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Current News
மின் செய்திகள்

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Consumer guide to grid-connected rooftop solar - Part 2

The capacity of the plant can be determined with the help of developers during the site visits (explained in part 1 of this article). In order to calculate the required capacity, two parameters have to be considered a) available shade-free rooftop area and b) electricity consumption during last twelve months. This article helps consumers to find out the required capacity for installing rooftop solar in their premises.

a) Available shade-free rooftop area:

As per guidelines issued by TEDA, the area required for installing 1 kilo watt (kW) of solar is about 12 square meter (approx. 130 square feet); the area should be free from obstacles such as tall buildings, trees, etc., which could block the sun's radiations. It should be installed minimum 0.6 meter away from the parapet wall so that all the panels will be easily accessible for cleaning and servicing.

b) Electricity consumption:

The capacity of the solar plant can be determined by the electricity consumed in the premises during last twelve months with the help of electricity bill data.

It is also necessary to look into the sanctioned load of the premises. If the plant capacity exceeds the sanctioned load, the consumer must inform the service provider to increase the sanctioned load.

A consumer can view their electricity bill in online also. The image below shows the consumer has consumed 3,590 units (1 unit = 1 kWh) from 18/06/2018 to 17/04/2019. Let us consider it as an example to determine the capacity of the plant.

Assessment Date	Assessment Entry Date	KWH Reading	KVAH reading	Maximum Demand	Power Factor	Consumed Unit
17/04/2019	17/04/2019	17440		7.21		650
16/02/2019	16/02/2019	16790		7.21		550
18/12/2018	18/12/2018	16240		7.21		590
17/10/2018	17/10/2018	15650		7.21		610
17/08/2018	18/08/2018	15040		7.21		580
18/06/2018	18/06/2018	14460		7.21		610

1) *The capacity of the plant based on annual energy consumption:* Annual energy consumption at the premises is 3,590 units. In Tamil Nadu, the average annual energy generation per installed kW of solar PV capacity is 1,500 units. So capacity of plant based on annual energy consumption = 3,590 / 1,500 = **2.39 kW**

2) *The capacity of the plant based on the available shade-free rooftop area:* Available shade-free rooftop area is 18 square meter (approximately 200 square feet). Since 1kW plant requires 12 square meter (≅ 130 square feet), the capacity of plant based on shade-free rooftop area = 18 / 12 = **1.5 kW.**

Note - Shade-free rooftop area requirement mentioned by TEDA might be changed in the future considering the changes due to technological improvement. A consumer can discuss the same with the developer(s) during the site visits to know more about the possibility of installing greater capacity with lesser space and also access panels for cleaning.

Recommended capacity:

From the above calculation, take the lowest capacity of the two. In this example, the capacity of the plant is **1.5 kW**. Even though the plant needed capacity is 2.39 kW, the rooftop area will support solar PV panels only for 1.5 kW.

(to be continued)

INSIDE THIS ISSUE:

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The Do-It-Yourself Energy Audit Series For Household Consumers (Part 8)

Electrical Safety

This final edition of the DIY Energy Audit series will make recommendations to household electricity consumers on how to take preemptive measures and ensure electrical safety.

National Crime Records Bureau (NCRB), records that India saw over 11,000 electrical accidents in 2016, out of which nearly 4,800 accidents were fatal. Electrical accidents in households could happen at anytime and for various reasons including unsafe wiring, water leakage or careless plugging and usage of appliances. Therefore, it is highly recommended that precautionary measures are taken before and while using electrical appliances.

Best Practices:

- Invest in safe wirings that are certified and comply with ISI standards.
- Replace and upgrade old wiring, if it is over 25 years old.
- Double check for frayed wires and faulty switches, and have them replaced at the earliest.
- Make sure that there is no water source near electrical appliances. Ensure that electrical appliances such as washing machine and water heater are not operated with wet hands.
- Get checks and maintenance done for all your household appliances on a regular basis. Eg. annual maintenance services should be done for air-conditioners, refrigerators, etc.
- Avoid overloading extension cords and ensure that they are not overstretched or damaged.

- Ensure that you switch off electrical appliances while cleaning/dusting them.
- Do not plug in devices when the switch is ON and turn-off switches when the plug points are not in use.

- If you notice any sparks from power outlets or if you see that the adaptor/appliance becomes warm with usage, do not use it. Get it repaired before next use.
- Be sure to follow the instruction guide while using any appliance. In case of any major faults in the appliance do not try to repair them by yourself, call for professional help.

CONCLUSION

The objective of the DIY energy audit series was to provide consumers with information that can help them adopt simple measures to understand and optimize energy performance at the household level.

This DIY Energy Audit series was put together to highlight simple checks and best practices that can help consumers understand and reduce their household electricity consumption. The series has so far captured do-it-yourself hacks around how to (i) keep cool, the energy efficient way; (ii) keep cool, the passive efficient way; (iii) use television and connected appliances efficiently; (iv) make the kitchen energy efficient; (v) save water as means to save electricity; and (vi) ensure that the lighting is energy efficient. With all the checks and hacks covered through this 8-part series, we hope consumers will be able to reduce their household electricity consumption and benefit from optimal and safe energy performance.

(Concluded)

Tamil Nadu News

Tamil Nadu: Lack of meters stop homes from tapping solar energy

People trying to tap green energy by installing roof-top solar panels are finding it next to impossible to get the mandatory net meter from Tamil Nadu Generation and Distribution Corporation Limited (TANGEDCO), the state's Distribution Company (DISCOM). Net meter measures the quantum of power generated consumed and provided to the grid. Many plants installed in the city are idling for three to six months because of non-availability of the meter. Area engineers and contractors empanelled to install solar panels say TANGEDCO orders and gets net meters in batches, and the next batch is awaited.

The waiting period varies with the place. Some localities in Mandaveli and RA Puram got net meters in three-and-a half months, while residents of T Nagar have waiting for up to six months. Around 6,500 people in Tamil Nadu have installed solar panels on their rooftops.

TANGEDCO officials said as per a Tamil Nadu Electricity Regulatory Commission (TNERC) order in March, consumers can purchase the meter from the market. Earlier, only TANGEDCO could provide the meter. Contractors, however, said they were being discouraged to buy meters from the market and are being coaxed to go through the DISCOM. "The reasons are obvious," said a contractor who has around 15 stuck projects, indicating corruption.

Source: The Times of India, July 29, 2019

India News

India added record 1836 MW of rooftop solar power in last fiscal: Report

Rooftop solar power installations in India grew at a robust pace in 2018-19 (FY19), with the country adding a record 1,836 megawatt (MW). At the end of FY19, the installed rooftop solar power generation capacity stood at 4,375 MW, soaring 72% over FY18, showed a report by Bridge to India. The fresh capacity additions came across commercial, industrial, public sector, and residential projects. With an installed capacity of 2,140 MW, the industrial segment is the biggest contributor to the solar rooftop power portfolio.

Maharashtra (618 MW), Rajasthan (393 MW), Tamil Nadu (365 MW), Gujarat (314 MW) and Karnataka (298 MW) are the top rooftop solar power generating states. The market is split between inverter suppliers and EPC (engineering, procurement and construction) contractors, each producing 1,836 MW of rooftop solar power. Project developers make up the rest 688 MW, with 15 MW generated by stand-alone corporate establishments. Rooftop solar power generation is increasingly gaining market share. "Average system size has increased over the years due to greater adoption by commercial and industrial (C&I) users. 29% of the installations are more than 1 MW in size", added the report.

US-based think-tank Institute for Energy Economics & Financial Analysis (IEEFA), noted in a report that from a historically low base, rooftop solar power generation has become the fastest growing renewable energy sub-sector in India, with a compound annual growth rate (CAGR) of 116 per cent between 2012 and 2018.

C&I consumers, incentivised by very high tariffs in these two sectors, have driven around 70 per cent of the growth. India has a very heavy cross-subsidy from C&I to residential and agricultural users. This acts as a key incentive, making self-generation for C&I immediately cost effective. The balance of 30 per cent is split equally between the government and residential consumers. The increased adoption of rooftop solar power production in Indian states can be attributed to high retail tariffs for C&I consumers, favourable net metering policies, corporate social responsibility programs, and increased consumer awareness.

IEEFA estimates that for the next three years, rooftop solar installation will grow at a CAGR of 50 per cent, suggesting a cumulative 13 GW of installed capacity by FY22.

Source: Business Standard, July 13, 2019

Consumer Focus

The appellant had a three-phase agricultural connection and single-phase (temporary) connection in her agricultural land. She had purchased this land from Mr Palanivel a few years ago but the name transfer for this service connection was still pending.

In the meantime, filed a written complaint about the disconnection of agricultural connection and dismantling of the electrical apparatus connected to the borewell, to the Assistant Engineer and Executive Engineer. The complaint related to the supply was rectified but the electrical apparatus was not returned. Therefore, she registered a complaint with Consumer Grievance Redressal Forum (CGRF).

CGRF dismissed the complaint stating that the TANGEDCO did not disconnect the connection on its own accord and the details on disconnection of the supply were not mentioned in the official registers. However, the Forum ordered the TANGEDCO to investigate into the complaint.

Dissatisfied with the order passed by CGRF, the appellant approached the Electricity Ombudsman. In addition to the above complaint, the Appellant also claimed compensation for non-compliance of standards specified in Distribution Standard of Performance (DSOP) i.e. not responding to consumer's complaint within the stipulated period.

In its defence, TANGEDCO stated that the service connection was in the name of Mr.Palanivel while Mrs Kala Vadivelu has been the user of that service connection. Earlier, Mrs Kala Vadivelu had asked for disconnection of her temporary supply but TANGEDCO disagreed to disconnect as the application was not given by Mr Palanivel, who was the service connection owner.

Meanwhile, a complaint letter received through registered post described that the appellant's three-phase connection was disconnected without any prior information. After field verification it was found that all the three phase in the service line were in order but the connected electrical apparatus was dismantled by the previous owner without any knowledge of TANGEDCO. The electrical apparatus was reinstalled after the complaint was raised by the appellant to the field staff.

The Electricity Ombudsman observed that the appellant had stated that the electricity supply was restored, which was confirmed by TANGEDCO. Further, the previous owner had removed the entire electrical apparatus connected to the borewell. On knowing this, the appellant should have taken legal action since the property belonged to her, and cannot expect compensation from TANGEDCO. Moreover, since the removal was an issue between two individuals and did not involve TANGEDCO, and, in addition, the service was not disconnected, the Ombudsman maintained that it did not have jurisdiction.

Further, the Electricity Ombudsman observed that according to the DSOP Regulations, the Assistant Engineer of the concerned section has to give a reply within 10 days of receipt of a petition from an aggrieved consumer, or within 20 days if he has to inspect the site or consult other officers to give a comprehensive reply. In case of delay, the licensee has to pay a compensation of Rs.25/- per day of delay subject to a maximum of Rs.250/- as per Clause 21 of DSOP Regulations. The Ombudsman noted that there was an inordinate delay of more than 50 days by TANGEDCO in responding to the letter of the appellant. Therefore, the TANGEDCO was directed to pay the compensation within 30 days from the date of receipt of the Order.

ECC VOICE

திருநெல்வேலி மாவட்டம், கோடீஸ்வரன் நகரில் வசிக்கும் மின் நுகர்வோர் தனது வீட்டிலுள்ள மின்னளவு கருவியினை இடம் மாற்றி அமைத்துத் தருமாறு மின் வாரிய அலுவலகத்தில் பல முறை முயற்சித்தும் பயன் அளிக்காத நிலையில், திருநெல்வேலி மின் நுகர்வோர் மையத்தினை அணுகினார். வீட்டுத் தீர்வை ரசீது மற்றும் கடைசியாக மின் கட்டணம் செலுத்தியதற்கான ரசீதுகளின் நகல்களுடன், மின்னளவு கருவியினை இடம் மாற்றுவதற்கான படிவத்தையும் பூர்த்தி செய்து சம்பந்தப்பட்ட மின் வாரிய பொறியாளர் அலுவலகத்தில் தருமாறு மின் நுகர்வோருக்கு திருநெல்வேலி மின் நுகர்வோர் மையத்தின் ஆலோசகர் அறிவுரை வழங்கினார்.

அதன்படி, மின் நுகர்வோர் ஆவணங்களை சமர்ப்பித்துவிட்டு திருநெல்வேலி மின் நுகர்வோர் மையத்தில் விபரத்தையும் தெரிவித்தார். திருநெல்வேலி மின் நுகர்வோர் மையத்தின் ஆலோசகர் மின் வாரிய பொறியாளரை தொலைபேசியின் வாயிலாக தொடர்பு கொண்டு மின் நுகர்வோரின் வேண்டுதலை உடன் பரிசீலனை செய்து, மின்னளவு கருவியினை இடம் மாற்றம் செய்வதற்கான மதிப்பீட்டுத் தொகையை மின் நுகர்வோரிடமிருந்து பெற்று மின்னளவு கருவியை மாற்றி தருமாறு கேட்டுக் கொண்டார்.

சம்பந்தப்பட்ட மின் வாரிய பொறியாளர் மின் நுகர்வோரின் விருப்பத்தின்படி அவரின் வீட்டிலுள்ள மின் இணைப்பிற்கான மின்னளவு கருவியினை இடம் மாற்றி அமைத்துவிட்டு, அதன் விபரத்தையும் திருநெல்வேலி மின் நுகர்வோர் மையத்திற்குத் தெரிவித்தார். இதனை மின் நுகர்வோரும் உறுதி செய்து தனது நன்றியினை திருநெல்வேலி மின் நுகர்வோர் மையத்திற்குத் தெரிவித்து கொண்டார்.

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Citizen consumer and civic Action Group

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.

World News

Renewable energy providing more electricity than coal and nuclear power combined in Germany

Renewable sources of energy produced more electricity than coal and nuclear power combined for the first time in Germany, according to new figures. Solar, wind, biomass and hydroelectric power generation accounted for 47.3% of the country's electricity production in the first six months of 2019, while 43.4% came from coal-fired and nuclear power plants.

Around 15% less carbon dioxide (CO_2) was produced than in the same period last year, according to figures published by the Fraunhofer Institute for Solar Energy Systems (ISE) in July. However, some scientists have attributed the high renewable power output to favourable weather patterns and "market-driven events".

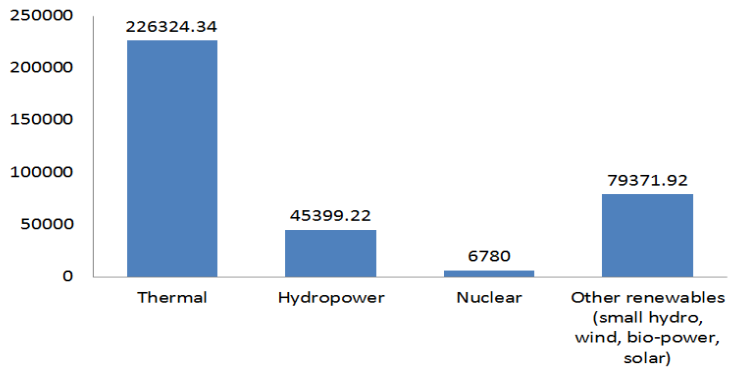
Fabian Hein, from the think tank Agora Energiewende, told Deutsche Welle the 20% increase in wind production was the result of particularly windy conditions in 2019. Meanwhile, electricity production from solar panels rose by 6%, natural gas by 10%, while the share of nuclear power in the country's electricity production has remained virtually unchanged. Black coal use fell by 30% compared to the first half of 2018, and lignite – a coal-like substance formed from peat – fell by 20%. However, over the same period, electricity production by natural gas rose by 10%.

Source: Independent, July 23, 2019.

Publications / Regulations

- Renewable Energy Statistics, (July 2019, IRENA)
- Benchmark costs for Grid Connected Rooftop Solar Power Plants for the Year 2019- 20 (16 July, 2019, MNRE)
- Benchmark costs for Off-grid Solar PV Systems and Solarisation of Grid Connected Agricultural Pumps for the Year 2019-20 (25 July, 2019, MNRE)
- Guidelines for implementation of Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM) scheme (22 July, 2019, MNRE)

Installed capacity of power stations in India as on 30.06.2019 (in mega watt)



Total installed capacity = 3,57,875.48 mega watt (MW)

Source: Central Electricity Authority (CEA)