Volume IV, Issue 9

Current News
மின் செய்திகள்

September, 2019

Consumer guide to grid-connected rooftop solar - Part 4

The previous issue explained certain aspects to be checked in solar panels and inverter before choosing the developer. Part 4 will focus on a few other important parameters to be considered while choosing a suitable solar developer.

Output warranty:

- Output warranty for a solar panel is referred to as an assured level of power that a solar panel will produce each year.
- Output warranty for the panels should not be less than 90% at the end of 12 years and 80% at the end of 25 years.

Mounting structures:

- Mounting structures support the solar panels. It should be made of hot-dipped galvanised steel with a minimum galvanisation thickness of 120 microns. Aluminium alloy or anodised aluminium may also be used.
- Mounting structures should be able to withstand a wind speed of minimum 150 km per hour. If the premise is near the seashore, anodised aluminium structures will be better.

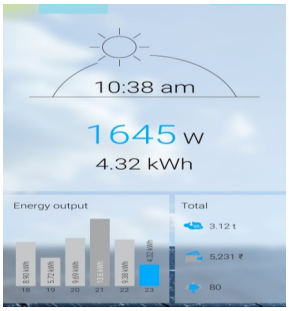
Note: It is advisable to use spring washer or locking washer to fix solar panels to ensure that nuts do not loosen over time.

AC & DC Cables:

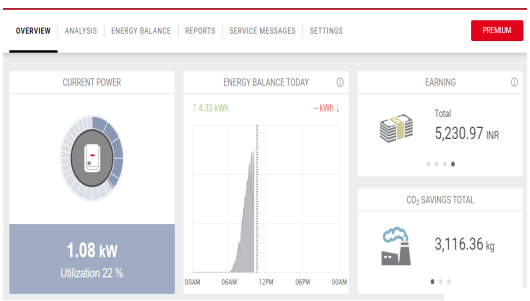
- The DC power generated from the solar panel is transmitted through DC cable to the inverter. DC power gets converted to AC power by the inverter and gets transmitted to the load by AC cables. It is important to check the make of the cables and ensure they adhere to ISI standards.
- Copper wires, being a good conductor of electricity, are preferred for wiring.
- The minimum size of both DC and AC cables should ideally be 4.0 mm^2 copper.

Online monitoring

- Usually, the developer will provide some way to monitor the solar power generation such as a mobile application and/or through web-based monitoring. A consumer should ensure the availability of online monitoring of solar generation data for their benefit. A sample image is given below.



- Check the parameters available for the online monitoring system.
- Some basic parameters are power generation rate, cumulative solar generation (month and year wise), facility to download the generation data, etc.



(to be continued...)

INSIDE THIS ISSUE:

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

Electricity Consumer Cells (ECCs)

Madras Metropolitan Consumer Rights Protection Centre (MMCRPC)
No. 118, Fourth Street, Kamaraj Nagar, Avadi, Tiruvallur District. Chennai - 600 071,
Phone: 9382828286
Email: ecctiruvallur@gmail.com

Tirunelveli District Consumer Rights Protection Sangam
No. 9, Kulapirai Street,
Tirunelveli Town,
Tirunelveli - 627 006
Phone: 0462-2338544
Email: ecctirunelveli@gmail.com

Federation of Consumer Organizations of Tamil Nadu and Pondicherry - (FEDCOT)
5, Anthoniyarkoil Street,
Cuddalore - 607 001
Phone: 9994019119
Email: ecccuddalore@gmail.com

Sadayanodai Ilaignar Narpani Mandram - (SINAM)
Avalurpet Road,
Tiruvannamalai - 606 604
Phone: 04175 - 298033
Email: ecctiruvannama-lai@gmail.com

Consumer Voice Foundation,
31/20, Sree Rangan Street,
Gugai, Salem - 636 006
Phone: 9994941050
Email: eccsalem1@gmail.com

National Level Educational and Social service Trust (NEST)
No: 10, Pillayar Koil Street
GriblesPet Arakkonam
Vellore District - 631 002
Mobile : +91 98946 32302
Email id: eccvellore@gmail.com

People's Action Service Society (PASS)
No: 4/74, Sangililyandapuram
Pettavaithalai & Post
Tiruchirapalli District - 639 112
Landline : 0431-2612597
Mobile : +91 9788203997
Email id : ecctiruchirappalli @ gmail.com

Electric Vehicles (Part - 2)

Part 2 of the Electric Vehicles series will highlight the importance of energy storage systems for electric vehicles. As seen in the previous issue, electric vehicles use energy storage systems, especially batteries, for driving as opposed to conventional petroleum fuelled vehicles.

Batteries for electric vehicles

Batteries are the most commonly used energy storage systems in EVs. While there are multiple battery technologies available, following are the most commonly used: a) Lithium-ion (Li-ion) batteries, b) Lead-acid batteries and c) Nickel-metal hydride (Ni-MH) batteries. Below highlighted are some common battery parameters that potential buyers need to consider before purchasing electric vehicles: 1) Battery capacity and voltage, 2) Cost , 3) Lifespan, 4) Performance, 5) Charging time and 6) Safety.

1) Battery capacity and voltage - Battery capacity or nominal capacity is the amount of current that can be discharged from a fully charged battery to the cut-off voltage of the battery i.e., the minimum available voltage of a battery. Battery capacity is commonly referred with the unit 'kilo-watt hour (kWh)'.

Voltage is the electrical potential difference between the anode (negatively charged end) and the cathode (positively charged end) of a battery. Unit of voltage is volt (V). Generally, voltage specified on batteries of electric vehicles refers to nominal voltage, which is the average voltage of a battery output from full charge to discharge condition while in use. The percentage of capacity discharged from a fully charged battery is called depth of discharge. A fully charged battery drops its voltage gradually as it discharges. For example, a battery having a nominal voltage of 3.7V may give an output voltage of 4.3V when it is fully charged, and it could fall closer to 3V when discharged.

2) Cost - The capital cost of batteries is very high. However, considering projected technological advancements and increase in competition and volumes, the cost is expected to reduce in the future. Further, running cost of electrical vehicles i.e., battery charging cost and maintenance cost should also be ascertained before investing in the same.

3) Lifespan - The lifespan of batteries varies depending on the battery technology. It depends on factors such as operating temperature, charging rate and depth of discharge. Over a period of time, the battery gradually loses its original capacity and this decides the lifespan. This is otherwise known as degradation of battery. In practical terms, if a battery falls to 80% of its labelled capacity it should be replaced. The lifespan can be represented by either total age of the battery (in years) or number of charge and discharge cycles.

For example, assume if a battery specification mentions 20 kWh as its capacity with a lifespan of 1,600 cycles and 8 years warranty, this means the battery will attain 80% of its labelled capacity either in 1,600 cycles or in 8 years, whichever is earlier.

4) Performance - The performance of a battery depends on the following factors:

Operating temperatures: A battery's performance decreases in low ambient temperature, while its lifespan reduces under high ambient temperature. It differs with battery type and falls in the range of -20 to 65 °C.

Specific energy: Specific energy is defined as the amount of energy stored per kilogram i.e., Wh/kg. Batteries with more specific energy store more energy for a given weight of the storage system, so that it can cover a long-range (km/charge). For example, let us assume there are two batteries with the nearly similar weight and different specific energy. The battery with a specific energy of 110 Wh/kg lasts for 250 km and a battery having specific energy of 155 Wh/kg lasts for 345 km.

Specific power: Specific power represents the accelerating capability of an electric vehicle. Technically, specific power is defined as the power delivery rate of battery per kilogram of mass (W/kg) e.g., if a battery's specific power is 95 W/kg, then it cannot deliver beyond 95 W/kg of battery mass irrespective of run time.

Other factors: The performance also depends on the materials and chemistry of the battery, charging rate (e.g. overcharging affects the performance) and vehicle usage patterns (e.g. driving style, road condition).

(to be continued...)

Tamil Nadu News

State power demand down over 4% year-on-year in August

Tamil Nadu's power demand declined by over 4% to 8,983 million units in August 2019, when compared to 9,378 million units in the same month last year, according to data from Central Electricity Authority (CEA). From April-August 2019, the power demand in the State stood at 48,678 million units, up just 1.5% from 47,956 million units in the same period last year, as per the data.

Tamil Nadu's peak demand during August 2019 stood at 14,576 MW, down 1.4% from 14,787 MW in August 2018. However, the peak demand increased 6.1% to 15,972 MW in April-August 2020, from 15,049 MW in the comparable period last year. Experts attribute the decline to the broader weakness in economy. Tamil Nadu has the highest number of industries and one of the key hubs for automobile and auto-components manufacturing, which has been hit by slowdown in demand. Companies like Ashok Leyland had declared production holidays for 10 days in August.

According to India Ratings, growth in power demand from States such as Haryana, Gujarat, Tamil Nadu and Maharashtra, which are the main manufacturing hubs, has been lower than all-India power demand growth of 6.7% in April-July 2019.

According to CEA data, Gujarat has seen a demand decline of 10.2% in August 2019, while Maharashtra has seen a decline of 5.1%. All-India power demand declined 1% in August 2019 on a year-on-year basis. A senior official of the Tamil Nadu Generation and Distribution Corporation said the 4% decline in energy demand was overall, and not for industries alone. The reduction in the energy demand was only for August alone which was quite normal because of decline in the consumer demand this year. In fact the overall energy demand has increased by 1.5% with the peak power demand touching above 6%, he said.

Source: The Hindu, September 26, 2019

India News

Assets of 21 major electricity thieves sealed by city court

Properties of 21 power consumers in East Delhi have been sealed, in separate cases, after a Special Court of Electricity found them guilty of stealing electrical power and not paying the penalties. These properties were sealed by Investigating Officers (police) between August 21 and September 9, 2019 based on the attachment orders by the Special Court of Electricity, Karkardooma, said a spokesperson of a power DISCOM on Thursday. The spokesperson said that the "thieves" had collectively stole 550 kW of electricity, and as per the law a fine of `6.2 crore was levied on them, which they failed to pay. In 16 cases, electricity was stolen by "direct theft", and in the remaining five cases through meter-tampering, the spokesperson said.

These properties are situated in Karawal Nagar, Harsh Vihar, New Usmanpur, Gokalpur, Bhajanpura, Welcome Colony, Seelampur, Khajoori Khas, GTB Enclave, to name a few areas of the National Capital. "It appears that he has no intention to make the payment. In such circumstances, let the inspected premises be attached or sealed by the Investigating Officer for the non-payment of the settlement amount," said Devendra Kumar Sharma, Additional Sessions Judge (ASJ), Special Court of Electricity, in one of the orders.

Under the Electricity Act, 2003, power theft attracts a penalty and imprisonment up to five years. In the last one decade, as many as 10,000 people have been arrested and 1,200 convicted for stealing electricity in Delhi, according to the power DISCOMs. About 9% of electricity in Delhi, worth `400 crore, is lost to theft. The theft was 60% when private DISCOMs came into picture in the early 1990s. Though aggregate technical and commercial (AT&C) losses due to power-theft have reduced by over 50 % in Delhi, but there are pockets where it continues to be a menace, the DISCOMs said.

Source: India Today, September 13, 2019

Consumer Focus

The petitioner residing in a 3 BHK house under Tariff IA received a notice from TANGEDCO to revise the load from 2 to 2.2 KW. The notice stated that the sanctioned load for Low tension (LT) service connection exceeded the sanctioned limit based on the monthly consumption. TANGEDCO stated the revision of load will be effected from the next billing cycle.

Later, he enquired with the Assistant Engineer regarding the notice issued by TANGEDCO to understand the process. The Engineer explained that the consumption has exceeded the maximum demand during the June and August billing months. The petitioner was not able to get a clear reply from TANGEDCO on what basis the consumption exceeded and implications thereof. Therefore, the petitioner approached the Consumer Grievance Redressal Forum.

During the hearing, the petitioner informed the Forum that the electricity consumption was normal in June and August billing cycle and did not exceed the sanctioned demand. He informed that the existing load is sufficient and there was no necessity to revise the same. However, the utility explained that the petitioner's consumption exceeded the maximum demand in the bi-monthly billing cycle for June to August. For this purpose, utility undertook the testing of the meter which clearly indicated the load was enhanced from 2 to 2.2 KW. Being an LT connection, TANGEDCO explained that this does not have any implication in terms of additional billing. The only charge that needed to be levied is a testing charge for examining the meter and this has to be borne by the consumer.

Later, CGRF was informed that the petitioner has given a letter to the utility as he was satisfied with the explanation given by the officials. The petitioner also agreed to pay the testing charges. So, CGRF ordered the complaint to be closed.

ECC VOICE

வீட்டில் உள்ள மின் சாதனங்களை எவ்வளவு மணி நேரம் உபயோகித்தால் 1 யூனிட் ஆகும் என்பது பற்றிய தகவல் கீழே கொடுக்கப்பட்டுள்ளது.

வ. எண்	மின் சாதனங்கள்	வாட்ஸ்	ஒரு யூனிட்டுக்கு ஆகும் நேரம்
1	ஏ.சி. 1.5 டன்	2000	30 நிமிடம்
2	வாட்டர் ஹீட்டர்	2000	30 நிமிடம்
3	ஏ.சி. 1 டன்	1500	40 நிமிடம்
4	அயன் பாக்ஸ்	1000	1 மணிநேரம்
5	வாக்யூம் கிளீனர்	750	1 மணிநேரம் 20 நிமிடம்
6	தண்ணீர் மோட்டார்	750	1 மணிநேரம் 20 நிமிடம்
7	மிக்ஸி	500	2 மணிநேரம்
8	வாஷிங் மெஷின்	325	3 மணிநேரம் 04 நிமிடம்
9	கிரைண்டர்	300	3 மணிநேரம் 20 நிமிடம்
10	பிரிட்ஜ் (165 லிட்டர்)	225	4 மணிநேரம் 26 நிமிடம்
11	ஏர் கூலர்	170	5 மணிநேரம் 53 நிமிடம்
12	டிவி	120	8 மணிநேரம் 20 நிமிடம்
13	∴பேன்	40	25 மணிநேரம்
14	ட்யூப் லைட்	40	25 மணிநேரம்
15	குண்டு பல்பு	40	25 மணிநேரம்
16	டேப் ரெக்கார்டர்	20	50 மணிநேரம்
17	நைட் லாம்ப்	15	66 மணிநேரம் 40 நிமிடம்
18	எல்.இ.டி பல்பு	9	111 மணிநேரம் 7 நிமிடம்

குறிப்பு: 100 வாட்ஸ் பல்பு 10 மணி நேரம் எரிந்தால் 1 யூனிட் ஆகும்

Citizen consumer and civic Action Group (CAG)
New #246 (Old #277B),
TTK Road (J.J. Road),
Alwarpet, Chennai 600 018,
INDIA

Phone: 91-44-24660387
Telefax: 044-24994458
Email: ecc@cag.org.in

www.cag.org.in

Initiative of

CAG
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

Australia could produce 200% of energy needs from renewables by 2050, researchers say

A report from scientists working under the Australian-German Energy Transition Hub has examined the economic opportunities of decarbonisation over the coming decades. It finds that with the right policy support, Australia could become a global leader "both in climate mitigation and the export of zero-carbon energy" in the form of green hydrogen, green steel and other products such as aluminium produced from green electricity.

The researchers examined six scenarios for the Australian economy ranging from the status quo – which considered only Australia's existing climate and energy policies – to a "leadership + export" scenario, which assumed deep decarbonisation across sectors including electricity, transport and industry.

Under the latter, renewables would produce 200% of Australia's domestic electricity demand and supply a large export market. There would also be widespread electrification of transport, buildings, heat and industrial processes.

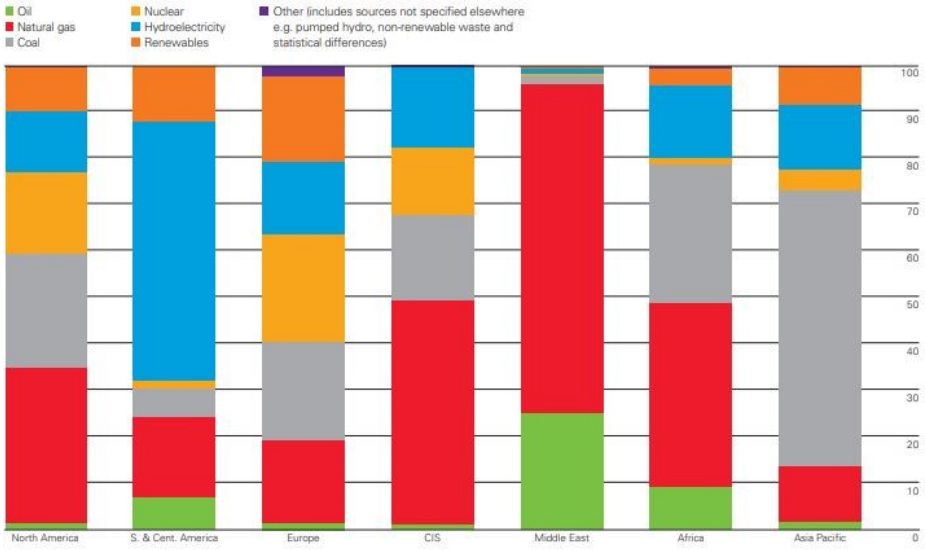
But the researchers note that achieving this would require the world to move to a zero-carbon energy system.

Source: The Guardian, September 19, 2019

Publications / Regulations

- State Rooftop solar Attractiveness Index (SARAL) for FY2018-19, Ministry of New and Renewable Energy (MNRE), September 2019
- Clarification on applicability of subsidy for individual residential households for installation of rooftop solar system under phase - II of grid-connected rooftop solar programme, Ministry of New and Renewable Energy (MNRE), September 2019
- Transforming the energy system – and holding the line on the rise of global temperatures, International Renewable Energy Agency (IRENA), September 2019

Regional electricity generation by fuel 2018



Source: BP Statistical Review of World Energy 2019