

### Rooftop Solar Conundrum (Part 1)

Are consumers likely to lose out on the benefits of technological advance in clean energy by a regulatory system that does not demonstrate the need of the hour flexibility and forward thinking?

The Electricity Act 2003, which was enacted among other aims, for improving the commercial viability of the state utilities, is having a counter effect to its traditional business model. Sale of power, which is the main source of revenue for utilities, is being challenged with the increasing uptake of rooftop solar installations.

The Act was enacted at a time when renewable energy (RE) technology was still developing and cost of producing per unit was higher than conventional sources of power. By its very nature of harnessing power through sun, wind etc, it was recognised as a benign source of electricity. In terms of investment, on comparison with conventional energy sources (coal, gas etc), they have high fixed costs and low variable costs (fuel costs) and are considered as stable sources of power - ability to supply on demand. RE sources such as wind and solar do not have any variable costs and are priced according to the fixed cost (capital and operational costs), making price per unit cost of power costlier than conventional sources. On the other hand, RE sources are intermittent and unpredictable sources of electricity supply as they are dependent on the vagaries of the weather. In simple terms, electricity generation is related to wind speed or solar radiation e.g. on low windy days no electricity is produced by the wind power plant or on cloudy days solar panels may not be able to generate its maximum capacity. Within this context, the combinations of high price with drawbacks of unpredictable and sporadic generation make it an unattractive proposition for utilities as the preferred choice.

Pricing and intermittency have created two critical drawbacks for RE sources. The drawbacks have its origins in the way the electricity system is managed and operated. At the heart of the electricity system is a system operator - load despatch centre - and the "merit order despatch" method of supply. The load despatch centre is the entity responsible for co-ordinating electricity supply and demand in real time to avoid fluctuations in frequency or disruption of supply. Merit order despatch is a condition which dictates that the cheapest and priority based source should be pumped into the grid. For the system operator, the cheapest source is refers to the variable cost of power, i.e. fuel cost. Whilst, the system operator does not take into consideration fixed cost of power making prices of coal cheaper than solar or wind. Logically, RE sources will be not allowed to pass into the electricity grid.

Another function of the system operator is to schedule and give directions to generators on when and how much electricity to generate, and manages any events that cause the supply-demand balance to be disrupted. Within the context, there is always the possibility given the intermittent supply of RE sources, scheduling of RE power generation may not be possible. This will lead to the system operator asking RE sources to back down or stop generation so that the grid or wires does not get overloaded i.e. congested. This makes renewable energy was/is never the primary technology choice by the system operator. For this purpose, Indian regulators have given RE a "must run" status i.e. requiring the system operator to enable RE sources to feed power into the grid irrespective of the merit order despatch to enable them to compete with conventional sources. **(to be contd)**

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## Tamil Nadu News

### TNEB signs up for 1,500MW solar power at Rs 3.47 per unit

Sixteen solar power companies which bid for 1,500MW in TN have accepted Rs 3.47 as tariff per unit. When the price bids were opened on June 30, the lowest bid was from Bengaluru-based Raasi Green Earth Energy at Rs 3.47 per unit. On Thursday, other companies which had bid at higher tariffs accepted to set up projects at Rs 3.47 per unit.

"Many companies had bid between Rs 3.47 and Rs 3.97 per unit. We asked other solar power companies to match the lowest tariff and on Thursday 15 companies, apart from Raasi Green, accepted the request," said a senior Tangedco official. NLC alone had bid for the entire capacity for the year 2017-18 at Rs 3.97 per unit. "But on June 30 itself, after the price bids were opened, NLC offered to carry out the project at Raasi's rate. Other companies also came around later. We have given clearance for 1,500MW to 16 companies," said the official.

As per the final list made available to TOI, NLC has got 700MW. "Five companies have been allocated 100MW each and the remaining capacity has been given to other companies. M/s Sunlight and M/s Dev International were allotted 1MW each. M/s Dynamize Solar was allotted 5MW," said the official. GRT Thanga Maligai group has been accorded clearance for 30MW.

"Companies which have been allocated 100MW or less will have to complete their projects this financial year," said the official. Companies which have been allocated more than 100MW each will be given two year time for installation, he said. Tamil Nadu has so far commissioned 1,600MW of solar power projects. About 800MW is being evacuated during peak time, the official said. "Since there are many tariffs for solar power producers, we evacuate cheap power first, and go on to buy power from costlier sources only when the demand is high," the official said.

Source: [The Hindu](#), July 7, 2017

## India News

### SC allows trading of Renewable Energy Certificates

The Supreme Court on Tuesday allowed trading of renewable energy certificates (RECs) on the appeal of Indian Wind Power Association (IWPA). However, the order is restricted to non-solar RECs and would have to comply with the earlier prices. In March 2017, Central Electricity Regulatory Commission (CERC) reduced REC prices to a historic low. The floor price of solar REC was reduced to Rs 1/unit and forbearance at Rs 2.5/unit. It was earlier Rs 3.5/unit and Rs 5.8/unit, respectively. For non-solar (wind and others), the floor price was reduced to Rs 1/unit and forbearance at Rs 2.9/unit. It was earlier in the range of Rs 1.5-3.5/unit.

The order was challenged by REC generating companies in the apex court and in the Appellate Tribunal of Electricity (APTEL). The petitioners had submitted that lowering the prices would never clear the unsold stock of close to 10 million RECs. The generators asked the APTEL to suggest ways to clear the existing stock of RECs, which would be hampered by the new price regime. There are around 1,200 projects under the REC mechanism, with a total capacity of 5,383 megawatt (MW).

Allowing the trading to commence, Supreme Court's final decision in the matter would be taken by APTEL, which is separately hearing the case over decrease in REC prices. The Court said during the trading, the difference in the old and new price would be deposited with the regulators till the matter is pending. Meanwhile, APTEL on July 14 postponed the hearing in the matter by two months. Sector experts are worried that this might lead to backlog in REC market.

Under the Renewable Purchase Obligation notified under the National Tariff Policy, makes it obligatory for distribution companies, open-access consumers and captive power producers to meet part of their energy needs through green energy. The states or utilities that are unable to fulfil their RPO can buy REC, which represents 1mw-hour of power produced from a renewable energy source and are tradable at power exchanges. It is divided into Solar REC and non-solar REC.

REC market, launched in 2010, has crashed last year with more than 1 crore certificates going unsold and has not made significant improvement since then. In the last REC trading before it was stayed during the March 2017, the price discovered was Rs 1/unit for both non-solar and solar RECs.

Source: [Business Standard](#), July 19, 2017

## Consumer Focus

### FACTS

The Appellant, Mr. P. Subramanian, availed a single phase service connection for his residence. During the assessment period, the consumer was charged for 520 units. As the consumption was high, the consumer filed a petition before the CGRF for refund of the excess amount of Rs.1123/- collected. The CGRF of Chennai EDC/North dismissed the petition. Aggrieved, the Appellant filed an appeal before the Electricity Ombudsman.

### CONTESTATIONS

**Appellant:** As per the appellant's calculation, the real current charges for the period was supposed to be Rs.1139 but the department has mentioned mistakenly as Rs.2262. Therefore, the excess amount of Rs.1123 collected from him may be returned with interest by the department and action may be taken against the person who is responsible for this.

**Respondent:** The meter became defective because of Chennai rains in December 2015 was replaced because of the assessment that was made as 10 units. The corresponding amount of Rs.88 was collected on 9.3.2016. At that time, the petitioner did not object and paid the amount. Later, some discrepancies were found in the meter reading. The difference in amount of Rs.731 will be adjusted in the future CC charges. Necessary Disciplinary proceeding have been initiated against the assessor.

### OBSERVATIONS AND JUDGMENT

In view of the findings, the Respondent was directed to refund the excess amount of Rs. 968 with interest as applicable to security deposit within 30 days from the date of receipt of the order. The interest was to be calculated upto the date of refund. As the Respondent had agreed to refund the excess amount and had stated that Disciplinary Proceedings had been initiated against the assessor, the Appellant informed that his petition may be closed.

## ECC Voice

### மின் பாதுகாப்பு முறைகள்

- மின் ஓயரிங் வேலைகளை அரசு உரிமம் பெற்ற மின் ஒப்பந்ததாரர் மூலம் செய்ய வேண்டும்.
- ஐ.எஸ்.ஐ முத்திரை பெற்ற/நட்சத்திரக் குறியிட்ட மின் சாதனங்களை மட்டுமே, பயன்படுத்த வேண்டும்.
- ஃபிரிட்ஜ், கிரைண்டர் போன்றவற்றிற்கு நில இணைப்புடன் (Earth) கூடிய மூன்று பின் சாக்கெட் உள்ள மின், பிளக்குகளை மட்டுமே பயன்படுத்த வேண்டும்.
- உடைந்த சுவிட்சுகள், பிளக்குகள், பழுதடைந்த ஓயர்கள், மின் சாதனங்கள் உங்கள் பயன்பாட்டில் இருப்பின், அவற்றை தாமதமின்றி புதுப்பித்துக் கொள்ள வேண்டும்.
- பிளக் பாயிண்டுகளில் குளவி கூடுகட்டாமல் இருக்க துளை அடைப்பான் பொருத்த வேண்டும். குளவிக் கூட்டை சுத்தம் செய்யும் முன் மிக்க கவனத்துடன் மெயின் சுவிட்சை நிறுத்திய பின் செய்யாவிடில் உயிர் துறக்க நேரிடும்.
- மோட்டார், அயன் பாக்ஸ், வாளியில் சொருகும் வாட்டர் ஹீட்டர் ஆகியவவை மின் இணைப்பில் இருக்கும் போது கையால் தொட கூடாது.
- குளியலறையிலும், கழிவறையிலும் ஈரமான இடங்களில் சுவிட்சுகளை பொருத்த கூடாது. சுவரின் உள்பகுதியில் மின்சாரத்தை எடுத்து செல்லும் ஓயர்களுடன் கூடிய பிவிசி பைப்புகள் பொருத்தப்பட்டிருந்தால் அப்பகுதியில் ஆணி அடிக்க கூடாது.
- Earth-leakage circuit breaker (E.L.C.B) -யை வீடுகளில் மெயின் சுவிட்சு போர்டில் பொருத்தினால் மின் கசிவால் ஏற்படும் விபத்தை தடுக்கலாம்.
- மின் கம்பத்திற்காக போடப்பட்ட ஸ்டே ஓயரின் மீது அல்லது மின் கம்பத்தில் கயிறு கட்டி துணியை காய வைக்க கூடாது.
- மழைக் காலங்களில் டிரான்ஸ்பார்மர்கள், மின் கம்பங்கள், மின் பகிர்வு பெட்டிகள், ஸ்டே ஓயர்கள் அருகே செல்ல கூடாது.
- இடி மின்னலின் போது டிவி, மிக்சி, கிரைண்டர், கணினி தொலைபேசியை பயன்படுத்த கூடாது. திறந்த நிலையில் உள்ள ஜன்னல், கதவு போன்றவற்றின் அருகில் இருக்க கூடாது.

**ஆதாரம்:** தமிழ்நாடு மின் உற்பத்தி மற்றும் பகிர்மான கழகம்

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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

## Tesla to build world's biggest lithium ion battery in South Australia

Tesla will build the world's largest lithium ion battery to store renewable energy in South Australia in partnership with French energy utility Neoen. The 129MWh battery, which is paired with a wind farm, is designed to improve the security of electricity supplies across South Australia.

The state's premier, Jay Weatherill, confirmed the deal, which forms a key part of the government's \$550m energy plan. Romain Desrousseau, the deputy chief executive of Neoen, said that at 129MWh the South Australian lithium ion battery would become the largest in the world. The battery will be built near Jamestown, and will be paired with Neoen's Hornsdale wind-farm to provide stability for renewable power being fed into the grid.

Musk told reporters in Adelaide on Friday the project was not without technical challenges, given it would be the largest battery installation in the world "by a significant margin". The battery forms a key part of the state govern-

ment's \$550m energy plan drawn up after last year's statewide blackout. Repeated blackouts in SA since September have sparked a political brawl over energy policy, with the federal government blaming the failures on the use of renewable technologies. The Australian Energy Market Operator said there were many factors behind it, including higher demand than anticipated.

Grid-scale battery storage could help to even out price spikes, prevent blackouts and improve reliability across the network. Tesla recently completed an installation of an 80MWh grid-scale battery farm in southern California within just 90 days, which is estimated to have cost US\$100m.

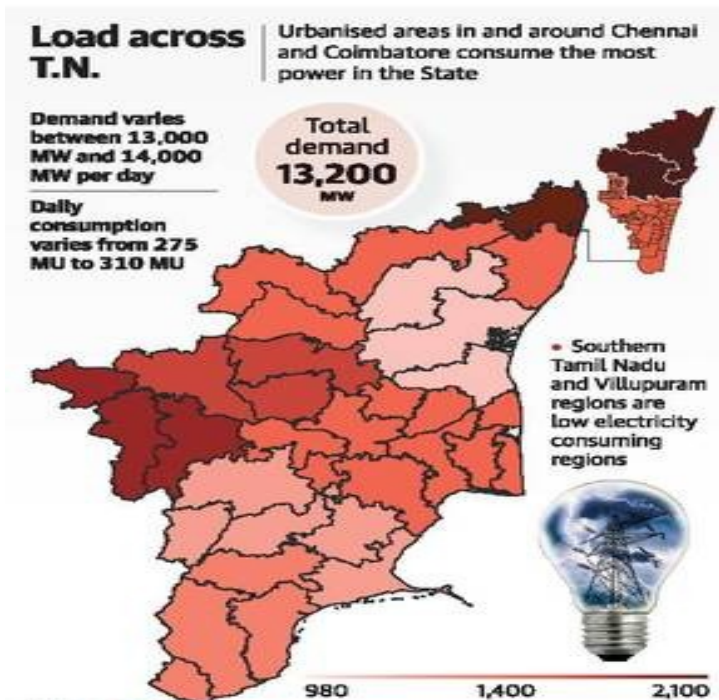
The Climate Council's Tim Flannery said South Australia said the federal government should be encouraging further investment in energy storage to assist in building the RE sector. "We need to roll out this technology swiftly in a bid to tackle climate change."

Source: [The Guardian](http://TheGuardian), July 7, 2017

## Publications/Regulations

- Lok Sabha, "National Solar Mission- An Appraisal", July 2017, [Click here](#)
- Shubh Soni, "Renewable Energy and Multilateral Development Banks, India-Case study", 2017, [Click here](#)

## LOAD ACROSS TAMILNADU - POWER MAPPING



Source: The Hindu, July 2017

## மேற்கூரை சோலார் நிறுவதல்

தமிழ்நாட்டில் நிறுவப்பட்டுள்ள ஒவ்வொரு கிலோவாட்டிற்கும், சோலார் பிவி கருவியின் உற்பத்தி திறன் ஒரு வருடத்திற்கு 1,500 கிலோவாட்டாகும். உள்ளபடியான திறன் உற்பத்தியானது சோலாரின் செயல்திறன், சோலார் பேனலின் சாய்வு கோணம், பருவநிலை, மின் தொகுப்பு கிடைக்கும் தன்மை மற்றும் சோலார் பேனலின் தூய்மை ஆகியவற்றை சார்ந்திருக்கும்



### சோலார் மேற்கூரை முதலீடு ஊக்குவிப்புத் திட்டம்

#### மின் தொகுப்பிணைந்த உள்நாட்டு சோலார் பிவி கருவி

மத்திய அரசு மானியம்	ரூ. 22,000 (30% MNRE யிலிருந்து உள்ளடக்கியது)
மாநில அரசு மானியம்	ரூ. 20,000
தனி வீடு / அடுக்குமாடி குடியிருப்புக்கான கருவியின் திறன்	1 கிலோவாட்
நிகர அளவு: மின்சாரம் ஏற்றுமதி மற்றும் இறக்குமதி செய்வதன் மூலமாக மின் கட்டணத்தை குறைக்கலாம்	எடுத்துக்காட்டு: ஒரு நுகர்வோர் 1000 கிலோவாட் திறனை மின் தொகுப்பிலிருந்து இறக்குமதி செய்து, 600 கிலோவாட்டினை ஏற்றுமதி செய்தால், நிகர அளவின் மூலமாக கட்டணமானது 400 கிலோவாட்டிற்கே விதிக்கப்படும்

கருவியைப் பொருத்துவதற்கு, தமிழ்நாடு ஆற்றல் மேம்பாட்டுக் கழகத்தின் பட்டியலில் உள்ள தகுதிவாய்ந்த சோலார் கருவி பொருத்துநர்களை அணுகலாம்

ஆதாரம்: தமிழ்நாடு ஆற்றல் மேம்பாட்டுக் கழகம்

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