

**JOINT ELECTRICITY REGULATORY COMMISSION**  
**(FOR THE STATE OF GOA AND UNION TERRITORIES)**  
**GURUGRAM**

**CORAM: Ms Jyoti Prasad, Member (Law)**

**Petition No. 58/2021**

**Date of Hearing: 23.06.2022**

**Date of Order:24.01.2023**

**In the matter of:**

Petition for approval of business model framework for installation of Grid Connected Rooftop (GCRT) Power Projects for domestic consumers by third party under Renewable Energy Services Company (RESCO) Built Operate Transfer (BOT) business model as per the provisions of Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Solar PV Grid Interactive System based on Net Metering) Regulations, 2019, Para 5(iii).

**And in the matter of:**

Chandigarh Renewable Energy  
Science & Technology Promotion Society (CREST),  
1st Floor, Paryavaran Bhawan,  
Sector-19, Chandigarh

**Petitioner**

.....

**And in the matter of**

Electricity Department,  
UT Chandigarh

**....Respondent**

**Present**

**For the Petitioner**

1. Sh. Debendra Dalai, CEO, CREST
2. Mr. Sukhwinder Abrol, Project Director, CREST
3. Dr. Abdul Qayum, ACEO CREST
4. Yuvraj Dinesh Babu, Consultant

**For the Respondent**

Sh. Anil Dhamija, Superintending Engineer, Electricity "OP" Circle

**ORDER**

1. The Petitioner - Chandigarh Renewable Energy Science and Technology Promotion Society (CREST) has filed the Present Petition - for seeking approval of an innovative scheme for Domestic Consumer of 5kWp to 10kWp based on RESCO with Built Operate and Transfer (BOT) model

(hereinafter referred to as 'RESCO with BOT Model') under, the Joint Electricity Regulatory Commission - for the State of Goa and UTs (Solar PV Grid Interactive System based on Net Metering) Regulations, 2019 (hereinafter referred to as '**Net Metering Regulations 2019**')

**2.** The Petitioner has submitted its submissions as under:

- i. That the Petitioner Chandigarh Renewable Energy Science & Technology Promotion Society (CREST) is a Society registered under Societies Registration Act, 1860.
- ii. That the CREST has been designated as an executing agency for Renewable Energy Projects of Science & Technology, U.T., Chandigarh.
- iii. That the Ministry of New and Renewable Energy (MNRE), Government of India, issued Guidelines vide letter No. 318/331/2017-Grid Connected Rooftop dated 20<sup>th</sup> August, 2019 for the implementation of Phase - II Grid Connected Rooftop Solar Programme. That - as per the para 2 of the guidelines (the MNRE bearing number 318/331/2017 - Grid Connected Rooftop, dated 20.08.2017), it has been decided to implement the MNRE Phase-II programme by making the Distribution Companies (DISOMs) and its Local Offices, as the nodal point for implementation of the Grid Connected Solar Rooftop (GCRT) Project as per the MNRE Phase-II Programme. The Petitioner also submits that the DISCOMs will play a key role in accelerating GCRT Projects under the MNRE Phase-II Programme as they have direct contact with the Consumers, provide approval for installations, manage the distribution network and provide billing to the rooftop owner/Consumer.
- iv. That the aims and objectives of Phase-II GCRT Programme (i.e. MNRE Phase-II Programme) are as under:
  - a. To promote GCRT in all consumer segments, viz, residential, institutional, social, Govt., commercial, industrial etc.
  - b. To bring DISCOMs at forefront as key drivers for rapid deployment of GCRT.

- c. To create awareness, capacity building, human resource development, etc.
  - d. To promote sustainable business models.
  - e. To create additional GCRT capacity of 38000MW in the country by 31.12.2022 out of which a capacity of 4000 MW is targeted for residential sector with Central Financial Assistance and 34000 MW in other sectors (i.e. Social, Government, educational, PSUs, Statutory/Autonomous bodies, Private Commercial, Industrial Sectors etc.) by suitably incentivizing DISCOMs.
  - f. To promote domestic manufacturing of solar cells and modules.
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- v. That CREST has so far installed 44.815 MW GCRT Projects in Chandigarh. That the CREST has tendered 3MW under the CAPEX model for residential sector out of the 15MW sanctioned capacity by MRNE under its Phase II Programme. MNRE has also given additional target of 70MWp for Residential Sector, UT, Chandigarh for FY 2021-22.
  - vi. That in order to promote the GCRT implementation in the domestic sector the Chandigarh Government has mandated installation of GCRT power plant in residential houses measuring 500 square yards and above as part of building by laws.
  - vii. That A third party (RESCO) will invest and install the GCRT system on Consumer's premises and sell the power to CED under Gross metering, where-
    - a. The upfront installation and commissioning costs for the GCRT system will be borne by the RESCO, without any investment liability for the rooftop owner/Consumer.
    - b. The standard warranty of system functioning will be provided by the RESCO till the BOT period.
  - viii. That the CED (Respondent) will procure the Solar Power from the RESCO at a fixed Tariff of "APPC cost of current/previous financial year whichever is published latest by JERC minus Facilitation charge (0.07

Rs./kWh)” for a fixed period of time, without any escalation, known as BOT period (in days.)

- a. The RESCO will be a signatory to a quadripartite agreement with CED, beneficiary and CREST for sale of gross solar power generated from the GCRT system at a fixed tariff of APPC cost minus Facilitation Charges (0.07 Rs./kWh).
  - b. The RESCO will be receiving the payment from CED based on the gross solar power supplied to CED on a monthly basis time at a fixed tariff of APPC cost minus Facilitation Charges (0.07 Rs./kWh).
- ix. That the solar power from this GCRT system will be supplied by CED to the Consumer through Virtual Net Metering at the Average Power Purchase Cost (APPC) approved by JERC for the current/previous financial year whichever is published latest by JERC.
  - x. That the Facilitation Charges @ INR 0.07/kWh charged by CED will be accounted towards “other income” and is charged for the services provided by CED to the Consumer and RESCO as regards implementing low-cost solar power from GCRT systems and demand aggregation respectively.
  - xi. That under this model, the power generated by the GCRT system installed by the RESCO at the consumer premises, will be first supplied to and consumed by the consumer. The excess GCRT power, after consumer’s consumption will be fed to the grid and accounted under the prevailing Net Metering Regulations, 2019. After the BOT period, the billing and accounting will be as per prevailing Net Metering Regulations, 2019.
  - xii. That the RESCOs will be empanelled by CREST through competitive bidding process as per the MNRE Phase II Guidelines and in compliance with the Standard Bidding Documentations and Guidelines of CREST.
  - xiii. That the bidding parameter for this competitive bidding process will be the BOT period in number of days instead of the tariff in INR/kWh.

The model will be applicable for capacities from 5kW to 10kW for the domestic.

- xiv. That after Completion of the BOT period, the GCRT system will be transferred by the RESCO to the Consumer free of cost.
- xv. That after completion the BOT period and transfer of ownership of GCRT system to the consumer, the prevailing terms and conditions of Net Metering defined in Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Solar PV Grid Interactive System based on Net Metering) Regulations, 2019 will apply.
- xvi. That the life of the GCRT system is 25 years. The Operation & Maintenance (O&M) costs of the GCRT system will be borne by the RESCO Company till the end of the BOT period. The O&M costs after the end of this BOT period and till the remaining life of the GCRT will be borne by the Consumer.
- xvii. That the rooftop owner/Consumer will execute an agreement with the RESCO for providing access to the roof, water and other defined roles and responsibilities assigned for both the parties during the BOT period.
- xviii. That CREST will be overall tendering/implementation authority, quality control and project performance monitoring agency throughout the BOT period and will also be a party signing the quadripartite agreement with defined roles and responsibilities of each stakeholder.
- xix. That the rooftop owner/Consumer, CED, RESCO and CREST will collectively sign a quadripartite agreement, before commencing the project.
- xx. That the Rationale of Business Model is as under:
  - a. Rationale for a fixed tariff of APPC minus Facilitation Charges (0.07 Rs./kWh) for CED procuring GCRT power from RESCO.

- i. That the JERC has determined the Levelized Tariff for Solar PV Systems in the “Generic Tariff Order for Renewable Energy Sources for FY 2021-22” as INR 4.96/kWh. After incorporating the capital subsidy component as defined in MNRE Phase-II Guidelines for projects sizes between 5 to 10 Kw and based on the assumptions considered, the JERC determined Levelized Tariff, for 5 to 10 Kw capacities have been computed as below:

<b>System size (Kw)</b>	5	6	7	8	9	10
Project Cost	250	300	350	400	450	500
Total Subsidy (INR) (MNRE Phase II Guidelines) (B) (in 000s)	65.599	73.799	81.999	90.199	98.399	106.599
Final Subsidy as % of Project Cost	26.23%	24.59%	23.42%	22.54%	21.86%	21.31%
Effective Project Cost (A-B) IINR (in 000s)	184.401	226.201	268.801	309.80	351.601	393.401
Levelized Tariff Order 25 years after subsidy adjustment (INR/kWh)	3.945	4.017	4.065	4.106	4.136	4.159

Table 1 : Levelized tariff for 25 years considering JERC assumption and after subsidy adjustment.

- ii. That as specified in Table 1 above, the levelized tariffs for capacities from 5 to 10 kW after considering JERC assumptions are higher than the fixed tariff being paid to the RESCO of APPC minus Facilitation Charges (i.e. INR 3.41/kWh for FY 21-22) proposed under the RESCO BOT business model.
- iii. That the tariff proposed to be charged by CED to the Consumer (APPC for current/previous Financial Year whichever is published latest by JERC) also complies with MNRE Phase-II guidelines, which mandates the benefit of CFA to be passed on to the Consumer in the form of reduced tariff

by factoring CFA through competitive bidding process. As defined in Table 1, the levelized tariff with subsidy and based on JERC assumptions for solar tariff, is higher than fixed tariff of INR 3.48/kWh (APPC FY 21-22) (equivalent of 40% subsidy) proposed to be charged by CED to Consumers, thereby complying with the MNRE Phase II guidelines.

- iv. That the CED after careful evaluation of the case outflow as regards procurement of power from RESCO GCRT has decided to adopt APPC Tariff of current/previous FY whichever is published latest by JERC minus Facilitation Charges of INR 0.07 per unit as the power purchase price from the RESCO. This will enable the CED in ensuring least procurement cost of power from such GCRT projects which will result in reducing overall financial burden.
  - v. That the Consumer will only benefit from paying a tariff for GCRT power if it is lower than the retail tariff and JERC determined retail tariff for FY 21-22 (highest Consumer tariff slab for LT/HT domestic Consumer and tariff slab for LT/HT domestic Consumers is INR 4.65/kWh and INR 4.30/kWh respectively).
- b. Rational for BOT period as bidding parameter
- i. That- Under the proposed RESCO BOT Business Model, it is proposed to have the Built, Operate and Transfer period as the bidding parameter instead of the tariff for procurement of power by CED from the RESCO. Here the tariff is already fixed at APPC minus Facilitation Charges (0.07 Rs/kWh).
  - ii. That the rationale for using BOT period (in days) as the bidding parameter is provided below:
    - a. The tenure of the agreement executed for GCRT projects under RESCO model is generally 25 years. However, in the case of small GCRT systems of capacity upto 10kWp

in the residential sector, 25 years is considered as longer period.

- b. As RESCOs are currently limited and new to the residential sector, they will be looking for an early exit from the GCRT projects due to various risks associated in engaging with the residential Consumers.
  - i. The RESCO BOT model enables transfer of ownership of GCRT projects to the Consumer for a period (less than 25 years) discovered in the competitive bidding process to be organized by CREST.
  - ii. The RESCO BOT model also provides flexibility for transfer of ownership before completion of BOT period. Here, the Consumer pays for the depreciated value of the asset and owns the asset for the remaining life of the GCRT systems.
- c. Benefit to Stakeholders
  - i. That the Consumer will receive benefits from utilizing their roofs for setting up GCRT systems by paying a lower tariff for GCRT power consumed than the retail tariff.
  - ii. That under the proposed business model, the RESCOs will be able to avail the benefits of aggregated demand facilitated by CREST and economies of scale due to allocation of implementation of higher capacity in the domestic sector (i.e. in batches of 500kWp for 5 - 10 kW GCRT systems).
  - iii. That in addition, RESCO's payment towards sale of solar power is assured by execution of the gross metering with CED (as part of quadripartite agreement). The highest risk in RESCO model for domestic sector is thus mitigated to a larger extent with CED procuring and paying for the solar power from RESCOs.



- iv. That the RESCOs will be engaged with the Consumer for a lesser number of years as compared to 25 years which is prevalent in a typical RESCO GCRT model.
  
- xxi. That the Respondent i.e. CED has provided its consent for approval of the RESCO BOT model to CREST vide Letter No. G1/2020/3042 dated 04.06.2020 by Chief Engg.-cum-Special Secy. (Engg.) UT, Chandigarh and has also provided approval for considering tariff of APPC rate applicable in the financial year as approved by JERC through Tariff order, vide their letter no. G/2021/5735 dated 10.08.2021
  
- xxii. That upon securing approval from JERC, CREST (on behalf of CED) will issue Request for Proposals (RFP) from various RESCOs who are capable of and interested in installing the GCRT Power Plants based on RESCO BOT Model for domestic Consumers.
  
- xxiii. That the RFP will fix the Tariff at APPC of Current/previous financial year whichever is published latest by JERC minus Facilitation Charges (0.07 Rs./kWh) for power generated through GCRT Power Plants by the RESCO without any escalation during the BOT period. The RFP will comprise of “BOT period” (No. of days) as the bidding parameter to be quoted by the RESCO which will serve as the selection criteria for RESCO’s empanelment process. The payment to the RESCO shall be made by CED. Consequently, CED will charge the rooftop owner/Consumer for the solar power consumed from GCRT power plant at Average Power Purchase Cost for the current/previous year whichever is published latest by JERC.
  
- xxiv. That the Facilitation Charge is charged by CED for implementing the model and providing the associated services. The earnings received will be accounted as “Other Income” for CED as defined in Clause 6.1 Net Metering Regulations 2019.
  
- xxv. That the roles and responsibilities of all the agencies involved in implementing this RESCO BOT Model are provided in the table below:

S.No	CREST	Empanelled	CED (DISCOM)	Rooftop Owner
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.		RESCO Company		Consumer
1.	GCRT Project Development	Submission of competitive quote in response to the RFP	Approach MNRE (GOI) with Targets & Sanction of subsidy	To apply online with the CREST under RESCO with BOT model.
2.	Floating of RFP/tender for selection of RESCO, tender evaluation and empanelment of RESCO companies	Site Survey/Assessment of demand of residential sector in Chandigarh	To provide all the guidelines necessary for interconnection.	
3.	Allocation of targets to empanelled RESCO Companies	Acceptance of all the terms & conditions for empanelment Opening of Office/Service Center in the city	To initiate time bound procedures in consultation with CREST & empanelled RESCO for timely completion of Project.	To allow the empanelled RESCO company to install the GCRT Power Plant and give access to the roof, water and up to BOT period for installation, commissioning and O&M of the project by RESCO and extend all cooperation to the RESCO. To sign the Quadripartite agreement with CED RESCO & CREST.
4.	Identification of rooftop owners in clusters.	Arrangement of funds for smooth & timely execution of Projects	To work in mission mode as per JERC net metering Regulations 2019.	To pay the bill to CED for consumption of solar power.
5.	Allocation of beneficiaries in cluster to empanelled RESCO company.	Provide good O&M facilities to their Projects.	To approach MNRE for release of subsidy as per achievements and as per the MNRE terms.	To ensure the safe custody of the system and allow empanelled RESCO to access it from time to time

				whenever required.
6.	Execution of Quadripartite Agreement Ensuring Quality Control & Monitoring of Project.  Mediating Events of Defaults and Termination Payment as per RESCO Consumer Agreement.	Executing Quadripartite Agreement Receive payment from CED for supply of solar power from GCRT project as per contract.  Perform on line Monitoring and share data with CREST & CED	Recovery of Solar Energy supply bill from rooftop owner & pay to RESCO Company.  Release of Subsidy to the empanelled RESCO company based on the approval provided by CREST.	Execution of interconnection on agreement with CED.
7.	Co-ordination with all the stake holders and act as Nodal Point.	To ensure project performance to CREST as per RFP.	Settlement of accounts with MNRE (GOI) after completion of the Project.	
8.	Approve and intimate CED release of subsidy to the empanelled RESCO company after checking of all compliance	Comply with all the terms and conditions for receipt of subsidy.	To install the tested smart meters provided by RESCO Company	Undertaking operation and maintenance of plant after BOT period.
9.	Providing status of the Project from time to time to CED for further action.	Submit overall Project's progress report to CREST.	Review the overall progress on sectioning net metering connection, providing interconnection, site inspection and grid synchronization of Projects.	
10.		Transfer all right of ownership of GCRT system to beneficiary after BOT period.		Accept transfer of asset after BOT period of RESCO Company.
11.		Provide a purchase option to the Consumer and		

		transfer of ownership before BOT period.		
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**3. That approve the following for the RFP:**

- i. BOT period in number of days will be the bidding parameter.
- ii. The empanelled RESCO will supply solar power from GCRT system to CED/DISCOM through solar generation meter which will be installed near to the Bi-directional meter in the separate box as per JERC Net Metering Regulations, July, 2019 (Model Net Metering Connection Agreement Point 8.4 under Para 8) and will submit the bill/invoice for the units generated and supplied to CED/DISCOM @ APPC (current/previous financial year whichever is published latest by JERC) minus Facilitation Charges as a fixed tariff without escalation during this BOT Period. The Facilitation Charges will be INR 0.07/kWh.
- iii. CED/DISCOM will charge the rooftop owner/Consumer a tariff at APPC price of current/previous financial year whichever is published latest by JERC, for the consumption of solar power generated from GCRT system installed by the RESCO on Consumer’s rooftop.
- iv. Under this model, the entire power generated by the GCRT system installed by the RESCO at the consumer premises, will be first supplied to and consumed by the consumer. The excess GCRT power, after consumer’s consumption will be exported to the grid and accounted as per Net Metering Regulations 2019. After the BOT period, the billing and accounting will be as per prevailing Net Metering Regulations 2019.
- v. The Facilitation Charges will be accounted under” other income” for CED as per Clause 6.1Net Metering Regulations.
- vi. That the system installed under this model will be eligible for Central Financial Assistance (subsidy) and implemented under MNRE Phase-II Program. The detailed set of specifications will be included in the RFP/ Tender for this BOT Model to ensure quality and ensure life of the solar panels/equipment installed. Additionally, CREST will inspect the

Equipment/Materials at the manufacturer's premises before dispatch of the material at its own cost for quality assurance.

- vii. That the advantage for the Consumers under the RESCO with BOT Model is that the AMC will be taken care by trained O&M staff of RESCOs, who can access the roof using the portable ladder with safety equipment.
- viii. That as mentioned in the Quadripartite Agreement (QPA), change of ownership in the model is invoked as an extension to Event of Default (EoD).
- ix. That the EoD will be invoked for a fixed period of time (Default Conciliation Period) of 3 Months, where CREST will oversee the default proceedings and may choose to invite respective parties to discuss and identify steps to mitigate consequences of consumer/ SPG EoD, considering all the circumstances of respective parties.
- x. On continuation of EoD after DCP, the termination clause will be invoked as per QPA.

The Consumer will be required to purchase the asset at an amount equal to termination payment.

Termination payment =

Net Asset Value

Net Asset Value =

Normative Project Cost x

(1- (100% BOT (year) x No of remaining years of BOT period)

Normative Project Cost =

Benchmark Capex for 2021-22 notified by MNRE + Lower of (Schedule of Rates (SOR) cost, Actual cost) for any additional work done.

Net Asset Value shall be calculated for each year during BOT period after considering asset depreciation and certified by Auditor.

- xi. Termination after BOT: QPA will cease to exist, and the project will operate as per the prevalent Net Metering Regulations for the remaining useful life of the asset. As there are no payment liabilities as

- is the case of other GCRT project as per the prevalent Net Metering Regulations. Alternatively, the consumer may choose to sell the asset with the property at an additional cost (after factoring depreciation of asset over 25 years). The new owner can apply for change in ownership of GCRT project by applying to CED separately.
- xii. EoD of consumer due to change in ownership (after DCP) will be followed by termination payment paid by the consumer for the residual asset value of the project. Once terminated, the asset is transferred to the consumer, the QPA will be cancelled, and project will operate as per prevalent Net Metering Regulations. There will be no payment obligation of CED after QPA is cancelled. The consumer may choose to sell the asset with the property at an additional cost (after factoring depreciation of asset over 25 years). The new owner can apply for change in ownership of GCRT project by applying to CED separately.
  - xiii. That - disconnection during BOT period will first invoke Event of Default (EoD) due to consumer clause for a fixed period of time of 3 months (Default Conciliation Period), which will be overseen by CREST.
  - xiv. After the passage of Default Conciliation Period, Termination Clause due to consumer will be invoked, under which, the consumer will be required to pay termination payment. Alternatively, the consumer can choose to buy back the asset after intimating CREST/RESCO by paying termination payment.
  - xv. After Termination, the asset will be transferred to the consumer and QPA will be cancelled. The project will operate under the prevalent Net Metering Regulations.
    - a. That - if the consumer does not honor payment of electricity bill, it will be treated as an Event of Default (EoD).
    - b. The occurrence of such event (EoD) for a consecutive period of 3 months shall invoke termination payment due to consumer.
    - c. All EoD will be overseen by CREST. CREST may choose to invite respective parties, discuss and identify steps that shall be taken with a view to mitigate the consequences of the SPG/Consumer

Event of Default, in consideration of all the circumstances of the respective parties.

- d. Termination during BOT Consumer will be required to purchase the asset at an amount equal to termination payment

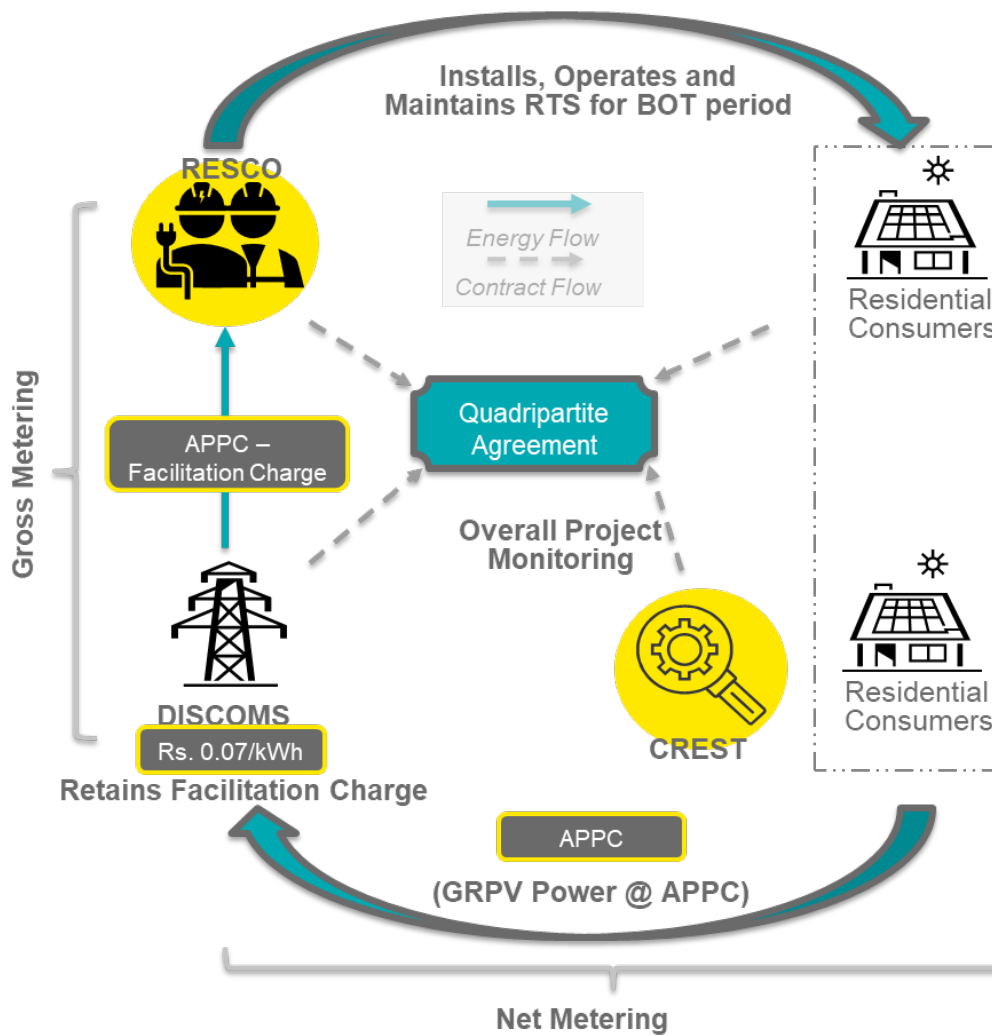
Termination payment = Net Asset Value

Net Asset Value = Normative Project Cost X (1 - (100% BOT (year) x No of remaining years of BOT period)

Normative Project Cost = Benchmark Capex for FY notified by MNRE + Lower of (Schedule of Rates (SOR) cost, Actual cost) for any additional work done.

Net Asset Value shall be calculated for each year during BOT period after considering asset depreciation and certified by Auditor

- e. After Termination the asset will be transferred to the consumer and QPA will be cancelled. The Project will operate under the prevalent Net Metering Regulations.
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- xvi. That The RESCO BOT Model framework is a hybrid of Gross Meter connection (between CED and RESCO) and Net Meter Connection (between CED- Consumer). The energy and contract flow have been illustrated in the figure below.



xvii. That The definition of virtual Net Metering in this context refers to the “Hybrid of Gross and Net Metering” illustrated above. As highlighted in the petition, the model is a win-win for all stakeholders. CED procures renewable energy at the lowest procurement rate from consumer (@ APPC for FY) and gets to retain facilitation Charges of 7 paise per unit. The RESCO is secured of this payment from CED through gross metering. The consumer is assured of generation from RESCO for a period lessor than 25 years, under the purview of both CED and CREST.

4. The Respondent, CED has submitted its submissions in brief as under: -

- i. That the - provision w.r.t. change of ownership needs to be defined in the proposed business model, regarding recovery of the cost of generated units of solar from the electricity bill of consumer.



- ii. That - in case the consumer does not pays the dues of electricity bill along with cost of generated units consumed, added in the Electricity bill, the provision for the same is to be mentioned in the proposed business model.
- iii. That - No provision is mentioned regarding calibration of Bi-directional Meter installed for recording generated units from Solar Plant. Further two meter readings are required to be taken: Solar Plant Meter Reading, Department's Bidirectional Exported unit reading to calculate the Solar Units consumed by the consumer is not defined in the proposed business model.
- iv. That - In case of property dispute, how to recover the cost of generated units is not defined in the proposed business model.
- v. That - the modification required in the billing software to show the generated units of the GCRT plant needs to be defined in the proposed Business Model.
- vi. That - as per clause 7 of the Petition it is mentioned that RESCO will be receiving payment from EWEDC on the Gross Solar Power supplied to EWEDC on monthly basis time, however, it is not clear whether the Discom can directly pay to the RESCO Companies.
- vii. That - it is mentioned in the petition that RESCO will invest and install GCRT system on Consumer premises & sell power to EWEDC under Gross Metering, also it is mentioned that Solar Power to this GCRT will be supplied by EWEDC to consumer through virtual Net Metering, which is contradictory.
- viii. That - it is mentioned in the petition that after the end of the BOT period the O&M cost till remaining life of GCRT will be borne by consumer.

5. The Commission has considered the submissions advanced by the Petitioner and the Respondent. The Commission has also examined the entire records placed before it along with specific relevant provisions of the Electricity Act, 2003, Rules and Regulations made their under:

Para 5(iii) of the Joint Electricity Regulatory Commission (Solar PV Grid Interactive System based on Net Metering) Regulations, 2019 provides as under;

*“5(iii)The Distribution Licensee / Nodal Agency may explore other business models that may facilitate the proliferation of Grid connected Rooftop solar projects. For any new business model not envisaged in these Regulations, the Commission will approve the framework for such business model based on the specific Petition to be filed in this regard.”*

6. The Commission has noted that the petitioner has correctly sought approval of the said new business model under Para 5(iii) of the above mentioned JERC Net Metering Regulations 2019. The Commission has further noted that the said new business model provides that the third party i.e. RESCO will install the GCRT system on a Consumer’s Residential premises and sell the Power to the Respondent, Chandigarh Electricity Department under Gross Metering. The installation and Commissioning cost for the GCRT system would be borne by RESCO without any investment by the rooftop owner/Consumer. The standard warranty of system functioning properly would be provided by the RESCO till the BOT period. The Respondent will procure the Solar Power from the RESCO at a fixed tariff of average pooled power cost of current/previous financial year whichever is published latest by JERC minus Facilitation Charges (0.07 Rs./kWh for a fixed period of time, without any escalation during the BOT period (in days).
7. RESCO will also be a party to a quadripartite agreement with Respondent, beneficiary (consumer) and CREST for sale of gross solar power generated by the RESCO. The RESCO will receive the payment from Respondent based on the gross solar power supplied to Respondent on a monthly basis

time at the fixed tariff of APPC cost minus Facilitation Charges (0.07 Rs./kWh).

- 8.** The Solar Power from this GCRT system will be supplied to the consumers through gross solar meter at the average power purchase cost duly approved by the Commission for the current/previous financial year. The facilitation charges charged by Respondent will be accounted towards other income and is charged for the services provided by Respondent to the Consumers and RESCO regarding implementing low cost solar power from GCRT systems and demand aggregation respectively. Under this new model the power generated by the GCRT system installed by the RESCO and the consumer premises will be first supplied and consumed by the Consumer. The excess GCRT power will be fed into the grid and accounted under the prevailing JERC Net Metering Regulations, 2019. After the BOT period the billing and accounting will be as per prevailing Net Metering Regulations 2019. The RESCOs will be empanelled by the CREST through competitive bidding process as per the MNRE Phase II Guidelines and in compliance with the Standard Bidding Documentations and guidelines of CREST and subsidy as applicable under Phase II scheme of MNRE will be given to the RESCO according to MNRE Phase II guidelines.
- 9.** The bidding parameter for this competitive bidding process will be the BOT period in number of days instead of tariff in Rs./kWh. The said new model will be applicable for capacities of the project from 5kW to 10kW for the domestic sector. After completion of the BOT period the GCRT system will be transferred by the RESCO to the Consumer free of cost. After completion of BOT period and transfer of ownership of GCRT system to the Consumer the prevailing terms and conditions of JERC Net Metering Regulations, 2019 will apply.
- 10.** The life of the GCRT system in total is 25 years. The operation and maintenance (O&M) cost of the said system will be borne by the RESCO company till the end of the BOT period. The O&M cost after the end of this BOT period and till the remaining life of the GCRT system will be borne by the Consumer. The rooftop owner /consumer, the Respondent, RESCO and CREST will collectively sign a quadripartite agreement before commencing

any project. The Commission has further noted that Chandigarh Electricity Department has agreed to all the terms and conditions of the new model and quadripartite agreement. The Commission has further noted with respect to banking in clause 6.8 of the quadripartite agreement that the net export system can be adjusted in subsequent bill cycles as per JERC Net Metering Regulations, 2019. However, in the event of net export at the end of annual billing cycle all excess credit units will be nullified from the banking adjustment without any remuneration payable by the licensee for the financial year to the Consumer.

- 11.** The Commission further noted the salient features of the quadripartite agreement which are as under:

**I. "Clause 5: Metering Mechanism (Hybrid Metering)"**

5.1 *To measure the solar energy fed in to the Grid by the SPG, a Gross Energy (Solar Meter) with the Standards and specifications as provided in the Applicable Rules and Regulations shall be installed by the SPG.*

5.2 *For existing service connections, the Gross Energy Meter shall be installed close to the existing Service Connection Meter i.e. Bi-Directional Meter in same meter boxes.*

5.3 *The Distribution Licensee shall arrange to test and seal the Gross Energy Meter for which the SPG shall bear the testing charges.*

5.4 *The metering arrangement, meter testing, checking and calibration shall be in accordance with the Applicable Rules and Regulations.*

**Net Energy Metering**

5.5 *SPG shall also procure and install a Net Meter as per the provision of the Net Metering Regulations and the technical standards and norms specified by the Central Electricity Authority for connectivity of distributed generation resources and for the installation and operation of meters, for the benefit of accounting for the consumer.*

**II. Clause 6 :Energy Metering Accounting and Settlement during BOT period.**

6.1 The SPG shall bear all costs pertaining to installation, testing, calibration, maintenance, renewal and repair of meters up to the SPG's side of Delivery Point of the Solar Power until the BOT period.

6.2 At the end of each Energy feed in payment cycle, the Distribution Licensee and the SPG will jointly take readings of energy exported under Gross Metering arrangements (Solar Meter). The SPG make an Invoice for the Solar Energy exported under Gross Metering arrangement for payments to be made by the licensee. The mode of payment shall be a cheque or bank transfer(..... banking details) as mutually agreed between the SPG and Distribution Licensee.

6.3 The Gross Energy Export by the SPG to the Distribution Licensee shall be accounted and paid for as under;

6.3.1 The Solar Energy Tariff agreed upon between the Distribution Licensee and the SPG under this agreement shall be as under;

6.3.1.1 Reference to order of the Commission : :XXXXX

a.	Price per Kilowatt-hour	APPC Cost of Current/Previous Financial Year whichever is Latest Notified by Hon'ble JERC at the time of Tendering.
b.	Capital Subsidy Claimed	Yes
c.	Validity <BOT Period>	

6.3.2 The Distribution Licensee will make payment to the SPG for each Energy Feed-In Payment Cycle within the stipulated time of 15 (fifteen) days from the date of the receipt of invoice from the SPG, by direct transfer to the back account of the SPG or by issue of a cheque.

6.4 Energy Accounting in case of meter(s) becomes defective.

6.4.1 The Solar Power fed to the grid for the days' meter(s) are defective, shall be computed in different conditions as under:

Sl.No.	Condition of Meters	Period of operation of Gross Metering Facility	Energy Accounting.
i.	Defective		Reading of Solar Inverter will be

			used after verification of the data from Remote Monitoring System.
ii.	Defective	More than 12 months	Active energy export reading for corresponding period of the previous year will be taken.
		Less Than 12 months	The exported Energy for each day shall be computed as follows: $GCRT\ PPC \times 3.42\ kWh$ where "GCRT PPC" is the GCRT Power Plant Capacity in kWp.

6.4.2 Energy accounting in case of defective meter as above, shall be for a maximum period of 60 days (sixty days). If the SPG does not repair or replace the Gross Energy meter within this period of 60 (sixty) days, the Distribution Licensee shall be entitled to stop the payments for the Exported Energy till the Gross Energy meter has been repaired or replaced.

6.4.3 The payment released by the licensee in respect of the exported energy based on the invoice received from the SPG shall be considered as conclusive provided that the Licensee does not dispute the invoiced amount within 15 days of receipt of invoice and make payment within 15 days of the receipt of the invoice.

6.4.4 In the event of any dispute raised by the Licensee in regard to the invoice presented by SPG, the licensee within fifteen (15) days of the receipt of the invoice shall payment to the SPG an amount equivalent to 75% of the disputed amount along with a dispute notice furnishing the following

- i. reasons for its disagreement to the disputed invoiced amount.
- ii. Its estimate of what the correct amount should be.

- 6.4.5. *The SPG can raise an objection to the dispute notice within 15 days of the receipt of its end, of the dispute notice from the licensee and furnishing reasons for its objections.*
- 6.4.6 *If subsequently, the Licensee agrees to the claim raised by SPG, the short payment shall be made by the licensee along with interest at the rate at which the late payment surcharge is leviable from the date such payment becomes due.*
- 6.4.7. *Upon receipt of the objections raised by the SPG on the invoice dispute notice by the Licensee, the authorised representative(s) of both the Parties shall meet and make best endeavours to amicably resolve such dispute within fifteen (15) days of receipt of the Objections Notice raised by the SPG in regard to above.*
- 6.4.8 *All the disputes between the parties arising out of or in connection with this agreement shall be resolved through mutual negotiation. In case of failure to resolve the dispute, either of the parties may approach the CREST and in case the matter remains unsolved that the parties can approach the Commission.*
- 6.4.9 *A rebate of 2(two) % shall be allowed if the payment for energy exported is made within 5(five) working days of the invoices.*
- 6.4.10 *Late Payment Surcharge in case the payment is delayed by the licensee beyond a period specified above a late payment surcharge of 1.25% of the invoice amount per month shall be levied.*

II. Between Eligible Consumer and Distribution Licensee

- 6.5 *The consumer agrees to purchase the entire Power from the GCRT Project on the terms and conditions contained in this Agreement.*
- 6.6 *The consumer agrees to pay to Distribution Licensee for the quantum of electricity units exported from GCRT project (solar units consumed) a tariff of \_\_\_\_\_ per units till the end of the BOT period (APPC Cost of Current/Previous Financial Year whichever is Latest Notified by Hon'ble JERC at the time of Tendering).*

- 6.7 *If the exported energy exceeds the imported energy, the Licensee shall show the net energy exported as credited Units of electricity and account the same as per JERC Net Metering Regulations 2019.*
- 6.8 *The net export units can be adjusted in subsequent bill cycles as per JERC Net Metering Regulations, 2019. However, in the event of net export at the end of annual billing cycle all excess credited units will be nullified from banking adjustment without any remuneration, payable by licensee for the financial year to the consumer.*
- 6.9 *If the exported energy is less than the imported energy, the Eligible Consumer shall pay the Distribution Licensee for the net energy imported at the prevailing tariff approved by the Commission for the Consumer category to which he belongs along with cost of solar energy units as defined in clause 6.6.*
- 6.10 *Commercial settlement between consumer and Distribution Licensee after the BOT period till end of 25 years (from the date of commissioning of the GCRT Project) will be as per provisions of Net Metering Connection agreement as per JERC Net Metering Regulations, 2019.*

**III Clause 7 Energy Metering Accounting and Settlement after BOT period**

- 7.1 *The Energy Accounting and Settlement after BOT will only be between Consumer and Distribution Licensee as per Clause 6.10.*

**IV. Clause 10 Provisions of Termination after BOT**

- 10.1 *This agreement shall automatically terminate after specified (BOT Period) (days) from the Commissioning Date. In such an event, the Licensee shall automatically transfer the consumer application to Net Metering Arrangement under the provisions of the Joint Electricity Regulatory Commission (Solar PV Grid) Interactive System based on Net Metering) Regulations 2019 for continued connectivity to the Licensee's Distribution at no cost to the consumer, for the remaining useful years of the GCRT project upto 25 years.*



- 10.2 The Net Metering Agreement may be terminated between Consumer and Distribution Licensee prematurely.
- a. By mutual consent; or
  - b. By the Eligible consumer, by giving 30 days' notice to the Licensee.
  - c. By the Licensee, by giving 30 days' notice, if the Eligible consumer breaches any terms of this Net Metering Agreement or the provisions of the Net Metering Regulations and does not remedy such breach within 30 days, or such other reasonable period as may be provided, of receiving notice of such breach, or for any other valid reason communicated by the Licensee in writing.

**V Clause 11 : Access and Disconnection**

- 11.1 The Eligible Consumer shall provide access to the Licensee and SPG to the metering equipment and disconnecting devices of GCRT Project, both automatic and manual, by the Eligible Consumer.
- 11.2 If, in an emergent or outage situation, the Licensee cannot access the disconnecting devices of the GCRT Project, both automatic and manual, it may disconnect power supply to the premises.
- 11.3 Upon termination of Net Metering Agreement under Clause 9, the Eligible Consumer shall disconnect the GCRT Project forthwith from the Network of the Licensee.
- 11.4 The Eligible Consumer shall also provide Access to the roof for O&M and upkeep of the system during the BOT Period. Not providing access to the roof will lead to event of default at the end of consumer which may lead to termination of the agreement and clauses applicable as per Clause No. 21.2 of this agreement.

**VI Clause 12 : Liabilities**

- 12.1 The Parties shall indemnify each other or damages or adverse effects of either Party's negligence or misconduct during the installation of the GCRT Project, connectivity with the distribution network and operation of the system.

12.2 *The Parties shall not be liable to each other for any loss of profits or revenues, business interruption losses, loss of contract or goodwill, or for indirect, consequential incidental or special damages including, but not limited to, punitive or exemplary damages, whether any of these liabilities, losses or damages arise in contract, or otherwise.*

**VII Clause 19 :Roles and Responsibilities of SPG**

19.1 *The SPG will procure the necessary insurances and pay the insurance premium on a timely basis for GCRT PV System for the entire period of BOT.*

19.2 *The SPG company will supply a minimum of 1250 units of electricity per kWp per annum to the Consumer with an annual degradation factor of 1% per annum. In case of generation less than 1250 units of electricity per kWp per annum, a penalty per unit will be paid by the SPG to the Consumer. The penalty will be the difference between the tariff agreed in this Agreement (between SPG and Distribution Licensee) and the highest tariff slab of the Distribution Licensee for the residential sector.*

**Illustration**

*If in the first year RESCO generates lesser than 1100 units per, then SPG will pay a penalty amount equal to (Highest Consumer Slab Tariff -APPC) X (1250 -11) (APPC Cost of Current/Previous Financial Year whichever is Latest Notified by JERC at the time of Tendering).*

19.3 *The Consumer will give access to SPG to enter its Premises for survey, installation and commissioning and O&M of the Power Plant till the date of transfer of GCRT System to the Consumer.*

19.4 *Water for cleaning of solar panels will be provided to SPG by the consumer.*

19.5 *The terms of the Agreement shall continue for \_\_\_\_\_ Days from the Commercial Operation Date of \_\_\_\_\_. The terms will be equivalent to the BOT period. After the term, the SPG will transfer the*

*ownership of all the assets of the GCRT Project to the Consumer with all applicable equipment warranties without any transfer price and free of cost. SPG will be responsible and ensure all the legal formalities for transfer of ownership of GCRT Project to Consumer. SPG may offer and Consumer may avail the services of the SPG after the BOT period by executing a Annual Maintenance Contract between them.*

*19.6 The system will be legally owned by the SPG and will be operated and maintained and, as necessary, repaired by the SPG at its sole cost and expense during the BOT period. Replacement of spare parts if any shall be the responsibility of SPG during the BOT period. If any repair or maintenance costs are incurred by the SPG as a result of Consumer's breach of its obligations, such costs shall be reimbursed in full by the Consumer.*

*19.7 The metering system shall be as per the requirements and guidelines of the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Solar PV Grid Interactive System based on Net Metering) Regulations, 2019, with latest amendments.*

*19.8 The SPG can make changes to the roof only for the purpose of installing the solar panels, their maintenance and efficient working after taking prior approval of the Consumer in writing. Any expenses towards making any such changes as regards strengthening of the roof or additional preparation of the roof for installation of GCRT system will be borne by the SPG.*

**VIII Clause 21: Termination of agreement due to Consumer & SPG**

*Termination due to Mutual Consent*

*The Agreement between the parties will be limited to the BOT period of \_\_\_\_ days from the date of COD, unless and until mutually terminated earlier pursuant to the provisions of this agreement.*

*Upon such mutual termination and in the event the SPG transfers ownership to consumer, the SPG can offer' its operations and*

*maintenance (“O&M”) services to the Consumer and the Parties may enter into an O&M agreement in this regard. The terms and conditions of the O&M agreement will be negotiated in good faith between the Parties*

*Termination due to Events of Default*

*The Agreement between the parties will be limited to the BOT period of \_\_\_\_ days from the date of COD, unless and until terminated earlier pursuant to the Events of Default provisions of this agreement.*

*Following the completion of DCP as defined in section 8 or such longer period as the parties may agree. CREST may invite all parties to discuss and identify steps that shall be taken with a view to mitigate the consequences of the SPG/Consumer Event of Default, having regard to all the circumstances.*

*However, after the expiry of the consultation period if both the parties are unable to reach to an amicable solution, the SPG/Consumer will provide termination payments to the other party as under.*

**21.1 Payment to consumer during SPG event of termination**

*In the event of termination of agreement between consumer and SPG due to reasons identified as a result of Events of Default due to SPG including as defined in Section 20.1, then the SPG shall pay a termination amount to the consumer, as follows:*

- i. Termination payment = Net Assets Value X 50% (After COD)  
Net Asset Value = Normative Project Cost X (1 - (100%/BOT years) X No. of Remaining Years of BOT Period)  
Normative Project Cost = Benchmark Capex for 2021-22 notified by MNRE + Lower of (Schedule of Rates (SOR) cost, Actual cost) for any additional work done.  
Net Asset Value shall be calculated for each year during BOT period after considering asset depreciation and certified by Auditor.*

*However, there will be no termination payment paid by SPG in the event of termination before COD.*

- ii. The SPG shall promptly execute all documents necessary to
  - a. Cause title to the GCRT project to pass to Consumer on the Purchase Date free and clear of all liens and*
  - b. Assign all vendor warranties for the GCRT project to Consumer.**

*UPON execution of the documents and payment of termination payment, this agreement shall terminate automatically, and the Consumer shall become the owner of the Power Plant. Subsequently, the consumer will receive all benefits of the solar power generated as per Net Metering Arrangement in accordance with provisions of Net Metering Connection agreement as per JERC Net Metering Regulations, 2019.*

**21.2 Payment to SPG during Consumer event of termination/Purchase Option.**

*In the event of termination of agreement between consumer and SPG due to reason identified as a result of Events of Default due to consumer OR consumer expresses intent to exercise the purchase option in writing to the SPG and CREST, then*

- i. Consumer shall pay the SPG an amount equal to,  
Termination payment = Net Asset Value  
Net Asset Value = Normative Project Cost X (1 - (100%/BOT years)  
X No. of Remaining Years of BOT Period)  
Normative Project Cost = Benchmark Capex for 2021-22 notified by MNRE + Lower of (Schedule of Rates (SOR) cost, Actual cost) for any additional work done.  
Net Asset Value shall be calculated for each year during BOT period after considering asset depreciation and certified by Auditor.*
- ii. The consumer shall promptly execute all documents necessary to ensure completion of purchase/termination payment.*

- iii. In the event of purchase by the consumer and after compliance of 20.2 (ii) the SPG shall promptly execute all documents necessary to*
- a. Cause title to the Power Plant to pass to Consumer on the Purchase Date, free and clear of all liens and*
- b. Assign all vendor warranties for the Power Plant to Consumer.*
- iv. In the event of termination by the consumer and after compliance of 20.2 (ii) the SPG shall return the Rooftop premises in the original condition existing before the start of this Project. This has to be undertaken at SPG's cost without any liability to Consumer.*

- 12.** In response to the specific queries raised by the Commission during hearing dated 23.06.2022 the petitioner has made a request that initially the said new business model may be treated as a pilot project for a period of 3 years. The Commission has accepted the said request of the petitioner.
- 13.** The Commission is of the view that the new business Model and the Terms and Conditions of the quadripartite agreement are legally sustainable. The terms and conditions of the quadripartite agreement are balanced and not tilted in favour of any of the four parties. In view of the above, the Commission intends to accord its approval to the new business model and the quadripartite agreement subject to the conditions that in case of any modification in the said new business model or with respect to execution of quadripartite agreement, the Petitioner will approach the Commission for approval of any deviation in the terms and conditions of the new business model /quadripartite agreement. The Commission hereby accords it approval to the new business model and the quadripartite agreement.
- 14.** The Commission further directs the petitioner to submit detailed status report after completion of period of 3 years of the said pilot project.
- 15.** Ordered accordingly.

**Sd/-  
(Jyoti Prasad)  
Member (Law)**

**Certified Copy**

**(Rakesh Kumar)  
Secretary, JERC**