

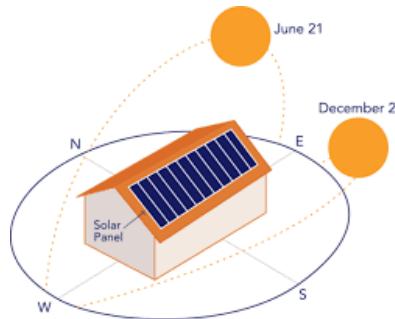
Consumer guide to grid-connected rooftop solar - Part 8

The [previous issue](#) explained additional requirements to be met by the solar installer and various aspects such as labels, scratches, etc. to be inspected during material purchase. This part will explain the installation of the plant and application for net feed-in.

Installation of the plant :

Following delivery of the material, the installation will have to be undertaken by the installers within the time period specified in the quotation. Solar panels are not kept flat but are placed at an angle to capture the maximum solar radiation.

The angle varies based on the location; in Tamil Nadu, the angle is generally between 11 to 13 degrees. The panels are installed with north-south orientation (refer image), to avoid shadows falling on the solar panels, and to enhance power generation. It is advisable to mount the panels on a concrete surface so as to increase its resilience against weather conditions such as strong winds.



Application for net feed-in

According to the latest [TNERC order](#) issued in March 2019, consumers wishing to install grid connected rooftop solar have to install two meters namely, solar generation meter and bi-directional meter. TANGEDCO, through a [memo](#), has made the installation of the solar generation meter as optional for the time being.

Solar panels installed directions

- **Bi-directional meter** is used to measure the amount of power imported from the grid as well as the power exported from solar panel.
- **Solar generation meter** is used to measure the amount of solar energy generated by the plant.



Cumulative Import



Cumulative Export

Normally, the meter installed by TANGEDCO is an unidirectional meter which records the power consumed by the consumer from the grid. However it is not programmed to record separately any power produced from solar panels and exported to the grid. This is because the unidirectional meter can account for a unidirectional flow of power rather than a bidirectional flow. Thus, in case of solar generation, an unidirectional meter will record both import and export of power, as consumed. This leads to a higher electricity bill.

To overcome this difficulty, a bidirectional meter is required to be installed as it has the capability to record both import and export of power separately. The bidirectional meters are installed by TANGEDCO as per TNERC order. The TANGEDCO will buy the meter and also test it before installation. The cost of the bidirectional meter including its testing and installation charges will have to be borne by the consumer.

(to be continued...)

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Electric Vehicles (Part 6)

In continuation of the [previous issue](#) on charging of electric vehicles, this issue will extend its focus on various types of electric vehicle supply equipment (EVSE) and explain other parts of a charging station.

Types of EVSEs

Based on charging speed, [three types](#) of EVSEs are available

- Level 1: Level 1 chargers are used in homes and workplaces. It charges the storage systems through a 120V AC plug. An hour of charging can deliver a range from 3.2 to 8 km (2 to 5 miles). Level 1 chargers can be directly plugged into a standard wall socket to charge the vehicles.
- Level 2: These EVSEs can be installed in houses, workplaces, and PCS. It provides charging through a 200 - 240 V AC plug. One hour of charging can deliver a range from 16 to 32 km (10 to 20 miles). Unlike level 1 chargers, these chargers cannot be plugged into a standard wall socket. A dedicated [AC wall-box charger](#) is required to charge the storage system.
- Level 3 (referred to as DC fast charger): DC chargers are mostly used in PCS. It provides charging using a 400 V DC plug.



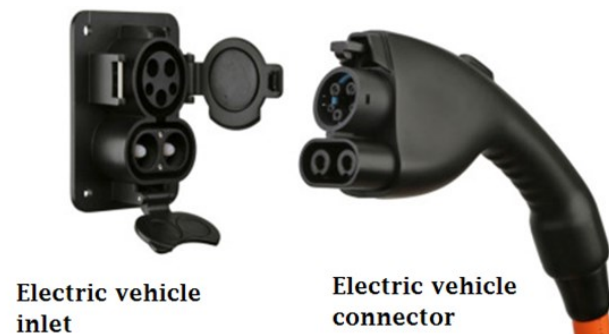
With 20 minutes of charging, they can deliver an average of 96 to 128 km (60 to 80 miles). An off-board fast charging module is the key to fast charging stations, which enable high charging output. The vehicle inlet has to be specially equipped to receive the high input power.

Electric Vehicle coupler

[Vehicle coupler](#) enables the manual connection of a flexible cable into an electric vehicle for the purpose of charging. The coupler consists of a vehicle inlet (component of an EV) and a vehicle connector (component of an EVSE).

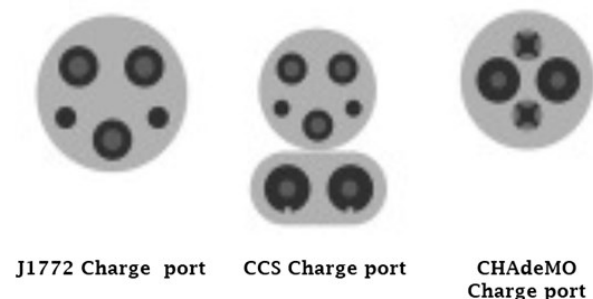
Electric vehicle connector

An electric vehicle connector (also referred to as plug) is a component of EVSE. The connector is inserted into an EV's inlet to transfer the electricity to charge the energy storage system.



Type of connectors

- Level 1 and 2 connectors: The [commonly used](#) connector for Level 1 and Level 2 charging is SAE J1772 EV plug. Most of the modern EVs are manufactured to enable these types of connectors. These connectors are available only for level 1 and 2 types of charging.
- Level 3 connectors: [CHAdEMO](#) ("CHARGE de MOve" which means "Charge for moving") and [CCS](#) (Combo Charging System, also called SAE combo) are the most common fast charging connectors. CHAdEMO is a connector which allows DC fast charging only, whereas CCS connector enables both AC and DC charging. At the same time, a car with CCS port cannot be charged using a CHAdEMO plug and vice versa.



(to be continued...)

Tamil Nadu News

TANGEDCO asks local bodies not to misuse electricity poles

Worried over the misuse of its concrete poles by various line agencies and the resultant risks, Tamil Nadu Generation and Distribution Corporation (TANGEDCO) has written to local bodies asking them not to use the poles. TANGEDCO officials said the practice was especially rampant on the outskirts of south Chennai where electricity was being predominantly supplied through overhead power lines.

Apart from being used to support street lights, the poles were being illegally utilised to support cable television lines and advertisement boards. "Such acts would cause the poles to bear load resulting in damage to them.

There have been instances of poles falling, causing accidents and also posing difficulties when we undertake repairs," said a senior official. A few months ago, a person was electrocuted in Kovilambakkam while he was attempting to fix an advertisement board on a pole. The victim was electrocuted when he turned on the street light fixed on the electricity pole. More than 1.5 lakh electricity poles in and around south Chennai, Kancheepuram and Chengalpattu districts are being misused by various government and private agencies.

Expenditure up

TANGEDCO was forced to replace poles that are beyond repair, which was an unnecessary expenditure for the power firm. TANGEDCO has been replacing hundreds of damaged and old electricity poles every year as part of pre-monsoon preparatory works to prevent accidents caused by falling poles in addition to the ones damaged by natural calamities. A TANGEDCO official said the cost of concrete poles is becoming steep, each pole costing ₹7,000. Every year a minimum of 10,000 poles are being replaced.

Source: [The Hindu](#), January 14, 2019

India News

Solar rooftop developers prefer open access for power supply

Solar rooftop developers are increasingly choosing to supply power to customers through open access locating the solar plant elsewhere rather than set it up on the premises of their clients. The common feature is that in both cases the power is supplied through the grid directly, without being routed through a DISCOM (Distribution Company). Many rooftop developers are now installing as much capacity for supplying through the open access route as they are on rooftops. With solar tariffs becoming increasingly competitive and more states allowing off-site projects to come up, open access is quickly gaining momentum. "Open access was always allowed according to the terms of the Electricity Act, but more states are now giving approvals for such access," said Andrew Hines, co-founder, CleanMax Solar, one of the leading rooftop developers in the country.

The year 2018 saw a sharp spike in the installing of open access capacity, with 1,609 MW being set up against 625 MW in 2017, according to Bridge To India (BTI), a renewable energy consultancy firm. But industry insiders maintain this was mainly because Karnataka offered a waiver on transmission and wheeling charges for directly supplied solar power in 2017-18. As the waiver was valid only till March 2018, rooftop solar developers rushed to beat the deadline and take advantage of it.

While data is still being collected, BTI estimates that the country installed around 420 MW of open access capacity in 2019, lower even than in 2017. But that was because some sanctioned projects are still being completed. "In Haryana and Maharashtra for example, there are projects which got approvals in 2019 which will be commissioned in 2020," said Hines. BTI's open access projection for 2020 is at least 1,000MW.

Source: [The Economic Times](#), January 22, 2020

Consumer Focus

The petitioner is a commercial consumer owning a dairy processing unit. Due to some seasonal difficulties, the dairy plant was operating for twice or thrice in a week depending upon the business. This was informed to the Assistant Engineer in a letter. The petitioner found that the meter was not working, while recording their meter reading daily, which was duly reported to the TANGEDCO.

Based on the complaint, Assistant Engineer undertook a Meter Reading Test (MRT) that confirmed the meter display was not working making downloading of consumption data not possible. This being the case TANGEDCO raised a bill of Rs.1,54,325/- based on the average consumption of four consecutive months which had the highest meter reading. The petitioner had registered a complaint with the Consumer Grievance Redressal Forum for waiving the bill amount.

During the CGRF hearing, the petitioner had submitted the documents proving low usage of electricity during the meter defective period. Based on the evidence, the CGRF took into consideration *"the average of the electricity supplied during the preceding four months" per the TNERC regulation 11(2) of TNE Supply Code and ordered the utility to revise the bill to Rs.89,648/- based on the calculations. The consumer paid the revised amount.*

Dissatisfied with CGRF's order, the petitioner approached the Electricity Ombudsman to waive the additional amount levied on him. During the hearing, the Ombudsman accepted the genuineness of the grievance related to his business situation that was raised by the petitioner. This was evident from the fact that consumption had remained low even after the new meter was fixed. On the other hand, TANGEDCO was not able to provide consumption data from the meter as evidence due to the defective meter.

Given this situation, the Ombudsman applied the TNERC regulations 11(6) of TNE Supply Code which states *"Where it is not possible to select a set of four months, the quantity of electricity supplied will be assessed ... on the basis of the connected load and the hours of usage of electricity by the consumer."* Hence, the Electricity Ombudsman directed the utility to arrive at an amount based on the hours of usage and connected load for the defective period.

ECC VOICE

திருநெல்வேலி மாவட்டம், தென்பட்டு கிராமத்தில் வசிக்கும் திரு. கண்ணன் அவர்கள், இரவு 9.00 மணி அளவில் மின் நுகர்வோர் மையத்தின் ஆலோசகரை தொலைபேசி மூலம் தொடர்பு கொண்டு, அவர் வசிக்கும் பகுதியில் மின்சாரம் முழுவதுமாக துண்டிக்கப்பட்டுள்ளது என்று கூறினார். அவர் பழையபேட்டை மின் வாரியத்தில் மாலை 6 மணிக்கு தொலைபேசி மூலமாக புகார் செய்ததாகவும், அவர்கள் எந்தவொரு நடவடிக்கையும் எடுக்கவில்லை என்றும் கூறினார்.

இப்புகாரின் முழு விவரத்தையும் மின் ஆலோசகர் பெற்றுக் கொண்டு, மின் வாரியத்திடம் பேசி நிவர்த்தி செய்து தருவதாக கூறினார். உடனே, புகார் தொடர்பாக, தென்பட்டு மின் அலுவலகத்தின் உதவிப் பொறியாளரை தொடர்பு கொண்டு, மேற்கண்ட புகாரை விசாரித்து, துண்டிக்கப்பட்ட மின் விநியோகம் எப்போது சீராகும் என்றும் கேட்டறிந்தார். அதற்கு, உதவிப் பொறியாளர், துணை மின் நிலையத்தை தொடர்பு கொண்டு பதில் அளிப்பதாக தெரிவித்தார். சிறிது நேரத்தில், அவர் மின் ஆலோசகரை தொலைபேசியில் அழைத்து, துணை மின் நிலையத்திற்கு வரும் மின் தொடரமைப்பில் (transmission line) விநியோகம் தடைபட்டுள்ளது என்றும், எனவே தான் துணை மின் நிலையத்திலிருந்து மின் விநியோகிக்கப்படும் அனைத்து பகுதிக்கும் மின்சார விநியோகம் இல்லை என்றும் கூறினார்.

மேலும், துணை மின் நிலையத்துக்கு மின் விநியோகம் இரவு 9.45 மணியளவில் வழங்கப்பட உள்ளதாகவும், ஆதலால் துணை மின் நிலையத்தில் இருந்து அனைத்து பகுதிகளுக்கும் உடனே மின் விநியோகம் அளிக்கப்படும் என்று உறுதி அளித்தார். இந்தத் தகவலை மின் ஆலோசகர் திரு.கண்ணன் அவர்களிடம் தெரிவித்தார். பிறகு, குறிப்பிட்ட நேரத்தில், தடைபட்ட மின் விநியோகம் மீண்டும் வந்தததாக திரு.கண்ணன் மகிழ்ச்சியுடன் தெரிவித்தார்.

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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

Community-generated green electricity to be offered to all in UK

UK homes will soon be able to plug into community wind and solar farms from anywhere in the country through the first energy tariff to offer clean electricity exclusively from community projects. The deal from Co-op Energy comes as green energy suppliers race to prove their sustainability credentials amid rising competition for eco-conscious customers and “greenwashing” in the market.

The energy supplier will charge an extra £5 a month over Co-op's regular tariff to provide electricity from community energy projects and gas which includes a carbon offset in the price.

Co-op, which is operated by Octopus Energy after it bought the business from the Midcounties Co-operative last year, will source the clean electricity for its new tariff directly from 90 local renewable energy generation projects across the UK, including the Westmill wind and solar farms in Oxfordshire. It plans to use all profits to reinvest in maintaining the community projects and building new ones.

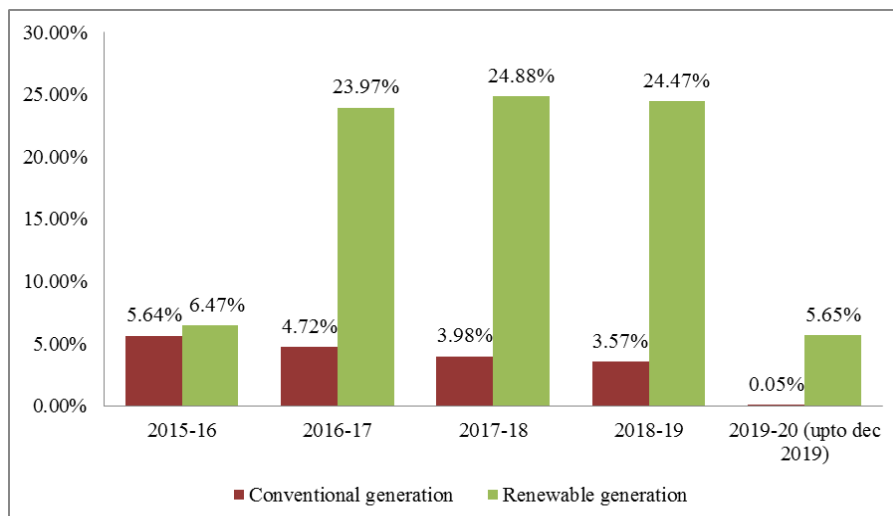
Phil Ponsonby, the chief executive of Midcounties Co-operative, said the tariff is the UK's only one to be powered by 100% community-generated electricity and would ensure a fair price is paid to community generators too. Customers on the Community Power tariff will be able to “see exactly where it is being generated at small scale sites across the UK, and they know it is benefiting local communities”, he said.

Source: [The Guardian](#), January 12, 2020

Publications / Regulations

- Reduction in cost of power due to prepayment by end consumers, [Ministry of Power \(MoP\)](#), January 2020
- Information regarding installation of solar irrigation pumps, [Central Electricity Authority \(CEA\)](#), January 2020
- Power system organisational structure for the renewable energy era, [International Renewable Energy Agency \(IRENA\)](#), January 2020

Annual growth rate of power generation in India



Source: [Ministry of Power, Government of India](#)