Volume II, Issue 11

Current News
மின் செய்திகள்

November, 2017

ENERGY EFFICIENT LIGHTING (PART – 2)

2. Light Emitting Diodes (LEDs)

LEDs are semiconductor devices and are more energy efficient than any other lamp. It uses 75% less energy compared to incandescent lamps and 50 % less energy compared to CFLs. LEDs can generate yellow, red, blue, green and white light. For lighting purpose several white colour LEDs are stacked as clusters to produce required lighting for an application.

Benefits of LED Bulbs

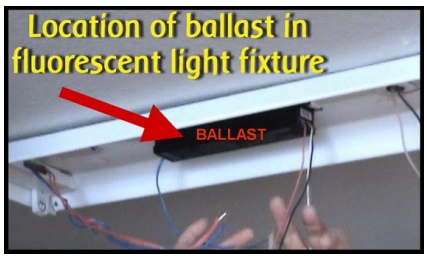
LED bulbs has an higher life span than fluorescents—10 times more, and over 100 times that of normal incandescent. LEDs are breakage resistant and largely immune to vibrations and other impacts. LEDs were also mercury free. They produce little heat and have higher quality light when compared to CFLs. LEDs are also cold resistant unlike fluorescent lamps and its performance increases as operating temperature drop. They are cost effective although they are initially expensive the cost is recouped as it burns longer than CFL or incandescent bulbs.

Consumer Check: To make the right choice when buying LEDs the consumers need to check the lumens. In order to replace a 75 watt light bulb we need to look for a 1100 lumen LED bulb which uses as little as 16 watts.Comparison of incandescent, CFL , LED and halogen bulbs and lamps.

3. Improving Lighting Controls

Lighting can be controlled with the use of various occupancy sensors to allow the operation of lamps whenever they are needed. Occupancy sensor can be used for energy conservation and saving. It can sense the occupancy in the room and would turn off the lights when there is no occupancy. It is placed on the switch-board. When there will be no occupancy in the room it would cut the supply of lights and fans from the switch-board even if the switch is on. It can save up to 10% of the energy consumption for the lighting in the home and commercial sector.

4.Replacing of Existing Ballasts and Fixtures



Ballast and Fixtures **:** Ballast is a device that regulates the current to the lamps and provide sufficient voltage to start the lamps. Fixtures are the holder for the light source, to provide directed light and to avoid visual glare. Replacing inefficient ballast and fixtures with new energy efficient ones gives superior energy savings, longevity, and reliability.

Inefficient fixtures can absorb more than half of the illumination emitted from the bulb reducing the efficiency of the lighting. Energy efficient fixtures consist of reflectors to direct light in a desired direction causing it to emit more light. Conventional magnetic type ballasts cause power losses which is typically 15 percent of the lamp wattage. It also can raise fixture temperature during operation. So a electronic or solid state types of ballast must be chosen so that the ballast losses, fixture temperature and system wattage can be reduced. The electronic and solid state types of ballast can save up to 20 to 30 percent energy consumption over standard ballasts. While choosing the ballast it needs to fit the electrical requirements like type of lamps for which it designed for, how many lamps it operates, and the voltage the lamp will run on. Choosing the right ballast for a lamp will optimize the light output and life of the bulb. (*CONCLUDED*).

Electricity Contacts

- Call center—1912
- Fuse Off Call Centre: **Tamil Nadu** and **Chennai**
- RTI—**TANGEDCO**
- TNERC & Ombudsman: 044-28411376, 28411378, 28411379
- CGRF: **Addresses**
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Tamil Nadu News

Solar companies protest Tamil Nadu's move to not pay for excess power

Solar developers are up in arms over Tamil Nadu's decision not to pay for power they produce by achieving higher efficiencies, which they claim has already cost them over Rs 100 crore. National Solar Energy Federation of India (NSEFI) has protested the decision of Tamil Nadu Generation and Distribution Co (TANGEDCO) not to pay for the excess power generated by any solar plant which exceeds a capacity utilization factor (CUF) of 19%.

CUF is the ratio of the actual output from a solar plant to the maximum possible output from it under ideal conditions. Most solar plants in India achieve an average CUF of 15-19%, depending on the quality of the plant and the strength of the solar radiation, but have on occasions, especially in sunshine-rich states like Rajasthan, crossed 20%. Tangedco officials maintain their decision is based on two orders passed by the state's power regulator, the Tamil Nadu Electricity Regulatory Commission (TNERC), relating to solar tariffs. "The limit prescribed by TNERC for solar tariff is 19%," said M Sai Kumar, chairman and managing director, Tangedco. "Developers who want relief can only get it from TNERC."

All the 1600 MW odd of solar projects currently supplying power to Tangedco do so at tariffs fixed by TNERC, since the projects won through auctions have yet to be completed. They are paid either Rs 7.01 per unit or Rs 5.10 per unit, depending on whether they were commissioned before March 2016 or after. While passing its orders, TNERC had also set down the parameters it used to arrive at the tariff, and assigned estimated values to each parameter. These included capital cost, operation and maintenance cost, interest on working capital, depreciation and many more, including the CUF expected.

In both the orders, it estimated the CUF at 19%. Tangedco has interpreted this to mean that power produced in excess of a CUF of 19% will not be paid for. Solar developers in the state see it differently. "In actual practice, some parameters are bound to increase while others may decrease," the memorandum says. "When the ultimate normative tariff, as determined by TNERC, is a complex interplay of various parameters, Tangedco cannot pick and choose one parameter and try to reach to a conclusion one way or the other."

Source: The Economic Times, November 15, 2017 (*edited*).

India News

India Needs to Build Solar-Electricity Storage System

India needs to build a storage system for electricity from its fast-expanding solar network in a bid to balance cost-effective energy mix, according to a senior researcher. There is a mismatch between peak demand and electricity generation period for solar, said Nitya Nanda, Fellow & Area Convenor at the Centre for Resource Efficiency and Governance in The Energy and Resources Institute (TERI). "The solar electricity must be stored for use during peak period, which is late at night (10:00 PM to past midnight), while the energy can be harnessed in afternoon (12:00 PM to 4:00 PM)," Nanda told a workshop on South Asia's Challenges and Opportunities in Sustainable Energy Transitions held by Singapore's Institute of South Asian Studies and Energy Studies Institute yesterday.

While solar is seen as the cheapest form of electricity, as the latest bid shows that it could be available at less than Rs 2.5 per unit and hence one can imagine a situation where solar power price go down to Rs 1-1.5 per unit, it is in a conundrum on supply and demand scenario, Nanda said. However, Nanda expressed concern over the high cost of the storage system, mostly to be a battery-based setup. This would raise the solar electricity cost to the consumer to Rs 10 per 2.5 kV, from just nominal right now, he said. In such a case, coal-fired power plants will be more competitive with the green-energy, he pointed out.

India's coal-plant electricity would compete with solar during the off-peak period in the day, say, at Re 1. But as the night sets in, it would raise prices to as high as Rs 10, as solar without storage would no longer be in competition, or with storage system be offered at Rs 10 at least. Solar operate at a nominal cost as no fuel cost is involved and maintenance cost is the only operational cost. Comparatively, coal-fired plant s cost is Rs 2 and above and it faces rising coal prices as well as environmental issues.

India's coal-fired plants also lack the flexibility of shutting during the off-peak period. They are old and designed to operate 24/7, which compels the operators to run at full capacity and compete on prices in marketplace. Building a coal-fired plant with flexibility to shut and restart will take a long time, and it is an option not in line with the Indian governments green energy and enhancing environment programmes. Comparatively, India's slow-paced industrialization would also not be able to support the 100-GW solar electricity output, he pointed out. Higher industrial growth could generate higher demand during daytime. Producing electricity without demand and or storage is wastage.

Nanda has observed India has made good progress on the ambitious solar development, 175 GW by 2022, but has raised concern about backup of the green electricity.

Source: The Economic Times, November 28, 2017.

Consumer Focus

FACTS

While taking meter reading for a consumer it was entered as 2900 units and CC charges of Rs. 10,604 was levied on the customer. The consumer represented to the officers of the licensee that the high consumption recorded was due to a wrong entry in the meter card. But, no action was taken by the licensee. The consumer was also charged with theft of energy. Hence the consumer had filed a petition before the electricity ombudsman.

CONTESTATIONS

Appellant: The consumption was recorded as 2780 units, and CC charges of Rs.10604/- were levied. Immediately, a representation was submitted to the Assistant Engineer. There was no response from the Assistant Engineer. Further, the appellant was charged with theft of energy. Hence, the Appellant approached forum to take necessary action.

Respondent: The petitioner was eligible for receiving compensation of Rs.250 for not responding to the complaint within the stipulated time frame. The Executive Engineer was directed to take action to pay the compensation charges. The representation by the petitioner regarding theft of energy did not come under the purview of CGR forum as per CGRF Regulations.

OBSERVATIONS AND JUDGMENT

It was held that the meter reading entered on 28.5.2011 as 2900 was wrong. The second prayer of the Appellant was exonerating the consumer from theft of energy case, which did not come under the purview of the Electricity Ombudsman. Hence, the Ombudsman could not deal with the theft case.

ECC Voice

மின் பாதுகாப்பு அம்சங்கள்

இன்றைய காலத்தில் மின்சாரம் இல்லை என்றால் நமது வாழ்க்கையே ஸ்தம்பித்தது போலாகும். நாம் ஒவ்வொரு நாளும் மின்சாரத்தை முழுவதுமாக நம்பியிருக்கிறோம். மின்சாரத்தை சரியான முறையில் பயன்படுத்தாவிட்டால் விபத்துக்கள் நேரும் என்பதால் நாம் சில பாதுகாப்பு அம்சங்களைப் பற்றி அறிந்துக் கொள்ள வேண்டும்.

வீட்டில் அல்லது வெளியிடங்களில் நேரும் மின் விபத்திற்கான பொதுவான காரணங்கள்:

1. வீட்டு ஓயரிங்: எப்பொழுதும் மின்துறை சான்று பெற்ற அனுபவமுள்ள எலக்ட்ரீசியனை கொண்டு வீட்டு ஓயரிங் மற்றும் பராமரிப்பு மேம்பாட்டு பணிகளை மேற்கொள்ள வேண்டும்.

2. நல்ல தரமான ISI முத்திரையிட்ட ஓயர், கேபிள் மற்றும் மின் சாதனங்களை பயன்படுத்த வேண்டும்.

3. ஈரமான கைகளால் மின்சார சுவிட்ச்சுகளை இயக்குவதை தவிர்க்க வேண்டும்.

4. அறுந்து கிடக்கும் மின் கம்பிகள் மற்றும் மின் சாதனங்களிடமிருந்து நெருப்போ, புகையோ அல்லது எவ்வித சத்தமும் இல்லாதிருந்தாலும் அவை மின் ஒட்டம் பெற்ற கம்பிகள் அல்லது சாதனங்கள் என்பதனை கருத்தில் கொண்டு அவற்றை விட்டு பாதுகாப்பான தூரத்திற்கு (சுமார் 30 அடிகள்) விலகி இருக்க வேண்டும்.

5. மின் சக்தியானது மனிதர்கள் வாயிலாக கடந்து செல்லும். எவராவது மின்சாரத்தால் தாக்கப்பட்டு தொடர்ந்து மின்னிணைப்பு இருக்கும் பட்சத்தில், அந்த நபரிடம் நெருங்காமல் குறைந்தது 30 அடி தூரத்தில் விலகியிருக்க வேண்டும். உடனடியாக மின்சார துறையிடம் இதனை தெரிவித்து மின்னிணைப்பினை துண்டிக்க செய்ய வேண்டும். மின் விபத்துக்குள்ளான நபரை உடனடியாக மருத்துவமனைக்கு அழைத்து செல்ல வேண்டும்.

6. மின் சாதனங்களில் ஏதாவது பழுது ஏற்பட்டால், அதனை நாமே சரி செய்ய முயற்சிக்காமல் அந்த துறையில் தேர்ச்சி பெற்ற வல்லுனர்களைக் கொண்டு பழுது நீக்கும் பணிகளையும் மற்றும் பராமரிப்பினையும் மேற்கொள்ள வேண்டும்.

7. மின்சாதனங்கள் இருக்கும் இடத்திற்கு அருகில் தீ பற்றக்கூடிய பொருட்கள் வைப்பதினை தவிர்க்க வேண்டும்.

8. மின்காப்பு (Fuse) கேரியரில் வரையறுக்கப்பட்ட அளவுள்ள சரியான தாமிரத்தாலான எரி இழைகளை பயன்படுத்த வேண்டும்.

மேற்கூறியபடி பாதுகாப்பு அம்சங்களைப் பின்பற்றி, மின்சாரத்தினை சரியான முறையில் பயன்படுத்தி விபத்துக்களை தவிர்ப்போம்.

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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

Costa Rica's electricity generated by renewable energy for 300 days in 2017

Costa Rica's electricity has been produced entirely using renewable energy for 300 days since the start of January.

With more than a month of 2017 to go, the Central American country is set to smash its own annual record of green energy use. In 2015 the nation went 299 days using only renewables. In contrast, the United States generated about 15 per cent of its electricity from renewable sources in 2016, according to the US Energy Information Administration.

Costa Rica currently generates more than 99 per cent of its electricity using five different renewable sources; hydropower (78%), wind (10%), geothermal energy (10%), biomass and solar (1%). In contrast, the United States generated about 15 per cent of its electricity from renewable sources in 2016, according to the US Energy Information Administration.

Coal and natural gas together made up nearly two-thirds of US electricity generation and nuclear power provided the remaining 19 per cent.

Costa Rican clean development adviser Dr. Monica Araya said earlier this year the extent of Costa Rica's renewable electricity generation is a "fantastic achievement". But she added: "It hides a paradox, which is that nearly 70 per cent of all our energy consumption is oil." The 99 per cent figure only refers to electricity usage, not gas used for heating or fuel used in vehicles, for example.

Costa Rica hosts more than five per cent of the world's species biodiversity despite a landmass that covers 0.03 per cent of the planet. While dams provided the majority of the country's electricity, they can have destructive environmental and social consequences, such as affecting previously healthy rivers, disrupting wildlife and displacing indigenous communities.

Source: Independent, November 22, 2017.

Publications/Regulations

- Renewable Energy for Industry: From green energy to green materials and fuels, November 2017, Click here
- Turning to Renewables: Climate-Safe Energy Solutions, November 2017, Click here

World Energy Outlook—2017

Change in Primary Energy Demand, 2016-40