



ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION

4th Floor, Singareni Bhavan, Red Hills, Hyderabad 500 004

Present

Sri. Justice G. Bhavani Prasad, Chairman

Dr. P. Raghu, Member

Sri. P. Rama Mohan, Member

SATURDAY, THE EIGHTEENTH DAY OF MAY, TWO THOUSAND AND NINETEEN

In the matter of

Implementation of Utility Driven Solar Roof Top (SRT) Pilot Programme in

Eastern Power Distribution Company Limited

O.P.No.32 of 2019

Eastern Power Distribution Company of Andhra Pradesh Limited (APEPDCL)

.....Petitioner

Petition seeking approval for Utility Driven Solar Roof Top (SRT) Pilot Programme devised under the Technical Assistance titled 'Power Sector Reform Program' supported by UK's Department for International Development (DFID) came up for final hearing on 10-05-2019 in the presence of Sri P. Shiva Rao, learned standing Counsel for the petitioner and Sri Shanil, Senior Consultant, KPMG. After carefully considering the material available on record and after hearing the submissions of the learned counsel and consultant for the petitioner, the Commission passes the following:

ORDER

1. Under Utility Driven Solar Roof Top (SRT) Pilot Programme, the petitioner (herein referred to as “the licensee” or “Discom”) has submitted the following two models for approval of the Commission:

Model-1: ‘Customer owned Solar Rooftop Program’ on net metering basis with EMI partly shared by Discom on NPV neutral basis.

Model-2: “Grid Connected Roof Top Solar PV Systems on Developer Model under Gross Metering”.

2. The brief over view of Model-1 as submitted by the licensee is extracted hereunder:

Target consumers under the current scope of this program are consumers having monthly consumption of 140-200 units who fall within Category B (Annual consumption >900 & <=2,700 Units) domestic consumers.

In the proposed model, Customer would be the owner of Solar Rooftop (SRT) system and Discom acts as an aggregator of customers and facilitates access to debt and collection of repayments from consumer. Discom would empanel installation agencies/contractors for design, supply and commissioning of SRT systems with 5 year O&M. The SRT system shall be designed and supplied by Contractor in compliance with the Technical Standards prescribed by MNRE. CFA upto 30% of project cost shall be available for the project. Consumer shall fund remaining 70% of project cost in Debt to Equity ratio of 90:10. Discom would assist Consumer in availing loan from Bank. Consumer is expected to pay an amount equal to his/her present Utility bill towards his/her EMI on loan during loan tenure and rest of EMI, if any, shall be shared by Discom. In case where Discom shares part of EMI, Consumer shall continue to pay his/her share of EMI for few more years beyond loan tenure so that EMI shared by APEPDCL during loan tenure is neutralized by amount paid by Consumer on NPV basis.

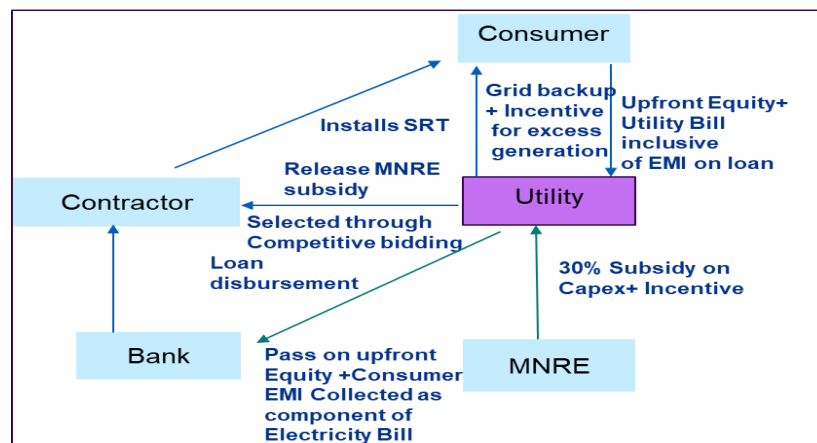
The generated solar power is primarily meant for consumer's own consumption designed on Net Metering basis and the surplus power, if any, will be fed to the grid.

Discom's role:

- 1) Conducts consumer awareness workshops
- 2) Acts as an aggregator of consumer demand
- 3) Driving the vendor selection
- 4) Assists in arranging financing for consumers
- 5) Collection of EMI from Consumer along with monthly Utility Bill and remit to Bank
- 6) Facilitates in availing applicable subsidy from Ministry of New and Renewable Energy (MNRE)

Financing of Capital costs:

- MNRE Capital Financial Assistance (CFA): 30%
- Customer share of Capex: 70% in ratio of D:E as 90:10
- Loan tenure for customers : 7 years



Schematic: Customer owned Solar Rooftop model-1

Andhra Bank has conveyed it's willingness to offer loans to consumers with following loan terms:

- Loan tenure: 7 years
- Moratorium: 6 months (from the date of release of such upfront disbursement of loan or till the time first Utility Bill is generated under net metering billing system)
- Interest rate: 9.2%

Based on the loan terms mentioned above, following is the summary of total EMI on Consumer loan under optimistic and pessimistic scenarios and share of EMI which shall be borne by Discom on NPV neutral basis (same amount shall be collected from Consumer for additional years beyond loan tenure) for Consumers of monthly consumption of 140 and 200 units;

Tender for 5MW pilot project is floated on 10th October 2018 by APEPDCL for selection of installation agencies for design, supply, installation and O&M for 5 years of Solar Rooftop Systems. Still the Project cost and CUF are not finalized, hence following scenarios are prepared for determining the minimum and maximum EMI on Consumer loan amount and share of EMI required to be borne by APEPDCL.

Under Optimistic scenario, a project cost of Rs.55,000/kW and CUF of 19% are considered for determining the EMI on Consumer loan amount. Similarly, a project cost of Rs. 60,000/kW and CUF of 16% are considered under pessimistic scenario for determining the EMI on Consumer loan amount.

Parameter	Minimum SRT system Capacity (to cater to 140 Units consumption/month)		Maximum SRT system Capacity (to cater to 200 Units consumption/Month)	
	Optimistic scenario (Project cost: Rs.55,000/kW, CUF:19%, Loan tenure: 7 years)	Pessimistic scenario (Project cost: Rs.60,000/kW, CUF:16%, Loan tenure: 7 years)	Optimistic scenario (Project cost: Rs.55,000/kW, CUF:19%, Loan tenure: 7 years)	Pessimistic scenario (Project cost: Rs.60,000/kW, CUF:16%, Loan tenure: 7 years)
Capacity of SRT System (kW)	1	1.2	1.5	1.7
Consumer Bill as per Tariff Order.(Rs/month)	404	404	620	620
EMI on loan (Rs/month)	564	734	809	1048
Discom's share of EMI per consumer per month (Rs. /consumer/month)	160	330	189	428
Discom's share of EMI per consumer per unit per month (Rs./unit/month/consumer)	1.6	3.3	1	2.14
Discom's share of EMI per consumer per year (Rs./consumer/annum)	1,920	3,960	2,268	5,136

Discom's share of EMI per year for 5MW pilot project in (Rs. Cr.) which would later be collected from Consumers on NPV Neutral basis	0.96	1.98	0.74	1.69
NPV of Discom's share of EMI shared during loan tenure for 5MW pilot project in (Rs. Cr.) which would later be collected from Consumers on NPV Neutral basis	4.74	10	3.76	8.5

Based on Consumer survey, it is observed that target Consumers are highly subsidized and hence are not willing to share any Capex in the form of upfront equity or pay an EMI higher than the Utility Bill. Hence support of APEPDCL for sharing part of EMI on Consumer loan on NPV Neutral basis is vital to make the scheme successful. Minimum and maximum EMI share of Utility shall be Rs.160 (for SRT system meeting consumption of 140 units/month) and Rs.428 (for SRT system meeting consumption of 200 units/month) respectively per consumer per month, under optimistic and pessimistic scenarios, as mentioned above. Depending upon the actual project cost discovered through tender, actual EMI may vary but within the range specified above and the same shall be considered.

Potential scalability

Total customer base size of Category B served by APEPDCL is approximately 17 lakh whose annual energy consumption was approximately 2885 MUs in FY2017. Assuming 12% of Category B customers base subscribe to the current solar rooftop scheme, SRT opportunity for the assumed metrics is 85-90 MW.

Benefits to the consumers

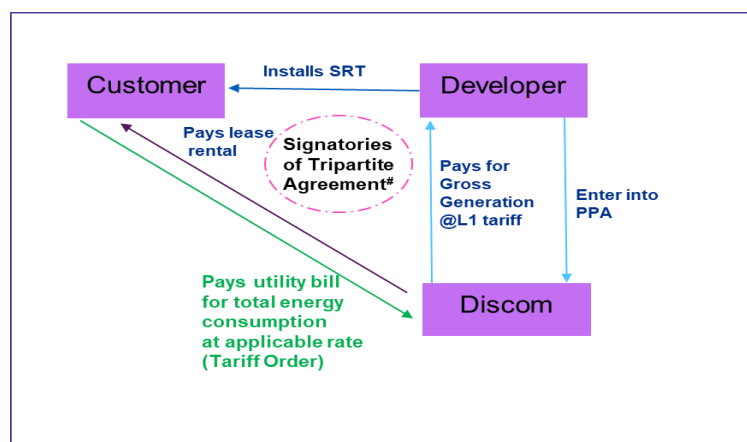
- Reduced costs of solar rooftop systems
- Reduced default risks and improved confidence to financiers, thereby enable financing
- Ensure quality and consumer confidence
- Address implementation challenges such as interconnection delays, etc

- Enable SRT adoption for consumer segments such as low end domestic consumers

Consumer shall get ownership of SRT system bearing only 10% of the Solar Roof Top cost. Once Loan tenure is over and additional years of EMI sharing is completed, Consumer shall get electricity equivalent to the Units generated from SRT system free of cost.

3. The brief over view of Model-2 as submitted by the licensee is extracted hereunder:

- Target Consumer shall be primarily domestic households or any Consumers having sufficient rooftop space.
- Utility shall aggregate rooftops of such Consumer willing to share their rooftop space for SRT installation.
- Developer to be selected through competitive bidding, shall set up Solar Rooftop (SRT) on gross metering basis on identified roof spaces so that generated power is primarily consumed locally.
- Bid parameter shall be the first year quoted tariff for supply of power. Tariff for remaining years shall be determined @3% escalation year on year.
- Utility shall pay Developer at quoted tariff (gross metering basis) and Consumers shall be incentivized for leasing their roof space in the form of lease rental (say Rs. 0.5/kWh) on gross generation.



Schematic: Gross Metering Model - 2

For an SRT system of 1 kW Capacity, levelised cost of generation for 25 years is Rs.3.19/kWh¹. The first year if escalated at 3% annually for 25 years giving the same levelised cost of generation (Rs.3.19/kWh) is estimated at Rs.2.52/kWh. The net tariff payable by Discom shall be Rs.2.52 per kWh to Developer and a lease rental (say Rs.0.5/kWh) on gross generation to Consumers as an incentive for leasing their rooftop which sums to Rs.3.02/kWh for the 1st year of supply of Power. The Marginal Power Purchase Cost of APEPDCL for FY2018-19 is Rs.3.58/kWh² and when adjusted for T&D loss³ is Rs.4.11/kWh.

4. Due to the implementation of the Solar Roof Top Programme as illustrated supra, the licensee has stated the following advantages:

Benefits to the consumers

- Reduced costs of solar rooftop systems
- Reduced default risks and improved confidence to financiers, thereby enable financing
- Ensure quality and consumer confidence
- Address implementation challenges such as interconnection delays, etc
- Enable SRT adoption for consumer segments such as low end domestic consumers

Consumer shall get ownership of SRT system bearing only 10% of the Solar Roof Top cost. Once Loan tenure is over and additional years of EMI sharing is completed, Consumer shall get electricity equivalent to the Units generated from SRT system free of cost.

¹ Project cost: Rs.55,000/Kw, CUF: 19%, CFA: 30% of Project Cost, Debt: Equity ratio of remaining 70% Project Cost: 80:20, Loan tenure: 12 years, Interest rate: 9.2%, Developer RoE: 16%

²For Kudigi Power Station (211 MW)

³ T&D loss of APEPDCL: 12.91%

Benefits to the Discom

i. Reduced subsidy burden for low end domestic category of consumers

Currently Discom is subsidizing low end domestic category of consumers. By meeting the consumption of subsidized category of consumers from Customer owned SRT systems under net metering basis, Discom can reduce the subsidy burden and also bring down the overall power purchase cost.

A typical 1 kW Solar Rooftop System at 19% CUF would supply 140 Units of energy on monthly basis. At present, Discoms incur an average annual subsidy of Rs.7,857⁴ per Consumer on levelised basis while serving a Domestic Category B Consumer having average monthly consumption of 140 units. On programmatic scale, assuming 12% of Domestic Category B Consumers whose consumption lies within 100-200 units/month install SRT system of 1 kW Capacity, subsidy savings shall be Rs.70 Cr.

In order to compute the savings under most pessimistic scenario, Consumption met from SRT shall be multiplied by the difference between Marginal Power Purchase Cost adjusted for T&D losses and Average Billing Rate which shall be the savings on Variable Cost alone. Average annual Savings under such scenario shall be Rs.1711 per Consumer on levelised basis for 25 years. On programmatic scale, assuming 12% of Domestic Category B Consumers whose consumption lies within 100-200 units/month install SRT system of 1 kW Capacity, subsidy savings shall be Rs.15 Cr.

ii. Better energy management

Peak demand sharing, easing of Distribution and Transmission constraints as well as capacity enhancement costs and avoiding purchase of expensive short-term power are other key drivers for a DISCOM entering the rooftop sector.

⁴ Difference between Cost of Service and Bill Revenue on levelised basis for 25 years using a Discount Factor of 9%.

5. The petition submitted by the licensee has been admitted by the Commission, assigned O.P.No.32 of 2019 and placed along with public notice on the website of the Commission for seeking views/objections/suggestions from all the stakeholders. It is also notified in the public notice that public hearing is scheduled on the subject petition on 27-04-2019 at 11 a.m. in the court hall of the Commission, Hyderabad for the stakeholders desired to be heard in person or to submit their views in writing to the Commission directly. The licensee is also directed to place the petition and public notice on its website and submit responses to the views/objections/suggestions received from various stakeholders on or before 27-04-2019.
6. In response to the public notice, the Commission received views/objections/suggestions from various stakeholders at its Office and during public hearing. As directed by the Commission, the licensee communicated its written replies to the views/objections/suggestions received from various stakeholders.
7. The views/objections/suggestions of various stakeholders and the licensee responses are as detailed below:

The views/objections/suggestions received from Sri Nithyanandam Yuvaraj Dinesh Babu, Team Leader, Suprabha, M/s EY and the Licensee responses on Model-1:

i. MNRE's Phase II Grid Connected Rooftop Solar Program

Under the Phase II of the Grid Connected Rooftop Solar Program, MNRE subsidy for residential sector will be revised as follows: CFA @ 40% for capacity range: 1-3 kW, CFA @ 20% for capacity range: 3 – 10 kW.

Discom's Reply: MNRE has approved CFA as per the provisions of grid connected rooftop and small solar power plants programme notified vide 03/88/2015-16 /GCRT dated 04.03.2016 & 02.09.2016 and amendments thereof in reference to online proposal submitted by APEPDCL on SPIN Portal (proposal id: 804/09/2018 /Discom dated 18-09-2018).

ii. **Project Cost & O&M Cost**

With the above revised subsidy amount for 1 – 3 kW systems, the DISCOM's share of EMI to be paid to the Bank will be reduced. This amount needs to be revised.

Discom's Reply: The CFA approved is 30% of Project cost. However, APEPDCL has sent a letter to JS, MNRE to avail 40% CFA (Rolled out under Phase II scheme of SRT) on 05th March 2019 and awaiting to hear from MNRE.

iii. **Subsidy recipient & Release of payments to developers**

It seems that the developers will quote for the project cost including for a 5 years O&M. The currently estimated economics needs to be reconfirmed as MNRE benchmark costs excludes Operation and Maintenance (O&M) costs. In other words, a confirmation on whether the DISCOM's share of EMI (@Rs.160/330/189/428) includes 5 years O&M costs is required. The capital cost assumptions @ Rs.55,000 / kW and Rs.60,000 / kW needs to be updated based on MNRE's benchmark costs which will be announced in April / May 2019 for 2019-2020.

In terms of capital subsidy, the timelines for receipt of subsidy by the Developer is key. This aspect is critical for the developers to install the systems upon receipt of the loan and equity from the Consumer as subsidy disbursement process takes more time.

The release of payment to the developers should be linked to (a) mobilization (b) successful commissioning and (c) 5 years (or more years) of O&M.

Discom's Reply: MNRE benchmark costs are inclusive of total system cost and its installation, commissioning, transportation, insurance, five-year AMC/CMC, and applicable fees and taxes. Hence Developers are required to quote for the project cost including 5 years O&M. Savings and EMI of Discom and Consumer are computed duly taking account of this factor.

As per the provisions of grid connected rooftop and small solar power plants programme notified vide 03/88/2015-16/GCRT dated 04.03.2016 & 02.09.2016 and amendments thereof, CFA shall be released in 2 phases, 1) 30% of total CFA in advance, 2) remaining 70% of total CFA upon commissioning of SRT. Upon completion of UC and SoE, MNRE shall disburse the CFA

iv. **EMI**

The deferred payment (linked to successful O&M) will incentivize developers to offer O&M services throughout the stipulated O&M period.

As the tariff for all the categories are increased annually, will the increased monthly (electricity bill) payment be used to update / modify the Consumer's EMI? This incremental payment could either be used to adjust (downwards) the EMI and retain the repayment period OR reduce the repayment period to the Bank.

Additional revenue, if any, from sale of surplus power (to be paid by DISCOM @ APPC) fed to the grid by the Consumer during the quarterly settlement period should be added to EMI so that DISCOM's share of EMI could be reduced accordingly.

MNRE's Phase II Rooftop Solar Program also offers incentives for DISCOMs (based on its annual performance) which may reduce its EMI share to be paid to the Bank. Expected revenues from this incentive scheme need to be estimated after detailed guidelines are announced by MNRE.

To further make the financing attractive, it is suggested that the repayment period may be extended to 10 years. At the same time the Bank should also offer early repayment program (without any penalty) which will enable unlocking benefits for new residential consumers. Bank may even propose a discount for early repayment.

Discom's Reply: To ensure successful O&M, dedicated Customer Service Centres, Online monitoring of redressal of consumer complaints etc. are

incorporated in the scheme. Non-compliance shall lead to levy of Liquidated Damages and result in forfeiture of PBG.

No, EMI of Consumer shall remain the same unless Bank revises its Interest rate.

Contractor shall be responsible for sizing the Solar Roof Top PV System in kW rating per consumer to meet the average of last 12 months' energy requirement on monthly basis to primarily meet his internal consumption. If any excess energy is injected into grid, Consumer shall be paid by DISCOM @ APPC during the quarterly settlement period Addressed above.

v. **Agreement**

The O&M period stipulated for the developer should be increased to match the repayment period to ensure the performance thereby enabling repayment of the Consumer EMI. It is equally important that the Consumer maintains the rooftop solar system beyond the bank's repayment period to ensure its performance thereby enabling repayment of the DISCOM's share of EMI.

The moratorium period of 6 months from date of loan disbursement or first utility bill generation with EMI whichever is later should be considered. In other words, minimum of 6 months in any case should be provided. It is suggested that moratorium may also be increased to 9 months (as one-time option) given the various timelines followed by Bank, Developers and Utility to achieve the overall implementation tasks

Discom's Reply: APEPDCL had reached out to multiple Financial Institutions to avail preferential lending for retail consumers (i.e., lower interest rate and loan tenure >10 years). However, Financial Institutions perceive risks involved in lending to retail consumers with preferential terms. The maximum loan tenure which could be obtained is 7.5 years from Andhra Bank.

MNRE benchmark costs are inclusive of total system cost and its installation, commissioning, transportation, insurance, five-year AMC/CMC, and applicable fees and taxes. Standard Bid Documents

issued by MNRE also mandate only 5 years free O&M. Hence Developers are required to quote for the project cost including 5 years O&M. Any increase in CMC period shall result in Bidder to quote higher project cost. The loan product approved by Andhra Bank provides Moratorium for a period of 6 months from the date of release of loan disbursal.

vi. **Payment Security**

In the event of default by the Consumer, does the DISCOM has the right to disconnect the power supply to the Consumer? If yes, a suitable clause to this effect should be included in the agreement.

The final copy of the agreement should be available in the public domain for adoption by other Banks and DISCOMs and States.

The payment security mechanism in the event of default by the Consumer needs to be addressed as it may increase DISCOM's financial burden. The absence of secondary market for rooftop solar system (PV modules) will lead to negligible salvage value in the event of confiscation of assets due to irreversible default by the Consumer.

Discom's Reply: Yes. This clause is captured in the Consumer Consent Form which shall form part of Agreement.

All bid documents are uploaded on the E-Procurement portal against Tender ID:227172.

Consumer shall undertake in the Consent form that in case of any delay and default from his/her end in paying the monthly EMI, Banker can seize his/her Solar Roof Top PV System and abide by the Revenue Recovery Rules of the Banker including giving rights to Andhra Bank to claim the amount.

vii. **Facilitating Developers**

Developers should be made aware of the construction type of residences falling under the pilot program including safety aspects of the assets. Suitable insurance schemes may be considered for theft and damages to the systems. Further, developers should be made responsible for providing quality civil structures during installations.

Discom's Reply: Consumer shall undertake in the Consent form that in case of any delay and default from his/her end in paying the monthly EMI, Banker can seize his/her Solar Roof Top PV System and abide by the Revenue Recovery Rules of the Banker including giving rights to Andhra Bank to claim the amount.

The operation & maintenance of Solar Roof Top PV System would include, but not limited to wear, tear, overhauling, machine breakdown, insurance, and replacement of defective modules, invertors / Power Conditioning Unit (PCU), spares, consumables & other parts for a period of 5 years from the Date of Commercial Operation of the entire Allocated Capacity. The insurance shall also cover the damage of panels and the material installed in the premises which shall also include theft of the material for a period of 5 years from the date of commissioning of the entire Allocated Capacity.

viii. **Media & Outreach Assumptions**

As this pilot program also addresses to reduce developers' market/client acquisition cost (approximately @ 2% of the capital cost), online assessment of consented / onboarded Consumers rooftops is recommended to be carried out. Securing online consent from customers and carrying out an online assessment of such residential rooftops will greatly contribute to a successful demand aggregation program. It will also reduce the overall program implementation time

Discom's Reply: Discom has already carried out feasibility assessment and estimated rooftop potential as 12 MW in identified locations. Discom shall also undertake workshops and widespread marketing initiatives to spread awareness of the scheme to public which would result in demand aggregation. LoA issued to Successful Bidder shall provide identified list of Customers who have paid upfront capital contribution.

ix. **Participation by other Banks**

This scheme should also be made available to other Banks if they are willing to provide loans on terms similar to Andhra Bank. The pilot capacity of 5 MW could be then distributed to two or three banks under this pilot.

This will bring more participation by other Banks and make faster the implementation time.

Targeted media and outreach campaign will determine the success of this program. Adequate planning and deployment of skilled resources are key for a successful campaign.

The detailed financial calculations for all the scenarios considered may be provided to ensure transparency

Discom's Reply: Depending upon the success of the pilot scheme, Discom shall consider on boarding multiple Banks to scale up the SRT scheme.

Discom shall also undertake workshops and widespread marketing initiatives to spread awareness of the scheme to public which would result in demand aggregation.

The views/objections/suggestions received from Sri Nithyanandam Yuvaraj Dinesh Babu, Team Leader, Suprabha, M/s EY and the Licensee responses on Model-2:

i. **Eligible Consumers**

The petition states that the eligible consumers shall be primarily domestic consumers or any consumers having sufficient rooftop space. As MNRE subsidy is available only for residential consumers w.e.f. 1st April 2019, consumers others than residential sector will not be eligible for subsidies.

Discom's Reply: Eligible Consumers shall be primarily domestic consumers or any consumers having sufficient rooftop space, however CFA shall be only limited to residential sector.

ii. **Tariff Determination**

The tariff determination as mentioned in the petition (@ Rs.3.02 /kWh) should be revised based on the new subsidy norms w.e.f. 1st April 2019. The tariff @ Rs.2.52 /kWh needs to be revised after applying the subsidy (20% or 40% based on MNRE's Phase II of Rooftop Solar Program w.e.f. 1st April 2019).

As the Consumer (rooftop owner) has no benefits from low cost of power and as all the power generated is purchased by the DISCOM, whether the power is consumed locally or not is not relevant to this model.

Determining levelized tariff (with subsidy) first and then applying 3% annual escalation is not recommended.

It is suggested that the tariff determination with subsidy is determined for the first year and 3% annual escalation be provided. If the first-year tariff is considered as the ceiling price, reverse bidding may be organized to achieve a competitive tariff for categories with or without subsidy.

Discom's Reply: Tariff determination shall be revised if MNRE approves the scheme under new subsidy norm rolled out under phase II of SRT scheme. Possibility of carrying out reverse bidding shall be looked into.

iii. **Revenues – Consumer & Developer**

The revenue to the rooftop owner (consumer) seems low for Domestic Category. Whether rooftop owner considers this revenue (without annual escalation it doesn't address inflation) attractive enough to go through the hassles of executing long term (25 years) agreement is to be seen. Developers may find it attractive if a reasonable allocation of capacity in each specified / target region is made by the DISCOM. Large scale players may not be interested in such low revenue / turnover projects from a portfolio of widely dispersed assets considering the logistics involved in the O&M related activities for 25 years

Discom's Reply: Possibility of linking escalation to lease rental shall be explored.

iv. **Facilitating Developers**

The revenue to the rooftop owner (consumer) should be remitted to the legitimate owner of the house which needs to be determined in each case to avoid any legal issues.

As suggested under Model-1, demand aggregation through online assessment of consented / on boarded Consumers is suggested to facilitate

developers to bring down their cost of acquisitions and reduce implementation timeline.

Discom's Reply: Discom has already carried out feasibility assessment and estimated rooftop potential as 12 MW in identified locations. Discom shall also undertake workshops and widespread marketing initiatives to spread awareness of the scheme to public which would result in demand aggregation. LoA issued to Successful Bidder shall provide identified list of Customers who have paid upfront capital contribution.

v. **Agreement**

As mentioned for the Model 1, the agreement(s) need to be water tight with all risk mitigating options including roof ownership, rooftop access, transfer of roof (property) ownership related issues, exit terms.

Discom's Reply: Already addressed in the Tripartite EPC Agreement.

The views/objections/suggestions received from Sri Krishna & Kumari Lavanya, Viskhapatnam and the Licensee responses:

i. **Sri Krishna, Visakhapatnam**

Sincerely appreciate the efforts of APEPDCL and APERC in devising a program like this where consumers can avail solar rooftop systems through EMI scheme at no incremental cost to their existing Utility bill. However, request similar scheme to be rolled out for all Cat B and C domestic consumers with no restriction of monthly consumption as 140 to 200 units/month.

Discom's Reply: Primary objective of technical assistance provided by DFID is to devise a viable business model that is scalable and can be implemented at a programmatic scale in order to achieve higher penetration of SRT aligning GoI target for rooftop sector. The domestic consumers of Cat-B with monthly consumption upto 200 per month are subsidized by APEPDCL (Average billing rate is less than Average Cost of Service). Hence the business model has been developed targeting domestic sector so that it would result in reducing subsidy burden on APEDCL. In addition, it will also help consumer to meet energy consumption from SRT after repayment of loan at free of cost.

ii. **Lavanya, Visakhapatnam**

From the petition filed, it is understood that the scheme is envisaged for only 2 locations, i.e., Madhavadhara and Muralinagar. The Commission is requested to consider extending the scheme to remaining areas of Visakhapatnam also as consumers can avail solar rooftop based clean energy at prevailing cost of grid power

Discom's Reply: The Utility driven SRT scheme rolled out by APEPDCL is only on pilot basis. APEPDCL has already conducted feasibility study in these 2 locations and assessed the potential of SRT to be at 12 MW (monthly consumption of domestic consumers varying 140-200 units). Based on the success of the pilot project, the scheme shall be extended across the locations of APEPDCL subject to the approval of Hon'ble APERC.

Reasoned conclusions:

8. The Commission has examined all the views/suggestions/objections received from all the stakeholders and replies furnished by the licensee in this regard and arrived at following conclusions:

- The replies furnished by the licensee to the views/suggestions/objections received from various stakeholders appear to be rational and satisfactory. However, when the licensee undertakes full scale implementation of the project, of course depending on the success or otherwise of the pilot project, the feasibility of adopting any of the suggestions of the three objectors as they are or as considered suitable with any modifications / changes may be appropriately considered to be incorporated in the scheme of the project. The Commission will take an appropriate view on all these aspects when the final project will come up for its consent/approval in the light of the experiences learnt from the execution of the pilot project.
- The programme is only pilot project and first of its kind in the country as stated by the licensee to encourage solar roof top installation by domestic consumers.
- The targeted consumers are low income subsidised consumers whose consumption is in between 100 to 200 units of electricity per month. In

general, such consumers cannot afford required investment for solar roof top installations though having sufficient roof top space. Financial institutions also may not come forward to provide loans to such section of consumers. Hence, the initiative taken by the licensee to provide helping hand to such consumers by playing facilitator role needs to be encouraged as the programme is stated to benefit both consumers and the licensee.

- As per Section 86(4) of the Electricity Act, 2003, the State Commission shall be guided by the National Electricity Policy, National Electricity Plan and Tariff Policy published under Section 3 of the Act. In accordance with National Tariff Policy Clause 6.4(7), appropriate Commission may provide regulatory frame work to facilitate generation and sale of electricity from renewable energy sources particularly from roof top solar system by any entity including local authority, panchayat institution, user institution, co-operative society, non-governmental organization, franchisee or by Renewable Energy Service Company. Accordingly, in exercise of powers conferred under section 61, 66, 86(1)(e) and 181 of the Electricity Act, 2003 and all other powers enabling it in this behalf, the Commission made the Regulation No.1 of 2017 [APERC Renewable Power Purchase obligation (Compliance by purchase of Renewable Energy / Renewable Energy Certificates) Regulations, 2017]. Clause 3.1 of the said Regulation provides that the quantum of electricity generated by the consumer from the roof top solar PV system under the net metering arrangements shall, if such consumer is not an obligated entity, qualify towards meeting solar RPPO of the distribution licensee. Therefore, if such purchase exceeds RPPO obligation, the same is eligible for obtaining REC certificates.
- In view of the above, and also as there is no net financial burden on the licensee at end, the Commission is pleased to accord approval for the pilot project as proposed in this petition. However, the licensee is directed to submit the copy of tripartite agreement and consumer

consent form for approval of the Commission and shall also submit the full status report with results after completion of the pilot project.

9. This original petition is ordered accordingly.

This Order is signed on the 18th day of May, 2019.

Sd/-
P. Rama Mohan
Member

Sd/-
Dr. P. Raghu
Member

Sd/-
Justice G. Bhavani Prasad
Chairman