Jan 2021

Submitted to Rajasthan Electricity Regulatory Commission

Suggestions on Draft RERC (Grid Interactive Distributed Renewable Energy Generating Systems Regulation, 2020)

CENTRE FOR ENERGY, ENVIRONMENT & PEOPLE

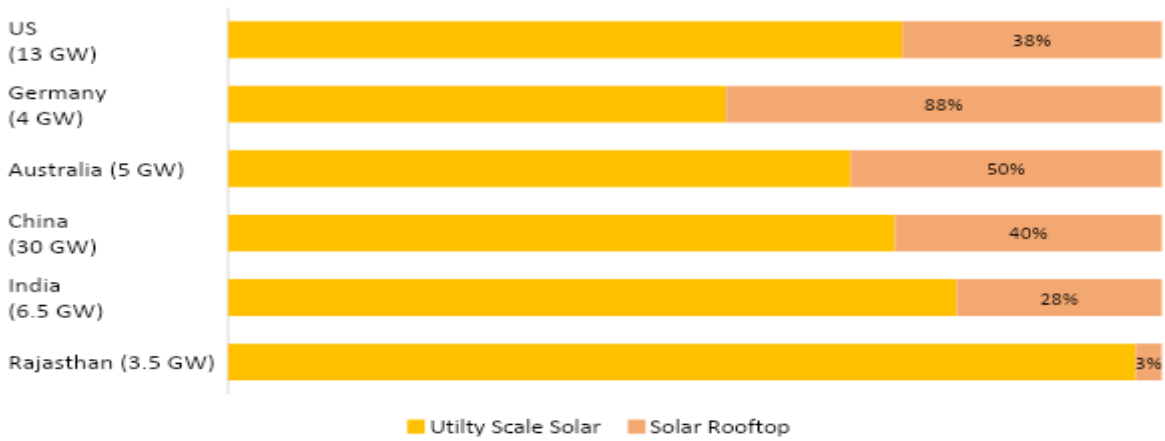
Rajasthan Electricity Regulatory Commission (RERC) has invited comments, objections, and suggestions on "Draft Rajasthan Electricity Regulatory Commission (Grid Interactive Distributed Renewable Energy Generating Systems) Regulations, 2020" via Public Notice No. RERC/Secy/Dir. (Tech -1)/F 519/D. The present submission is in response to the Public Notice as per regulations published on the commission's website. We request the Commission to accept this submission on record.

GENERAL COMMENTS

Why support distributed RE?

The share of solar PV rooftop in Rajasthan stood at 2.86% only vs 28.12% for all of India in 2019. In comparison, many countries like Australia, China, Germany, and USA have achieved a much higher share of solar PV through the rooftop segment (refer Figure 1). In terms of cumulative installed capacity of solar PV rooftop segment, Rajasthan is still a front runner, and this momentum should be sustained for various reasons, some of which are discussed below.

Figure 1: Solar PV Rooftop Share for the year 2019



1. While utility scale solar enjoys economies of scale, resulting in very low LCOE, the segment also enjoys significant direct and indirect subsidies for evacuation and wheeling of power. Capacity utilisation factor of evacuation and transmission infrastructure is in the range of 20-21%, whereas such costs are not linked with rooftop solar altogether.

Current market regime for tariff determination does not take into account all costs and benefits of different solar PV segments, and hence appropriate support and incentive should be extended to distributed solar segments for short-, medium- and long-term benefit.

2. Electricity distribution is a natural monopoly, and technologies such as rooftop solar and energy storage are creating a certain degree of competition for distribution companies. Such competition shall benefit consumers and push distribution companies to enhance their quality of services and efficiencies.
3. Growth of distributed solar and other renewable energy generation systems is also likely to seed the market for energy storage and other new energy technologies. This shall facilitate a more rapid clean energy transition for Rajasthan.

Recognition Of Prosumers

In line with "Electricity (Rights of Consumers) Rules 2020 notified by the Ministry of Power, it is suggested that these regulations explicitly provide recognition to consumers having grid interactive distributed RE generating systems as 'Prosumers'. Further, it is also suggested that the Commission also define rights and responsibilities of prosumers, in addition to rights and responsibilities held by the virtue of being an electricity consumer.

Framework for determination of feed-in-tariff

Given the poor financial health of Discoms and sharp decline in costs for solar rooftop systems, the need for rationalising incentives to prosumers and making feed-in-tariffs cost reflective has strong merit. At the same time, it is also critical that the policy shift does not throttle the distributed solar market. Since the market framework for price discovery does not exist in this context, it is essential that the feed-in-tariff for distributed RE generation systems (DREGS) take into account all possible costs and benefits, following which a conscious decision may be made to provide additional incentives to support the segment.

In 2019, CEEW prepared a broad framework for determination of financial benefit of distributed solar rooftop systems to the distribution company: **'Valuing Grid-connected Rooftop Solar[1]'**.

The framework takes into account benefits such as avoided generation capacity cost, power purchase costs, transmission charges, distribution capacity costs, renewable energy certificate costs and working capacity. Further, the framework analyses revenue loss for different consumer categories to determine the net benefit / cost to the distribution utility.

[1] https://www.ceew.in/sites/default/files/Valuing-report.pdf

It is suggested that in line with recommendation of 'Forum of Regulators (FOR)', RERC incorporates a 'Distributed Energy Resources' Advisory cell to develop such frameworks for Rajasthan and work on related matters.

Baseline / Reference For Determination Of Feed-In-Tariffs

In the draft regulations, the Commission has suggested that feed-in-tariff under net billing arrangement shall be the weighted average of the tariff discovered for solar PV utility systems above 5MW and adopted by the Commission in the previous years. Further, 25% additional incentive is provided for DREGS.

The Commission shall note that above 5MW range is extremely open ended, wherein the project size range is often typically in the range of few hundred megawatts. The economic and business model of such projects have practically zero correlation with solar rooftop projects. Hence, it is suggested that in line with framework adopted by Maharashtra Electricity Regulatory Commission (MERC) in MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, the feed-in-tariff for DREGS should be linked to Average Power Procurement Cost of the distribution utilities. Further, incentives or costs may be applied after taking into account tariff regime, cross subsidies, benefits/costs to distribution companies and capacity of the system. The latter shall ensure that the feed-in-tariff is equitable for systems of all sizes.

Socialisation Of Costs

The current tariff regime in Rajasthan is not reflective of fixed and variable costs incurred by the distribution companies, whereas a significant proportion of fixed costs is recovered through energy charges. For instance, in tariff petition for FY 2019-20, JVVNL proposed revenue from fixed charges of 2,400 Crores against 4,317 Crores of capacity charges for power procurement. Such a structure leads to fall in recovery of fixed costs from prosumers installing distributed grid-interactive renewable energy generating systems since part of their energy requirements are met by renewable energy generating systems.

Hence, it is suggested that an additional capacity charge is levied on all 'prosumers' which is approximately equivalent to loss in recovery of fixed costs through energy charges for the estimated amount of energy generated by the renewable energy generating system on an annual basis. Such additional charges should not be considered as part of parallel operation charges.

Improving Experience Of Prosumers

The shift from net metering to net billing shall significantly impact the monetary benefit to the prosumers having distributed RE (/solar PV) generating systems. While rationalisation of incentives is a necessity, many non-fiscal measures can be taken to improve the overall

experience of prosumers and reduce their input costs. Following suggestions are placed for the consideration of the Commission towards the stated objective:

- **Efficiency And Transparency Of Application Process:** The Commission has put forth a broad framework for handling applications on a first come, first serve basis. However, the provisions are not sufficient to enforce the same, and hence additional guidelines mandating automation of the process, limiting contact between consumers and Discom for approval of application, integration with CRM (consumer relationship management) platforms and standards of performance for approval of application and supply/ testing of concerned meters should also be notified. Key information shall be available in an easy to access manner, and provision for online submission of documents shall be implemented.
- **Standardisation Of Documents, Safety Protocols, And Related Matters:** A typical consumer is often unaware of the technical, quality and safety standards for RE generating systems. Further, the capacity of project developers and contractors is often limited in this context. It is suggested that the Discom shall notify a standard list of technical, engineering, and other documents related to RE generating systems based on point of coupling. Further, the Discom shall also notify standard minimum safety protocols and system diagrams based on point of connection or point of coupling for the RE generating system.
- **Reduction Of Input Costs And Opportunities For Discoms:** The quality of solar PV generating systems being installed in India (and Rajasthan) is often sub-optimal. While the consumer may be conscious towards the quality/ brand of solar modules and inverter, his/ her understanding about balance of system, civil work and protection equipment is very low. Further, guarantees on system yield and performance are often poorly reported by system developers.

  Distribution companies are uniquely placed to aggregate the demand for such services and provide value added services to consumers, creating new revenue opportunities for itself. Such services may include single point remote monitoring, performance evaluation, technical audits, etc. Such services may be extended to prosumers at competitive prices.
- **Rights of Prosumers:** The Commission has laid out responsibilities of the consumers (prosumers) in the draft regulations but does not define rights of prosumers under the scope of these regulations. It is suggested that standards of performance and standards for services in matters related to these regulations should be incorporated in the regulations. Such provisions shall than be considered as part of Electricity Supply Code and Standards of Performance regulations notified by the Commission. Accordingly, suitable compensation and penalties shall also be prescribed for cases of non-

compliance. Further, prosumers shall be provided access to Grievance Redressal Mechanisms notified by the Commission through relevant regulations.

- **DRE Committee:** It is advised that the commission set-up a consultation committee under its umbrella to provide inputs for regulatory measures to promote Distributed Renewable Energy in the state and address various issues concerning the segment which may require regulatory interventions.

COMMENTS ON SPECIFIC PROVISIONS IN THE DRAFT REGULATIONS

Section 4: General Principles

4. Clause 4.2

"Consumers having pending arrears with the Distribution Licensee shall not be eligible for Net Billing arrangement or Net metering arrangement under these Regulations."

Our Submission

In case arrears are disputed, the applicant may be granted permission on basis of merit of dispute, especially wherein pendency of arrears is not because of willful default. The applicant may also be given the option for immediate settlement of arrears. The process of handling such cases should be automated within the application process.

Section 6: Connectivity Of Renewable Energy Generating System

5. Clause 6.1

"The cumulative capacity of Renewable Energy generating system to be allowed at a particular distribution transformer shall not exceed 50% of the capacity of such distribution transformer or such limit as may be stipulated by the Commission from time to time:

Provided that, in case of HT consumers where the distribution transformer has been installed by the consumer, the limit of 50% of distribution transformer capacity shall not be applicable. The total allowable solar installation capacity for such consumers shall be as per Regulation 7.2 of these Regulations."

Our Submission:

a. The penetration of rooftop solar in Rajasthan (and India) is extremely low. Hence, FOR made special recommendations for promoting rooftop solar. Further, it is well established that, typically, transformers do not have any issues for managing reverse currents as they are bi-directional in nature. Hence, in concurrence with global trends and practices adopted across other states in India, transformer capacity utilisation up to 80% should be allowed. This is also the normative limit for loading of transformers.

It may also be noted that the probability of high-capacity utilisation in case of LT consumers is very low because of space availability and adoption constraints.

b. If the above suggestion is accepted, the provision for HT consumers shall become redundant. Allowable limits of 80% of transformed capacity shall apply to them also.

c. Suitable limits may be applied to EHT consumers to avoid back-feed to substations.

6. Clause 6.2:

"The Distribution Licensee shall update the information about distribution transformer level capacity available for connecting Renewable Energy generating systems under Net Billing arrangement or Net metering arrangement on yearly basis and shall provide the information on its website."

Our Submission:

The update shall be done on a real time basis, with a lag of not more than 30 days. Availability of transformer capacity shall be intimated along with the online application process itself. Discom shall be responsible for maintaining records for capacity approved and capacity installed. The system shall be automated and integrated with consumer service platforms. Discom shall ensure privacy of consumer details during the approval process to ensure consumers are not harassed for unauthorised payments.

Section 7: Eligible Consumer And Individual Project Capacity

7. Clause 7.2

"…Provided that, the capacity of the Renewable Energy generating system shall be in conformity with the provisions relating to the Sanctioned Load or Contract Demand permissible under the Rajasthan Electricity Regulatory Commission (Electricity Supply Code and Connected Matters) Regulations, 2004 and subsequent amendments thereto."

Our Submission:

LT consumers with demand less than 5kW do not have a fixed sanctioned load as per existing tariff regime. It is recommended that capacity equivalent to average consumption in the last 6 months may be allowed in such cases.

8. Clause 7.5

"HT (11 kV and above) Consumers may install and connect Renewable Energy generating system at their LT Bus Bar System:
Provided that, in such cases, the RE Generation meter or Net meter shall be installed on the HT side of the Consumer's Transformer."

Our Submission:

This is technically unfeasible. If RE Generation meter is on the HT side, connecting on LT side will make the arrangement as Net meter.

Section 8: Procedure For Application

9. Clause 8.2

*"*The Eligible Consumer who proposes to install a Renewable Energy generating system in his premises shall apply in the application form (**Annexure – II)**, which the Distribution Licensee shall notify on its website along with the application fees as specified in the schedule (**Annexure-III**) of these Regulations.*"*

Our Submission:

In accordance with Section 47(1) of the Electricity Act, a security deposit is required in lieu of supply of electricity supplied or when any electric line, electric plant or electricity meter is to be provided by the distribution licensee. Hence, when a check meter, RE generation meter, Gross meter, or Net meter is procured by the consumer, there is no reason for levying a security amount on the consumer. When such equipment is provided by the Discom, suitable security deposit may be levied which is proportional to the cost of equipment. The current recommendations for levying security deposits should be deleted.

Further, according to Section 47(4) of the Electricity Act, the distribution licensee shall be required to pay interest equivalent bank rate or more, as determined by the Commission. Hence, the provision for non-interest-bearing security is in violation of the Electricity Act.

10. Section 8, General Comments Regarding 'Procedure For Application'

Our Submission

Following suggestions are submitted to improve consumer experience, efficiency in processing applications and transparency in handling applications.

- The online platform for submitting applications shall be integrated with Consumer Management System to be provided by distribution licensee as per the mandate of RERC and Electricity (Right of Consumers) Rules 2020.
- Transformer capacity utilisation through RE for all consumers in Tier I and Tier II cities should be available online. The application portal shall display RE capacity installed, RE capacity applications under process, and RE capacity available.
- Applications shall be processed on a first come first serve basis only unless any legitimate discrepancy is notified.
- The application portal shall provide a detailed list of documents and fee for the application process.

- The application portal shall also provide steps for procurement and testing of check meters, net meters, and RE generation meters.
- The process for submission of documents for testing and installation of equipment post installation of RE shall be made online and automated.
- Equipment for testing may be dispatched or delivered to the address provided by distribution licensee as per guidelines provided.
- Any delay in processing and testing beyond a reasonable period should be compensated, and Standards of Performance shall be defined for the same within the scope of these regulations.

Section 9: Connection Agreement

11. Clause 9.3

"The Distribution Licensee shall make available the Agreement formats on its website, along with the applicable procedure and Application and other relevant forms, within two months of notification of these Regulations"

Our Submission

It is suggested that the process of Agreement between the distribution licensee and the prosumer shall be made online.

12. Clause 9.4

"The Connection Agreement shall remain in force for twenty-five (25) years:

Provided that, the Connection Agreement entered under Net metering arrangement prior to notification of these Regulations shall be valid for the period as stipulated in the said Connection Agreement:

Provided further that, the Agreement may be terminated at any time by mutual consent."

Our Submission:

Since the consumer is the prime stakeholder of the RE generating system, by natural principle only the consent and willingness of the Prosumer is paramount. Prosumers may be mandated to intimate the distribution licensee 15 to 30 days prior to termination of the agreement.

Further, while the term of connection agreement is defined as 25 years, it may be provided that the consumer may pursue renewal of agreement as per the prevalent regulatory provisions at the time. Solar PV systems have useful life beyond 25 years of service and forced disconnection shall be counterproductive towards the interest of the consumers and the environment.

Section 10: Interconnection With The Grid: Standards And Safety

13. Clause 10.2

"…Provided further that, the tests as per applicable standards shall be done to ensure the quality of power generated from the Renewable Energy generating system."

Our Submission:

To avoid confusion, it is requested that the Commission shall explicitly define responsibility for testing and liability of charges incurred. Further, the Commission may also notify the charges to be borne for such test if the same are to be borne by the prosumer. It may be noted that it may not be viable for prosumers with small systems to bear such costs.

14. Clause 10.4:

"The consumer, who installs Renewable Energy generating system, shall be responsible for the safe operation, maintenance and rectification of defect of its system up to the Interconnection Point beyond which, the responsibility of safe operation, maintenance and rectification of any defect in the system including metering arrangement shall rest with the Distribution Licensee:

Provided that, the Distribution Licensee may call upon the Renewable Energy generating system to rectify the defect within a reasonable time."

Our Submission:

It may be noted that the rectification of the RE Generating system is typically not in control of the prosumer, as s/he is dependent on the service provider, Solar EPC contractor or RESCO company. Depending on the fault, rectification time may vary significantly. The same is also dependent on the service commitment of the contractor.

It is suggested that a maximum time limit may be provided for rectification of different faults by the concerned entity, and any failure to meet the timelines may be penalised by blacklisting the concerned entity from providing services in the area of distribution licensee.

15. Clause 10.5:

"The Eligible Consumer shall be solely responsible for any incident (fatal/non-fatal/departmental/non-departmental) that may occur due to back feeding from the Renewable Energy generating system when the grid supply is off:
Provided that, the Distribution Licensee reserves the right to disconnect the consumer's installation at any time in the event of such emergencies to prevent incident or damage to man and material."

Our Submission:

We recommend that liability of the prosumer is explicitly defined. We also suggest that the RERC may notify a model agreement between the prosumer and the RE project developer or

RESCO entity in a manner that appropriate liabilities are passed on to the latter in a fair manner. Further, it is also suggested that prosumer is advised to obtain suitable insurance to protect itself from possible liabilities.

16. Clause 10.7:

"The Distribution Licensee shall have the right to disconnect the Renewable Energy generating system from its system at any time in the following conditions:

(a) Emergencies or maintenance requirement on the Distribution Licensee's electric system;

(b(Hazardous condition existing on the Distribution Licensee's system due to operation of Renewable Energy generating system or protective equipment as determined by the Distribution Licensee/Transmission Licensee/SLDC;

(c) Adverse electrical effects, such as power quality problems, on the electrical equipment of the other consumers of the Distribution Licensee caused by Renewable Energy generation as determined by the Distribution Licensee."

Our Submission:

(a.) Standards of Performance for restoration of connection of RE Generation System should be defined. Same may be linked to provisions of the Electricity Supply Code to be notified by the Commission.

(b.) To prevent forced curtailment of power, cases and protocols for disconnection shall be appropriately defined. Distribution licensee shall also be made liable to provide proof of existence of hazardous conditions, action plan for resolving the issues and timeline for resolution of the issues in writing.

(c.) In case of adverse electrical effects, distribution licensee shall again be made responsible for providing proof of the same. The licensee shall also advise the prosumer on rectification of the issue.

(d.) For HT and EHT consumers, tariff penalties may also be levied for injection of harmonics or impact on voltage profile or power factor beyond specified limit.

17. Clause 10.8:

"The tests as per EN 50160 and as per distribution licensee's standards shall be done to ensure the quality of power generated from the Renewable Energy generating system."

Our Submission:

Authority for carrying out the tests should be explicitly defined. Further, it should be clarified whether costs for such tests shall be borne by the prosumer or the distribution licensee.

18. Clause 10.11 (e):

".....(e) May neither be rated for load break nor may have features of over-current protection."

Our Submission

The isolating switch must be rated for load break else its accidental use without de-energising the system may pose a fire risk.

19. Clause 10.12

"Prior to synchronisation of the Renewable Energy generating system for the first time with the electricity system, the applicant and the Licensee shall agree on the protection features and control diagrams."

Our Submission

Standardised system circuits and protection layouts should be provided by distribution licensee based on system size and other parameters.

Section 10.14: Renewable Energy Generating System Connected Behind The Consumer's Meter

20. Clause 10.14.1

"Renewable Energy generating system connected behind the Consumer's meter, operating in parallel with the Distribution Licensee's Grid, and not opting either for Net Billing arrangement or Net metering arrangement, shall be allowed only after prior intimation to the respective Distribution Licensee:

Provided that, the Consumer shall be responsible for ensuring that all necessary safeguarding measures as specified by CEA are taken:

Provided further that in case the Consumer installs Renewable Energy generating system behind the Consumer's meter without prior intimation to the respective Distribution Licensee, then the additional liabilities shall be levied at the rate of fixed charges for one month, applicable as per the Tariff Order of Discoms for the relevant consumer category.

Our Submission

The process and protocols for prior intimation to Distribution Licensee shall also be made online. Further, the Commission is requested to clarify framework for applicability of charges in case consumer installs RE generating system behind the meter without prior intimation. As per the provisions of the draft regulations, it is not clear whether charges are equivalent to one month's fixed charges or one month's fixed charge is the pro-rata framework for calculation charges. In the latter case, it may be deduced that the actual charge is a multiple of one month's fixed charge and delay period.

21. Clause 10.14.5

"The Commission may determine additional Parallel Operation Charges in the form of Fixed Charges or Demand Charges and any other Charges for such systems installed behind the consumer's meter, in the retail Tariff Order, if the Distribution Licensee proposes such additional Fixed Charges or Demand Charges and any other Charges for such systems, in its retail supply Tariff Petition, supported by adequate justification."

Our Submission

Any parallel charges to be levied in future possess a significant business risk for solar rooftop players. It is suggested that the framework for such charges is defined in a fair and transparent manner and included in the scope of these regulations itself.

Section 11: Metering Arrangement

22. Clause 11.7

"The RE Generation meter shall be maintained by the Distribution Licensee."

Our Submission

The clause is a repetition of Clause 11.6, and hence may be deleted.

23. Clause 11.11

"A consumer, at his own cost, shall also install a Check meter of appropriate class for the RE Generation meter:

Provided that, such Check meter shall be used for billing and commercial settlement, in the absence of readings from RE Generation meter on account of defective/failure/burnt condition."

Our Submission

The generation meter provides redundancy to net meter or gross meter. Further, generation readings are also available from solar inverters. Mandates for an additional check meter shall unnecessarily increase the overall cost of the system, and its impact can be significant for small rooftop systems. Check meters may be recommended for RE generating systems above 50kW capacity.

24. Section 11, Additional Comment

It is suggested that the Commission provides a framework for estimation of energy generated and settlement of dues in the event that all the metering equipment are defective or dysfunctional. The Commission may also suggest timeline and responsibility for replacement of meters in such cases.

Section 12.5: Net Billing Arrangement

25. Clause 12.5.2

"The Distribution Licensee shall enter into Connection Agreement at the weighted average tariff of large-scale solar projects of 5 MW and more, discovered through Competitive Bidding in the previous Financial Year and adopted by the Commission, plus an incentive of 25%. In case no bidding is done in previous Financial Year, then the latest tariff discovered through competitive bidding plus an incentive of 25% shall be applicable:
Provided that, the above Tariff shall be applicable for the entire duration of the Agreement."

Our Submission:

The framework for feed-in-tariff determination proposed by the Commission is likely to be highly unfavourable for small projects. It must be noted that solar rooftop projects enjoy a significant economy of scale, as their prices drop with increase in size of the project. It is suggested that the Commission should determine benchmark price of following project sizes and design feed-in-tariffs in a manner which ensures at least 15% return on investment in line with regulated tariff for generation projects. Feed-in-tariffs for domestic categories may account for GST, whereas determination of tariffs for mixed load and industrial categories may be done without considering GST since it is likely to be adjusted as input cost.

CEEP analysed return on investments based on capacity of solar PV rooftop systems and corresponding prevalent rates for capital expenditure model. Findings of the analysis are presented in Table 1 below, whereas key assumptions and input data for the analysis is provided in **Annexure I**. The analysis does not take into account any value for the roof of the prosumer or value of his/her time or resources invested in management of the solar PV rooftop system. Further benefits of subsidy or tax incentives have also not been considered.

Table 1: Recommended Feed-in-Tariffs for Solar PV Rooftop Systems based on System Capacity

System Capacity	Price Range (INR per kWp)		Discount on APPC	Feed-in-Tariff (INR / kWh)	Internal Rate of Return	
	Low	High			15 years	25 years
10kW – 25kW	36,000	40,000	0%	4.06	6.94%	13.16%
25kW – 100kW	32,000	35,000	5%	3.82	6.33%	12.93%
> 100kW	28,000	32,000	10%	3.65	6.15 %	12.94%

Section 13: Reporting Requirements

26. Section 13, Additional suggestions:

Following clause(s) may be added for the benefit of the consumers.

"13.2 The distribution licensee shall make available following information to the consumer on a monthly basis through its CRM platform.

a. Total kWh received by the Eligible Consumer from the Distribution Licensee by month and by year for the previous financial year;
b. Total kWh of Renewable Energy generated by the Eligible Consumer by month and by year for the previous financial year;
c. Total kWh delivered by the Eligible Consumer to the Distribution Licensee as per billing cycle and by year for the previous financial year;
d. Capacity Utilisation Factor/ Plant Load factor for the month
e. Capacity Utilisation Factor/ Plant Load factor till date"

Inclusion of above suggestions shall reduce monitoring cost for consumers, especially for those installing small rooftop systems, and provide more credible inputs to consumers. Further, the distribution licensee may also provide app-based monitoring services to consumers at a cost proposed by the distribution licensee and approved by the Commission. However, subscription to such services shall be an option.

Annexure-IV-A: Model Net Billing Connection Agreement

27. 2.7 of 'Technical And Interconnection Requirements'

"Due to Discom's obligation to maintain a safe and reliable distribution system, Eligible Consumer agrees that if it is determined by the Discom that Eligible Consumer's Renewable Energy generating system either causes damage to and/or produces adverse effects affecting other consumers or Discom's assets, Eligible Consumer will have to disconnect Renewable Energy generating system immediately from the distribution system upon direction from the Discom and correct the problem at his own expense prior to a reconnection."

Our Submission:

Following provision made adjoined:

"Provided that the distribution licensee provides satisfactory proof (tests or technical audits) in support of the adverse effects determined by the Discom."

28. 2.8 of 'Technical And Interconnection Requirements'

"The consumer shall be solely responsible for any accident to human beings/animals whatsoever (fatal/non-fatal/departmental/non-departmental) that may occur due to back feeding from the Renewable Energy generating system when the grid supply is off. …"

Our Submission

This clause is in contradiction with provisions defined under Section 5 (Liabilities) of the model agreement.

29. Access And Disconnection – Additional Suggestions

"The Discom shall also have the right to acquire data related to generation and power quality of REGS, provided that any benefits arising from monetisation of such data shall be passed on to the consumers through ARR."

30. 5.1 of Liabilities

"Eligible Consumer and Discom shall indemnify each other for damages or adverse effects from either party's negligence or intentional misconduct in the connection and operation of Renewable Energy system or Discom's distribution system."

Our Submission

Indemnity from intentional misconduct is against the principles of law and should be removed. Further, the provision is also in conflict with clause 10.5 of the draft regulations.

31. 5.2 Of Liabilities

"The proceeds from CDM benefits shall be retained by the Discom."

Our Submission

It should be revised to read as follow:

"The proceeds from CDM benefits shall be retained by the Discom, to be passed on to all consumers as per RERC Grid Interactive Distributed Renewable Energy Generating Systems Regulations 2020."

32. 6 Of Commercial Settlement, Additional Suggestion

Following clause may be considered for inclusion:

"In case of delay in payment of the net amount due to the prosumer beyond 30 days from the settlement date, the licensee shall pay interest to the prosumer at the FBIL rate +200 base points prevailing on 1st April of the settlement year."

33. 7.1 of Connection Costs

"The Eligible Consumer shall bear all costs related to setting up of the Renewable Energy generating system including metering and interconnection costs. The Eligible Consumer agrees to pay the actual cost of modifications and upgrades to the service line required to connect the Renewable Energy system to the grid in case it is required."

Our Submission:

The clause may be edited to read as follows:

"The Eligible Consumer shall bear all costs related to setting up of the Renewable Energy generating system including metering and interconnection costs. The Eligible Consumer *agrees to pay the actual cost of modifications and upgrades to the service line required to connect Renewable Energy system to the grid in case it is required,* **provided that consumer is intimated for the same prior to approval of application for connectivity and consent of the prosumer for payment of such charges. If the consumer is not willing to provide such consent, the Discom has the right to reject the application of the prosumer for connectivity of the Renewable Energy generating system.**"

34. 8.1 of Termination

"The Agreement may be terminated at any time by mutual consent."

Our Submission:

The intent and consent of the prosumer is paramount for termination of the agreement. Hence the clause may be revised to read:

"The prosumer may intimate the Discom for termination of agreement, and the same shall be executed within 30 days of such intimation."

Annexure-IV-B: Model Net Metering Connection Agreement

35. Comment No. 35 to 41 of this submission shall be applicable for 'Annexure-IV-B: Model Net metering Connection Agreement' also.

36. Annexure – V: Prior Intimation for Installation of Renewable Energy Generating System behind the Consumer's

Our Submission:

The annexure shall read as follows for the purpose of clarity:

"Prior Intimation for Installation of Renewable Energy Generating System behind the Consumer's and in synchronisation with the distribution grid."

Accordingly, points (e) and (f) in the intimation application shall be deleted.

****

ANNEXURE I: ANALYSIS FOR SYSTEM CAPACITY, FEED-IN-TARIFF AND IRR

Following inputs and assumptions are considered for estimating IRR for Solar PV rooftop systems under CAPEX model

System Pricing (excluding GST)

Project Capacity	Price Range (INR per kWp)*	
	Low	High
10 - 25 kWp	36,000	39,000
25 - 100 kWp	32,000	35,000
> 100 kWp	28,000	32,000

Source: Data as shared by 5 Solar PV rooftop systems developers in Rajasthan

Weighted GST: 9% (5% on material component and 18% on services component)

Loan amount: 70% of invoice amount

Loan Term: 10 years

Rate of Interest: 12%

Capacity Utilisation Factor for solar PV rooftop system: 18%

Annual degradation of solar PV rooftop system: 0.8%

Asset depreciation: 3.6% per year, for 25 years, up to 90% as per RERC norms

Salvage value: 10%, as per RERC norms

Annual operational expense: 2% of capital expenditure

Feed-in-tariff: Equal to APPC, with tariff discount applicable as per system capacity

Cost of replacement of inverter and other items after 10 years:

Cost of replacement of inverters and other miscellaneous items after 10 years is considered as per Table below.

Project Capacity	Cost per kWp
10 - 25 kWp	INR 6,000
25 - 100 kWp	INR 5,500
> 100 kWp	INR 5,000

Estimated minimum IRR for respective capacity segment are provided in the Table below.

Project Capacity	Price Range (INR per kWp)*		Tariff Discount	Feed-in-tariff	IRR	
	Low	High		(INR/kWh)	15 years	25 years
10 - 25 kWp	36,000	39,000	0%	4.06	6.94%	13.16%
25 - 100 kWp	32,000	35,000	6%	3.82	6.33%	2.93%
> 100 kWp	28,000	32,000	10%	3.65	6.15%	12.94%

Source: CEEP

Notes:

1. Benefit of subsidy or depreciation is not considered.
2. It is assumed that the inverter shall be replaced after 10 years.
3. Average power procurement cost (APPC) of INR 4.06 per kWh for Jaipur Discom for FY 19 as approved by RERC is considered.
4. Feed-in-tariff for solar rooftop systems is APPC with a discount factor applied based on system capacity.
5. CEEP does not make a claim on the accuracy of the data, and the same may be considered indicative.
6. Internal Rate of Return is calculated for a period of 15 years and 25 years.
7. Feed-in-tariff in the above Table is the minimum tariff recommended. The Commission may provide additional incentives as it deems appropriate.