

TO

The Commission Secretary

APERC

ANDHRA PRADESH

Respected Sir,

We wish to inform you to Government of India is trying to promote solar energy in a big way and bring the climate change under control. Government of India, Ministry New and Renewable Energy has an ambitious programme of installing 175 GW by 2020. Out of the 175 GW of Renewable energy target , 100 GW of grid-connected solar power, comprising 60 GW utility-scale solar and 40 GW solar rooftop Grid connected solar power system are considered as major contributor for this program.

In accordance with the Government of India Solar Power Policy, State Government of Andhra Pradesh has introduced AP Solar Power Policy 2015 and AP Solar Net Metering Policy 2015. The Main objective of these policies are to promote the establishment of solar power projects , rooftop solar power plant for various categories of consumers.

As per the AP Solar Power Policy 2015, Government of Andhra Pradesh have provided subsidies for the promotion for the solar energy for domestic, commercial and industrial consumers.

AP Solar Power Policy 2018 is introduced in Feb 2019. After the introduction of the new policy ,subsidies were removed for commercial and industrial customers. The subsidies are currently being only to the domestic consumers who have consumption of less than 200 units per month.

Adusumilli Solar citi Pvt. Ltd.

106, Veterinary Colony, Ring Road, Vijayawada

Ph : 0866 6545 488, & 70930 05515, e-mail : info@solarciti.in, www.solarciti.in

Toll Free No. **1800 4258 9999**

17/3/2020
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17/3/2020

As on today only 110 MW of Solar rooftop is installed, with all the incentives provided by the state and central government. This is equivalent to 0.0275% of the national solar rooftop target. Based on the above progress, it clearly understood a lot of push from the Central and State Governments are required to meet the targets of installation of rooftop solar power projects.

AP Solar Power Policy 2018 is introduced through G.O.Ms. No. 01 Dt. 03.01.2019. Aperc has approved the policy on 25-05-2019 by conducting public hearing and passing order. APDISCOMS have seeking amendments again to the AP Solar Power Policy 2018 in less than 8 months from the APERC Order date of 25-5-2019. As you are kindly aware the power situation has not changed anything in the last 8 months, but still the DISCOMS are seeking amendments . Any Policy introduced or Commission order should have a minimum operative period of at least 5 years, otherwise people will not belief on the system or the policy introduced by the state government.

Following are the amendments proposed by the APDISCOMS.

- A. To determine SRT Tariff rates as per G.O. Ms. No. 35, Dt. 18.11.2019, ie. " The applicable tariff for solar rooftop project for either net metering or gross metering shall not exceed difference of pooled variable cost and balancing cost (or) the applicable tariff at the time of Commercial operation Date (COD) whichever is less".
- B. To limit the SRT Agreement period to 10 years instead of 25 years.
- C. In line with G.O. Ms. No. 35, Dt. 18.11.2019, a decision may be taken in respect of Gross or Net Metering.

We wish to express our deep concern with the implementation of above amendment to the AP Solar Power Policy 2018, No one will be interested to setup the solar power plant and would kill the ambitious targets of the Central Government and will in turn have a huge impact on the climate control.

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AP DISCOMS are trying to create hurdles in all the possible ways to stop the setting up of solar energy system without having any awareness of the benefits of the distributed solar energy systems.

1. Breakeven period of Solar Power Plant

We wish you to inform you that subsidies for the solar power plant under Net Metering scheme are removed for the most of the consumers except for those who has consumption of less than 200 units.

Solar power project setup with bank finance with interest rate of 12%, will take at least 10 to 12 years for the breakeven period. Any benefit from the solar power system can be realized only after 12 year.

Hence limited the SRT Period for 10 years, will be a big setback for the project and no one will be interested to setup the project.

The SRT Agreement should be continued for 25 years.

2. Disadvantages of Gross Metering

In Gross metering system , the DISCOMS will pay for the Net Exported units based on the Average pooled purchase cost (Rs. 3.75/Unit). The discoms are proposing that the "Difference of Pooled purchase cost and Balancing cost (Rs. 3.5/Unit) should be paid for the Net Exported units"). so the net amount payable is Just Rs. 0.25 Paise Per Unit.

Consider a domestic consumer who installs 1 KW Solar power system. The system generates 5 units per day. Assume that total consumption in the morning hours is 2 units per day. The Net exported units per day is 3 Units per day . Total exported units per month is 90 Units.

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If the discoms pays Rs.22.5 (90 units X Rs 0.25/Unit) per month to the consumer, the break-even period for the solar power system is more than 40 years.

In this kind of scenario it is big loss to the consumer and no one will setup the solar power system.

3. Net Metering system

As per the solar power 2019, the capacity of the solar power system that can be installed under Net Metering is limited to the contracted Demand of the consumer. So energy generated from the solar power system will be consumed from the premises owner itself. There is a very limited scope of the excess export from the Net Metering system

Example :

If a consumer a contracted MD of 300 KVA, Then only 300 KW Solar Power system can be installed in their premises. The energy generated from the solar power system will be just self-sufficient and the percentage of energy exported to the grid are not even 1%. In the Net Metering system, the energy generated from the solar power system can adjusted in the current month billing only. Earlier the DISCOMS used to consider the 6 months settlement period and later changed it to 3 months settlement period and now it is just 1 month settlement period.

Net Metering system has created an excellent distributed generation system, where the utilized power from the system is exported to the grid. The exported energy is consumed by the DISCOMS and can be supplied to the other consumers and to other feeders.

Net Metering system reduces the burden on DISCOMS by creating local power generating system and distribute the excess generation effectively. This reduces the transmission and distribution losses facing by DISOCMS.

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The main objective of promotion Net Metering system by Central Government is reduce the burden on DISCOMS for the power management.

DISCOMS are under wrong impression that, the solar developers are installing the systems as a business motive. This is absolutely incorrect. The system are installed for just for their self-consumption only.

In the Petition filed by APSPDCL, in Lr . No. APSPDCL/CGM/IPC/GM/IPC/DEE-3/D.NO.52/20, dT. 10.02.2020 for seeking amendments to modalities to the existing solar power policy 2019. Following information is mentioned in point no. 4

Month	Billed Demand/Consumption from Grid (Units)	SRP Generation (Units)	Net Energy (Rs)	Net Monthly Payment by DISCOM (Rs)	Net Monthly Payment by SRP
	A	B	B-A=C	C X APPC	
DEC	800	800	0	0	0
JAN	1000	1200	200	800	0
FEB	1200	1000	-200	0	1800
MAR	1300	1050	-250	0	2500

A) In the Month of December and January , There is absolutely no loss to the DISCOM.

B) In the months of Feb and March, it is projected that 20% excess energy is generated is there and there is loss DISCOM. But ideally, the net energy exported in most of the cases are not more that 2%, as Net Metering is limited to the contracted MD.

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4. DISCOMS Concern in Managing the Grid with Capacity of 8515 MW Renewable energy.

DISCOMS are projecting that the managing the grid with capacity of 8515 MW is difficult.

We wish you to bring to your kind notice that with all the incentives for last 5 years only 110 MW of solar Net Metering system is introduced in entire Andhra Pradesh. DISCOMS are misleading APERC by projecting high figure of installed capacity.

Managing the distributed system of solar net metering is very easy and more even it is helpful to the DISCOMS.

More ever the excess energy exported by the solar power plants will be consumed in the nearby places by other consumers in the locality or with in the feeder level for HT Consumers. This is more benefit to the DISCOMS than loss to the DISCOMS as DISCOMS no need to procure this additional energy from the other feeders. The solar energy systems erected under Net Metering scheme are distributed across cities, towns and villages. The excess energy generated from the system can be effectively utilized by DISCOSMS.

DISCOMS are treating as the solar power plant under Net Metering mechanisms are business units or not treating them as self-consumption units. The same misconception is projected to APERC.

5. Scenario in Other States

We wish to bring to your kind notice all the Indian states are promoting Net Metering in a big way. No state in India has removed Net metering policy.

Gross metering is a big failure and it is not useful for customers.

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GST-37AAMCA9371K1Z0
ISO 9001 : 2008 Certified
MNRE, NREDCAP

- A. Government of Karnataka has increased the subsidies for Net Metering in the all are happy, with solar notification dated 15.03.2020 to 40% for the domestic consumers.
- B. Maharashtra ERC have rejected the proposal of DISCOMS For Removing the Net Metering
- C. Rajasthan and UP Governments have increased the max capacity of the Net Metering systems to 2 MW.

We pray to the Honourable Chairman, that Net Metering should be continued for the benefit of the consumers and for the benefit of the environment. The tenure of the agreement should for 25 years.

If Gross Metering is introduced, then no one will erect the solar power system and this will be a big set back by solar programme by central government and in the controlling the pollution.

If at all the DISCOMS are thinking that Paying APPC Price is burden to them, we request them to pay 50% of Pooled purchase cost as is the case with open access power generators. This will be equivalent to (Rs. 1.875 = 3.75X 50%). This will be more reasonable price for the excess energy produced from the net metering system.

We pray to the Honourable Chairman, that Net Metering should be continued for the benefit of the consumers and for the benefit of the environment.

Thanking you

Yours faithfully

ADUSUMILLI SOLAR CITI PVT .LTD



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Email

commn-secy@aperc.gov.in

Solar netmetering comments reg...**From :** vijayawada@poweroneups.com**Subject :** Solar netmetering comments reg...**To :** Commission Secretary <commn-secy@aperc.gov.in>

Tue, Mar 17, 2020 12:33 PM

1 attachment

Reply To : vijayawada@poweroneups.com

Dear sir/ Madam,

Pls find the enclosed comments for solar netmetering regards...

Sent from Yahoo Mail on Android

aperc_Netmetering.docx
19 KB

17/3/2020

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the solar power plant and would kill the ambitious targets of the Central Government and will in turn have a huge impact on the climate control.

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We pray to the Honourable Chairman, that Net Metering should be continued for the benefit of the consumers and for the benefit of the environment. The tenure of the agreement should for 25 years.

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Email

commn-secy@aperc.gov.in

Comments/Suggestions on proposed 'Amendment to Modalities (Guidelines) for implementing Solar Roof Top Policy, 2018'**From :** ashwin@prayaspune.org

Wed, Mar 18, 2020 09:39 AM

Subject : Comments/Suggestions on proposed 'Amendment to Modalities (Guidelines) for implementing Solar Roof Top Policy, 2018'

1 attachment

To : Commission Secretary <commn-secy@aperc.gov.in>**Cc :** sreekumar@prayaspune.org

To,
The Secretary,
Andhra Pradesh Electricity Regulatory Commission
Hyderabad
18th March 2020

Dear Sir,

Please find attached, Prayas (Energy Group)'s submission on proposed 'Amendment to Modalities (Guidelines) for implementing Solar Roof Top Policy, 2018'.
Please consider our submission on record.

--
Kind Regards,
Ashwin Gambhir, Sreekumar Nhalur
Prayas Energy Group
<http://www.prayaspune.org/peg/>

 **Prayas Energy Group-Comments on APERC net-metering_18-3-2020.pdf**
787 KB

18/03

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18/3/2020



Prayas

Prayas (Energy Group)

Unit III A and B, Devgiri, Joshi Museum Lane, Kothrud Industrial Area, Kothrud, Pune - 411 038, India
Phone: +91-20-2542 0720, 6520 5726, Fax: 2543 9134; Website: www.prayaspune.org/peg

18th March, 2020

To,
Secretary, APERC,
Hyderabad.

Subject: Comments/Suggestions on proposed '*Amendment to Modalities (Guidelines) for implementing Solar Roof Top Policy, 2018*'.

Dear Sir,

Please find enclosed comments/suggestions by Prayas (Energy Group) on the proposed amendments for implementing the solar rooftop policy 2018. We request the commission to take our submission on record.

Thanking you,

Ashwin Gambhir, Sreekumar Nhalur, Ann Josey
Prayas (Energy Group).

Comments/Suggestions on the proposed 'Amendment to Modalities (Guidelines) for implementing Solar Roof Top Policy, 2018', by Prayas (Energy Group), Pune.

Our detailed comments on some aspects of the proposed amendments are noted below.

1. Need to continue with consumer choice over availing net-metering or gross metering.

The AP Solar policy of 2018 (dated 3/1/2019) coupled with the 'Modalities (Guidelines) for implementing the Solar Roof Top (SRT) Policy, 2018' as approved by the APERC by its order on 25th May, 2019 clearly brings out that the choice of availing net-metering or gross metering lies solely with the consumer.

The amendment to the AP solar policy of 2018, dated 18/11/2019 notes in section 3 (ii) that, '*the applicable tariff for solar rooftop projects for either **net-metering/gross metering** shall not exceed "difference of pooled variable cost and balancing cost" or the applicable tariff at the time of CoD whichever is less*'.

It is clear that the choice of net-metering or gross metering for the consumer is retained in the November, 2019 amendment as well. Hence there appears to be no merit in the third prayer of the petitioners, namely for the Commission to take a decision on gross/net-metering.

Further APERC should determine the pooled variable cost and balancing cost every year. As suggested by the solar policy amendment, APERC should start the process of determining pooled variable cost and balancing cost for roof top solar, through a discussion paper followed by public consultations.

Hence the Commission's order, based on the policy amendment, should be limited to changing the buy back rate for gross metering or when there is excess generation over consumption in a billing cycle within net-metering, based on the determined pooled variable cost and balancing cost.

If the APERC notifies a new buy back rate for rooftop solar, this should only be applicable for new projects commissioned after the notification of this new rate. Older projects commissioned under erstwhile policies should continue to get the benefits under those policy and regulatory dispensations or else there would be many litigations and those projects run the risk of becoming stranded assets. Such a move would also ensure reduced risk to investors and increase the legitimacy of commitments provided in state government policies.

2. Need to continue with long term agreements.

In a similar vein, we feel that there is no need to shorten the agreement period to 10 years, especially when the original 2018 policy explicitly mentions that,

*The applicable tariff for either of the cases shall be equal to the average pooled power purchase cost which will be determined by APERC for the year during which the project is synchronized with the grid and the applicable tariff at the time of CoD will be paid for **25 years**, in case of projects executed under both net metering and gross metering basis. The*

above tariffs shall be applicable for a period of 25 years for Eligible Developers who set up solar rooftop projects within the Operating Period of this policy.

As this aspect of the policy has not been amended, it is suggested that the Commission dismiss this prayer of the DISCOMs.

3. Need to support the growth of small scale distributed solar in the state.

Point 10 of the SPDCL petition and Point 15 of the EPDCL petition mention more than 8500 MW of wind and solar capacity in AP and the challenges of their grid integration. Since the challenges mentioned refer to large scale centralised renewables, it is not relevant for this petition on roof top solar.

As per the rooftop solar map of India by BridgetoIndia, AP has an installed capacity of 202 MW out of the total of 5252 MW in the country, as of September, 2019. Out of the 202 MW, nearly 85% is by Industrial and Commercial consumers. Thus, it only has a share of 3.8% of the total rooftop capacity in the country. At the state and national levels, efforts should be to promote distributed solar with enabling policies, regulations and incentives.

As of now, with such a small base, the impact of rooftop solar on the DISCOM finances will also be minimal. Disincentivizing rooftop solar will mean that the state will forgo the benefits in terms of new job creation (which is significantly higher for distributed rooftop solar as compared to large scale solar), tapping into newer pools of investments through consumers as well as the free RPO credit for obligated entities, i.e. the DISCOMs in whose area such projects will come up.

Another consideration is that industry and commercial consumers can take the captive option with or without storage, while scaling down their DISCOM connected load requirements if feasible. Retaining them as DISCOM consumers with a reasonable tariff plan is a better option.

* * * * *

23/3/2020

From: prsatya71@gmail.com
Subject: Public hearing for Roof top Solar Project policy amendments proposed by APDISCOMs - regarding
Date: March 20, 2020 at 12:31 PM
To: Commission Secretary commn-secy@aperc.gov.in

Dear Sir,

This has reference to the Public hearing dated March 23, 2020 for the amendment of Solar Roof top Policy, proposed by APDISCOMs.

A brief introduction about myself, I am a 3 KWp Roof top project owner installed on the Terrace of my Home, under NCEF fund vide Letter # NREDCAP/OSD/NCEF/61A/2016 dated 31.8.2016.

The Solar roof top project located in my home in Narsapuram town, West Godavari district was commissioned in the year 2017 and has been operating successfully with 100% availability and zero maintenance till date. As on December 2019, the CF export amount accumulated to 29,453.33 Rupees.

I wish to bring forward to the honorable Commission that I am proud of my Green living initiative as it not only is covering my domestic Electricity needs but also eliminating the equivalent burning of fossil fuel, a major contributing factor to Global warming as well as Environmental pollution. While I am seriously considering adding some more Solar panels and top up 2 KW to my existing 3KW project, the news regarding proposal by APDISCOMs for amendments to existing net metering policies for Solar roof tops came as a rude shock to me.

With regard to the amendments proposed, I wish to inform the honorable Commission that this certainly is not encouraging. I clearly do not understand the basis on which these amendments were being proposed.

I therefore wish to bring forward my views to your kind attention as below:

1. Based on my understanding on the role of APDISCOMs with regard to Solar roof top (SRT) projects, I am of the opinion that the amendments sought by APDISCOMs are of little or no relevance to their role, which is more of a Purchaser in the agreement. This is discouraging and detrimental to the interests of all SRT owners who have invested their Terrace space, paid the installation cost and are responsible for Power production, operation & Maintenance of the equipment.

2. I am also of the opinion that this is a clear disconnect between ADDISCOMs and the initiatives of Central Government towards Green living as well as Start ups.

3. In a tropical country like ours, Sunlight being an abundant source of energy can be an efficient replacement / alternative to fossil fuel which is expensive, perishable as well as a major contributor to Global warming and environmental pollution. Currently the world is moving towards purchasing Power plant equipment that is incorporating advanced lean fuel combustion systems with low NO x emissions, in spite of their higher investment, operating & maintenance costs. It goes without saying that SRT projects are clean, green, efficient and safe to operate.

Under the above, I humbly appeal to the Honorable Commission for their kind consideration with regard to above submission and to continue the prevailing policies for the promotion of Solar Roof top Projects.

Sincerely,

Prabhakara Raju B V S.

23/03

3/6/2020

Contact # 7893991991, Alternate Phone # 9542021731

APEPDCL Service # : 1533583100021712

UID: 25914336

Aadhar # 4821 2170 4736

Residence Address:

H No. 4-1/1-4/1, Sundaravaari Street,

Ward # 6, Narsapuram, West Godavari district.

Andhra Pradesh - 534275

Attachments:

1. NREDCAP agreement copy.

2. Electricity Bills reflecting CF export amount



2_Electricity
bills_21712.pdf



6_NREDCAP_agr
eemen...py.pdf

From: thimmanna_m@rediffmail.com
Subject: Comments on amendments to modalities for implementing SRP 2018
Date: March 23, 2020 at 11:27 AM
To: Commission Secretary commn-secy@aperc.gov.in

23/3/2020

To, The Secretary, A.P. Electricity Regulatory Commission, 4 th Floor, Singareni Bhavan, Red Hills, Lakdi ka pool, Hyderabad – 500 004	From, M. Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, 139, Kakatiya Nagar, Hyderabad – 500 008
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Date: 23-03-2020

Respected Sir,

Sub: - Comments on Amendment to Modalities (Guidelines) for implementing Solar Rooftop Policy, 2018.

Ref: - O.P. No: 8 of 2020, Public Notice dated 09-03-2020

1.1 The proposed amendments to the modalities for implementing the Solar Roof Top Policy, 2018 is aimed at reducing the “financial burden which is resulting out of the Solar Rooftop power generation.” This is a part of APDISCOMs’ scheme/approach to discourage/bring down renewable energy (RE) generation, which is evident from their ARR and tariff proposal filings for FY 2020-21, which no doubt is misplaced and needs to be set aside. At present surplus power injected in to the grid from rooftop solar power plants is being paid at average pooled power purchase cost. An examination of power purchase costs from different sources show that the average pooled power purchase cost is high due to high cost of power procured from coal based thermal power plants and cost of RE power is lower than coal based thermal power plants. Table 27 (p.97) of the APERC’s Retail Supply tariff Order for FY 2020-21 provides an overall picture of power procurement cost in Andhra Pradesh (AP). While average power purchase cost is Rs. 4.68 per unit average cost of NCE is Rs. 4.58 per unit. If biomass power is excluded from NCE average cost of NCE will be even lower. At the same time average cost of APGENCO thermal total is Rs. 4.83 per unit. Cost of power from NTPPS V Stage and SDSTPP II is Rs. 4.94 per unit, that of SDSTPP I is Rs. 5.11 per unit and that of RTPP Stage IV is Rs. 5.46 per unit. What is more intriguing is that cost of thermal power blended with solar power in order to bring down cost of solar power under JNNSM is higher (Rs. 5.62 and Rs. 4.73 per unit) than average cost of NCE. It is also well known that new solar and wind power units are producing power at about Rs. 2.50 per unit. Cost of solar and wind power is half of the power generated from new coal based thermal power plants. As is evident from the above Table of APERC Order average pooled power purchase cost can be considerably reduced by encouraging RE, particularly solar and wind power units and discouraging new coal based thermal power plants.

2.1 As a part of the present amendment proposals APDISCOMs want the Commission to permit only Gross metering and do away with Net metering. This goes against the GoAP’s new policy which left the choice to the consumers.

2.2 APDISCOMs allege that the present net metering and payment to solar power at average pooled power purchase cost is leading to unnecessary enrichment of solar rooftop developers. Under net metering consumers will be paying to the DISCOMs for the power that they take from the DISCOMs according to the relevant slab. In case there was such unnecessary enrichment as contended by APDISCOMs there would have been

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rush for installation of solar rooftop units. Until now total solar rooftop capacity in AP is only about 200 MW and this constitutes less than 4 percent of solar roof top capacity in the country. The amendments proposed by APDISCOMs will totally discourage electricity consumers in the state from adopting solar rooftop systems.

3.1 APDISCOMs also want to limit the SRT Agreement period to 10 years instead of 25 years. There is no sanction for this under the present Solar Rooftop policy of GoAP. Also, there is no precedent for this in the country. The recent tenders for solar power floated by the states of Gujarat and Kerala mentioned that PPA will be for a period of 25 years.

4.1 Following the new GoAP policy on rooftop solar power plants APDISCOMs want “the applicable tariff for solar rooftop projects for either net-metering/gross metering shall not exceed “difference of pooled variable cost and balancing cost” or the applicable tariff at the time of CoD whichever is less” APDISCOMs also proposed, “... It is advisable to pay to SRP consumers at reasonable price supported by cost plus calculations and should not unnecessarily enrich the SRP consumers at the cost of DISCOM consumers” (Para 6, APSPDCL petition). “... Here, in cases of SRP plants, the tariff is not fixed on scientific basis and not supported by any logic or reason.” (Para 8, APSPDCL petition). “... a Generic tariff may be fixed based on the costs involved instead of making payment based on Average Pooled Power Purchase cost...” (Para 11, APSPDCL petition).

4.2 Under the present conditions Average Pooled Power Purchase cost may not be an ideal index to set tariff for rooftop solar power units. This applies to linking it to average pooled variable cost also. Fluctuations in variable charges (prices of coal and natural gas) do not provide a stable environment for setting up SRP units. The formula for setting SRP tariff proposed in the GoAP GO and proposed by APDISCOMs in their petitions is loaded against SRP units and in favour of thermal power plants, going against the spirit of promoting renewable energy units even when techno-economic conditions favour RE sources like solar power units. Under this formula SRP units will be allowed only if its cost is much less than the variable cost of thermal power units, let alone total cost of thermal power units.

4.3 Going by the power purchase cost allowed by the APERC for the FY 2020-21 (Table 27 of the Tariff Order) average pooled variable cost comes to Rs. 3.15 per unit. APDISCOMs in their ARR and tariff proposals for FY 2020-21 stated balancing cost of RE units as Rs. 0.53 per unit. According to this tariff for SRP units has to be set at Rs. 2.62 per unit. On March 18, 2020 Gujarat’s DISCOM – GUVNL – conducted bids for solar power and successful bids were in the range of Rs. 2.61 to Rs. 2.64 per unit. While this price may be economical for large scale solar units it may not be economical for small scale units like SRP. As such solar tariff emerging out of the above formula may not be economical and attractive for SRPs. There is need for developing an alternative formula or method for setting tariffs for SRPs.

4.4.1 As mentioned above APDISCOMs also proposed reasonable price supported by cost plus calculations and a Generic tariff based on the costs involved. In the past the Commission fixed feed in tariff (FIT) for solar units based on cost plus principle. But because of issues related to access to reliable data in the past FIT also faced criticism. Tariff for SRP may be linked to the latest tariff discovered in auction for solar units. As small developers and households do not have the capacity to compete with the price set by large developers they may be given an incentive over and above the price discovered

in the auction for large scale solar units. The GERC order in case no 1802 of 2019 has approved the mechanism of applicable tariff for purchase of power under the Government of Gujarat Policy for development of Small Scale Distributed Solar Projects – 2019. This is 20 paise/kWh higher than the tariff discovered through competitive bidding for large projects. This is likely to interest small investors who are unable to participate in the large tenders. But the issue is whether the Rs.0.2/kWh higher rate would be viable for these small projects like SRPs has to be examined.

4.4.2 Experience in Maharashtra suggests that the discovered prices for the solar feeder initiative is between Rs 3.1-3.3/kWh. Other states like Rajasthan and Haryana have also set the ceiling rate at Rs 3.11-3.14/kWh. The tariff for SRP units needs to be set in such a way that it is economical and attractive to SRP consumers and at the same time will not burden other DISCOM consumers.

5.1 The GoI has set the target of 100 GW of solar power by 2022. Out of this 40% i.e., 40 GW has to come from solar rooftop units. 2700 MW of solar power is available in AP during 2020-21. Following the all India target for solar rooftop units there should have been 1,800 MW solar rooftop units in AP. But present total capacity under solar rooftop units in AP is about 200 MW only. AP has achieved only 11% of the target. Solar rooftop units should have been the most preferred mode for promotion of solar power units. Solar power units need four times more land than thermal power plants. By promoting solar rooftop plants need for this land can be obviated. As power is generated at the point of consumption under SRP, T&D losses will be minimised. In spite of these advantages progress in SRP installation in AP is not encouraging. This trend in AP in particular and in the country in general goes against the global trend. SRP systems account for 70 per cent of total solar power capacity in Germany, 57 per cent in Australia, 50 per cent in Brazil, and 36 per cent in USA.

5.2 Renewable Power Purchase Obligations (RPPO) was introduced to promote renewable power in the context of climate change and global warming and at a time when cost of renewable power was high compared to conventional, thermal power sources. When cost of renewable sources, particularly solar and wind, is coming down the opportunity needs to be utilised with vigour. Instead, APDISCOMs prefer to jettison the opportunity. APDISCOMs stance is akin to throwing baby out along with bath water. Hope better sense will prevail with APDISCOMs and request the Commission not to give consent to the present petitions of APDISCOMs.

We request the Commission to take our above submission on record.

Thanking you.

Yours sincerely,

M. Thimma Reddy.

Email

commn-secy@aperc.gov.in

solar net metering

From : cexide@gmail.com

Thu, Mar 19, 2020 09:40 AM

Subject : solar net metering

To : Commission Secretary <commn-secy@aperc.gov.in>

Respected Sir,

In response to the Public Notice dated 09.03.2020 of the Hon'ble APERC on the proposed Amendments to Modalities (Guidelines) for implementing Solar Rooftop Policy, 2018,

1. **Surprisingly, APDISCOMs have proposed additional amendments to the policy guidelines over and above the amendments notified by GoAP vide GO Ms No 35 dated 18.11.2019, which will virtually kill the program.** This is entirely contrary to the Phase-II guidelines of MNRE wherein the DISCOMs are given responsibility of large scale promotion of the SRT projects.
2. The following are the additional amendments proposed by the DISCOMs contrary to the Government Orders, which are to be summarily rejected by the Hon'ble Commission,
3. To limit the SRT Agreement period to 10 years instead of 25 years.
4. Allowing only Gross metering and applicable tariff for both Net metering and Gross metering shall not exceed difference of pooled variable cost and balancing cost(or) applicable tariff at the time of COD ,whichever is less.
5. We wish to express our deep concern with the proposal for above amendments and no one will be interested to setup the solar power plant if the proposal is considered and would ultimately kill the program. Further, MNRE has issued the Phase-II program guidelines to implement the program by DISCOMs. Instead of proposing the various measures for promotion , DISCOMs have proposed retarding guidelines to demote the program which are contrary to the MNRE guidelines and depriving the benefit to the General Public.

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6. **The proposals of the DISCOMs are detrimental to the interests of the Public and not their interest as indicated in their petition.]**

7. We wish to submit that subsidies for the solar power plant under Net Metering scheme are removed except to the domestic consumers. Hence, Solar Roof Top projects setup with bank finance with interest rate of 12%, will take at least 10 to 12 years to achieve breakeven. Thus, any benefit from the solar roof top power system can be realized only after 12 years and limiting of the SRT agreement period for 10 years, will be a big setback and no one will show interest to setup the projects. Hence, the SRT Agreement should be continued for 25 years as per the existing policy.

8. In Gross metering system, DISCOMS will pay for the Net Exported units based on the Average Pooled Purchase cost (Rs.3.75/Unit). The DISCOMs have proposed that the "Difference of Pooled Purchase Cost and Balancing Cost (Rs. 3.50/Unit) should be paid for the Net Exported units". So, the net amount payable is just Rs. 0.25 Paisa Per Unit. Considering a domestic consumer who installs 1 KWp Solar power system, the system generates 5 units per day. Assuming that total consumption in the morning hours is 2 units per day, the Net exported units per day is 3 Units per day. Total exported units per month is 90 Units. If the DISCOM pays Rs.22.50 (90 units X Rs 0.25/Unit) per month to the consumer, the break-even period for the solar power system is more than 40 years.

In this kind of scenario, it is big loss to the consumer and no one will setup the solar Roof Top power system.

We pray to the Honourable Commission to continue the prevailing guidelines for promotion of Net Metering for the benefit of the consumers and for the benefit of the environment.

Thanking you

Email

commn-secy@aperc.gov.in

solar net metering

From : sasolarsystems@gmail.com

Thu, Mar 19, 2020 09:36 AM

Subject : solar net metering

To : Commission Secretary <commn-secy@aperc.gov.in>

Respected Sir,

In response to the Public Notice dated 09.03.2020 of the Hon'ble APERC on the proposed Amendments to Modalities (Guidelines) for implementing Solar Rooftop Policy, 2018, we submit hereunder our representation for kind consideration the recent solar policy got released few months back and again discoms are proposing the amendments which are literally killing solar industry .

1. We wish to bring to the kind notice of the Hon'ble Commission that all the States are promoting Net Metering in a big way. No state in India has removed Net metering policy.

Gross metering is a big failure and it is not useful for customers.

- Government of Karnataka has increased the subsidies for Net Metering in the notification dated 15.03.2020 to the extent of 40% for the domestic consumers.
- Maharashtra ERC has rejected the proposal of DISCOMS for Removing the Net Metering
- Rajasthan and UP Governments have increased the max capacity of the Net Metering systems to 2 MWp at single location.
- UP Government is extending State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
- Gujarat Government has allotted addition fund in the budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector. More than 400 MW Solar Roof Top projects have already been implemented in the State.
- Goa Government is extending 20% State Subsidy.

STATUS OF SOLAR ROOFTOP IN AP:- WHATS WRONG 100's of small and medium businesses are operating in the field of solar rooftop in AP .1,00,000 citizens are directly employed while 5,00,000 people directly or indirectly are dependent on the solar energy business in the state . as an unintended consequence of the draft petition ,the RE sector employment in AP will nullify . we integrators mostly engineers decided to provide several jobs instead of taking up one .

The above mentioned difficulties have caused the following :

- 1) We are unable to get fresh orders due to inconsistent policy**
- 2) Several old orders have been terminated & several suspended**
- 3) Our members are stuck up with stocks & unable to run their businesses**
- 4) Several members are finding it difficult to pay bank instalment & interests**
- 5) Salaries & day to day expenses are becoming difficult to pay.**
- 6) Several jobs have already been lost & further axing of employees in eminent**
- 7) Inconsistent solar policy have made technocrats like us into seasonal vendors ,business for 12 days .**

we fear such uncertainty in policy which has given sleepless nights to several people of solar fraternity may drive a distressed integrator to take an extreme step .it is a matter of survival of not only themselves & their employees but also their family and children .solar people joined this industry for a greener earth & brighter future but now are just sitting ducks depending on ever changing policies

We pray to the Honourable Commission to continue the prevailing guidelines for promotion of Net Metering for the benefit of the consumers and for the benefit of the environment.

Thanking you

Date: 01.06.2020

To : **The Secretary**

A.P Electricity Regulatory Commission

4th Floor, Singareni Bhavan, Red Hills

Hyderabad: 500004

Respected Sir,

Sub: Submission of objections and suggestions on the amendment proposed to Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, we the President and members of[] are submitting the following points for the kind consideration of the Hon'ble Commission:

The DISCOMs have submitted: *'It is requested that only gross metering concept may be permitted and a generic tariff may be fixed on the costs involved instead of making payment based on Average pooled purchase cost.'*

Our Response:

1. As per the provisions of the Solar Rooftop Power Policy 2018: *"All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects {SRP} for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". 'Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM.'* *"Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded. ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter."*

2. It is evident from the above, that only under Netmetering the concept of self consumption exists.

In Gross Metering there is no self consumption.

3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant, given to it under Section 9 of the Act. The proposed amendment to netmetering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

The DISCOMs have submitted: *'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.'* *'In the existing policy, provision is made for Long Term Contract for 25 years and twenty five years is too long period and this may be modified to 10 years'*

Our Response:

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.

2. The DISCOMs are also suggesting Gross Metering at Rs2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25 Years.

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence has failed in its implementation.

The DISCOMs have submitted *“the generation cost of SRP is coming down year by year and the Retail Supply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs 5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues’*

Our Response:

1. It is precisely because the RST to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solar power.

2. It is for the same reason that consumers also use energy efficient appliances, energy saving devices and implement energy conservation systems and processes. It can be argued that the DISCOMs are losing revenue on account of such measures also. Should the consumers be penalized for those measures as well?

3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:

(3a.) There are multiple built in checks in place within the existing Netmetering policy itself, to regulate any uncontrolled growth including:

i. Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.

ii. Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].

iii. The Number of Units Generated, limited by taking 20%CUF/PLF of plant that approximates to 144Units/PerMonth/PerKW. Any additional generation is deemed inadvertent and not taken into account.

iv. Mandatory Levy of CMD Charges

v. Adjustment of Generated units in current month billing only. One Month settlement period

(e.)Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing, limit scope for rapid expansion of solar rooftop.

(3b.)The Hon’ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against 40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

Both DISCOMS have also submitted their individual projections for Solar Rooftop Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3c.)The Hon’ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10th Feb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only.

And by 2022 the Maximum Rooftop Solar Capacity would be 115.4 + 54.64 + 7.216 = 177.3MW only

Incidentally the Netmetering Policy has been introduced and has been in effect since 2013, in AP.

(3d.)As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31st March 2019 is 1,427MW only.

Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Netmetering implemented; the whole Country itself had not installed more than 1427 MW.

So the likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.

The DISCOMs have submitted *"the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators, there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted."*

Our Response:

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects. Solar Rooftop is not a Utility Scale Power Project and does not come into that purview.

Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA

Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.

2. The DISCOMs filed their petitions to the Hon'ble Commission 'Seeking amendments to the Modalities/Guidelines to the existing Solar Rooftop [SRT] Policy, 2018 on 10.02.2020[APSPDCL] and 14.02.2020[APEPDCL]. On 15.02.2020, The Government of Andhra Pradesh released its GO.Ms No. 5 for 'formation of the Andhra Pradesh Green Energy Corporation Limited (APGECL) (to establish 10,000 MW of Solar Power Projects in the State) to ensure nine hours day time free power supply to the Agriculture sector on a sustainable basis'. Incidentally, CMD, APEPDCL and CMD, APSPDCL [both the petitioners] are themselves among the 9 subscribers to the memorandum [shareholders] for the incorporation of APGECL [the Company].

3. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [Pedda Dasari Pally] 2. 800MW [M Kambala Dinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total: 10,700MW

4. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.

5. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system demand of 9000 to 10000 MW?

6. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.

7. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMS, then, they should actually stop gross metering and have only netmetering. Because for any given capacity, in netmetering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

The DISCOMs have submitted *'The DISCOMs are supplying power whenever solar power is not there in the system and is acting as a standby power to the consumers having Solar Rooftop. The DISCOMs have to pay for infrastructure cost from interface point of Generator and APTRANSCO and upto the point of consumers and have to pay fixed costs to APTRANSCO and Generating Companies and it has to meet its own distribution business fixed cost. The SRP consumer is generating power at the consumption point and supplying the excess power to the grid if available.'*

Our Response:

1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are no audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D Losses.**

2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs

3. Reduction of every unit of sale also leads to lower power purchase to that extent, which results in corresponding savings in variable cost of power purchase.

This saving in power purchase is at consumption end, leading to increased saving in power purchase at the Generator busbar, factoring in Transmission Losses and Distribution Losses.

4. Further, due to distributed generation located at consumption end, Distribution Losses would also reduce. The excess energy exported is consumed by other consumers' within the locality (or) at feeder level for HT Consumers. DISCOM need not procure this additional energy from the other feeders.

5. Net Metering is promoted by the Central Government to reduce burden on DISCOMS on power management due to:

5.a Avoided generation capacity cost (AGCC): Rooftop solar can decrease the contracted capacity for new PPAs, and DISCOMs can reduce their fixed expenses significantly, while avoiding generation capacity cost.

5.b Avoided power purchase cost (APPC): Rooftop solar substitutes the most expensive energy procured by the DISCOM at any given time interval if the DISCOM follows a merit order despatch.

5.c Avoided transmission charges (ATRC): Higher rooftop solar capacities avoid procurement of additional transmission capacity; this accounts for as savings by avoided transmission charges.

5.d Avoided distribution capacity cost (ADCC): Rooftop solar requires a simple distribution network, relieving load on the distribution system. DISCOMs can reduce expenses on installation and maintenance of additional network components with simultaneous decongestion. The savings due to deferred capital investment resulting from the decongestion, along with reduced operations and maintenance costs, make up the avoided distribution capacity infrastructure and related.

5.e Avoided working capital requirement (AWCC): Reduced power purchases, avoided generation capacity, and revenue from the sale of energy from rooftop solar in the distribution grid reduce the DISCOM's overall expenditure. This will reflect in reduction in the working capital requirement of the DISCOMs and will lower their debt servicing obligation.

SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network..

2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:

2.a Netmetering based rooftop solar contributes to Grid Stability by providing active power, and also reactive power to the grid, which helps provide stable voltage.

2.b Netmetering based rooftop solar requires lower infrastructure upgrades when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.

2.c Netmetering is irreplaceable in the implementation of the smart grid. The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable

2.d Netmetering based rooftop solar reduces need for large parcels of land for new power infrastructure by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.

3. DISCOMS themselves acknowledge the benefits of rooftop solar: In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, APEPDCL had submitted, under **benefits for the DISCOM** from Solar Rooftop the following: **Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.**

Our Submission No 2.

Continued regulatory support for Netmetering is required to ensure that the Solar Rooftop capacity addition in the State meets the target set by the Government:

1. Other states in the country are continuing to promote Net Metering in a big way.

- Government of Karnataka increased subsidies for Net Metering vide notification dated 15.03.2020 by 40% for domestic consumers.
- Governments of Rajasthan and Uttar Pradesh have increased Capacity limit of Net Metering Systems to 2 MWp at single location.
- Government of Uttar Pradesh has State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
- Government of Gujarat allocates fund in budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector.

Government of Goa is extending 20% State Subsidy

2. Some of our State Govt Departments, Municipal Corporations, Central Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City are developed as per guidelines of Central and State Government, and grid support to bank unutilized energy has been considered. Many projects have been planned on Build Own Operate and Transfer (BOOT) basis having minimum 15 years contract. Any change in Net Metering Regulations at this stage, will destroy the financial viability of all these Projects.

3. The increase in capacity of rooftop solar as projected by the DISCOMs is very marginal. But in this incremental increase in installed capacity, a few hundred small and medium sized businesses earn their livelihood in State of AP. They in turn support a few thousand families through direct employment. And in turn support other small local businesses related to their activity. This small increment sustains the economy at the local level and has a multiplier effect. As it is, difficulties in living conditions have become more pronounced on account of COVID-19 and the overall economic crisis

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Netmetering is vital to sustain the limited growth of solar rooftop. Removing it will irreversibly shut down any growth of solar rooftop.

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1. The narration which precludes the amendments mentioned in the GO.Ms 35 Dt 18.11.2019 is: *"Governments have observed that the statutory audit has reported an abnormal spurt in Power Purchase cost and deteriorated financial position of the A.P. DISCOMs. Taking into consideration the financial deterioration of APDISCOMS and in order to strengthen the financial position of the Power Utilities, Government after careful examinations of the matter hereby make the following amendments to the above policies."*

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We, also request the Hon'ble Commissions to provide us an opportunity to make submissions in person, during the public hearing.

Thanking You

Your's Sincerely

[.....]

President

Address....

Sri Alapati Prasad, B.Tech., MBA., LLB.
President**Sri Ch. Jaya Babu**
Vice-President**Sri P. Chandra Rao**
Secretary**Sri Ch. Ravi**
General Secretary**Sri Ch. Rajasekhara Reddy**
Treasurer

Date: 01.06.2020

To,
The Secretary,
A.P Electricity Regulatory Commission,
4th Floor, Singareni Bhavan, Red Hills
Hyderabad: 500004

Respected Sir,

Sub: Submission of objections and suggestions on the amendment proposed to Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, we the President and members of **Renewable Energy Developers Association Of Andhra Pradesh (REDAAP)** are submitting the following points for the kind consideration of the Hon'ble Commission:

The DISCOMs have submitted: *'It is requested that only gross metering concept may be permitted and a generic tariff may be fixed on the costs involved instead of making payment based on Average pooled purchase cost.'*

Our Response:

1. As per the provisions of the Solar Rooftop Power Policy 2018: "All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects (SRP) for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". "Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM." "Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded.

ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter."

2. It is evident from the above, that only under Net metering the concept of self consumption exists. In Gross Metering there is no self consumption.

3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant, given to it under Section 9 of the Act. The proposed amendment to net metering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

The DISCOMs have submitted: *'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.'* In the existing policy, provision



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is made for Long Term Contract for 25 years and twenty five years is too long period and this may be modified to 10years'

Our Response:

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.

2. The DISCOMs are also suggesting Gross Metering at Rs2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25Years.

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence has failed in its implementation.

The DISCOMs have submitted "the generation cost of SRP is coming down year by year and the Retail Supply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues'

Our Response:

1. It is precisely because the RST to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solarpower.

2. It is for the same reason that consumers also use energy efficient appliances, energy saving devices and implement energy conservation systems and processes. It can be argued that the DISCOMs are losing revenue on account of such measures also. Should the consumers be penalized for those measures aswell?

3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:

(3a.) There are multiple built in checks in place within the existing Netmetering policy itself, to regulate any uncontrolled growth including:

i. Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.
ii. Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].

iii. The Number of Units Generated, limited by taking 20%CUF/PLF of plant that approximates to 144Units/PerMonth/PerKW. Any additional generation is deemed inadvertent and not taken into account.

iv. Mandatory Levy of CMDCharges

v. Adjustment of Generated units in current month billing only. One Month settlement period

(e.) Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing, limit scope for rapid expansion of solar rooftop.

(3b.) The Hon'ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against 40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

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Both DISCOMS have also submitted their individual projections for Solar Rooftop Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3C.)The Hon'ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10thFeb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only.

And by 2022 the Maximum Rooftop Solar Capacity would be 115.4 + 54.64 + 7.216 = 177.3MW only. Incidentally the Netmetering Policy has been introduced and has been in effect since 2013, in AP.

(3d.)As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31stMarch 2019 is 1,427MW only.

Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Netmetering implemented; the whole Country itself had not installed more than 1427 MW.

So the likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.

The DISCOMs have submitted "the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators, there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted."

Our Response:

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects. Solar Rooftop is not a Utility Scale Power Project and does not come into that purview.

Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA. Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.

2. The DISCOMs filed their petitions to the Hon'ble Commission 'Seeking amendments to the Modalities/Guidelines to the existing Solar Rooftop [SRT] Policy, 2018 on 10.02.2020[APSPDCL] and 14.02.2020[APEPDCL]. On 15.02.2020, The Government of Andhra Pradesh released its GO.Ms No. 5 for 'formation of the Andhra Pradesh Green Energy Corporation Limited (APGECL) (to establish 10,000 MW of Solar Power Projects in the State) to ensure nine hours day time free power supply to the Agriculture sector on a sustainable basis'. Incidentally, CMD, APEPDCL and CMD, APSPDCL [both the petitioners] are themselves among the 9 subscribers to the memorandum [shareholders] for the incorporation of APGECL [the Company].

3. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [PeddaDasari Pally] 2. 800MW [M KambalaDinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total:10,700MW

4. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.

5. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system Demand of 9000 to 10000MW?



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6. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.

7. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMs, then, they should actually stop gross metering and have only net metering. Because for any given capacity, in net metering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

The DISCOMs have submitted 'The DISCOMs are supplying power whenever solar power is not there in the system and is acting as a standby power to the consumers having Solar Rooftop. The DISCOMs have to pay for infrastructure cost from interface point of Generator and APTRANSCO and upto the point of consumers and have to pay fixed costs to APTRANSCO and Generating Companies and it has to meet its own distribution business fixed cost. The SRP consumer is generating power at the consumption point and supplying the excess power to the grid if available.'

Our Response:

1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are no audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D losses.**

2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs

3. Reduction of every unit of sale also leads to lower power purchase to that extent, which results in corresponding savings in variable cost of power purchase.

This saving in power purchase is at consumption end, leading to increased saving in power purchase at the Generator busbar, factoring in Transmission Losses and Distribution Losses.

4. Further, due to distributed generation located at consumption end, Distribution Losses would also reduce. The excess energy exported is consumed by other consumers' within in the locality (or) at feeder level for HT Consumers. DISCOM need not procure this additional energy from the other feeders.

5. Net Metering is promoted by the Central Government to reduce burden on DISCOMs on power management due to:

5.a Avoided generation capacity cost (AGCC): Rooftop solar can decrease the contracted capacity for new PPAs, and DISCOMs can reduce their fixed expenses significantly, while avoiding generation capacity cost.

5.b Avoided power purchase cost (APPC): Rooftop solar substitutes the most expensive energy procured by the DISCOM at any given time interval if the DISCOM follows a merit order dispatch.

5.c Avoided transmission charges (ATRC): Higher rooftop solar capacities avoid procurement of additional transmission capacity; this accounts for savings by avoided transmission charges.

5.d Avoided distribution capacity cost (ADCC): Rooftop solar requires a simple distribution network, relieving load on the distribution system. DISCOMs can reduce expenses on installation and maintenance of additional network components with simultaneous decongestion. The savings due to deferred capital investment resulting from the decongestion, along with reduced operations and maintenance costs, make up the avoided distribution capacity infrastructure and related.

5.e Avoided working capital requirement (AWCC): Reduced power purchases, avoided generation capacity, and revenue from the sale of energy from rooftop solar in the distribution grid reduce the DISCOM's overall expenditure. This will reflect in reduction in the working capital requirement of the DISCOMs and will lower their debt servicing obligation.



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SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network..
2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:
 - 2.a Net metering based rooftop solar contributes to Grid Stability by providing active power, and also reactive power to the grid, which helps provide stable voltage.
 - 2.b Net metering based rooftop solar requires lower infrastructure upgrades when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.
 - 2.c Net metering is irreplaceable in the implementation of the smart grid. The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable
 - 2.d Net metering based rooftop solar reduces need for large parcels of land for new power infrastructure by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.
3. DISCOMS themselves acknowledge the benefits of rooftop solar: In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, APEPDCL had submitted, under benefits for the DISCOM from Solar Rooftop the following: **Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.**

Our Submission No 2.

Continued regulatory support for Net metering is required to ensure that the Solar Rooftop capacity addition in the State meets the target set by the Government:

1. Other states in the country are continuing to promote Net Metering in a big way.
 - Government of Karnataka increased subsidies for Net Metering vide notification dated 15.03.2020 by 40% for domestic consumers.
 - Governments of Rajasthan and Uttar Pradesh have increased Capacity limit of Net Metering Systems to 2 MWp at single location.
 - Government of Uttar Pradesh has State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
 - Government of Gujarat allocates fund in budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector.
 - Government of Goa is extending 20% State Subsidy
2. Some of our State Govt Departments, Municipal Corporations, Central Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City

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We, also request the Hon'ble Commissions to provide us an opportunity to make submissions in person, during the public hearing.

Thanking You
Yours Sincerely


Vice President
Renewable Energy Developers Association of A.P

Ref : SSL/027/2020-21

Date : 03-06-2020

To : **The Secretary**
A.P Electricity Regulatory
Commission 4th Floor, Singareni
Bhavan, Red Hills Hyderabad,
500004

Respected Sir,

Sub: Submission of objections and suggestions on the amendment proposed to Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, we M/s Solar Systems, Kakinada at the capacity the member of Andhra Pradesh Renewable Energy Developers Association are submitting the following points for the kind consideration of the Hon'ble Commission:

The DISCOMs have submitted: *'It is requested that only gross metering concept may be permitted and a generic tariff may be fixed on the costs involved instead of making payment based on Average pooled purchase cost.'*

1. As per the provisions of the Solar Rooftop Power Policy 2018: *"All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects (SRP) for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". 'Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM.'* *"Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances in running at that time, and if excess remains, it is exported to the outside electricity network and its quantum recorded.*

ii) *Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter.*"

2. It is evident from the above that only under Net metering the concept of self consumption exists. In Gross Metering there is no self consumption.

3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant, given to it under Section 9 of the Act. The proposed amendment to net metering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

The DISCOMs have submitted: 'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.' In the existing policy, provision is made for Long Term Contract for 25 years and twenty five years is too long period and this may be modified to 10 years'

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.

2. The DISCOMs are also suggesting Gross Metering at Rs.2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25Years.

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence will be failed in its implementation.

The DISCOMs have submitted "the generation cost of SRP is coming down year by year and the Retail Supply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs 5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues'

1. It is precisely because the Retail Supply Tariff to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solar power.

2. It is for the same reason and vast publicity of slogans like energy conserving means energy generating and Save Energy, Save Earth etc, Consumers accepted and have awareness on conserving energy and using energy efficient appliances, energy saving devices and implement energy conservation systems and processes. **All this revolution on energy conservation is because of the combined efforts of APERC and DISCOMs and to keep our nature clean and active in future, these measures shall be continued, irrespective of revenues of DISCOMs.**

3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:

(3a.) There are multiple built in checks in place within the existing Net metering policy itself, to regulate any uncontrolled growth including:

- i. Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.
 - ii. Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].
 - iii. The Number of Units Generated, limited by taking 20%CUF/PLF of plant that approximates to 144Units/Per Month/PerKW. Any additional generation is deemed inadvertent and not taken into account.
 - iv. Mandatory Levy of CMD Charges
 - v. Adjustment of Generated units in current month billing only. One Month settlement period
- (e.)Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing, limit scope for rapid expansion of solar rooftop.

(3b.)The Hon'ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against

40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

Both DISCOMS have also submitted their individual projections for Solar Rooftop Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3c.) The Hon'ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10th Feb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only. And by 2022 the Maximum Rooftop Solar Capacity would be 115.4 + 54.64 + 7.216 = 177.3MW only. Incidentally the Net metering Policy has been introduced and has been in effect since 2013, in AP.

(3d.) As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31st March 2019 is 1,427MW only.

Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Net metering implemented; the whole Country itself had not installed more than 1427 MW. So the likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.

The DISCOMs have submitted "the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators, there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted."

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects. Solar Rooftop is not a Utility Scale Power Project and does not come into that purview. Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA. Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.

2. The DISCOMs filed their petitions to the Hon'ble Commission 'Seeking amendments to the Modalities/Guidelines to the existing Solar Rooftop [SRT] Policy, 2018 on 10.02.2020[APSPDCL] and 14.02.2020[APEPDCL]. On 15.02.2020, The Government of Andhra Pradesh released its GO.Ms No. 5 for 'formation of the Andhra Pradesh Green Energy Corporation Limited (APGECL) (to establish 10,000 MW of Solar Power Projects in the State) to ensure nine hours day time free power supply to the Agriculture sector on a sustainable basis'. Incidentally, CMD, APEPDCL and CMD, APSPDCL [both the petitioners] are themselves among the 9 subscribers to the memorandum [shareholders] for the incorporation of APGECL [the Company].

3. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [Pedda Dasari Pally] 2. 800MW [M Kambala Dinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total: 10,700MW

4. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.

5. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system demand of 9000 to 10000 MW?

6. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.

7. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMS, then, they should actually stop gross metering and have only netmetering. Because for any given capacity, in netmetering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

The DISCOMs have submitted 'The DISCOMs are supplying power whenever solar power is not there in the system and is acting as a standby power to the consumers having Solar Rooftop. The DISCOMs have to pay for infrastructure cost from interface point of Generator and APTRANSCO and upto the point of consumers and have to pay fixed costs to APTRANSCO and Generating Companies and it has to meet its own distribution business fixed cost. The SRP consumer is generating power at the consumption point and supplying the excess power to the grid if available.'

1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are no audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D Losses**.

2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs

3. Reduction of every unit of sale also leads to lower power purchase to that extent, which results in corresponding savings in variable cost of power purchase.

This saving in power purchase is at consumption end, leading to increased saving in power purchase at the Generator busbar, factoring in Transmission Losses and Distribution Losses.

4. Further, due to distributed generation located at consumption end, Distribution Losses would also reduce. The excess energy exported is consumed by other consumers' within the locality (or) at feeder level for HT Consumers. DISCOM need not procure this additional energy from the other feeders.

5. Net Metering is promoted by the Central Government to reduce burden on DISCOMS on power management due to:

Avoided generation capacity cost (AGCC): Rooftop solar can decrease the contracted capacity for new PPAs, and DISCOMs can reduce their fixed expenses significantly, while avoiding generation capacity cost.

Avoided power purchase cost (APPC): Rooftop solar substitutes the most expensive energy procured by the DISCOM at any given time interval if the DISCOM follows a merit order dispatch.

Avoided transmission charges (ATRC): Higher rooftop solar capacities avoid procurement of additional transmission capacity; this accounts for as savings by avoided transmission charges.

Avoided distribution capacity cost (ADCC): Rooftop solar requires a simple distribution

network, relieving load on the distribution system. DISCOMs can reduce expenses on installation and maintenance of additional network components with simultaneous decongestion. The savings due to deferred capital investment resulting from the decongestion, along with reduced operations and maintenance costs, make up the avoided distribution capacity infrastructure and related.

Avoided working capital requirement (AWCC): Reduced power purchases, avoided generation capacity, and revenue from the sale of energy from rooftop solar in the distribution grid reduce the DISCOM's overall expenditure. This will reflect in reduction in the working capital requirement of the DISCOMs and will lower their debt servicing obligation.

SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network..

2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:

Netmetering based rooftop solar contributes to Grid Stability by providing active power, and also reactive power to the grid, which helps provide stable voltage.

Netmetering based rooftop solar requires lower infrastructure upgrades when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.

Netmetering is irreplaceable in the implementation of the smart grid. The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable

Netmetering based rooftop solar reduces need for large parcels of land for new power infrastructure by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.

3. **DISCOMS themselves acknowledge the benefits of rooftop solar:** In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, **APEPDCL had submitted**, under **benefits for the DISCOM** from Solar Rooftop the following: **Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.**

Our Submission No 2.

Continued regulatory support for Solar Netmetering is required to ensure that the Solar Rooftop capacity addition in the State meets the target set by the Government:

1. Other states in the country are continuing to promote Net Metering in a big way.

- Government of Karnataka increased subsidies for Net Metering vide notification dated 15.03.2020 by 40% for domestic consumers.
- Governments of Rajasthan and Uttar Pradesh have increased Capacity limit of Net Metering Systems to 2 MWp at single location.
- Government of Uttar Pradesh has State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
- Government of Gujarat allocates fund in budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector.
- Government of Goa is extending 20% State Subsidy

2. Some of our State Govt Departments, Municipal Corporations, Central Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City are developed as per guidelines of Central and State Government, and grid support to bank unutilized energy has been considered. Many projects have been planned on Build Own Operate and Transfer (BOOT) basis having minimum 15 years contract. Any change in Net Metering Regulations at this stage, will destroy the financial viability of all these Projects.

3. The increase in capacity of rooftop solar as projected by the DISCOMs is very marginal. But in this incremental increase in installed capacity, a few hundred small and medium sized businesses earn their livelihood in State of AP. They in turn support a few thousand families through direct employment. And in turn support other small local businesses related to their activity. This small increment sustains the economy at the local level and has a multiplier effect. As it is, difficulties in living conditions have become more pronounced on account of COVID-19 and the overall economic crisis

Our Submission No 3.

Netmetering is vital to sustain the limited growth of solar rooftop. Removing it will irreversibly shut down any growth of solar rooftop.

1. The Parliamentary Standing Committee on Energy had recently submitted its report on Demand For Grants for MNRE. Considering the poor performance of the Solar Rooftop sector till date, and the unlikeliness of India reaching the Target 40GW SRT by 2022, at that rate; the Committee made the following observations and recommendations: *'the Committee are of the considered view that the Ministry should focus on this programme on a **Mission Mode** so as to give it a fillip. The Committee, therefore, recommends that:*

i) *The process of subsidy disbursement should be made simpler and faster and the Ministry should widely advertise the benefits of having a Roof-top Solar Projects and the incentives provided by the Government for the same so as to spread awareness among the masses.*

ii) Proper implementation of Net-Metering should be ensured.

iii) The Ministry should have regular review meetings with the implementing agencies.

MNRE had informed the Committee there is disparity in metering regulations/tariff orders across States due to diverse parameters. MNRE also informed it had requested Forum Of Regulators [FOR] to develop model regulations for which the States may adopt

2. The Forum of Regulators (FOR), have submitted their Report on Metering Regulation and Accounting Framework for Grid Connected Rooftop Solar PV in India (2019) & consequently released their Draft Model Regulation for Grid Interactive Distributed Renewable Energy Sources.

In these regulations **Netmetering has been retained, and also its scope has been enhanced.**

3. On proposals received from its DISCOMs, MERC had earlier released draft guidelines excluding Netmetering and implementing Netbilling[Gross Metering]. Overwhelming responses rejecting that proposal included that of Shri Nitin Gadkari ji, then Minister (Ministry of Road Transport and Highways), Government of India in his letter addressed to Hon'ble Union Power Minister has suggested as under:

'Net Metering should be optional along with Net Billing till target is achieved or up to 2022.' 'The Hon'ble Prime Minister during UN Climate Action Summit 2019 had pledged to increase RE capacity in the country to 175 GW by 2022. The proposed Draft Regulations shall be a deterrent in achieving the country's RE target.'

Maharashtra ERC has re included Net Metering in its recent Regulations

4. **The Hon'ble Commission** had given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In response to the points on Non-promotion of rooftop Solar Plants by the learned objector Sri. M. Thimma Reddy, both DISCOMs have submitted that they are taking a lot of interest for promotion of solar rooftop units. And the Hon'ble Commission had expressed its view as: **'Every effort should be made to reach the targets in expansion of solar roof top plants'**

5. The salutary objectives in Section 86[1] in the draft amendments of the Electricity Act 2003 include: *'(1) The State Commission shall discharge the following functions, namely:--(c) facilitate intra-State transmission and wheeling of electricity and promote smart grid, **net metering**, ancillary support and decentralised distributed generation; and (e) promote cogeneration from renewable sources of energy and generation of electricity from renewable sources of energy'*

Our Submission No 4.

1. The narration which precludes the amendments mentioned in the GO.Ms 35 Dt 18.11.2019 is: *"Governments have observed that the statutory audit has reported an abnormal spurt in Power Purchase cost and deteriorated financial position of the A.P. DISCOMs. Taking into consideration the financial deterioration of APDISCOMS and in order to strengthen the financial position of the Power Utilities, Government after careful examinations of the matter hereby make the following amendments to the above policies."*

The DISCOMS have also submitted: 'Considering the present scenario, the Govt of AP issued an amendment to the Solar/Wind Power Policy vide GO.Ms.No.35 Dt: 18.11.2019, wherein it was mentioned, that the applicable tariff for either net metering/gross metering shall not exceed difference of pooled variable cost and balancing cost (or) the applicable tariff at the time of COD whichever is less.'

2. From the above it is evident that **the Govt of AP had already considered all the points made by the DISCOMS in this petition; and had chosen to amend only the applicable tariff for metering as far as the Solar Rooftop part of the policy is concerned. Leaving all other aspects pertaining to Solar Rooftop intact, including the consumer being given the right to chose either Netmetering or Grossmetering!**

3. The Hon'ble Commission had already given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In it the DISCOMs had factored the quantum of capacity increase of rooftop solar for the entire period already.

We, request the Hon'ble Commission in exercise of the various powers bestowed upon it vide the Electricity Act 2003, to bring about only the amendment related to applicable tariff, made under GO.Ms 65 Dt 18.11.2019 by the Govt of AP and summarily set aside all other amendments proposed by both DISCOMS

We, also request the Hon'ble Commission to provide us an opportunity to make submissions in person, during the public hearing.

Thanking You Sir,

Your's Sincerely,

FOR SOLAR SYSTEMS


A.V.V.V. Prasad

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Mobile : 94405 73389.

**ANDHRA PRADESH SOLAR INTEGRATORS
WELFARE ASSOCIATION** (Regd. No. 267/2019)

Regd. Office : 2-15-48/4/19, Sector-9, MVP Colony Visakhapatnam-530017, Andhra Pradesh
Contact : 50-77-3, Ground Floor, Sai Satya Nilayam, Seethammampeta, Visakhapatnam-530016
Mob : 9866194904, 7416199777 E-Mail : apsiwa2018@gmail.com



Date: 03.06.2020

To : **The Secretary**
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4th Floor, Singareni Bhavan, Red Hills
Hyderabad: 500004

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3. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [Pedda Dasari Pally] 2. 800MW [M Kambala Dinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total: 10,700MW

4. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.

5. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system demand of 9000 to 10000 MW?

6. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.

7. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMs, then, they should actually stop gross metering and have only netmetering. Because for any given capacity, in netmetering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

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Our Response:

1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are no audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D Losses.**

2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs

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SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network.

2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:

2.a Netmetering based rooftop solar contributes to Grid Stability by providing active power, and also reactive power to the grid, which helps provide stable voltage.

2.b Netmetering based rooftop solar requires lower infrastructure upgrades when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.

2.c Netmetering is irreplaceable in the implementation of the smart grid. The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable

2.d Netmetering based rooftop solar reduces need for large parcels of land for new power infrastructure by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.

3. DISCOMS themselves acknowledge the benefits of rooftop solar: In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, APEPDCL had submitted, under **benefits for the DISCOM** from Solar Rooftop the following: **Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.**

Our Submission No 2.

Continued regulatory support for Netmetering is required to ensure that the Solar Rooftop capacity addition in the State meets the target set by the Government:

1. Other states in the country are continuing to promote Net Metering in a big way.

- Government of Karnataka increased subsidies for Net Metering vide notification dated 15.03.2020 by 40% for domestic consumers.
 - Governments of Rajasthan and Uttar Pradesh have increased Capacity limit of Net Metering Systems to 2 MWp at single location.
 - Government of Uttar Pradesh has State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
 - Government of Gujarat allocates fund in budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector.
- Government of Goa is extending 20% State Subsidy

2. Some of our State Govt Departments, Municipal Corporations, Central Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City

are developed as per guidelines of Central and State Government, and grid support to bank unutilized energy has been considered. Many projects have been planned on Build Own Operate and Transfer (BOOT) basis having minimum 15 years contract. Any change in Net Metering Regulations at this stage, will destroy the financial viability of all these Projects.

3. The increase in capacity of rooftop solar as projected by the DISCOMs is very marginal. But in this incremental increase in installed capacity, a few hundred small and medium sized businesses earn their livelihood in State of AP. They in turn support a few thousand families through direct employment. And in turn support other small local businesses related to their activity. This small increment sustains the economy at the local level and has a multiplier effect. As it is, difficulties in living conditions have become more pronounced on account of COVID-19 and the overall economic crisis

Our Submission No 3.

Netmetering is vital to sustain the limited growth of solar rooftop. Removing it will irreversibly shut down any growth of solar rooftop.

1. The Parliamentary Standing Committee on Energy had recently submitted its report on Demand For Grants for MNRE. Considering the poor performance of the Solar Rooftop sector till date, and the unlikeliness of India reaching the Target 40GW SRT by 2022, at that rate; the Committee made the following observations and recommendations: *'the Committee are of the considered view that the Ministry should focus on this programme on a **Mission Mode** so as to give it a fillip. The Committee, therefore, recommends that:i) The process of subsidy disbursement should be made simpler and faster and the Ministry should widely advertise the benefits of having a Roof-top Solar Projects and the incentives provided by the Government for the same so as to spread awareness among the masses.ii) **Proper implementation of Net-Metering should be ensured.** iii) The Ministry should have regular review meetings with the implementing agencies.'*

MNRE had informed the Committee there is disparity in metering regulations/tariff orders across States due to diverse parameters. MNRE also informed it had requested Forum Of Regulators [FOR] to develop model regulations for which the States may adopt

2. The Forum of Regulators (FOR), have submitted their Report on Metering Regulation and Accounting Framework for Grid Connected Rooftop Solar PV in India (2019) & consequently released their Draft Model Regulation for Grid Interactive Distributed Renewable Energy Sources.

In these regulations **Netmetering has been retained, and also its scope has been enhanced**

3. On proposals received from its DISCOMs, MERC had earlier released draft guidelines excluding Netmetering and implementing Netbilling[Gross Metering]. Overwhelming responses rejecting that proposal included that of Shri Nitin Gadkari ji, then Minister (Ministry of Road Transport and Highways), Government of India in his letter addressed to Hon'ble Union Power Minister has suggested as under:

'Net Metering should be optional along with Net Billing till target is achieved or up to 2022.' *'The Hon'ble Prime Minister during UN Climate Action Summit 2019 had pledged to increase RE capacity in the country to 175 GW by 2022. The proposed Draft Regulations shall be a deterrent in achieving the country's RE target.'*

Maharashtra ERC has reincluded Net Metering in its recent Regulations

4. **The Hon'ble Commission** had given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In response to the points on Non-promotion of rooftop Solar Plants by the learned objector Sri. M. Thimma Reddy, both DISCOMs have submitted that they are taking a lot of interest for promotion of solar rooftop units. And the Hon'ble Commission had expressed its view as: **'Every effort should be made to reach the targets in expansion of solar roof top plants'**

5. The salutary objectives in Section 86[1] in the draft amendments of the Electricity Act 2003 include: '(1) *The State Commission shall discharge the following functions, namely:--(c) facilitate intra-State transmission and wheeling of electricity and promote smart grid, **net metering**, ancillary support and decentralised distributed generation; and (e) promote cogeneration from renewable sources of energy and generation of electricity from renewable sources of energy*'

Our Submission No 4.

1. The narration which precludes the amendments mentioned in the GO.Ms 35 Dt 18.11.2019 is: *"Governments have observed that the statutory audit has reported an abnormal spurt in Power Purchase cost and deteriorated financial position of the A.P. DISCOMs. Taking into consideration the financial deterioration of APDISCOMS and in order to strengthen the financial position of the Power Utilities, Government after careful examinations of the matter hereby make the following amendments to the above policies."*

The DISCOMS have also submitted: *'Considering the present scenario, the Govt of AP issued an amendment to the Solar/Wind Power Policy vide GO.Ms.No.35 Dt: 18.11.2019, wherein it was mentioned, that the applicable tariff for either net metering/gross metering shall not exceed difference of pooled variable cost and balancing cost (or) the applicable tariff at the time of COD whichever is less.'*

2. From the above it is evident that **the Govt of AP had already considered all the points made by the DISCOMS in this petition; and had chosen to amend only the applicable tariff for metering as far as the Solar Rooftop part of the policy is concerned. Leaving all other aspects pertaining to Solar Rooftop intact, including the consumer being given the right to chose either Netmetering or Gross metering!**

3. The Hon'ble Commission had already given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In it the DISCOMs had factored the quantum of capacity increase of rooftop solar for the entire period already.

We, request the Hon'ble Commission in exercise of the various powers bestowed upon it vide the Electricity Act 2003, to bring about only the amendment related to applicable tariff, made under GO.Ms 65 Dt. 18.11.2019 by the Govt of AP and summarily set aside all other amendments proposed by both DISCOMs

We, also request the Hon'ble Commissions to provide us an opportunity to make submissions in person, during the public hearing.

Thanking You

Your's Sincerely

For **Andhra Pradesh Solar Integrators Welfare Association**



B. VISWA PRASAD,
(President)

Date: 04.06.2020

To : The Secretary

A.P Electricity Regulatory Commission

4th Floor, Singareni Bhavan, Red Hills

Hyderabad: 500004



Respected Sir,

Sub: Submission of objections and suggestions on the amendment proposed to Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, we Rockland Industries Pvt Ltd are submitting the following points for the kind consideration of the Hon'ble Commission:

The DISCOMs have submitted: *'It is requested that only gross metering concept may be permitted and a generic tariff may be fixed on the costs involved instead of making payment based on Average pooled purchase cost.'*

Our Response:

1. As per the provisions of the Solar Rooftop Power Policy 2018: *"All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects (SRP) for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". 'Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM.' "Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded. ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter."*

2. It is evident from the above, that only under Netmetering the concept of self consumption exists. In Gross Metering there is no self consumption.

3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant, given to it under Section 9 of the Act. The proposed amendment to netmetering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

The DISCOMs have submitted: *'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.' In the existing policy, provision is made for Long Term Contract for 25 years and twenty five years is too long period and this may be modified to 10 years'*

Our Response:

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.

2. The DISCOMs are also suggesting Gross Metering at Rs2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25 Years.



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For Rockland Industries Pvt. Ltd.
91. *[Signature]*
Director

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence has failed in its implementation.



The DISCOMs have submitted "the generation cost of SRP is coming down year by year and the Retail Supply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs 5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues'

Our Response:

1. It is precisely because the RST to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solar power.

2. It is for the same reason that consumers also use energy efficient appliances, energy saving devices and implement energy conservation systems and processes. It can be argued that the DISCOMs are losing revenue on account of such measures also. Should the consumers be penalized for those measures aswell?

3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:

(3a.) There are multiple built in checks in place within the existing Netmetering policy itself, to regulate any uncontrolled growth including:

i. Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.
ii. Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].

iii. The Number of Units Generated, limited by taking 20%CUF/PLF of plant that approximates to 144Units/PerMonth/PerKW. Any additional generation is deemed inadvertent and not taken intoaccount.

iv. Mandatory Levy of CMD Charges

v. Adjustment of Generated units in current month billing only. One Month settlement period

(e.)Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing, limit scope for rapid expansion of solar rooftop.

(3b.)The Hon'ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against 40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

Both DISCOMS have also submitted their individual projections for Solar Rooftop Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3C.)The Hon'ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10th Feb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only.

And by 2022 the Maximum Rooftop Solar Capacity would be 115.4 + 54.64 + 7.216 = 177.3MW only

Incidentally the Netmetering Policy has been introduced and has been in effect since 2013, in AP.

(3d.)As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31st March 2019 is 1,427MW only.

Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Netmetering implemented; the whole Country itself had not installed more than 1427 MW.

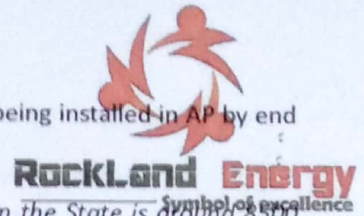


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For Rockland Industries Pvt. Ltd.
91. Anu [Signature]
Director

So the likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.



The DISCOMs have submitted "the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators, there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted."

Our Response:

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects. Solar Rooftop is not a Utility Scale Power Project and does not come into that purview. Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA. Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.
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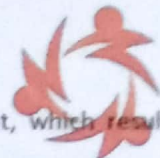
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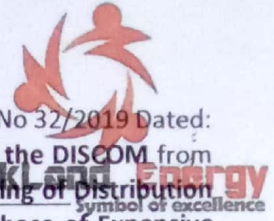
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Government of Goa is extending 20% State Subsidy

2. Some of our State Govt Departments, Municipal Corporations, General Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City are developed as per guidelines of Central and State Government, and grid support to bank unutilized energy has been considered. Many projects have been planned on Build Own Operate and Transfer (BOOT) basis having minimum 15 years contract. Any change in Net Metering Regulations at this stage, will destroy the financial viability of all these Projects.

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Netmetering is vital to sustain the limited growth of solar rooftop. Removing it will irreversibly shut down any growth of solar rooftop.

1. The Parliamentary Standing Committee on Energy had recently submitted its report on Demand For Grants for MNRE. Considering the poor performance of the Solar Rooftop sector till date, and the unlikelihood of India reaching the Target 40GW SRT by 2022, at that rate; the Committee made the following observations and recommendations: *'the Committee are of the considered view that the Ministry should focus on this programme on a **Mission Mode** so as to give it a fillip. The Committee, therefore, recommends that: i) The process of subsidy disbursement should be made simpler and faster and the Ministry should widely advertise the benefits of having a Roof-top Solar Projects and the incentives provided by the Government for the same so as to spread awareness among the masses. ii) **Proper implementation of Net-Metering should be ensured.** iii) The Ministry should have regular review meetings with the implementing agencies.'*

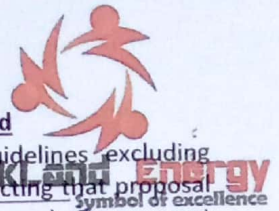
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For Rockland Industries Pvt. Ltd.
[Signature]
Director



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2. From the above it is evident that **the Govt of AP had already considered all the points made by the DISCOMS in this petition; and had chosen to amend only the applicable tariff for metering as far as the Solar Rooftop part of the policy is concerned. Leaving all other aspects pertaining to Solar Rooftop intact, including the consumer being given the right to choose either Net-metering or Gross-metering!**

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We, request the Hon'ble Commission in exercise of the various powers bestowed upon it vide the Electricity Act 2003, to bring about only the amendment related to applicable tariff, made under GO.Ms 65 Dt 18.11.2019 by the Govt of AP and summarily set aside all other amendments proposed by both DISCOMS

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Thanking You
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For Rockland Industries Pvt. Ltd.

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To,
The Secretary,
A.P Electricity Regulatory Commission,
4th Floor, Singareni Bhavan, Red Hills Hyderabad: 500004

04-06-2020

Respected Sir,

Sub: Submission of objections and suggestions on the amendment proposed to Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, I Ch.satish kumar from iL solar, submitting the following points for the kind consideration of the Hon'ble Commission:

The DISCOMs have submitted: *'It is requested that only gross metering concept may be permitted and a generic tariff may be fixed on the costs involved instead of making payment based on Average pooled purchase cost.'*

Our Response:

1. As per the provisions of the Solar Rooftop Power Policy 2018: *"All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects (SRP) for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". 'Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM.'* *"Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded.*

ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter."

2. It is evident from the above, that only under Net metering the concept of self consumption exists. In Gross Metering there is no self consumption.

3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant, given to it under Section 9 of the Act. The proposed amendment to net metering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

The DISCOMs have submitted: *'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.'* *In the existing policy, provision is made for Long Term Contract for 25 years and twenty five years is too long period and this may be modified to 10 years'*

Our Response:

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.

2. The DISCOMs are also suggesting Gross Metering at Rs2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25 Years.

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence has failed in its implementation.

The DISCOMs have submitted “the generation cost of SRP is coming down year by year and the Retail Supply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs 5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues’

Our Response:

1. It is precisely because the RST to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solar power.

2. It is for the same reason that consumers also use energy efficient appliances, energy saving devices and implement energy conservation systems and processes. It can be argued that the DISCOMs are losing revenue on account of such measures also. Should the consumers be penalized for those measures as well?

3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:

(3a.) There are multiple built in checks in place within the existing Netmetering policy itself, to regulate any uncontrolled growth including:

- Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.
- Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].
- The Number of Units Generated, limited by taking 20%CUF/PLF of plant that approximates to 144Units/PerMonth/PerKW. Any additional generation is deemed inadvertent and not taken into account.
- Mandatory Levy of CMD Charges
- Adjustment of Generated units in current month billing only. One Month settlement period (e.)Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing, limit scope for rapid expansion of solar rooftop.

(3b.)The Hon’ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against 40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

Both DISCOMS have also submitted their individual projections for Solar Rooftop Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3C.)The Hon’ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10th Feb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only. And by 2022 the Maximum Rooftop Solar Capacity would be $115.4 + 54.64 + 7.216 = 177.3\text{MW}$ only Incidentally the Netmetering Policy has been introduced and has been in effect since 2013, in AP.

(3d.)As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31st March 2019 is 1,427MW only.

Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Netmetering implemented; the whole Country itself had not installed more than 1427 MW.

So the likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.

The DISCOMs have submitted “the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators, there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted.”

Our Response:

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects. Solar Rooftop is not a Utility Scale Power Project and does not come into that purview.

Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA. Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.

2. The DISCOMs filed their petitions to the Hon'ble Commission 'Seeking amendments to the Modalities/Guidelines to the existing Solar Rooftop [SRT] Policy, 2018 on 10.02.2020[APSPDCL] and 14.02.2020[APEPDCL]. On 15.02.2020, The Government of Andhra Pradesh released its GO.Ms No. 5 for 'formation of the Andhra Pradesh Green Energy Corporation Limited (APGECL) (to establish 10,000 MW of Solar Power Projects in the State) to ensure nine hours day time free power supply to the Agriculture sector on a sustainable basis'. Incidentally, CMD, APEPDCL and CMD, APSPDCL [both the petitioners] are themselves among the 9 subscribers to the memorandum [shareholders] for the incorporation of APGECL [the Company].

3. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [Pedda Dasari Pally] 2. 800MW [M Kambala Dinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total: 10,700MW

4. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.

5. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system demand of 9000 to 10000 MW?

6. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.

7. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMS, then, they should actually stop gross metering and have only net metering. Because for any given capacity, in net metering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

The DISCOMs have submitted '*The DISCOMs are supplying power whenever solar power is not there in the system and is acting as a standby power to the consumers having Solar Rooftop. The DISCOMs have to pay for infrastructure cost from interface point of Generator and APTRANSCO and upto the point of consumers and have to pay fixed costs to APTRANSCO and Generating Companies and it has to meet its own distribution business fixed cost. The SRP consumer is generating power at the consumption point and supplying the excess power to the grid if available.*

Our Response:

1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are no audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D Losses.**

2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs

3. Reduction of every unit of sale also leads to lower power purchase to that extent, which results in corresponding savings in variable cost of power purchase.

This saving in power purchase is at consumption end, leading to increased saving in power purchase at the Generator busbar, factoring in Transmission Losses and Distribution Losses.

4. Further, due to distributed generation located at consumption end, Distribution Losses would also reduce. The excess energy exported is consumed by other consumers' within the locality (or) at feeder level for HT Consumers. DISCOM need not procure this additional energy from the other feeders.

5. Net Metering is promoted by the Central Government to reduce burden on DISCOMS on power management due to:

Avoided generation capacity cost (AGCC): Rooftop solar can decrease the contracted capacity for new PPAs, and DISCOMs can reduce their fixed expenses significantly, while avoiding generation capacity cost.

Avoided power purchase cost (APPC): Rooftop solar substitutes the most expensive energy procured by the DISCOM at any given time interval if the DISCOM follows a merit order despatch.

Avoided transmission charges (ATRC): Higher rooftop solar capacities avoid procurement of additional transmission capacity; this accounts for as savings by avoided transmission charges.

Avoided distribution capacity cost (ADCC): Rooftop solar requires a simple distribution network, relieving load on the distribution system. DISCOMs can reduce expenses on installation and maintenance of additional network components with simultaneous decongestion. The savings due to deferred capital investment resulting from the decongestion, along

with reduced operations and maintenance costs, make up the avoided distribution capacity infrastructure and related.

Avoided working capital requirement (AWCC): Reduced power purchases, avoided generation capacity, and revenue from the sale of energy from rooftop solar in the distribution grid reduce the DISCOM's overall expenditure. This will reflect in reduction in the working capital requirement of the DISCOMs and will lower their debt servicing obligation.

SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network..

2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:

Netmetering based rooftop solar contributes to Grid Stability by providing active power, and also reactive power to the grid, which helps provide stable voltage.

Netmetering based rooftop solar requires lower infrastructure upgrades when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.

Netmetering is irreplaceable in the implementation of the smart grid. The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable

Netmetering based rooftop solar reduces need for large parcels of land for new power infrastructure by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.

3. DISCOMS themselves acknowledge the benefits of rooftop solar: In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, **APEPDCL had submitted**, under **benefits for the DISCOM** from Solar Rooftop the following: **Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.**

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Thanking You Yours
Sincerely
Ch.satish kumar
Prop iL solar

Date: 04.06.2020

To : The Secretary

A.P Electricity Regulatory Commission

4th Floor, Singareni Bhavan, Red Hills

Hyderabad: 500004



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1. As per the provisions of the Solar Rooftop Power Policy 2018: *"All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects (SRP) for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". 'Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM.' "Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded. ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter."*

2. It is evident from the above, that only under Netmetering the concept of self consumption exists. In Gross Metering there is no self consumption.

3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant, given to it under Section 9 of the Act. The proposed amendment to netmetering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

The DISCOMs have submitted: *'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.' In the existing policy, provision is made for Long Term Contract for 25 years and twenty five years is too long period and this may be modified to 10 years'*

Our Response:

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.

2. The DISCOMs are also suggesting Gross Metering at Rs2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25 Years.



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For Rockland Industries Pvt. Ltd.
91. *[Signature]*

Director

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence has failed in its implementation.



The DISCOMs have submitted "the generation cost of SRP is coming down year by year and the Retail Supply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs 5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues'

Our Response:

1. It is precisely because the RST to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solar power.

2. It is for the same reason that consumers also use energy efficient appliances, energy saving devices and implement energy conservation systems and processes. It can be argued that the DISCOMs are losing revenue on account of such measures also. Should the consumers be penalized for those measures as well?

3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:

(3a.) There are multiple built in checks in place within the existing Netmetering policy itself, to regulate any uncontrolled growth including:

i. Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.
ii. Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].

iii. The Number of Units Generated, limited by taking 20%CUF/PLF of plant that approximates to 144Units/PerMonth/PerKW. Any additional generation is deemed inadvertent and not taken into account.

iv. Mandatory Levy of CMD Charges

v. Adjustment of Generated units in current month billing only. One Month settlement period

(e.) Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing, limit scope for rapid expansion of solar rooftop.

(3b.) The Hon'ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against 40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

Both DISCOMS have also submitted their individual projections for Solar Rooftop Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3C.) The Hon'ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10th Feb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only.

And by 2022 the Maximum Rooftop Solar Capacity would be $115.4 + 54.64 + 7.216 = 177.3\text{MW}$ only

Incidentally the Netmetering Policy has been introduced and has been in effect since 2013, in AP.

(3d.) As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31st March 2019 is 1,427MW only.

Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Netmetering implemented; the whole Country itself had not installed more than 1427 MW.

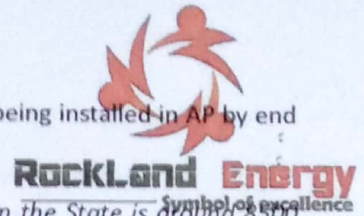


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For Rockland Industries Pvt Ltd.
91. Anu [Signature]
Director

So the likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.



The DISCOMs have submitted "the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators, there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted."

Our Response:

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects. Solar Rooftop is not a Utility Scale Power Project and does not come into that purview. Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA. Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.
2. The DISCOMs filed their petitions to the Hon'ble Commission 'Seeking amendments to the Modalities/Guidelines to the existing Solar Rooftop [SRT] Policy, 2018 on 10.02.2020[APSPDCL] and 14.02.2020[APEPDCL]. On 15.02.2020, The Government of Andhra Pradesh released its GO.Ms No. 5 for 'formation of the Andhra Pradesh Green Energy Corporation Limited (APGECL) (to establish 10,000 MW of Solar Power Projects in the State) to ensure nine hours day time free power supply to the Agriculture sector on a sustainable basis'. Incidentally, CMD, APEPDCL and CMD, APSPDCL [both the petitioners] are themselves among the 9 subscribers to the memorandum [shareholders] for the incorporation of APGECL [the Company].
3. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [Pedda Dasari Pally] 2. 800MW [M Kambala Dinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total: 10,700MW
4. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.
5. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system demand of 9000 to 10000 MW?
6. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.
7. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMs, then, they should actually stop gross metering and have only netmetering. Because for any given capacity, in netmetering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

The DISCOMs have submitted 'The DISCOMs are supplying power whenever solar power is not there in the system and is acting as a standby power to the consumers having Solar Rooftop. The DISCOMs have to pay for infrastructure cost from interface point of Generator and APTRANSCO and upto the point of consumers and have to pay fixed costs to APTRANSCO and Generating Companies and it has to meet its own distribution business fixed cost. The SRP consumer is generating power at the consumption point and supplying the excess power to the grid if available.

Our Response:

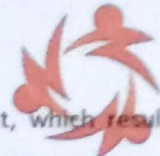
1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are no audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D Losses**.
2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs



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[Signature]
Director



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3. Reduction of every unit of sale also leads to lower power purchase to that extent, which results in corresponding savings in variable cost of power purchase.

This saving in power purchase is at consumption end, leading to increased saving in power purchase at the Generator busbar, factoring in Transmission Losses and Distribution Losses.

4. Further, due to distributed generation located at consumption end, Distribution Losses would also reduce. The excess energy exported is consumed by other consumers' within the locality (or) at feeder level for HT Consumers. DISCOM need not procure this additional energy from the other feeders.

5. Net Metering is promoted by the Central Government to reduce burden on DISCOMS on power management due to:

5.a Avoided generation capacity cost (AGCC): Rooftop solar can decrease the contracted capacity for new PPAs, and DISCOMs can reduce their fixed expenses significantly, while avoiding generation capacity cost.

5.b Avoided power purchase cost (APPC): Rooftop solar substitutes the most expensive energy procured by the DISCOM at any given time interval if the DISCOM follows a merit order despatch.

5.c Avoided transmission charges (ATRC): Higher rooftop solar capacities avoid procurement of additional transmission capacity; this accounts for as savings by avoided transmission charges.

5.d Avoided distribution capacity cost (ADCC): Rooftop solar requires a simple distribution network, relieving load on the distribution system. DISCOMs can reduce expenses on installation and maintenance of additional network components with simultaneous decongestion. The savings due to deferred capital investment resulting from the decongestion, along with reduced operations and maintenance costs, make up the avoided distribution capacity infrastructure and related.

5.e Avoided working capital requirement (AWCC): Reduced power purchases, avoided generation capacity, and revenue from the sale of energy from rooftop solar in the distribution grid reduce the DISCOM's overall expenditure. This will reflect in reduction in the working capital requirement of the DISCOMs and will lower their debt servicing obligation.

SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network.

2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:

2.a Netmetering based rooftop solar contributes to Grid Stability by providing active power, and also reactive power to the grid, which helps provide stable voltage.

2.b Netmetering based rooftop solar requires lower infrastructure upgrades when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.

2.c Netmetering is irreplaceable in the implementation of the smart grid. The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable

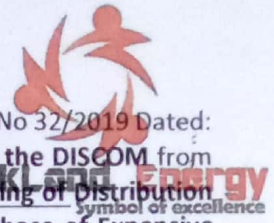
2.d Netmetering based rooftop solar reduces need for large parcels of land for new power infrastructure by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.



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For Rockland Industries Pvt. Ltd.
Y. Han
Director



3. DISCOMS themselves acknowledge the benefits of rooftop solar: In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, APEPDCL had submitted, under **benefits for the DISCOM from Solar Rooftop** the following: **Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.**

Our Submission No 2.

Continued regulatory support for Netmetering is required to ensure that the Solar Rooftop capacity addition in the State meets the target set by the Government:

1. Other states in the country are continuing to promote Net Metering in a big way.

- Government of Karnataka increased subsidies for Net Metering vide notification dated 15.03.2020 by 40% for domestic consumers.
- Governments of Rajasthan and Uttar Pradesh have increased Capacity limit of Net Metering Systems to 2 MWp at single location.
- Government of Uttar Pradesh has State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
- Government of Gujarat allocates fund in budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector.

Government of Goa is extending 20% State Subsidy

2. Some of our State Govt Departments, Municipal Corporations, General Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City are developed as per guidelines of Central and State Government, and grid support to bank unutilized energy has been considered. Many projects have been planned on Build Own Operate and Transfer (BOOT) basis having minimum 15 years contract. Any change in Net Metering Regulations at this stage, will destroy the financial viability of all these Projects.

3. The increase in capacity of rooftop solar as projected by the DISCOMs is very marginal. But in this incremental increase in installed capacity, a few hundred small and medium sized businesses earn their livelihood in State of AP. They in turn support a few thousand families through direct employment. And in turn support other small local businesses related to their activity. This small increment sustains the economy at the local level and has a multiplier effect. As it is, difficulties in living conditions have become more pronounced on account of COVID-19 and the overall economic crisis

Our Submission No 3.

Netmetering is vital to sustain the limited growth of solar rooftop. Removing it will irreversibly shut down any growth of solar rooftop.

1. The Parliamentary Standing Committee on Energy had recently submitted its report on Demand For Grants for MNRE. Considering the poor performance of the Solar Rooftop sector till date, and the unlikelihood of India reaching the Target 40GW SRT by 2022, at that rate; the Committee made the following observations and recommendations: *'the Committee are of the considered view that the Ministry should focus on this programme on a **Mission Mode** so as to give it a fillip. The Committee, therefore, recommends that: i) The process of subsidy disbursement should be made simpler and faster and the Ministry should widely advertise the benefits of having a Roof-top Solar Projects and the incentives provided by the Government for the same so as to spread awareness among the masses. ii) **Proper implementation of Net-Metering should be ensured.** iii) The Ministry should have regular review meetings with the implementing agencies.'*

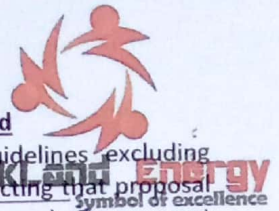
MNRE had informed the Committee there is disparity in metering regulations/tariff orders across States due to diverse parameters. MNRE also informed it had requested Forum Of Regulators [FOR] to develop model regulations for which the States may adopt

2. The Forum of Regulators (FOR), have submitted their Report on Metering Regulation and Accounting Framework for Grid Connected Rooftop Solar PV in India (2019) & consequently released their Draft Model Regulation for Grid Interactive Distributed Renewable Energy Sources.



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[Signature]
Director



In these regulations **Netmetering has been retained, and also its scope has been enhanced**

3. On proposals received from its DISCOMs, MERC had earlier released draft guidelines excluding Netmetering and implementing Netbilling[Gross Metering]. Overwhelming responses rejecting that proposal included that of Shri Nitin Gadkari ji, then Minister (Ministry of Road Transport and Highways), Government of India in his letter addressed to Hon'ble Union Power Minister has suggested as under:

'Net Metering should be optional along with Net Billing till target is achieved or up to 2022.' 'The Hon'ble Prime Minister during UN Climate Action Summit 2019 had pledged to increase RE capacity in the country to 175 GW by 2022. The proposed Draft Regulations shall be a deterrent in achieving the country's RE target.'

Maharashtra ERC has reincluded Net Metering in its recent Regulations

4. **The Hon'ble Commission** had given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In response to the points on Non-promotion of rooftop Solar Plants by the learned objector Sri. M. Thimma Reddy, both DISCOMs have submitted that they are taking a lot of interest for promotion of solar rooftop units. And the Hon'ble Commission had expressed its view as: **'Every effort should be made to reach the targets in expansion of solar roof topplants'**

5. The salutary objectives in Section 86[1] in the draft amendments of the Electricity Act 2003 include: '(1) The State Commission shall discharge the following functions, namely:-(c) facilitate intra-State transmission and wheeling of electricity and promote smart grid, **net metering**, ancillary support and decentralised distributed generation; and (e) promote cogeneration from renewable sources of energy and generation of electricity from renewable sources of energy'

Our Submission No 4.

1. The narration which precludes the amendments mentioned in the GO.Ms 35 Dt 18.11.2019 is: "Governments have observed that the statutory audit has reported an abnormal spurt in Power Purchase cost and deteriorated financial position of the A.P. DISCOMs. Taking into consideration the financial deterioration of APDISCOMS and in order to strengthen the financial position of the Power Utilities, Government after careful examinations of the matter hereby make the following amendments to the above policies."

The DISCOMS have also submitted: "Considering the present scenario, the Govt of AP issued an amendment to the Solar/Wind Power Policy vide GO.Ms.No.35 Dt: 18.11.2019, wherein it was mentioned, that the applicable tariff for either net metering/gross metering shall not exceed difference of pooled variable cost and balancing cost (or) the applicable tariff at the time of COD whichever is less."

2. From the above it is evident that **the Govt of AP had already considered all the points made by the DISCOMS in this petition; and had chosen to amend only the applicable tariff for metering as far as the Solar Rooftop part of the policy is concerned. Leaving all other aspects pertaining to Solar Rooftop intact, including the consumer being given the right to choose either Net-metering or Gross-metering!**

3. The Hon'ble Commission had already given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In it the DISCOMs had factored the quantum of capacity increase of rooftop solar for the entire period already.

We, request the Hon'ble Commission in exercise of the various powers bestowed upon it vide the Electricity Act 2003, to bring about only the amendment related to applicable tariff, made under GO.Ms 65 Dt 18.11.2019 by the Govt of AP and summarily set aside all other amendments proposed by both DISCOMS

We, also request the Hon'ble Commissions to provide us an opportunity to make submissions in person, during the public hearing.

Thanking You
Your's Sincerely

For Rockland Industries Pvt. Ltd.

Director



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Request for considering the point(s) wrt Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

Inbox x



Tirumala Kutumbarao Patibandla <ptkrao@nresys.com>

10:43 (1 hour ago)



to Commn-secy, Commn-secy ▾

Respected Sir/Madam,

We request you to consider the below points in your discussion agenda.

- 1.** We want NetMetering concept to stay life long. If not give option for Customer to choose NetMetering or Gross Metering of his choice option of Net Metering By Default.
- 2.** We request you to look into the possibility of directly providing the NetMetering meters for a new construction if the customer request for it instead of giving normal meter and then upgrading it.
- 3.** We request you to see how the state will contribute to the Renewable Energy Goals set by country if we are not encouraging the Renewable Energy Sector.
- 4.** We also request you to constitute a committee to study the benefits of giving the chance to Solar Integrator(s) execute 500 MW rooftop across 10 years and government going for 500 MW solar park at time. We want a public and stake holders consultation and debate on the same.

Nature is showing us what it will do when we ignore it, please don't knowingly add to the pain.

--

Regards,

Tirumala Kutumbarao P,

Business Development Director,

Novel Renewable Enegrysys Pvt. Ltd.,

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Patamatalanka, Vijayawada, AP, India - 520010,

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From: qbaronssolar@gmail.com
Subject: objections for implementation of Gross meter instead of net meter
Date: June 4, 2020 at 1:49 PM
To: Commission Secretary commn-secy@aperc.gov.in, commn@aperc.in



Dear sir,

1. Government of India is giving priority for large scale promotion of Renewable Energy Projects to meet the growing energy needs of the country in an environmentally sustained manner. As a part of Paris Climate agreement, India has committed to produce 40% of installed power capacity from non-fossil fuels by the year 2030 to mitigate Climate Change. Ministry New and Renewable Energy has initially set a target to achieve Renewable Energy Capacity of 175 GW by 2022. Out of the 175 GW of Renewable Energy target, 100 GW is the solar power component, comprising of 60 GW utility-scale Solar Power and 40 GW of Grid connected Solar Rooftop Power. From these policies of the GoI, it is clearly evident that the Solar Rooftop projects are the major contributor for achieving the targets. The RE targets are further enhanced to 450 GW to reach by 2030. Recently, the Hon'ble Union Minister for MNRE has announce that the GoI has set the ambitious target to achieve 500 GW RE capacity by 2030.

2. Various State Governments have notified state specific policies in line with GOI objectives for large scale promotion of RE Power projects including solar rooftop projects. Worldwide also various progressive countries like USA, Germany, etc are giving highest importance to Rooftop solar power projects as a part of RE promotion policies due to various advantages of solar rooftop projects when compared to large scale projects like local generation of power, minimizing of Distribution losses, non-requirement of huge

investments towards evacuation infrastructure, better Grid management, etc.

3. The Govt. of AP has also taken various policy initiatives for promotion of Grid Connected Solar Rooftop systems and considered both Gross metering and net metering policies. The Government has announced AP Solar Power Policy 2012, AP Solar Power Policy 2018 and AP Solar Power Policy 2018, duly making modification in the policies taking into consideration the developments in the solar power sector like GoI India Policies, technology improvements, falling in solar equipment costs, etc.

4. Though various incentives are considered by the GoI and GoAP, there is not much Solar Rooftop capacity has been added in the AP State. The cumulative capacity addition is only around 115 MW compared to Ground mounted capacity addition of 3500 MW.

5. Considering the total energy availability of 68,901 MU for the year 2020-21 as per the Tariff Order, the share RE Power availability is 14392 MU (20.88%). The estimated power generation from solar roof top projects is 222.75 MU only (even after considering 15% growth in capacity addition in 2020-21 compared to present installed capacity of 115 MW). Otherwise the Solar rooftop generation is only 1.54% of projected RE generation and 0.32% of the projected total generation for the year 2020-21. This clearly shows that the share of Solar rooftop generation is negligible and moreover most of the solar rooftop generation is meant for captive utilization only.

6. Though necessary provisions are made to promote Gross metering, no projects are set up under this option as the generation from solar rooftop projects is not economically

the generation from solar rooftop projects is not economically viable for sale of power when compared to Ground mounted solar generation.

7. The GoI has discontinued extending of Central Financial Assistance (CFA) for institutions, non-profit organizations, Government agencies under Phase-II program starting from 2019-20 and minimized the CFA to domestic consumers also. Under these circumstances, various categories of consumers are showing least interest to come forward to install solar rooftop systems.

8. Under the Phase-II program, MNRE has decided to promote the Solar rooftop projects by making the DISCOMs as implementing agencies and offered various incentives to DISCOMs for large scale promotion of the program. A copy the Phase-II guidelines are attached for kind information.

9. The provisions under AP Solar Power Policy 2018 notified by the [G.O.Ms.](#) No. 01 Dt. 03.01.2019, the Hon'ble APERC has approved the Solar Roof Top (SRT) provisions on 25-05-2019 based on the petition filed by the APDISCOMs by conducting public hearing.

10. The following are the additional amendments proposed by the DISCOMs contrary to the Government Orders, which are to be summarily rejected by the Hon'ble Commission,

11. To limit the SRT Agreement period to 10 years instead of 25 years.

12. Allowing only Gross metering and applicable tariff for both Net metering and Gross metering shall not exceed difference of pooled variable cost and balancing cost(or) applicable tariff at the time of COD ,whichever is less.

13. We wish to express our deep concern with the proposal for above amendments and no one will be interested to setup the solar power plant if the proposal is considered and would ultimately kill the program. Further, MNRE has issued the Phase-II program guidelines to implement the program by DISCOMs. Instead of proposing the various measures for promotion, DISCOMs have proposed retarding guidelines to demote the program which are contrary to the MNRE guidelines and depriving the benefit to the General Public.

14. The proposals of the DISCOMs are detrimental to the interests of the Public and not their interest as indicated in their petition.]

15. We wish to submit that subsidies for the solar power plant under Net Metering scheme are removed except to the domestic consumers. Hence, Solar Roof Top projects setup with bank finance with interest rate of 12%, will take at least 10 to 12 years to achieve breakeven. Thus, any benefit from the solar roof top power system can be realized only after 12 years and limiting of the SRT agreement period for 10 years, will be a big setback and no one will show interest to setup the projects. Hence, the SRT Agreement should be continued for 25 years as per the existing policy.

16. In Gross metering system, DISCOMS will pay for the Net Exported units based on the Average Pooled Purchase cost (Rs.3.75/Unit). The DISCOMs have proposed that the "Difference of Pooled Purchase Cost and Balancing Cost (Rs. 3.50/Unit) should be paid for the Net Exported units". So, the net amount payable is just Rs. 0.25 Paisa Per Unit. Considering a domestic consumer who installs 1 KWp Solar power system, the system generates 5 units per day. Assuming that total consumption in the morning hours is 2

units per day, the Net exported units per day is 3 Units per day. Total exported units per month is 90 Units. If the DISCOM pays Rs.22.50 (90 units X Rs 0.25/Unit) per month to the consumer, the break-even period for the solar power system is more than 40 years. ***In this kind of scenario, it is big loss to the consumer and no one will setup the solar Roof Top power system.***

Thanks & Regards

--

Chakka jayababu,(Managing Partner)

Qbarons Natural Energy Systems,

D.no.49-56-3/2, Viduthnagar Narshimnagar Visakhapatnam-530016

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From: indiasolarintegrators@gmail.com
Subject: consideration of solar issues
Date: June 4, 2020 at 1:45 PM
To: Commission Secretary commn-secy@aperc.gov.in, commn-secy@aperc.in

Respected sir,

We are herewith enclosing our letter to resolve the issues before taking any decision on Net metering or Gross metering for Andhrapradesh state.

Yours faithfully,

ALAPATI PRASAD

B.Tech., M.B.A., LL.B.

PRESIDENT

Solar System Integrators & Manufacturers Association of India

58-2-18/1, Pantakaluva Road, Patamata -520010.

Vijayawada.

Contact No. 9246418585

9246408585

Reg No: 476 of 2019

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The DISCOMs filed their petitions to the Hon'ble Commission 'Seeking amendments to the Modalities/Guidelines to the existing Solar Rooftop [SRT] Policy, 2018 on 10.02.2020[APSPDCL] and 14.02.2020[APEPDCL]. On 15.02.2020, The Government of Andhra Pradesh released its GO.Ms No. 5 for 'formation of the Andhra Pradesh Green Energy Corporation Limited (APGECL) (to establish 10,000 MW of Solar Power Projects in the State) to ensure nine hours day time free power supply to the Agriculture sector on a sustainable basis'. Incidentally, CMD, APEPDCL and CMD, APSPDCL [both the petitioners] are themselves among the 9 subscribers to the memorandum [shareholders] for the incorporation of APGECL [the Company].

2. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [Pedda Dasari Pally] 2. 800MW [M Kambala Dinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total: 10,700MW

3. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.

4. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system demand of 9000 to 10000 MW?

5. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.

6. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMS, then, they should actually stop gross metering and have only netmetering. Because for any given capacity, in netmetering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

The DISCOMs have submitted 'The DISCOMs are supplying power whenever solar power is not there in the system and is acting as a standby power to the consumers having Solar Rooftop. The DISCOMs have to pay for infrastructure cost from interface point of Generator and APTRANSCO and upto the point of consumers and have to pay fixed costs to APTRANSCO and Generating Companies and it has to meet its own distribution business fixed cost. The SRP consumer is generating power at the consumption point and supplying the excess power to the grid if available.

Our Response:

1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are...

audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D Losses.**

2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs

For SSIMAI
A. Prasad
PRESIDENT

contd : 5

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To :

Date: 01.06.2020

The Secretary

A.P Electricity Regulatory Commission
4th Floor, Singareni Bhavan, Red Hills
Hyderabad: 500004

Respected Sir,

Sub: Submission of objections and suggestions on the amendment proposed to Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, we the President and members of SOLAR SYSTEM INTEGRATORS & MANUFACTURERS ASSOCIATION OF INDIA, are submitting the following points for the kind consideration of the Hon'ble Commission:

The DISCOMs have submitted: *'It is requested that only gross metering concept may be permitted and a generic tariff may be fixed on the costs involved instead of making payment based on Average pooled purchase cost.'*

Our Response:

1. As per the provisions of the Solar Rooftop Policy 2018: "All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects (SRP) for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". "Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM." "Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded. ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter."

2. It is evident from the above, that only under Net metering the concept of self consumption exists. In Gross Metering there is no self consumption.

3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant. given to it under Section 8.6 of the proposed amendment.

proposed amendment to netmetering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

For SSIMAI

A. Prasad
PRESIDENT

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3. Reduction of every unit of sale also leads to lower power purchase to that extent, which results in corresponding savings in variable cost of power purchase.

This saving in power purchase is at consumption end, leading to increased saving in power purchase at the Generator busbar, factoring in Transmission Losses and Distribution Losses.

4. Further, due to distributed generation located at consumption end, Distribution Losses would also reduce. The excess energy exported is consumed by other consumers' within the locality (or) at feeder level for HT Consumers. DISCOM need not procure this additional energy from the other feeders.

5. Net Metering is promoted by the Central Government to reduce burden on DISCOMS on power management due to:

Avoided generation capacity cost (AGCC): Rooftop solar can decrease the contracted capacity for new PPAs, and DISCOMs can reduce their fixed expenses significantly, while avoiding generation capacity cost.

Avoided power purchase cost (APPC): Rooftop solar substitutes the most expensive energy procured by the DISCOM at any given time interval if the DISCOM follows a merit order despatch.

Avoided transmission charges (ATRC): Higher rooftop solar capacities avoid procurement of additional transmission capacity; this accounts for as savings by avoided transmission charges.

Avoided distribution capacity cost (ADCC): Rooftop solar requires a simple distribution network, relieving load on the distribution system. DISCOMs can reduce expenses on installation and maintenance of additional network components with simultaneous decongestion. The savings due to deferred capital investment resulting from the decongestion, along with reduced operations and maintenance costs, make up the avoided distribution capacity infrastructure and related.

Avoided working capital requirement (AWCC): Reduced power purchases, avoided generation capacity, and revenue from the sale of energy from rooftop solar in the distribution grid reduce the DISCOM's overall expenditure. This will reflect in reduction in the working capital requirement of the DISCOMs and will lower their debt servicing obligation.

SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network..

2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:

Netmetering based rooftop solar contributes to Grid Stability by providing active power, and also

reactive power to the grid, which helps provide stable voltage.

For SSIMAI
A. Prasad
PRESIDENT

contd 6

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The DISCOMs have submitted: 'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.' In the existing policy, provision is made for Long Term Contract for 25 years and twenty five years is too long period and this may be modified to 10 years'

Our Response:

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.
2. The DISCOMs are also suggesting Gross Metering at Rs2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25 Years.

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence has failed in its implementation.

The DISCOMs have submitted "the generation cost of SRP is coming down year by year and the Retail Supply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs 5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues'

Our Response:

1. It is precisely because the RST to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solar power.
 2. It is for the same reason that consumers also use energy efficient appliances, energy saving devices and implement energy conservation systems and processes. It can be argued that the DISCOMs are losing revenue on account of such measures also. Should the consumers be penalized for those measures as well?
 3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:
(3a.) There are multiple built in checks in place within the existing Netmetering policy itself, to regulate any uncontrolled growth including:
 - i. Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.
 - ii. Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].
 - iii. The Number of Units Generated, limited by taking 20%CUF/PLF of plant that approximates to 144Units/PerMonth/PerKW. Any additional generation is deemed inadvertent and not taken into account.
 - iv. Mandatory Levy of CMD Charges
 - v. Adjustment of Generated units in current month billing only. One Month settlement period
- (e.)Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing. limit scope for rapid expansion of solar power.

For SSIMAI
A. Prasad
PRESIDENT

contd 3

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(3b.)The Hon'ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against 40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

Both DISCOMS have also submitted their individual projections for Solar Rooftop Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3C.)The Hon'ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10th Feb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only.

And by 2022 the Maximum Rooftop Solar Capacity would be 115.4 + 54.64 + 7.216 = 177.3MW only

Incidentally the Netmetering Policy has been introduced and has been in effect since 2013, in AP.

(3d.)As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31st March 2019 is 1,427MW only.

Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Netmetering implemented; the whole Country itself had not installed more than 1427 MW.

The likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.

The DISCOMs have submitted "the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators, there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted."

Our Response:

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects.

Solar Rooftop is not a Utility Scale Power Project and does not come into that purview.

Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA

Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.

For SSIMAI
A. Prasad

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Netmetering based rooftop solar requires lower infrastructure upgrades when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.

Netmetering is irreplaceable in the implementation of the smart grid. The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable

Netmetering based rooftop solar reduces need for large parcels of land for new power infrastructure by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.

3. DISCOMS themselves acknowledge the benefits of rooftop solar: In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, APEPDCL had submitted, under **benefits for the DISCOM** from Solar Rooftop the following: **Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.**

Our Submission No 2.

Continued regulatory support for Netmetering is required to ensure that the Solar Rooftop capacity addition in the State meets the target set by the Government:

1. Other states in the country are continuing to promote Net Metering in a big way.

- Government of Karnataka increased subsidies for Net Metering vide notification dated 15.03.2020 by 40% for domestic consumers.
- Governments of Rajasthan and Uttar Pradesh have increased Capacity limit of Net Metering Systems to 2 MWp at single location.
- Government of Uttar Pradesh has State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
- Government of Gujarat allocates fund in budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector.

Government of Goa is extending 20% State Subsidy

2. Some of our State Govt Departments, Municipal Corporations, Central Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City are developed as per guidelines of Central and State Government, and grid support to bank unutilized energy has been considered. Many projects have been planned on Build Own Operate and Transfer (BOOT) basis having minimum 15 years contract. Any change in Net Metering Regulations at this stage, will destroy the financial viability of all these Projects.

For SSIMAI

A. Prasad
PRESIDENT

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Reg No: 476 of 2019

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4. The salutary objectives in Section 86[1] in the draft amendments of the Electricity Act 2003 include: '(1) The State Commission shall discharge the following functions, namely:--(c) facilitate intra-State transmission and wheeling of electricity and promote smart grid, **net metering**, ancillary support and decentralised distributed generation; and (e) promote cogeneration from renewable sources of energy and generation of electricity from renewable sources of energy'

Our Submission No 4.

1. The narration which precludes the amendments mentioned in the GO.Ms 35 Dt 18.11.2019 is: "Governments have observed that the statutory audit has reported an abnormal spurt in Power Purchase cost and deteriorated financial position of the A.P. DISCOMs. Taking into consideration the financial deterioration of APDISCOMs and in order to strengthen the financial position of the Power Utilities, Government after careful examinations of the matter hereby make the following amendments to the above policies."

The DISCOMs have also submitted: 'Considering the present scenario, the Govt of AP issued an amendment to the Solar/Wind Power Policy vide GO.Ms.No.35 Dt: 18.11.2019, wherein it was mentioned, that the applicable tariff for either net metering/gross metering shall not exceed difference of pooled variable cost and balancing cost (or) the applicable tariff at the time of COD whichever is less.'

From the above it is evident that the Govt of AP had already considered all the points made by the DISCOMs in this petition; and had chosen to amend only the applicable tariff for metering as far as the Solar Rooftop part of the policy is concerned. Leaving all other aspects pertaining to Solar Rooftop intact, including the consumer being given the right to chose either Netmetering or Grossmetering!

2. The Hon'ble Commission had already given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In it the DISCOMs had factored the quantum of capacity increase of rooftop solar for the entire period already.

We, request the Hon'ble Commission in exercise of the various powers bestowed upon it vide the Electricity Act 2003, to bring about only the amendment related to applicable tariff, made under GO.Ms 65 Dt 18.11.2019 by the Govt of AP and summarily set aside all other amendments proposed by both DISCOMs

We, also request the Hon'ble Commissions to provide us an opportunity to make submissions in person, during the public hearing.

Thanking You

Your's Sincerely **For SSIMAI**

[.....]

President

Address....


PRESIDENT

SOLAR SYSTEM INTEGRATORS AND MANUFACTURERS ASSOCIATION OF INDIA

PRESIDENT	VICE-PRESIDENT	VICE - PRESIDENT	GENERAL SECRETARY	JOINT SECRETARY	TREASURER
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3. The increase in capacity of rooftop solar as projected by the DISCOMs is very marginal. But in this incremental increase in installed capacity, a few hundred small and medium sized businesses earn their livelihood in State of AP. They in turn support a few thousand families through direct employment. And in turn support other small local businesses related to their activity. This small increment sustains the economy at the local level and has a multiplier effect. As it is, difficulties in living conditions have become more pronounced on account of COVID-19 and the overall economic crisis

Our Submission No 3.

Netmetering is vital to sustain the limited growth of solar rooftop. Removing it will irreversibly shut down any growth of solar rooftop.

1. The Parliamentary Standing Committee on Energy had recently submitted its report on Demand For Grants for MNRE. Considering the poor performance of the Solar Rooftop sector till date, and the unlikelihood of India reaching the Target 40GW SRT by 2022, at that rate; the Committee made the following observations and recommendations: *'the Committee are of the considered view that the Ministry should focus on this programme on a **Mission Mode** so as to give it a fillip. The Committee, therefore, recommends that: i) The process of subsidy disbursement should be made simpler and faster and the Ministry should widely advertise the benefits of having a Roof-top Solar Projects and the incentives provided by the Government for the same so as to spread awareness among the masses. ii) **Proper implementation of Net-Metering should be ensured.** iii) The Ministry should have regular review meetings with the implementing agencies.'*

MNRE had informed the Committee there is disparity in metering regulations/tariff orders across States due to diverse parameters. MNRE also informed it had requested Forum Of Regulators [FOR] to develop model regulations for which the States may adopt

1. The Forum of Regulators (FOR), have submitted their Report on Metering Regulation and Accounting Framework for Grid Connected Rooftop Solar PV in India (2019) & consequently released their Draft Model Re for Grid Interactive Distributed Renewable Energy Sources.

In these regulations **Netmetering has been retained, and also its scope has been enhanced**

2. On proposals received from its DISCOMs, MERC had earlier released draft guidelines excluding Netmetering and implementing Netbilling[Gross Metering]. Overwhelming responses rejecting that proposal included that of Shri Nitin Gadkari ji, then Minister (Ministry of Road Transport and Highways), Government of India in his letter addressed to Hon'ble Union Power Minister has suggested as under:

'Net Metering should be optional along with Net Billing till target is achieved or up to 2022.' *'The Hon'ble Prime Minister during UN Climate Action Summit 2019 had pledged to increase RE capacity in the country to 175 GW by 2022. The proposed Draft Regulations shall be a deterrent in achieving the country's RE target.'*

Maharashtra ERC has reincluded Net Metering in its recent Regulations

3. **The Hon'ble Commission** had given its Order in the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In response to the points on Non-promotion of rooftop Solar Plants by the learned...



GST: 37AISP0031A1ZN
Prop: N V S Teja Kumar,
Customer care: 9959 8282 92

SUNRAYS GREEN POWER SOLUTIONS

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Website: sunraysgps.com, Email Id: info@sunraysgps.com

Manufacturers of Solar Modules, LED Lights, Solar Street Lights, Solar Fencing&Solar Water Heaters.

Ref No: SGPS/2020-21/006

Date: 02nd June 2020.

To :

The Secretary

A.P Electricity Regulatory Commission

4th Floor, Singareni Bhavan, Red Hills Hyderabad: 500004

Respected Sir,

Sub: Submission of objections and suggestions on the amendment proposed to Modalities [Guidelines] for implementing Solar Rooftop Policy 2018, in OP No. 8 of 2020

With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, I am Manufacturers of Solar Modules and system Integrator submitting the following points for the kind consideration of the Hon'ble Commission:

The DISCOMs have submitted: *'It is requested that only gross metering concept may be permitted and a generic tariff may be fixed on the costs involved instead of making payment based on Average pooled purchase cost.'*

OurResponse:

1. As per the provisions of the Solar Rooftop Power Policy 2018: *"All Registered Companies, Government Entities, Partnership Companies/Firms/Individuals and all consumers of AP DISCOMs will be eligible for setting up of Solar Rooftop Projects {SRP} for sale of electricity to DISCOM/Captive Use or for Self-Consumption, in accordance with the Electricity Act-2003". 'Eligible Developers are free to choose either Net or Gross metering option for sale of power to DISCOM.'* "Implementation of solar rooftop net/gross metering facility will be as per the following guidelines: i) Under Net Metering, Power is first sent to the appliances and lights in the house, and if excess remains, it is exported to the outside electricity network and its quantum recorded.
- ii) Under Gross Metering, all solar electricity generated is exported to the outside electricity network through an independent meter."
2. It is evident from the above, that only under Net metering the concept of self consumption exists. In Gross Metering there is no self consumption.
3. By enforcing only Gross Metering for grid connectivity, the fundamental right to Captive Use/Self Consumption as accorded by the Electricity Act-2003 to the consumer is being denied. The proposed system of Gross Metering does not allow consumers to set off the energy from their own RE system against their own consumption, which has to be necessarily sold to the Distribution Licensee. This violates the fundamental right of the Consumer to set up captive power plant, given to it under Section 9 of the Act. The proposed amendment to net metering also impinges upon the salutary objective of Section 86 (1)(e) of EA, 2003.

The DISCOMs have submitted: *'In Gross Metering, the DISCOM is paying to the SRP Consumer at the rate of Average Pooled Power Purchase Cost for all units generated by the SRP. But now days the solar power tariff rates have come down approximately to Rs2.50 per unit in the country.'* In the existing policy, provision is made for Long

Term Contract for 25 years and twenty five years is too long period and this may be modified to 10years'

Our Response:

1. Under Gross Metering System, consumers have to sell energy generated by their rooftop solar system to DISCOM at grid tariff. And for their own consumption, same consumers have to buy energy from DISCOM at retail tariff.
2. The DISCOMs are also suggesting Gross Metering at Rs2.50 per unit. A 10KW unit can export 1440 units max per month. That translates to Rs3,610 per month. At Rs 4,00,000 as cost of 10KW systems and 10% Annual Rate of Interest on Loan, With EMI of 3,625 per month. The payback period on Loan is 25Years.

During this period the consumer continues to pay a large portion of their Electricity Bill based on retail tariff, every month.

Gross Metering is an unviable option for the customers, and hence has failed in its implementation.

The DISCOMs have submitted "the generation cost of SRP is coming down year by year and the Retail Suply Tariffs [RST] of consumers are on upward direction. The present per MW installation cost of Solar Rooftop Plant is around Rs 5.Crores. This has become an incentive to Solar Rooftop Developers and is affecting the DISCOM revenues'

Our Response:

1. It is precisely because the RST to consumers is increasing year by year, that the consumers need to substitute high cost conventional day power with low cost solarpower.
2. It is for the same reason that consumers also use energy efficient appliances, energy saving devices and implement energy conservation systems and processes. It can be argued that the DISCOMs are losing revenue on account of such measures also. Should the consumers be penalized for those measures aswell?

3. However, any apprehension the DISCOMs may have, that the Rooftop Systems would have uncontrolled growth is misplaced; for the following reasons:

(3a.) There are multiple built in checks in place within the existing Netmetering policy itself, to regulate any uncontrolled growth including:

- i. Capacity of Plant at any location, limited to Sanctioned Load/CMD [OR] 1MW whichever is less.
- ii. Number of Sanctioned Plants, limited to 80% of the DTR Capacity. [The maximum penetration limits at the LT level of distribution network is 80% (Ratio of aggregate installed SRP capacity under the DTR to the DTR capacity)].
- iii. The Number of Units Generated, limited by taking 20% CUF/PLF of plant that approximates to 144 Units/PerMonth/PerKW. Any additional generation is deemed inadvertent and not taken into account.
- iv. Mandatory Levy of CMD Charges
- v. Adjustment of Generated units in current month billing only. One Month settlement period (e.) Additionally, technical issues and most importantly the absence of a strong ecosystem for low cost debt financing, limit scope for rapid expansion of solar rooftop.

(3b.) The Hon'ble Commission had given its Order Dt: 15th April 2019 In the matter of Approval of Load Forecasts and Resource Plans etc to cover the 4th Control Period [FY2019-20 to FY2023-24] and 5th Control Period [FY2024-25 to FY2028-29]. The DISCOMs have submitted that against 40GW Rooftop Solar Target of Govt of India by 2022, the target for State of AP is 2000MW. The Year wise target capacity is as below:

Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Capacity[MW]	10	240	250	300	350	400	450	2000

Both DISCOMS have also submitted their individual projections for Solar Rooftop

Installations [KW] from FY19-FY29 [10 Yrs]. Extract for the period upto FY22 is below:

Year	FY19	FY20	FY21	FY22	Total[Cumulative]
APSPDCL MW	11.278	12.708	14.365	16.289	54.64 MW
APEPDCL MW	1.365	1.623	1.930	2.298	7.22 MW

(3C.) The Hon'ble Commission had released its Order on Tariff for Retail Sale of Electricity during FY2020-21, Dt: 10th Feb 2020. The DISCOMS had submitted that as on 30.11.2019 the total installed Capacity of Solar Rooftop by APSPDCL is 71.75MW [1,934 Nos] and APEPDCL is 43.65MW [1,720 Nos].

So the total Capacity of Rooftop Solar installed across the State of AP till 30.11.2019 is 115.4MW only. And by 2022 the Maximum Rooftop Solar Capacity would be $115.4 + 54.64 + 7.216 = 177.3\text{MW}$ only. Incidentally the Netmetering Policy has been introduced and has been in effect since 2013, in AP.

(3d.) As per MNRE, against the total target of 40GW, the actual capacity of solar rooftop installed across all the States in India as on 31st March 2019 is 1,427MW only. Incidentally, this is less than the 2000MW target of AP State itself.

In all these years, with all incentives and support being extended; and with Netmetering implemented; the whole Country itself had not installed more than 1427 MW.

So the likelihood of >1800MW [Balance of Target] of additional Rooftop Capacity being installed in AP by end of 2022 is unrealistic.

The DISCOMs have submitted *“the present installed capacity of Solar and Wind in the State is around 8500 MW. The smooth integration of this much RE (Solar and Wind power) power of 8500 MW which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task. Under the falling price regime of Solar/Wind power generation, coupled with incentives granted to these Generators,*

there is no healthy competition envisaged in the Electricity Act, 2003 in this scenario, presently promotion of RE power is not envisaged and not warranted.”

Our Response:

1. The Solar/Wind Power Generation by Generators as mentioned applies to Utility Scale Power Projects. Solar Rooftop is not a Utility Scale Power Project and does not come into that purview.

Utility Scale Power Projects are IPPs. The electricity generated is directly sold to DISCOM through PPA. Solar Rooftop is for Prosumers. The settlement is done through net metering or gross metering.

2. The DISCOMs filed their petitions to the Hon'ble Commission 'Seeking amendments to the Modalities/Guidelines to the existing Solar Rooftop [SRT] Policy, 2018 on 10.02.2020[APSPDCL] and 14.02.2020[APEPDCL]. On 15.02.2020, The Government of Andhra Pradesh released its GO.Ms No. 5 for 'formation of the Andhra Pradesh Green Energy Corporation Limited (APGECL) (to establish 10,000 MW of Solar Power Projects in the State) to ensure nine hours day time free power supply to the Agriculture sector on a sustainable basis'. Incidentally, CMD, APEPDCL and CMD, APSPDCL [both the petitioners] are themselves among the 9 subscribers to the memorandum [shareholders] for the incorporation of APGECL [the Company].
3. Andhra Pradesh Solar Power Corporation has also recently announced tenders for DPR for the establishment of following Solar Projects: 1. 2000MW [Pedda Dasari Pally] 2. 800MW [M Kambala Dinne] 3. 600MW [Urichintala] 4. 3300MW [Kolimigundla] 5. 2000MW [Mudigubba] 6. 1000MW [Chandrasekharapuram] and 7. 1000MW [Rudrasamundram]. Total:10,700MW
4. These Solar Power Projects of >10,000 MW are in addition to the existing RE Power of 8,500 MW mentioned by the DISCOMS.
5. If 'the smooth integration of 8500MW RE which is variable in nature, with the Grid having system demand of 9000 to 10000 MW is difficult task' for the DISCOMS, then how do they propose to integrate 19,200 MW [10700 + 8500] with the same Grid having system demand of 9000 to 10000MW?

6. And, if 19,200 MW can somehow be integrated with the Grid, then the total Solar Rooftop Power which presently at 115.4MW is much less than 1% of that capacity can easily be accommodated.
7. And if, still the injection of energy into the grid from rooftop solar is a cause of concern for the DISCOMs, then, they should actually stop gross metering and have only netmetering. Because for any given capacity, in netmetering it is only the excess remaining after self consumption that gets exported into the grid, whereas in gross metering the entire generation of the capacity gets exported!

The DISCOMs have submitted 'The DISCOMs are supplying power whenever solar power is not there in the system and is acting as a standby power to the consumers having Solar Rooftop. The DISCOMs have to pay for infrastructure cost from interface point of Generator and APTRANSCO and upto the point of consumers and have to pay fixed costs to APTRANSCO and Generating Companies and it has to meet its own distribution business fixed cost. The SRP consumer is generating power at the consumption point and supplying the excess power to the grid if available.'

Our Response:

1. The loss is only assumed; on basis of revenue not collected from the consumer opting for SRT. There are no audited figures available. But in reality the energy exported by SRT consumer is immediately consumed by similar loads nearby **at the same price and without any T&D Losses.**
2. Also, DISCOM gets RPO benefits on account of the units deemed to have been purchased from RE sources, for all units adjusted against the consumers' bills due to Net Metering. DISCOMs in turn sell such RECs
3. Reduction of every unit of sale also leads to lower power purchase to that extent, which results in corresponding savings in variable cost of power purchase.

This saving in power purchase is at consumption end, leading to increased saving in power purchase at the Generator busbar, factoring in Transmission Losses and Distribution Losses.

4. Further, due to distributed generation located at consumption end, Distribution Losses would also reduce. The excess energy exported is consumed by other consumers' within the locality (or) at feeder level for HT Consumers. DISCOM need not procure this additional energy from the other feeders.
5. Net Metering is promoted by the Central Government to reduce burden on DISCOMS on power management due to:
- 5.a **Avoided generation capacity cost (AGCC):** Rooftop solar can decrease the contracted capacity for new PPAs, and DISCOMs can reduce their fixed expenses significantly, while avoiding generation capacity cost.
- 5.b **Avoided power purchase cost (APPC):** Rooftop solar substitutes the most expensive energy procured by the DISCOM at any given time interval if the DISCOM follows a merit order despatch.
- 5.c **Avoided transmission charges (ATRC):** Higher rooftop solar capacities avoid procurement of additional transmission capacity; this accounts for as savings by avoided transmission charges.
- 5.d **Avoided distribution capacity cost (ADCC):** Rooftop solar requires a simple distribution network, relieving load on the distribution system. DISCOMs can reduce expenses on installation and maintenance of additional network components with simultaneous decongestion. The savings due to deferred capital investment resulting from the decongestion, along with reduced operations and maintenance costs, make up the avoided distribution capacity infrastructure and related.
- 5.e **Avoided working capital requirement (AWCC):** Reduced power purchases, avoided generation capacity, and revenue from the sale of energy from rooftop solar in the distribution grid reduce the DISCOM's overall expenditure. This will reflect in reduction in the working capital requirement of the DISCOMs and will lower their debt servicing obligation.

SUBMISSIONS

Our Submission No 1:

1. Utility scale mega solar power plants of thousands of MWs at a single location need extensive T&D network. In solar power procurement costs from such plants more than one third goes to T&D expenditure. Solar power is suitable for decentralized power generation. The energy required by consumers can be generated near the consumption point, obviating the need for costly T&D network.
2. Rooftop solar has an edge over other forms of power generation for its lesser transmission losses. It supports peak load requirement of the grid and helps in flattening the load curve. A distributed web of localized, net-metered solar installations will help DISCOMs run and maintain a more balanced and reliable grid for following reasons:
 - 2.a **Netmetering based rooftop solar contributes to Grid Stability** by providing active power, and also reactive power to the grid, which helps provide stable voltage.
 - 2.b **Netmetering based rooftop solar requires lower infrastructure upgrades** when coupled with some natural balancing within area of substations. DISCOMs save hundreds of Crores they spend annually to maintain their network, for any new capacity additions through centralized power generation.
 - 2.c **Netmetering is irreplaceable in the implementation of the smart grid.** The technology integration for net-metering is a part of smart-grids. In Puducherry, adoption of smart grid and net-metering, already proved, it reduces pilferage, stems AT&C losses, and helps DISCOM become profitable
 - 2.d **Netmetering based rooftop solar reduces need for large parcels of land for new power infrastructure** by using rooftops instead of acres of land for ground mounted solar projects. The average residential rooftop is around 150-200 sq.m, total realizable potential of rooftop solar in India is 57-76 GW by 2024. That equals to over 380,000 acres of land area! If net-metering is comprehensively adopted then pressure of land acquisition for solar generation by the State Government is significantly reduced.
3. **DISCOMS themselves acknowledge the benefits of rooftop solar:** In their Petition No 32/2019 Dated: 19.01.2019 to the Hon'ble Commission, **APEPDCL** had

submitted, under benefits for the DISCOM from Solar Rooftop the following: Better Energy Management, Peak Demand Sharing, Easing of Distribution & Transmission Constraints, Easing of Capacity Enhancement Costs, Avoiding Purchase of Expensive Short Term Power, Reduction Of Subsidy Burden On DISCOM.

Our Submission No 2.

Continued regulatory support for Netmetering is required to ensure that the Solar Rooftop capacity addition in the State meets the target set by the Government:

1. Other states in the country are continuing to promote Net Metering in a big way.
 - Government of Karnataka increased subsidies for Net Metering vide notification dated 15.03.2020 by 40% for domestic consumers.
 - Governments of Rajasthan and Uttar Pradesh have increased Capacity limit of Net Metering Systems to 2 MWp at single location.
 - Government of Uttar Pradesh has State Subsidy of Rs.15,000 to Rs.30,000 for domestic consumers.
 - Government of Gujarat allocates fund in budget for FY 2020-21 to promote Group Captive Solar Roof top installations in domestic sector.

Government of Goa is extending 20% State Subsidy

2. Some of our State Govt Departments, Municipal Corporations, Central Govt Departments, PSUs etc have Projects that are already planned, approved by their General Body, financial provision approved, tenders already published, work order placed, or systems being installed. Also, RE projects in Solar City and Smart City are developed as per guidelines of Central and State Government, and grid support to bank unutilized energy has been considered. Many projects have been planned on Build Own Operate and Transfer (BOOT) basis having minimum 15 years contract. Any change in Net Metering Regulations at this stage, will destroy the financial viability of all these Projects.
3. The increase in capacity of rooftop solar as projected by the DISCOMs is very marginal. But in this incremental increase in installed capacity, a few hundred

small and medium sized businesses earn their livelihood in State of AP. They in turn support a few thousand families through direct employment. And in turn support other small local businesses related to their activity. This small increment sustains the economy at the local level and has a multiplier effect. As it is, difficulties in living conditions have become more pronounced on account of COVID-19 and the overall economic crisis

Our Submission No 3.

Netmetering is vital to sustain the limited growth of solar rooftop. Removing it will irreversibly shut down any growth of solar rooftop.

1. The Parliamentary Standing Committee on Energy had recently submitted its report on Demand For Grants for MNRE. Considering the poor performance of the Solar Rooftop sector till date, and the unlikeliness of India reaching the Target 40GW SRT by 2022, at that rate; the Committee made the following observations and recommendations: *'the Committee are of the considered view that the Ministry should focus on this programme on a **Mission Mode** so as to give it a fillip. The Committee, therefore, recommends that:i) The process of subsidy disbursement should be made simpler and faster and the Ministry should widely advertise the benefits of having a Roof-top Solar Projects and the incentives provided by the Government for the same so as to spread awareness among the masses.ii)**Proper implementation of Net-Metering should be ensured.***

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Maharashtra ERC has reincluded Net Metering in its recent Regulations

4. **The Hon'ble Commission** had given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In response to the points on Non-promotion of rooftop Solar Plants by the learned objector Sri. M. Thimma Reddy, both DISCOMs have submitted that they are taking a lot of interest for promotion of solar rooftop units. And the Hon'ble Commission had expressed its view as: **'Every effort should be made to reach the targets in expansion of solar roof topplants'**

5. The salutary objectives in Section 86[1] in the draft amendments of the Electricity Act 2003 include: *'(1) The State Commission shall discharge the following functions, namely:--(c) facilitate intra-State transmission and wheeling of electricity and promote smart grid, **net metering**, ancillary support and decentralised distributed generation; and (e) promote cogeneration from renewable sources of energy and generation of electricity from renewable sources of energy'*

Our Submission No 4.

1. The narration which precludes the amendments mentioned in the GO.Ms 35 Dt 18.11.2019 is: *"Governments have observed that the statutory audit has reported an abnormal spurt in Power Purchase cost and deteriorated financial position of the A.P. DISCOMs. Taking into consideration the financial deterioration of AP DISCOMS and in order to strengthen the financial position of the Power Utilities, Government after careful examinations of the matter hereby make the following amendments to the above policies."*

The DISCOMS have also submitted: *'Considering the present scenario, the Govt of AP issued an amendment to the Solar/Wind Power Policy vide GO.Ms.No.35 Dt: 18.11.2019, wherein it was mentioned, that the applicable tariff for either net metering/gross metering shall not exceed difference of pooled variable cost and balancing cost (or) the applicable tariff at the time of COD whichever is less.'*

2. From the above it is evident that **the Govt of AP had already considered all the points made by the DISCOMS in this petition; and had chosen to amend only the applicable tariff for metering as far as the Solar Rooftop part of the policy is concerned. Leaving all other aspects pertaining to Solar Rooftop intact, including the consumer being given the right to chose either Netmetering or Grossmetering!**
3. The Hon'ble Commission had already given its Order In the matter of Approval of Load Forecasts and Resource Plans for 4th and 5th Control Period on 15.04.2019. In it the DISCOMs had factored the quantum of capacity increase of rooftop solar for the entire period already.

We, request the Hon'ble Commission in exercise of the various powers bestowed upon it vide the Electricity Act 2003, to bring about only the amendment related to

applicable tariff, made under GO.Ms 65 Dt 18.11.2019 by the Govt of AP and summarily set aside all other amendments proposed by both DISCOMs

We, also request the Hon'ble Commissions to provide us an opportunity to make submissions in person, during the public hearing.

Thanking You

Yours Obediently,

For SUNRAYS GREEN POWER SOLUTIONS
N.V.S. Teja Kumar
PROPRIETOR

VIRAT MODY SOLAR CITY

GST IN: 37BWBPB6638R1ZX

Door no 8-9-23/B, Chittaranjan Street, Sriakulam-532001
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04-06-2020

To,
The Secretary,
A.P Electricity Regulatory Commission,
4th Floor, Singareni Bhavan, Red Hills Hyderabad: 500004

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With reference to your public notice dated: 09-03-2020, inviting objections and suggestions on the subject issue, I B.J.S.Gupta from virat modi solar city, sriakulam, submitting the following points for the kind consideration of the Hon'ble Commission:

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VIRAT MODY SOLAR CITY
B.J.S.Gupta
Authorised Signatory