energy efficiency in lighting sector means providing the required illumination level, while consuming the least amount of energy.

Lighting is the major consumer of electricity, it has been estimated that lighting consumes about [20% of the total power generation of the world](#). Lighting is the basic requirement of any facility and it impacts the day-to-day activities. Energy consumption for lighting in industrial sector constitutes only a smaller portion compared with the total energy consumption. In case of domestic and commercial/building sectors lighting accounts for [50 - 90 % of total energy consumption](#). For achieving productive utilization of electricity, a sustained switch to the energy efficient lighting is the most savvy and solid technique for energy - saving.

General Information on Light Measurement

Luminous Flux The total light output in all directions of a light source. Unit: lumen (lm).

Light Intensity The light output in a specified direction from a light source. Unit: candela (cd).

Illuminance Amount of light falling onto a surface. The luminous flux per unit area. Unit: Lux (lux = lumens per square metre).

Luminance It is the surface brightness, how bright an surface appears to human eye. It depends on the visible surface area, and the light reflected by the surface to the eye. Unit: candela per square metre.

Watts It refers to the amount of energy required to light products and not the amount of light.

Energy efficient lighting Technology

The traditional incandescent lamps and high discharge lamps consumes a large amount of electric power as it uses much of its consumed energy to produce heat rather than light, therefore such lamps have to be replaced with energy efficient lamps. The following are the techniques or types of energy efficient lighting which are practiced as energy-saving opportunities.

1. Compact Fluorescent Lamps (CFLs) in Place of Incandescent Lamps

CFL lamps are miniature or curly versions of long-sized fluorescent tubes. CFLs can be applied nearly anywhere that incandescent lights are used. CFLs use about 2/3 less energy than standard incandescent bulbs, give the same amount of light, and can last 6 - 10 times longer. There are different types of CFLs available in market like [spiral lamps](#), [triple tube lamps](#), [standard lamps](#), [globe lamps](#) and [candelabra lamps](#). Replacing a single incandescent bulb with a CFL will keep a half-ton of CO₂ out of the atmosphere over the life of the bulb. When incandescent bulbs are replaced with CFLs it has to be matched with the light output or Lumens, and not with the watts. A single 18 watt CFL used in place of 75 watt incandescent bulb provides the same 1100 lumens. The following [table](#) can be used to easily figure the conversions.

Minimum Light Output (Lumens)	Incandescent Bulb (Watts)	CFL (Watts)
450	40	9-13
800	60	13-15
1100	75	18-25
1600	100	23-30
2600	150	30-52

(TO BE CONTINUED...)

Electricity Contacts

- Call center—1912
- Fuse Off Call Centre:
Tamil Nadu and Chennai
- RTI—[TANGEDCO](#)
- TNERC & Ombudsman: 044-28411376, 28411378, 28411379
- CGRF: [Addresses](#)
- Pay online: [TNEBNET](#)

Please send your feedback to ecc@cag.org.in

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Southern Consumer Organisation for Protection & Empowerment - (SCOPE)
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Tamil Nadu News

State's share of renewable energy volume touches 20%

Tamil Nadu's share of renewable energy (wind, solar, biomass and small hydro) in its total energy mix hit 20% in the first five months (April-August) of fiscal 2017, according to a report by research firm Elara Capital.

The share is higher than what the State achieved for the whole of FY16 and FY17. Tamil Nadu's share of renewable energy in its total energy mix stood at 16.9% in FY17 and 14.2% in FY16, according to the firm's report which had sourced the data from the Ministry of New and Renewable Energy.

The increased share comes on the back of the busy 2017 wind season in the State, which just concluded. According to a Tamil Nadu Generation and Distribution Corporation (Tangedco) official, the State evacuated a record quantum of wind energy when compared to last year. For instance, on July 11, Tangedco evacuated more than 5,000 MW of wind power, replacing almost 1,000 MW of thermal power and operating several other plants at half the capacity. During that day, wind power accounted for almost a third of the State's electricity demand.

Karnataka led among the States in renewable energy volume contribution followed by Rajasthan and Tamil Nadu during the five-month period, the report added. It also pointed out that these three States account for 17% of India's power market. Renewable energy contributed 18.3% of volume in Andhra Pradesh in the April-August period. Maharashtra was the only State to see a drop in renewable energy volume to 10.1% in the five-month period compared to 11.9% in FY17. Source: [The Hindu](#), October 08, 2017.

India News

Spurious brands of LED lamps pose threat to consumer safety, Government revenue

The LED bulbs or downlights we are buying may not be saving the power and thus billing for us much to our expectations. On the contrary they may pose threat to our electrical circuits. A Nielsen study conducted across four major Indian cities New Delhi, Mumbai, Ahmedabad and Hyderabad suggested that 76% of LED Bulb brands and 71% of LED downlight brands across 200 electrical retail outlets were found to be non-compliant with consumer safety standards, as prescribed and mandated for lighting products by the Bureau of Indian Standards (BIS) and Ministry of Electronics and Information Technology, Government of India. The findings showed that 48 percent of LED bulb brands had no mention of manufacturer's address and 31 percent did not have a manufacturer's name.

In Mumbai a large number of LED brands had the name and address of manufacturing on the casing but no BIS mark. These spurious products pose a serious safety hazard for consumers besides causing significant loss in tax revenues for the Government of India. The survey was conducted in July this year and Mumbai fared the best among all the cities surveyed on most counts.

The Indian Lighting industry unanimously recommends a need for stronger enforcement for compliance to these safety standards prescribed and mandated by the BIS and the ministry. It not only threatened organized and compliant market players but also to the government's key programs like Make in India and Demonetization.

According to the president of Electric Lamp and Component Manufacturers it is unlikely that the manufacturers of spurious LED Bulbs and Downlighters pay any GST to the government, thereby causing a huge loss to the exchequer. Sumit Joshi, vice-chairman and managing director, Philips Lighting India said, "Given the government's push towards adoption of LEDs, it is important that it acts against these spurious products for consumer safety and protecting government revenues. Sunil Sikka, ex-president ELCOMA and Havells India Limited said, "Despite these non-compliant products openly flouting government regulations, they are being openly sold in marketplaces." Raju Bista, vice-president, ELCOMA and managing director of Surya Roshni Ltd observed that these non-compliant products would also impact energy efficiency in the country.

Source: [The Times of India](#), October 25, 2017.

Consumer Focus

FACTS

The petitioner made a representation before the forum saying that the residents requested the transformer erected in their area to be relocated or converted to Ring Main Unit (RMU) type or for fencing to be built around it. The respondents had erected the transformer with adequate clearance and an assurance was made to convert it to RMU type as soon as possible.

CONTESTATIONS

Appellant: Despite several requests given by the residents to relocate the transformer erected in that area or to change it to a smaller, modern RMU and to provide fencing, no action was taken. It was a narrow street and sometimes fires occurred during interruptions.

Respondent: The transformer was erected to avoid low voltage and frequent power supply interruptions- with adequate clearance. There was sufficient space in the street and the erection caused no hindrance. It was difficult to build fencing around the transformer because it is a small road. Also, assurance was made to convert it to RMU type as soon as possible.

OBSERVATIONS AND JUDGMENT

Since the transformer was erected under the Restructured Accelerated Power Development and Reforms Programme (R-APDRP) scheme, it could not be converted to the RMU type immediately. However, the Forum directed the licensees to provide fencing around the transformer within a month.

ECC Voice

மின்னழுத்த குறைபாடு

தனது வீட்டில் மின்னழுத்தம் குறைவாக இருப்பதால், வீட்டில் பல்புகள் எரிவதில்லை மற்றும் இதர மின்சாதனங்களையும் பயன்படுத்த முடியவில்லை என்று செட்டிகுளத்திலுள்ள திரு. செல்வராஜ் என்ற நுகர்வோர் திருநெல்வேலி மின் நுகர்வோர் மையத்தினை அணுகினார். மேலும், திரு. செல்வராஜ், மின் இணைப்புக்கு வரும் மின் இணைப்பு கம்பியை (wire) மாற்றியும் மின்னழுத்தம் சீராக கிடைக்கவில்லை என்றும், மின் இணைப்பு கம்பியினை மின் கம்பத்திலுள்ள பேஸ் (phase) மின் கம்பியில் 2 மற்றும் 3 முறை மாற்றியும் மின்சாரம் சீராக இல்லை என்றும் தெரிவித்தார். இந்த புகாரின் அடிப்படையில், மின் நுகர்வோர் மைய அலுவலகத்திலிருந்து, திரு. செல்வராஜ் இருக்கும் அப்பகுதியின் மின் வாரிய அதிகாரிக்கு, கடிதம் மூலம், நுகர்வோரின் வீட்டிற்கு மின்சாரம் சீரான முறையில் இருக்கவில்லை என்பதனை தெரிவித்து, அப்பகுதியை மின்னழுத்த கள ஆய்வு செய்ய வேண்டும் என்றும் தெரிவிக்கப்பட்டது. மேலும், கள ஆய்வின் பின் நுகர்வோர் குறிப்பிடப்பட்ட மின்னழுத்தம் குறைவாக இருப்பின், அப்பகுதிக்கு மின்சாரம் சீராக வழங்க தகுந்த நடவடிக்கை எடுக்க வேண்டுமெனக் கேட்டுக் கொள்ளப்பட்டது.

மின் நுகர்வோர் மைய கடிதத்தின் அடிப்படையில், மின் வாரிய அதிகாரிகள், திரு. செல்வராஜ் அவர்களிடம் விசாரணை செய்தனர். புகார் தெரிவிக்கப்பட்ட பகுதியில் கள ஆய்வு மேற்கொள்ளப்பட்டு மின்னழுத்தம் குறைவாக இருப்பது கண்டறிந்து, அப்பகுதியின் மின்னழுத்தத்தை சீர் செய்வதற்கான மதிப்பீடு தயார் செய்யப்பட்டு, மதிப்பீடு அனுமதியும் வழங்கப்பட்டது.

மின்னழுத்தத்தை சீர் செய்வதற்கான களப்பணிகள் விரைவில் எடுக்கப்பட்டு, மின் கம்பிகள் மாற்றப்படும் என்றும், இப்பகுதியில் மின்னழுத்தம் விரைவில் சீர் செய்யப்படும் என்ற விபரத்தினையும், மின் அதிகாரிகள் மின் நுகர்வோர் மையத்திற்கு கடிதம் மூலம் தெரிவித்துள்ளார்கள்.

திருநெல்வேலி மின் நுகர்வோர் மையம் இந்த விவரத்தினை திரு.செல்வராஜ் அவர்களுக்கு தெரிவித்து, மின் வாரிய அலுவலகத்திலிருந்து பெறப்பட்ட கடித நகலையும் அவருக்கு அனுப்பியது.

- திருநெல்வேலி மின் நுகர்வோர் மையம்

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Citizen consumer and civic Action Group (CAG) is a non-profit, non-political and professional organization that works towards protecting citizen's rights in consumer and environmental issues and promoting good governance processes including transparency, accountability and participatory decision making.

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World News

The Hywind project: the world's first floating wind farm

The Hywind project delivers enough electricity to the national grid to power 20,000 homes, using the North Sea's high wind. Located 15 miles off the shore of Peterhead the 30MW wind farm is formed of five floating turbines that span across 2.5sqm of water.

The 6MW turbines rise 175m above sea level, making them taller than London's Big Ben and Oslo's Plaza, and extend 78m below the surface of the water, tied to the sea bed by cables. The anchors used to stabilize the turbines stand at 16m and weigh 111 tonnes. The 15-year Hywind project was developed by Statoil, the Norwegian energy firm, with the aid of Scottish companies, at the cost of £210mn (US\$276mn).

"In addition to the green benefits of renewable energy, it also has a very significant contribution to make to our economy," Nicola Sturgeon, the First Minister of Scotland, commented.

"I'm pleased Scottish suppliers have contributed to the Hywind project from the development through to the production phase and are still involved to investigate long-term potential for floating wind." The concept of a floating turbine was conceived in 2001, a single prototype being made in 2009, and funding for the project was provided in 2015.

The benefits of a floating offshore wind farm are the lower costs of production than onshore farms, as well as floating turbines being able to reach areas in the sea with a depth of 800m, which so far has been unattainable for wind projects. Offshore wind technology should also drive down emissions and create jobs - boosting the economy - as well as less intrusive land-based turbines being less required.

Source: [Energy Digital](#), October 19, 2017.

Publications/Regulations

- Deployment of Hybrid Renewable Energy Systems in Mini-Grids, October 2017, [Click here](#)
- Electricity Storage and Renewables : Costs and Markets to 2030, October 2017, [Click here](#)

Power Sector at a Glance All India Generation (Billion Units), [Ministry of Power](#)

