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# Submission on Draft Guidelines and Model PPA for Implementation of Off-Grid Solar Power Plant in RESCO Model Under MNRE Programme

This is with reference to Public Notice F. No. 32/6/2020-SPV Division dated 18th May 2020 issued Ministry of New & Renewable Energy, Govt. of India for inviting comments on “Draft Guidelines and model PPA for Implementation of Off-Grid Solar Power Plants in RESCO model under MNRE Programme.”

Centre for Energy, Environment & People appreciates the efforts of MNRE to promote distributed solar for off-grid applications on RESCO model. The efforts are likely to promote growth of distributed solar and address energy gaps for key public facilities in the last mile. However, we envisage many possible issues with current proposed models, and we have sought to discuss them in this submission. Wherever possible, alternatives have been suggested to the best of our knowledge and ability for consideration of MNRE.

### Service Contract vs Daily Minimum Guaranteed Power (DMGP)

1. Daily Minimum Guaranteed Power (DMGP) is an inappropriate parameter for basis of contracts for Solar Power Packs. While power consumption from Solar Pack depends on power availability in storage units, it is also dependent on demand for power. Given that power consumption patterns vary significantly based on seasonality and between working and non-working days, RESCO is bound to lose significant revenue even when the system is fully functional. Hence, it is strongly recommended that DMGP should not be the basis of a contract.
2. An alternative approach could be based on a monthly fixed rental model with penalties for failure to meet DMGP. For such contracts, RESCO should be given independence for designing system in terms of capacity of solar, battery and inverters. Contract shall be based on commitment to ensure supply for a minimum number of hours for identified electrical equipment and the corresponding quantum of electrical units. Standards of Performance such as system up-time of 98% of working days etc. may be prescribed for the system. Further, RESCO may be allowed to disconnect the system to prevent over-use and system abuse.

### Energy Efficiency for Solar Power Packs

3. The monetary benefits of investment in energy efficiency measures outweigh the costs significantly and therefore while designing solar power packs, energy efficiency measures shall be mandatory for all project where deployment of solar power packs is planned.
4. The benchmark specifications for LED Lights and BLDC fans should be provided by MNRE in these guidelines. In case such benchmarks have been or will be issued or notified through separate guideline / notification, the reference for same should be included in the guidelines for ‘Implementation off-grid solar power plants in RESCO model’. Following template may be used in case they have not been issued

For Led Lights:

Luminary Type	Minimum Lumens per watt	Year on Degradation in Lumens	Minimum Power Factor
LED Bulb			
LED Tube lights			
LED Panel			
LED Street Light			

**For BLDC Fans:**

Blade size	RPM	Maximum Power Consumption
LED Bulb		
LED Tube lights		

- Other equipment such as water pumps, computers, monitors etc should also be included in the scope of the guidelines, and procurement of 5-Star rated equipment shall be mandated. Procurement of such equipment may be included in the scope based on prudence check of combined cost of solar power pack and efficient equipment.
- Maintenance, repair and replacement of LED lights, BLDC Fans and water pumps should also be included in the scope of the RESCO. The bidder shall account for these costs in tariff bid.
- Energy Efficiency benchmarks shall also be prescribed for System components. Following format may be adopted.

Equipment	Efficiency Benchmark
Inverter / Charge Controller MPPT charging efficiency	
Charge Controller	
Inverter DC / AC conversion - Nominal load conditions - Low load conditions - Overload Conditions	
Energy Storage roundtrip efficiency - Lithium Batteries - Lead Acid Batteries - Flow Batteries	

- It shall also be mentioned that new suitable technologies may be considered with appropriate benchmarks to be notified from time to time. MNRE or other authorised/competent agencies may be consulted for the same.

- Existing cables, internal wiring, switches, and protection gear are often in deplorable condition and of inferior quality in rural public facilities. This may result in safety issues, technical faults, and electrical losses. Hence, such works may also be included in the scope of RESCO. Prudence check for same may be done during site assessment and feasibility analysis.

### Estimation of Generation

- Rather than providing a standard generation estimate figure of 2.5kW per kWp of solar capacity, MNRE should provide an estimated average generation per kWp estimate for every state. Following format may be adopted for the same. A minimum solar power pack combined efficiency of 55% may be considered for this purpose.

State / Union Territory	Average Solar Irradiation per day	Estimated average generations per kWp per day

- Further, it may be notified in the regulations that actual generation shall depend on the site conditions such as direction of roof, shade, etc. Estimation of generation should be conducted by Nodal agency during feasibility analysis and provision shall be made for revision of such estimates by the winning bidder before beginning execution of project. MNRE may issue an appropriate framework for same.
- Framework should be provided for determining solar generation for hybrid systems since such systems may also be charged using grid electricity. Suitable metering provision should also be made for same. Following formula is suggested:

$$\text{Net unit supplied by Solar Power Pack} = \text{Metered units} - 0.8 \times (\text{Units consumed from Grid for charging storage})$$

### System Sizing

- In the RESCO model, system sizing may be done after taking into account monthly variation in energy generation and energy consumption patterns. This shall ensure optimisation of system capacity and round the year delivery of services.

### Monitoring

- It is recommended that MNRE develops a pan-India platform to monitor performance of off-grid solar projects. The platform can become a unified portal for monitoring, automating payments to developers and filing of grievances. The data available on the portal shall be made public to ensure transparency in use of public of funds.

15. Cost for developing, operating, and maintaining the portal may be borne by MNRE, whereas costs for communication infrastructure and connectivity shall be borne by the project developer.
16. In case of network connectivity issues, project developer shall be mandated to provide data storage for 3 months at least, and the data shall be provided to Nodal agency and/or MNRE on quarterly basis.

### **Structure Subsidy**

17. Tariff subsidy instead of capital subsidy should be provided. This shall eliminate the need for bank guarantees, while at the same time it will ensure that the return on investment for RESCO is linked to performance of asset commissioned by it.
18. Further, tariff subsidy shall ensure consistent cash flows for the RESCO, allowing it to raise suitable financing.
19. For budgetary allocation and utilisation purpose, an appropriate capital subsidy amount may be secured by putting it in a fixed deposit with a National Bank, to be released on a monthly basis to the RESCO. Accrual of interest on fixed deposit shall offset interest cost accrued by the RESCO.

### **Payment Guarantee**

20. While provisions have been made for ensuring delivery of services by the RESCO through bank guarantees, no such provisions have been made to ensure timely payments to RESCO for services rendered as per contract or MoU.

### **Grievance Redressal And Dispute Resolution**

21. In case of any conflict or dispute, there is no intermediary institution to facilitate quick resolution of disputes. RESCO models, especially for off-grid solar power packs are likely to have disputes between public facility and RESCO or RESCO and SNA. To mitigate such business risks, MNRE may consider formulation of online dispute resolution and grievance redressal forums or designate appropriate existing local institutions, duly trained, to address such disputes in a time bound manner.

### **Responsibilities Of Implementation Agency**

22. It is recommended that MNRE provides a comprehensive format for site assessment to ensure standardisation and quality of due diligence before inviting bids for project execution.
23. You are kindly requested to accept this submission on record and consider our suggestion while drafting a conducive guideline for promoting distributed solar through the RESCO model.