

## Consumer guide to grid-connected rooftop solar - Part 9

The [previous issue](#) focused on the installation of rooftop solar plants and the need for bi-directional and/or solar generation meters to be installed at the premises. Part 9 will explain the process of applying for a net feed-in connection with TANGEDCO, which will entail installation of a bi-directional meter and accounting and billing procedures.

**After installation**, the installer should give the following documents to facilitate the application process for a net feed-in connection application:

- System description:** It includes the specifications of solar panel and inverter used in the plant;
- System single line diagram:** It determines the design of the rooftop solar plant. It shows the solar PV array, inverter, combiner boxes, meters and the connections between them in a simple line;
- Solar PV array layout:** Solar array is a group of solar panels arranged in a way to capture more sunlight to generate maximum output. The schematic representation of the array is known as the solar PV array layout;
- Routing diagram of cables and wires:** The schematic representation of connections between the solar panels, inverter combiner boxes and meters;
- User manuals of solar PV panels and solar grid inverter, and datasheets:** Detailed information and instructions about the solar panels & solar grid inverter, and datasheets to monitor daily generation will be provided by the installer;
- Contact details of the service centre:** Name, address, mobile number and email address of the installer / service center (in case the installer is in a different location) to be contacted in case of failure or complaint;
- Warranty cards:** Warranty cards will ensure the performance of rooftop solar panels over the years; and
- System operation and maintenance register:** Based on the quotation, the installer will visit and check the working of rooftop solar periodically. To record this, a maintenance register will be provided to the consumer. To ensure periodical maintenance, consumers should follow up with the installer and get the possible date for the next maintenance.

**Application process:** The application process as listed in the [TNERC order](#) issued in March 2019 is as follows. This is paraphrased below:

- Application for Solar Power connectivity ([Link](#)) to be submitted to the respective Section Officer/Designated Officer of TANGEDCO along with a registration fee of Rs. 100. The TANGEDCO has to acknowledge receipt of the application;
- Both the applicant and TANGEDCO should sign a [net feed-in connection agreement](#);
- TANGEDCO is mandated to install the required energy meters and commission the solar metering facility within three weeks from the date of application by the consumer; and
- TANGEDCO should enhance and update their billing system such that relevant details of the net feed-in scheme are included in the bills of consumers. The billing data of each consumer shall be made available online along with a sample bill explaining various billing components.

(to be continued...)

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## Electric Vehicles (Part - 7)

The [previous issues](#) discussed electric vehicles and their types, storage systems, and charging of electric vehicles. This issue will focus on the initiatives taken by the Government of India for faster adoption of electric vehicles.

### Initiatives from Government of India

The major barriers to adoption of electric vehicles are higher cost, challenges in battery technology, lack of infrastructure, consumer mindset and inadequate support from the government side. In order to overcome these barriers and encourage faster adoption of EVs, it is essential to have strong support from government, mission mode approach for faster decision making, involvement of various stakeholders, continued long term commitment, and a synergised - holistic approach to solve the complex issues. Hence, the government launched the National Mission for Electric Mobility ([NMEM](#)) in May 2011.

The government set up two multi-stakeholder bodies: National Council for Electric Mobility ([NCEM](#)) and National Board for Electric Mobility ([NBEM](#)) to formulate policies and coordination efforts on electric mobility and manufacture of EVs and its components. The functions of the NCEM & NBEM are

- To finalise and approve the short-term and long-term objectives of the mission, quantifiable outcomes and milestones along with roles and responsibilities of various stakeholders;
- To approve key interventions, projects, and incentives;
- To consider and recommend to the government necessary policy guidelines, legislation, acts, and amendments to the existing acts relevant to electric vehicles in India;
- To synergise the efforts of various ministries, industries, academia, and research institutes;
- To monitor and review the various projects, schemes and interventions and propose corrections, if any;
- NCEM to be the final authority to resolve the difference in opinions of various ministries; and
- The NCEM will be assisted by the NBEM.

The NCEM and NBEM were initially aided by National Automotive Test and R&D infrastructure Project ([NATRiP](#)) and later on by National Automotive Board ([NAB](#)), which was approved by the cabinet in October 2012. NAB comprises domain and technical experts. NAB is the nodal agency for all ongoing and new initiatives of the government.

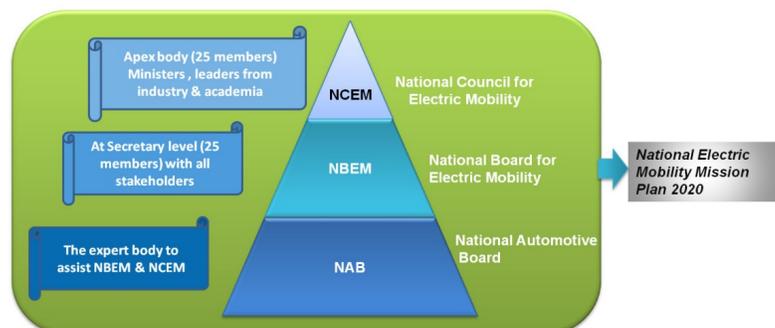


Figure: Structure of National Mission for Electric Mobility (Source: [NEMMP 2020](#))

The National Electric Mobility Mission Plan ([NEMMP](#)) 2020, was unveiled in 2013. The goal of the plan was to achieve national fuel security, to provide affordable and environmentally friendly transportation and to enable Indian automotive industry to achieve global manufacturing leadership by promoting hybrid and electric vehicles. This plan includes [different policy-levers](#) as follows:

- Demand side incentives to facilitate acquisition of hybrid/electric vehicles;
- Promoting R&D in technology including battery technology, power electronics, motors, systems integration, battery management system, testing infrastructure, and ensuring industry participation in the same;
- Promoting charging infrastructure;
- Supply side incentives; and
- Encouraging retro-fitment of on-road vehicles with hybrid kit.

The Government aimed to provide fiscal and monetary incentives to start the then emerging technology, thereby reaching 6 - 7 million sales of electric vehicles by 2020. *(to be continued...)*

## Tamil Nadu News

### A year after TN rolled out solar policy, not much has happened say experts

A year after Tamil Nadu rolled out its Solar Energy Policy 2019, there is not much change on the ground, experts say. The policy aimed at having an installed solar capacity of 9000 MW by 2023 in the State, with 40% coming from rooftop solar systems. “The consumer-focused policy, aiming to achieve 3600 MW of rooftop solar, may still remain a dream given policy, regulatory and administrative hurdles,” Martin Scherfler, Co-Founder, Auroville Consulting said. He pointed out that one of the major pain points has been the tariff determined for rooftop solar systems.

In 2019, the Tamil Nadu Electricity Regulatory Commission (TNERC) in its solar tariff order, had determined a net-feed in tariff (net exported energy after self-consumption) at ₹2.28 per unit. Consumers can also opt for gross feed-in for selling all the energy produced by the solar panel to the utility. The gross feed-in attracts a utility category tariff i.e. ₹3.04 per unit. “The net feed in tariff for solar rooftops equates the cost of a single rooftop plant with a utility scale solar plant, covering hundreds of panels and enjoying considerable economies of scale, which is puzzling,” Mr. Scherfler said. This net feed-in tariff does not even cover 50% of the actual cost of solar rooftops. Further, this goes against the Policy 2019 where it specifically states that “solar energy gross and net feed-in tariffs will be determined by TNERC taking into consideration different capital costs based on the solar system capacity,” he added.

Raj Prabhu, CEO of Mercom Capital Group said Tamil Nadu was the third-largest State in solar installations in the country at the end of 2019, and renewables represent over 50% of the total installed power capacity in the State. “TN was one of the early adopters of solar in the country, but lately, momentum has stalled and support for solar has faded. Unless there is a complete turnaround in its approach to solar power development, it is likely to be surpassed by other States,” he added. Mr. Scherfler said there is no accountability for the targets and no action has been taken yet since the policy has been announced.

Source: [The Hindu](#), February 05, 2020

## India News

### Power minister inaugurates eleven renewable energy management centers

Presently, 55 GW of renewable (solar and wind) energy is being monitored through these centers which are equipped with artificial intelligence based forecasting and scheduling tools. Power minister R.K. Singh today launched eleven Renewable Energy Management Centres (REMCs), placing India among a league of few nations which have state-of-the-art management centers for renewable energy integration. The REMCs are equipped with artificial intelligence based renewable energy forecasting and scheduling tools and provide greater visualization and enhanced situational awareness to the grid operators.

The accelerated pace of renewable energy integration to meet the government’s ambitious “175 GW by 2022” target poses challenges to the grid management due to intermittent and variable nature of RE generation.

Presently, 55 GW of renewable energy (solar and wind) is being monitored through these centers. The REMCs are co-located with the state load dispatch centers (SLDCs) in Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Madhya Pradesh, Gujarat and Rajasthan and in regional load dispatch centres (RLDCs) at Bengaluru, Mumbai and New Delhi and at the national load dispatch center (NLDC). REMC is the “hub” for all information regarding RE power generation in its area of responsibility which could be on SLDC, RLDC or even NLDC level. It acts as the RE single point of contact for the main grid operations team—reads a document by German government’s international cooperation arm GIZ.

The government had approved the implementation of the REMCs as a central scheme and mandated POWER-GRID, under Ministry of Power, as the implementing agency. These REMCs are being managed by Power System Operation Corporation of India Ltd (POSOCO) at regional and national level and by SLDCs at State level.

Source: [PV Magazine](#), February 28, 2020

## Consumer Focus

The [petitioner](#) is a commercial consumer, running a small shop that runs on minimal electricity usage. Initially, the petitioner had applied for 1kW load but the utility sanctioned 3.23 kW without the petitioner's knowledge. As the difference between the consumption and the bills were high, the petitioner had requested at the local section office to reduce the load from 3.23 kW to 1 kW with. Having received no response, the petitioner filed a petition with the Consumer Grievance Redressal Forum to reduce the load. On hearing the facts, the CGRF asked the petitioner to submit an application along with the valid documents to the utility. Based on the application, the utility was directed to reduce the load to 1 kW.

Further, the petitioner submitted an appeal with other issues to the Electricity Ombudsman. It turned out that during one of the assessment periods the shop was locked for some days. The assessor could not see the meter reading for this period; an average bill amount of Rs.2,081 was charged for 190 units. This was high compared to the previous months. The petitioner registered a complaint stating that the bimonthly consumption had never crossed 30 units. The utility, on its part, inspected the meter and found it to be in good working condition. By now the petitioner had paid additional testing charges of Rs.1,000/-. Despite the CGRF order, the petitioner did not give a petition for reduction of load and wanted waiver of the application process.

The Electricity Ombudsman looked into three aspects a) procedure for reduction of load, b) testing charges levied by the utility and c) levy of average consumption charges of Rs. 2,018 and passed the following order:

1)The Shop owner had to submit an application for reduction of load and applicable charges as per Tamilnadu Electricity Supply Code regulation 4 (12), *Charges recoverable by the Licensee - The Licensee shall collect registration charges from LT/HT consumers for the following, at the rates specified by the Commission from time to time. (b) Application for addition/reduction of demand/load in respect of HT and LT Services. ....*

2)Testing charges should only be Rs. 75/- as per TNERC's Miscellaneous charges order issued in MP No 41 of 2003. The utility was ordered to refund the excess amount.

3)The average for the meter defective period for the assessment month, as per historical consumption, worked out to 60 units as per regulation 11(5) of Tamilnadu Electricity Supply Code. Therefore, the utility was ordered to refund the excess amount.

## ECC VOICE

ஏற்காட்டிலிருந்து செங்காடு வழியாக அடர்ந்த காட்டுப்பகுதிக்குள் பள்ளத்தாக்கு பகுதியின் வழியே பழைய மின்பாதை அமைந்திருந்தது. மின்வினியோகம் இத்தனை ஆண்டுகளாக அந்த வழியாக வழங்கப்பட்டது. மழை காலங்களில் தொடர் மின்தடைப்பிரச்சினை ஏற்படும். இதனால் பொதுமக்களுக்கும் மின்பணியாளர்களுக்கும் சிரமமாகவே இருந்து வந்தது. ஏற்காட்டிலிருந்து மஞ்சக்குட்டைக்கு செல்லும் சாலையில் புதிய மும்முனை மின்பாதை அமைத்து தர மஞ்சக்குட்டை பொதுமக்கள் மின்சாரத்துறையிடம் பல கோரிக்கைகளை சமர்ப்பித்தனர். ஆனால் அந்த கோரிக்கைகள் நீண்ட நாட்களாக நிலுவையில் இருந்தன. சென்ற பிப்ரவரி மாதம், சேலம் மின் நுகர்வோர் மையம் சார்பாக நடந்த மின்நுகர்வோர் கூட்டத்தில், மஞ்சக்குட்டை மக்கள் இந்த புகாரை கடிதம் வாயிலாக தெரிவித்தனர். மின் நுகர்வோர் மையத்தின் மின்ஆலோசகரும் மற்றும் மையத்தின் ஒருங்கிணைப்பாளரும், சேலம் மின்பகிர்மான வட்ட மேற்பார்வை பொறியாளர் அவர்களை நேரில் சந்தித்து இந்த புகாரைத் தெரிவித்தனர். புகாரை பெற்ற இரு வாரங்களில் மின்சாரத்துறை அதிகாரிகள் மெயின்ரோடு வழியே புதிய மும்முனை மின்பாதைக்கான பணிகளை நிறைவேற்றினர். தங்கள் கோரிக்கைகளை நிறைவேற்ற உதவிய சேலம் மின்நுகர்வோர் மையத்திற்கு மஞ்சக்குட்டை மக்கள் தமது நன்றியினை தெரிவித்தனர். - ECC சேலம்

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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

### Scottish Power launches 100% green energy tariff

Scottish Power is launching a new tariff in which it guarantees that 100% of the electricity will come from its own renewable energy projects, to mark it out from so-called "greenwashing" energy deals that are not as clean as they seem.

The consumer group Which? found that many suppliers are misleading eco-conscious customers by claiming to offer renewable energy tariffs without ever investing in renewable energy projects. Which? said that "pale green" suppliers are boasting green credentials by exploiting an industry loophole enabling them to buy cheap renewable energy certificates to match the electricity they supply to customers, while buying the power from another source.

Ofgem, the energy regulator, said earlier this month that it was aware of growing concerns about greenwashing in the energy market and would take action to ensure consumers were not misled. Green energy developers typically sell renewable certificates alongside their electricity supply deals so that buyers can prove the origins of their energy. But industry rules mean the initial buyer is free to sell the certificates, without selling the green energy, to a second buyer.

"There are lots of suppliers running around, slapping a bit of green paint on their logo and trading bits of paper to claim they're green. But buying and selling certificates doesn't help tackle climate change - building wind farms and solar projects is what we need to do," Anderson added.

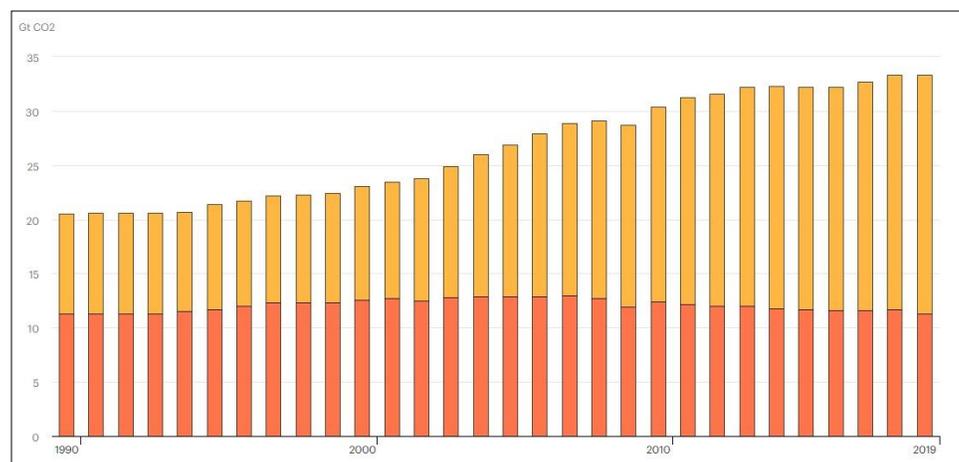
Anderson said the company would reinvest money made from the green tariffs in a new renewable generation, "meaning the more people who take up the tariff, the more investment in green energy there will be". He added: "As the UK's only end-to-end energy provider, we're unique in being able to make this commitment. From today, anyone who signs up for our electricity on a fixed-price tariff can be confident that they are buying electricity from truly green sources."

Source: [The Guardian](#), February 26, 2020

## Publications / Regulations

- India 2020 - In-depth Energy Policy Review, [NITI Aayog](#)
- World Energy Issues Monitor 2020, [World Energy Council](#)
- Renewable Energy Standardisation Cell (RESC) in MNRE, [MNRE](#)

## Global emissions trends - Energy related CO2 emissions, 1990-2019



Source: [International Energy Agency](#)