

**PUNJAB STATE ELECTRICITY REGULATORY COMMISSION
PLOT NO.3, MADHYA MARG, SECTOR 18-A, CHANDIGARH**

ORDER

DATE: 16.08.2021

In the matter of

**PSERC (Grid Interactive Rooftop Solar Photo Voltaic Systems) Regulations,
2021**

1. INTRODUCTION

The Punjab State Electricity Regulatory Commission (Commission) notified PSERC (Grid Interactive Rooftop Solar Photo Voltaic Systems based on Net Metering) Regulations, 2015 (hereinafter referred as NEM Regulations, 2015) in May 2015 to promote and facilitate setting up of Rooftop SPV systems by the consumers. These Regulations were primarily based on Model Net Metering Regulation 2013 approved by Forum of Regulators (FOR). However, FOR observed that the Grid Connected Rooftop Solar PV (GRPV) projects have not achieved the desired growth in the country and accordingly a study was commissioned to update the Net Metering Regulations developed in 2013. The Report along with Model Regulations was endorsed by the FOR. The study identified the gaps which have impeded the growth of GRPV in the country and suggested various amendments to stimulate growth of Renewable Energy.

Thereafter, Government of India notified the Electricity (Rights of Consumers) Rules, 2020 on 31.12.2020 and further notified Electricity (Rights of Consumer) Amendment Rules, 2021 on 28.06.2021. The concepts of Net Metering, Net Billing and Gross metering have been defined therein. Section 181 of the Electricity Act, 2003 empowers the State Commissions to make Regulations consistent with the Act and the Rules prescribed to carry out the provisions of the Act. Keeping in view the provisions of Electricity (Rights of Consumers) Rules, 2020, Electricity (Rights of Consumers) Amendment Rules, 2021, read with section 86(1)(e) and other relevant provisions of Electricity Act, 2003, the provisions of

Model Regulations approved by FOR, Draft PSERC (Grid Interactive Rooftop Solar Photo Voltaic Systems) Regulations, 2021 were prepared and the same were put in public domain along with Explanatory Memorandum for soliciting comments/objections of the stakeholders by 20.07,2021. 13 nos. comments/objections/suggestions were received from various stakeholders. A public hearing was also held on 20.07.2021 in the office of the Commission wherein some of the stakeholders made oral submissions.

The gist of the comments/objections/suggestions received from various stakeholders on the draft Regulations, the analysis and decisions of the Commission on these comments/objections/suggestions along with reasons for the same are as under:-

2. Regulation 1.3

CleanMax suggested that these Regulations should come into force after 3 months from the date of the publication of the same in the official gazette and till such time the provisions of the previous Regulations shall prevail to facilitate smooth transition from the regime of the older Regulations to these Regulations and to permit adequate time for the ongoing projects as per the provisions of the older Regulations.

Analysis and Decision

These Regulations shall come in force from the date of publication in the official Gazette and shall be applicable for applications received on or after notification of these Regulations. The ongoing projects registered under NEM 2015 Regulations shall continue to be governed by existing Regulations. Therefore, there is no need to provide for any transition period for implementation of these Regulations.

3. Regulation 2 (Definitions)

- (i) PSPCL suggested that the maximum capacity of Rooftop Solar Plant Capacity may be specified as "*the Rated Inverter capacity (A/C side) or PV module capacity whichever is higher*" subject to maximum up to 80 % of the Sanctioned Load/Contract Demand in case of

domestic consumers and up to 50% of the Sanctioned load/Contract Demand in case of other than domestic consumers.

- (ii) PSPCL also suggested that the definition of Net meter may be inserted as under;

“Net meter” means a Bi-directional energy meters to measure the units import by the consumer from licensee and units exported to the licensee by the consumer for the purpose of accounting and settlement.

- (iii) Shree Cements proposed that “Eligible Consumer” may be defined as a consumer of electricity in the area of supply of distribution licensee, who uses or intends to use a rooftop/ ground mounted SPV system installed in his premises or in distinct premises but connected through a dedicated feeder to the premises where the electrical connection is provided by a distribution licensee, to offset part or all or no part of the own electrical requirements, given that such systems can be ‘self owned’ or ‘third party owned.

- (iv) CleanMax suggested that a proviso as under may be added;

Provided that in case the consumer has multiple roofs the generating plants can also be connected to LT distribution system of the internal grid / LT Panel of the Consumer with a solar meter installed to record solar generation.

The objector brought out that there are various social, industrial and commercial establishments where there are multiple roofs away from each other and far from the common interconnection point, in this case taking generation cables of the different plants of different roofs to one single location is unnecessary waste of resources and loss of precious solar power being generated thus local injection of the power to the internal grid with adequate protection and metering shall be permitted.

- (v) Regarding definition of ‘Premises”, Ashirbad Hembram, CleanMax, PEDDA and Shree Cements requested that Open Spaces/surplus

land in the premises may also be included. PSPCL submitted that the word 'Elevated Areas' may be clarified properly as to what extent the elevated area for installation of rooftop solar system be permitted.

- (vi) Another Objector Sh. Sarth Manrao requested that the Settlement period should not be changed. AP technologies & REMA also submitted that usually solar generation is good during Oct to March but the consumption for the same is very less which allows the customer to bank the units for the future use of the year (usually May, June, July and August) thus the proposed billing cycle from 1st April to 31st March will adversely affect the consumers. Thus it has been suggested by the objectors that the settlement period as specified in NEM Regulations 2015 may be retained.

PSPCL proposed that settlement period be fixed as from 1st of June to 30th of November and 1st of December to 31st of May of following year so that generation in off-peak period should be settled with consumption in the off-peak period.

Analysis and Decision

- (i) The suggestion of PSPCL has been partially accepted and maximum capacity is clarified in Regulation 4.2 as 'rated inverter capacity on AC side'
- (ii) The suggestion of PSPCL to insert definition of Net Meter has been accepted and "Net Meter" has been defined as a bidirectional energy meter capable of recording both import and export of electricity.
- (iii) The definition of Eligible Consumer is as per Model Regulations approved by Forum of Regulators.
- (iv) In case of Net Metering/Net-billing the consumer meter is to be replaced by bi-directional Net Meter and the interconnection point is on the outgoing terminal of the metering equipment so suggestion of the objector cannot be accepted.

- (v) Keeping in view the suggestion of the stakeholders the definition of Premises as specified in NEM Regulations 2015 has been retained as under;

“Premises” means roof tops or/and any area on the land, building or infrastructure or part or combination thereof in respect of which a separate meter or metering arrangement have been made by the distribution licensee for the supply of electricity.”

- (vi) The suggestion of PSPCL to define the Settlement period from 1st of June to 30th of November and 1st of December to 31st of May of following year is not convincing. As per the recommendations of MNRE and other agencies, the settlement has to be on yearly basis. However, the suggestion of objectors to retain the Settlement Period from first day of October in an English calendar year and ending with thirtieth day of September of next year has been accepted as it shall simplify the billing for PSPCL.

4. Regulation 3 (Scope and Application)

(i) Regulation 3.1

AMP Energy suggested that the definition of “behind the meter” project or captive co-located project may be included in these Regulations, as there may be prosumers whose electricity consumption is significantly higher than the rooftops solar power plant capacity with no scope for export of solar power into the grid. It has been added that for such prosumers, a category of projects may be defined who do not want to avail Net-metering/Gross-Metering/Net Feed-in/Net-Billing as have been recognised by some states.

Prayas suggested to introduce “Group Net Metering” and “Virtual Net Metering” to ease and accelerate the implementation of rooftop solar, especially in large housing societies as has been adopted in some States.

Analysis and Decision

The draft Regulations which were put up in public domain for inviting public objections did not provide for the ‘behind the meter’ or ‘group net metering’ or ‘virtual net metering’ concepts. The terms and conditions governing these

arrangements needs to be formulated and put in public domain so as to provide opportunity to stakeholders especially the distribution licensee to comment. These concepts would be examined after smooth implementation of these Regulations and further action if required, shall be taken.

(ii) Regulation 3.3

- (i) Mandi Gobindgarh Induction Furnace Association suggested that it may specifically be indicated that applications received before notification of the New Regulations, will be processed under existing Regulations, 2015.
- (ii) PSPCL suggested that the proposed Regulations should be applicable to all Rooftop SPV systems for existing as well as prospective consumers. However, the solar rooftop capacity of existing consumers may not be altered as per proposed Regulations whereas all other features such as billing arrangement, energy accounting, settlement period etc. may be applicable to the existing consumers as per proposed Regulations. In case existing consumer intends to extend solar rooftop capacity, then it may be considered under proposed Regulations. PSPCL added that following two different types of billing arrangements, settlement period & other conditions for existing and prospective consumers will not be easy to manage and will lead to confusion.

Analysis and Decision

- (i) Regulation 1.3 provides that these Regulations shall come into force from the date of publication of the same in the official Gazette. Further, Regulation 3.3 provides that these Regulations shall be applicable to all Rooftop Solar Photo Voltaic Systems for which applications are received on or after notification of these regulations except Regulation 19. Thus all applications registered before notification of these Regulations shall be processed under NEM Regulations, 2015.
- (ii) PSPCL's suggestion to apply some features of 2015 Regulations and some other features of new Regulations to the existing

prosumers will not be appropriate since these Regulations shall have prospective effect. The prospective effect has been clearly defined as the applications registered after notification of these Regulations. The consumer should be aware of the commercial terms before making investment in the project. However the Commission finds merit in the suggestion of PSPCL that in case existing consumer intends to extend solar rooftop capacity, it shall be considered under these Regulations. Accordingly, a proviso to Regulation 3.3 as under has been inserted;

Provided that these Regulations shall also be applicable for applications received on or after notification of these Regulations for enhancing the capacity of the already installed Rooftop SPV systems by an existing consumer.

5. Regulation 4 (Eligible consumer and individual project capacity)

The gist of the objections/comments/suggestions received against Regulations 4.2 and 4.3 is as under:

- (i) Ashirbad Hembram demanded that Net metering upto 100% of sanctioned load/contract demand may be allowed.
- (ii) CleanMax submitted that a cap of 50% of Contract Demand (CD) is deterrent to the rooftop segment and against the spirit of the National Solar Mission. The cap of 50% of CD and 500 KWp are contradictory. It will further deter the capacity and development of the same. The Commission may put a cap of 500 KWp of Rooftop Solar Power Plant capacity under net metering and a capacity upto the contract demand/sanctioned load shall be allowed under Net Billing or Gross metering
- (iii) A.P Technologies & REMA submitted that restricting the maximum capacity of Solar Rooftop systems by any non-domestic consumer only up to 50% of the sanctioned load will not encourage the non-domestic consumer to opt for solar system. It is suggested that the maximum capacity should be at least 80% of the sanctioned load.

The objector pointed out as per the proposed Regulation 4.2, the net metering cannot be opted by the consumers who have load above 500 kW. There are many consumers whose units work seasonally and they used to opt for net metering because the net metering allowed them to settle the units by end of the settlement period. If net metering is not available for these consumers they will not opt for any other reason as ROI will not make sense for them. There is no need to link net metering with sanctioned load/demand. If the cap has to be kept it should be for the cap of installation of solar project, the way it used to be before. The cap for installing solar should be up to 1MW and there should be no restriction based on sanctioned load.

- (iv) PEDA pointed out that as per Electricity (Rights of consumers) Amendment Rules 2021, there is no limit of 50% of sanctioned load. Therefore, the maximum capacity of Rooftop Solar power plant for all eligible consumers except domestic category consumers may be allowed as per the existing regulations, i.e. 80% of sanctioned load with capacity bar of net metering upto 500 kW.
- (v) SHREE CEMENT submitted that Section 86 (1)(e) of Electricity Act, 2003 does not envisages any discrimination amongst consumers on the basis of consumer category and therefore placing capping under Net metering facility for consumer other than domestic category is against the spirit of EA-2003. Thus the proposed Regulation 4.2 may be modified and the maximum capacity of Rooftop SPV system to be installed at any eligible consumer's premises upto the sanctioned load (kW) or contract demand of the consumer irrespective of under which arrangement/ facility consumer like to avail. (in kVA converted to kW by using a power factor of 0.9).
- (vi) AMP Energy submitted that restricting the capacity installation at 50% of sanctioned load/contract demand will limit the prosumer to install the Solar PV as smaller capacity will provide less savings and will lead to Solar PV installation becoming unviable. Hence, the maximum capacity of Rooftop SPV system should be 80% of sanctioned load or contract demand of the

consumer. This will also impact the state growth towards target of 3000 MW of Solar Power Generation capacity by 2030.

- (vii) Sh. S.S.Bedi suggested that the capacity of Rooftop SPV plants should be increased to 100% of sanctioned load as being followed by most of states & also recommended by Ministry of Power, Govt of India in its draft Regulations of April, 2021.
- (viii) Prayas submitted that limiting the capacity of solar projects to 50% of sanctioned load/ contract demand of consumers is a large handicap for the development of the rooftop solar sector in the state and does not appear to be based on any technical consideration. In practically all other states, project size up to sanctioned load/ contract demand is allowed. The Commission should consider the same in these Regulations. There is no need to limit Gross metering and Behind the Meter systems even when the target is achieved given its benefits for the system.
- (ix) Mandi Gobindgarh Induction Furnace Association pointed out that for the sanctioned load/demand upto 500 kW/kVA, there should not be any restriction for maximum capacity of the Rooftop SPV system. The proposed restriction will virtually reduce the maximum capacity of Rooftop SPV system to 225KW.
- (x) PSPCL submitted that if a substantial proportion of consumers set up rooftop solar under the Net Metering Regulations, the Distribution Licensee loses out a lot on the revenue due to lower sales and on the other hand the surplus power also increases. This spirals the Discom into a loss-loss situation which proves to be hugely detrimental to the Discoms financials. Installation of solar rooftops has to be viewed from the perspective that consumer makes an investment into it to eventually reduce its own electricity charges. The incentive of installing solar rooftop is also in the form that with the initial capital investment, the consumers are assured of certain quantum of power supply at fixed prices and is protected against future tariff hikes to the extent of power consumed from solar rooftops. For promotion of solar rooftops, the biggest incentive already in place is that a consumer has the flexibility to consume the power generated by their solar

rooftop installations at any time of the day irrespective of the fact that such energy is generated only during the daytime that too with varied levels of generation. As Distribution Licensee loses out a lot on the revenue due to fewer sales, free banking for a period of 1 year and also ends up paying the stranded power purchase cost, so, solar rooftops should not be promoted in a way that they eventually grow into a big category of Generators wherein, they seek to get into the business of selling power and make commercial benefit out of the surplus power generated.

As the capacity of solar plant under the ibid regulations increase, the more grid instability is caused due to infirm power and lack of provisions for penalty for variations in generation under gross metering arrangement (which otherwise would have been had in any sort of PPA). As a result, distribution licensee has to pay DSM penalties on account of deviations in schedule and drawal. So, limit on capacity in case of Gross Metering is also required to be imposed i.e. the installed capacity (maximum of DC /AC capacity) shall not be less than 50 kW and shall not exceed 1 MW under the ibid regulations. The consumers with higher Sanctioned Load/Contract Demand can opt for installation of solar plants under CPP mode.

In case of domestic consumers, the maximum capacity of Rooftop SPV systems shall not exceeds 80% of the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9);

The rooftop solar systems are primarily set up for self-consumption. The Utilization factor for domestic consumers is very low, as per Supply Code, 2014 the demand factor in LDHF formula for assessment of consumption for domestic consumers is also 30%. Therefore, enhancing capacity of Rooftop Solar plant up to Sanctioned load will not be fruitful for domestic consumers and will result in excessive generation and export to Discom.

Also, allowing capacity up to 100% of Sanctioned load and allowing payment to consumers against excess generation of electricity will encourage the consumer to install unauthorized additional solar panels. Discom receives the applications for setting up of rooftop solar PV systems

in bulk for their approval. Once such systems are installed, it is very difficult for the Discom to track installed capacity vis-a-vis individual approved capacities. In order to discourage the installation of additional capacity higher than approved capacity, the limit of 80% of sanctioned load/contract demand in case of domestic category, 50% on case of other categories and non payment at the end of settlement period in all cases is required to be imposed. Accordingly, PSPCL proposed as under:

- (i) Net Metering Arrangement should be permitted to the eligible consumers with sanctioned load/demand upto 10 kW/kVA.
- (ii) Net billing should be capped to the eligible consumers with sanctioned load/demand up to 1000 kW/kVA.
- (iii) Gross Metering should be permitted to the eligible consumers with solar roof top plant capacity of minimum of 50kWp & upto maximum 1 MWp (Maximum of DC/AC capacity).
- (iv) The maximum capacity of Rooftop SPV system to be installed at any eligible consumer's premises except domestic category consumers, shall not exceed 50% of the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9).
- (v) In case of domestic consumers, the maximum capacity of Rooftop SPV systems shall not exceeds 80% of the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9);
- (vi) It needs to be clarified that condition of 500 kW/kVA is on both Contract Demand and Sanctioned Load.
- (vii) With respect to Regulation 4.3, PSPCL has suggested that the rated capacity may vary up to $\pm 5\%$ of the approved capacity, however maximum Solar capacity shall be limited to upper limit of 50% of Sanction load/Contract Demand in case of other than domestic consumers and 80% of sanctioned load in case of domestic consumers.

Analysis and Decision

All the Objectors (except PSPCL) have objected to the provision of restricting the maximum capacity of Rooftop Solar SPV system to 50% of the sanctioned load/contract demand for non-domestic consumers. Some objectors have suggested raising the maximum capacity of Rooftop Solar SPV system to 80% of the sanctioned load/contract demand, while some have sought the limit to be raised to 100%. Prayas has further suggested that there is no need to limit Gross metering even when the target is achieved given its benefits for the system. Some Objectors have objected to the provision to permit Net Metering arrangement to the eligible consumers with sanctioned load/demand upto 500 kW/kVA. PSPCL has reiterated all the objections/comments as brought out in petition no. 21 of 2020 and reproduced in Para 1 of the explanatory memorandum issued along with draft Regulations. PSPCL suggested that the Net Metering arrangement may be allowed to the eligible consumers with sanctioned load/demand upto 10kW/kVA, capping Net billing to the eligible consumers with sanctioned load/demand up to 1000 kW/kVA and Gross Metering with solar roof top plant capacity of minimum of 50kWp & upto maximum 1 MWp. PSPCL has further suggested that In case of domestic consumers, the maximum capacity of Rooftop SPV systems should not exceed 80% of the sanctioned load/ contract demand.

Since the comments of all stakeholders (except PSPCL) are similar so we are addressing all these objections together. In the draft Regulation 4.2 it was proposed as under;

“The maximum capacity of Rooftop SPV system to be installed at any eligible consumer’s premises except domestic category consumers, shall not exceed 50% of the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9). In case of domestic consumers, the maximum capacity of Rooftop SPV systems shall not exceeds the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9);

Provided that the minimum capacity of Rooftop SPV system under net metering or net billing arrangements shall be 1 kWp for a single eligible consumer. Under gross metering arrangements, the minimum capacity shall be 50 kWp for a single eligible consumer:

Provided further that Net Metering Arrangement shall be permitted by the Distribution Licensee to the eligible consumers with sanctioned load/demand upto 500 kW/kVA. The net billing or gross metering arrangement shall be available to all consumers as specified in these Regulations.

The first proviso to sub-rule(4) of Rule 11 of Electricity (Rights of Consumers) Amendment Rules, 2021 prescribes that “*Provided that where the regulations does not provide for net-metering, net-billing or net feed-in, the Commission may allow net metering to the Prosumer for loads up to five hundred Kilowatt or upto the sanctioned load, whichever is lower and net-billing or net feed-in for other loads*”

Although the words used are ‘for loads upto 500 kW’ but the spirit of the sentence “*for loads up to five hundred Kilowatt or upto the sanctioned load, whichever is lower*” appears to be that maximum capacity to be allowed under Net metering may be 500 kW or upto the sanctioned load of the consumer, whichever is lower. So 500 kW referred in this Rule is the capacity of the plant. Accordingly we are in agreement with some stakeholders that as per the Rules, limit under Net Metering should be the capacity of the SPV plant subject to sanctioned load/demand and not only on the basis of sanctioned load/demand.

The existing NEM Regulations, 2015 are primarily based on the provisions of the Model Regulations approved by Forum of regulators (FOR) in 2013 and the focus of these Regulations was on self consumption. Although these Regulations facilitated the installation of SPV system to certain extent but failed to achieve the ambitious target set by Government of India (GoI) and the State Government. A study was commissioned to support FOR to update the Net Metering Regulations. The study identified the gaps which have impeded the growth of GRPV in the country and made certain

recommendations based on technical analysis. Also to promote and facilitate setting up for renewable energy sources by the consumers, Government of India has notified Electricity (Rights of Consumer) Rules 2020 and Electricity (Rights of Consumer) Amendment Rules 2021. Section 181 of the Electricity Act, 2003 empowers the State Commissions to make Regulations consistent with the Act and the Rules prescribed to carry out the provisions of the Act. So the Rules notified by GoI has to be followed while framing the regulations.

The proposal of PSPCL regarding restricting net metering/net billing and gross metering arrangements is contrary to the Electricity (Rights of Consumers) Amendment Rules, 2021 notified by GoI. The detailed justification given by PSPCL is the reproduction of the pleadings in petition no. 21 of 2020 which were considered by the Commission before approving the draft Regulations.

We appreciate the concerns expressed by PSPCL regarding loss of revenue due to setting up of Rooftop SPV system by subsidising category of consumers under Net Metering. The retail tariff is based on cross subsidy regime and any reduction in sale to such segment of consumers leads to burden on the other consumers who are not opting for these systems. But at the same time Net Metering is not entirely disadvantageous to distribution licensee. The reduction in sales also results in lower overall power purchase cost but power cost per unit increases. It also results in reduction in distribution loss and the distribution licensee is able to meet its RPO obligations. Thus it is essential to balance the interest of the consumers as well as the distribution licensee and at the same time the Commission has to fulfil its mandate of the Act to promote generation of electricity from renewable sources of energy so as to achieve the targets fixed by the State/Central Governments..

The argument of PSPCL that high penetration of RE power will affect load forecasting resulting in deviations in the demand schedule is not convincing. The Commission has already notified (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources),

Regulations, 2018 and implementation of these regulations, for projects with capacity above 5 MW initially, shall address the issue of deviations. The capacity limit will be lowered in stages after implementation of these Regulations. Secondly, PSPCL should adopt better and more scientific tools for demand forecasting. To address the issue of variability of RE power, CERC has notified Ancillary Services Regulations and FOR has also approved the Model Regulations for introducing Ancillary Services at the State level. The Commission will introduce these measures at an appropriate time.

In view of the above and to balance the interests of all stakeholders, the proposed Regulation 4.2 and 4.3 have been amended and renumbered as under;

- “4.2 *The maximum capacity of Rooftop SPV system (rated inverter capacity on AC side) to be installed at any eligible consumer’s premises except domestic category consumers, shall not exceed 70 % of the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9). In case of domestic consumers, the maximum capacity of Rooftop SPV systems shall not exceed the sanctioned load (kW) or contract demand of the consumer (in kVA converted to kW by using a power factor of 0.9);*
- 4.3 *The maximum capacity of Rooftop SPV systems under Net-Metering shall not exceed 500 kWp.*
- 4.4 *The maximum capacity of Rooftop SPV systems under Net-Billing or Gross Metering shall be subject to the sanctioned load/contract demand as specified in Regulation 4.2.*
- 4.5 *The maximum Rooftop SPV system capacity to be installed at an Eligible Consumer’s premises shall be subject to the cumulative capacity of the relevant Distribution Transformer/feeder, which has already been utilized, as specified in Regulation 5.1;*
- Provided that a variation in the rated capacity of the system within a range of five percent shall be allowed.’*

4.6 *The minimum capacity of Rooftop SPV system under net metering or net billing arrangements shall be 1 kWp for a single eligible consumer. Under gross metering arrangements, the minimum capacity shall be 50 kWp for a single eligible consumer.*

6. Regulation 5 (Capacity Limit for Distribution Licensee)

- (i) The Proposed Regulation 5.1 specifies that the distribution licensee shall provide Rooftop SPV systems to the eligible consumer as long as the total capacity (in MW) of rooftop solar systems does not exceed the target capacity determined by the Commission. In this regard, Mandi Gobindgarh Induction Furnace Association suggested that the word 'provide' appearing in first sentence should be replaced with 'approved'.

PSPCL submitted that clarification is required w.r.t. the proposed Regulation i.e. while fixing the target capacity under Rooftop Solar system, various aspects such as, total MU consumption in the state, minimum/maximum peak and off-peak demands are required to be kept in picture. Further, the target capacity to be determined by the Commission should be separate for each arrangement i.e. Net Metering, Net Billing & Gross Metering, or shall be cumulative, needs to be clarified. PSPCL added that the cumulative capacity of all Rooftop Solar Systems under these Regulations allowed to be interconnected with the distribution network (distribution transformer/feeder owned by the distribution licensee) should not exceed 30% of the rated capacity of the distribution transformer and/or the feeder, as applicable. Before enhancing the cumulative capacity, impact of back feeding on distribution transformers needs to be studied. While justifying the foregoing, PSPCL contended that Rooftop Solar plants generates harmonics and distortions like flicker/ DC components causing energy losses/ heating on LV side of distribution transformer. Keeping the cumulative capacity to 30% will eliminate this as excess generated power will be consumed by other consumers on LV side only. PSPCL further commented that all inverters associated with distributed PV systems continuously monitor the grid for voltage and frequency levels. The PV-grid interconnection standards require that the PV systems disconnect when a

voltage or frequency grid abnormality exceeds predetermined levels. If many PV systems installed in a limited area detect a voltage disturbance and disconnect simultaneously, a sharp reduction in generation may occur, which may further exacerbate the voltage disturbance. Moreover, after an outage, if many distributed Rooftop Solar generation systems come back online simultaneously, another grid disturbance may be triggered.

Analysis and Decision

The Commission takes note of the suggestion given by Mandi Gobindgarh Induction Furnace Association. Accordingly, the word “allow” in the opening sentence of the Regulation 5.1 has been substituted for “provide”.

The Commission has further taken note of the comments of PSPCL regarding determination of target capacity and accordingly observes that the Commission shall take all relevant factors in to consideration while determining the target capacity. The Commission further observes that the Report on “Metering Regulation And Accounting Framework For Grid Connected Rooftop Solar PV In India”, accepted by FOR, addressed the technical gaps such as identification of maximum individual capacity of a GRPV system that can be safely connected to the distribution grid without crossing the thermal limit and creating over-voltage at interconnection. Various parameters such as different types of feeders (rural/ urban, residential/ commercial), different types of DTs and different feeder lengths were considered for gauging the impact of GRPV on grid performance, reverse power flow and over voltage. The study concluded that in case the permitted distributed generation capacity is restricted to the sanctioned load/ contract demand, aggregate SPV power plant capacity (AC nominal power of inverter) can be set up to 100% of DT capacity (even under worst case scenario(s), i.e. with 0% running load, considering feeder’s thermal capacity as the deciding factor). Now most of the SERCs are allowing cumulative capacity up to 100% of the DT/feeder capacity. However, considering the normative limit for loading of transformer/feeder being adopted by the distribution licensee, maximum cumulative capacity of all Rooftop SPV systems has been restricted to 80% of the rated capacity of

the distribution transformer/feeder. Accordingly, no amendment further to the one in the First Para above is required.

(ii) Regulation 5.2

Prayas suggested that the updation of DT capacity by DISCOMs should be done at least quarterly and similar data should be updated for feeder level. Apart from this, it would be better if the DISCOM also publishes the following information which would be useful for planning:

- a. Details of circle/ feeder wise rooftop generation capacity,
- b. Circle-wise quantum of excess generation and payments made for the same,
- c. Number and capacity of behind the meter RE systems which are not availing net metering/net-billing,
- d. Average time taken for processing an application in each circle (in this year and last year),
- e. Number of DTs where the capacity threshold has been reached,
- f. Number of pending applications with the distribution licensee
- g. Delays if any in making payments to consumers

Analysis and Decision

In the beginning, annual updation of the DT /feeder level capacity, which is important for the prospective prosumer shall suffice. Publication of other data can be considered later on after smooth implementation of these Regulations.

7. Regulation 6 (Interconnection with the Grid, Standards & Safety)

(i) Regulation 6.1

CleanMax commented that for the purpose of metering under net metering/net billing/gross metering mechanisms, metering Voltage level for interconnection with the grid shall be the voltage level at which the consumer has been given supply by the distribution licensee in accordance with the provisions of Supply Code, 2014, as amended from time to time.

The interconnection voltage should not be the voltage level of supply from the grid as it will unnecessarily require transformers, stepping up and again stepping down of the same power to be used within the premises. In place of interconnection voltage same can be referred for the metering voltage of the net metering /net billing /gross metering mechanism, power at the same voltage level as that of supply to the prosumer.

Mandi Gobindgarh Induction Furnace Association suggested that as per present practice, for SPV system up to 500KW, the interconnection under net metering should be allowed at inverter voltage.

Analysis and Decision

The proposed Regulation is as per the Model Regulations approved by FOR and being followed by other States. In case of net metering and net billing, the consumer meter is to be replaced with bi-directional net meter so the voltage level shall be the voltage level at which the consumer has been given supply by the distribution licensee in accordance with Supply Code, 2014. Due the same reasons, the suggestion of Mandi Gobindgarh Induction Furnace Association, is not acceptable. Accordingly, no change is required in Regulation 6.1.

(ii) Regulation 6.4

PSPCL suggested that the Proviso to the proposed Regulation 6.4 should be made applicable to the rooftop SPV system without battery backup also. PSPCL has reasoned that even for Rooftop SPV system installed without battery backup, the inverter should have appropriate arrangement to prevent the solar power (AC) to flow into the grid in the absence of grid supply and manual isolation switch shall also be provided.

Analysis and Decision

The Commission is of the view that the necessary provision in case of SPV system installed without battery backup has been made in the Regulation 6.6. Thus amendment in Regulation 6.4 is not required.

(iii) Regulation 6.8

The proposed Regulation 6.8 specifies that every renewable energy system shall be equipped with an automatic synchronization device.

Provided that the renewable energy system using inverter shall not be required to have separate synchronizing device if it is inherently built into the inverter.

PSPCL has proposed to substitute the words “renewable energy system” with “Grid Interactive Rooftop Solar PV system” in the proposed Regulations.

Analysis and Decision

Since these Regulations pertain to Rooftop SPV systems so the re-wording suggested by PSPCL has been accepted. Accordingly, Regulation 6.8 is amended as under:

Every Grid Interactive Rooftop SPV system shall be equipped with an automatic synchronization device.

Provided that the Grid Interactive Rooftop SPV systems shall not be required to have separate synchronizing device if it is inherently built into the inverter.

(iv) Regulation 6.9

The proposed Regulation 6.9 specifies that the inverter shall have the features of filtering out harmonics before injecting the energy into the system of the distribution licensee. PSPCL suggested that other distortions like flicker/DC Injection etc. may be added to the Regulation. It has further been suggested that all equipment to be installed under these regulations should conform to the applicable and relevant IEEE Standards.

Analysis and Decision

The words “other distortions” in Regulation 6.9 include flicker etc., so there may be no need to specify each and every distortion in the Regulation. However, the Commission accepts the suggestion that all equipment to be installed under these regulations should conform to the applicable and relevant IEEE/BIS Standards. Accordingly, the Regulation 6.9 has been amended as under:

The inverter shall have the features of filtering out harmonics and other distortions before injecting the energy into the system of the distribution licensee. The Total Voltage Harmonic Distortion (THD) and other distortions shall be within the limits specified in the IEEE technical standards/BIS/Supply Code, 2014 and/or as specified by the Authority. All equipment to be installed under these Regulations should conform to the applicable BIS/IEEE standards.

8. Regulation 7 (Metering)

(i) Regulation 7.4

PSPCL suggested that in case meters i.e. net metering equipment (Bi-directional meters) and the generation meter (unidirectional) are provided by the distribution licensee, consumer shall be liable to pay the entire cost of the meter and no meter rental shall be charged from the consumer.

Analysis and Decision

The Commission accepts the suggestion of PSPCL and amend the proviso to Regulation 7.4 as under:

Provided the eligible consumer may procure the net meter/generation meter and present the same to the distribution licensee for testing and installation as per Regulation 21.2 of the Supply Code. In case meters are provided by the distribution licensee, the consumer shall pay the entire cost of the meters. No meter rental shall be charged from the consumer. The location of the meter shall be as per CEA Metering Regulations.

(ii) Regulation 7.5

CleanMax and PSPCL suggested the requirement of installation of an additional check meter for generation meter of appropriate class by the distribution licensee should be specified only in case Rooftop SPV system is set up under gross metering arrangement.

Analysis and Decision

The Commission agrees with the suggestion of stakeholders. Accordingly, the Regulation 7.5 has been amended as under:

In case of Rooftop SPV system is set up under gross metering, an additional check meter for generation meter of appropriate class shall be installed by the distribution licensee.

9. Regulation 8 (Net metering arrangement)

A number of comments/objections/suggestions, as mentioned below, have been received from stakeholders mainly regarding the maximum allowable capacity of Rooftop Solar SPV Systems under net metering.

CleanMax submitted that It may be okay to cap maximum capacity of rooftop solar PV Power Plant under net metering upto 500 KVA however it will be discriminatory to cap the same for clients with sanctioned load/contract demand upto 500 KW/kVA. Further putting a cap of 50% of the CD/SD will reduce the Solar capacity to not more than 250 KW. Accordingly the objector proposed that;

- a) Capacity not exceeding 500 kW/kVA shall be eligible to allowed under Net Metering arrangement.
- b) Capacity exceeding 500 KW/KVA shall be allowed to install upto their sanctioned load if fulfils the status of captive plant as per Electricity act 2003 and Electricity rules 2005.

PEDA pointed out that the amended/substituted Sub rule 4 of Electricity (Rights of Consumers) Amendment Rules, 2021 provides as under:-

“Provided that where the regulations does not provide for net-metering, net-billing or net feed-in, the Commission may allow net metering to the Prosumer for loads up to five hundred Kilowatt or upto the sanctioned load, whichever is lower and net-billing or net feed-in for other loads:

However, for consumers other than Domestic, the draft regulations provide that the capacity of SPV will be 50% of the CD converted to KW with 0.9 as Power factor. Thus such consumer with 510 KVA demand will be allowed to set up $(510 \times 50\% \times 0.9=)$ 230 KW capacity SPV which is not as per rules of MOP.

Since 1 MW capacity for net metering is already provided in Net Metering Regulations 2015, same should be retained as expressly

permitted in the proviso of rules extracted above Or else the limit of 50% for consumers other than domestic be applied to those having CD above 555 KVA and all consumers having CD up to 550 KVA be allowed to set up the SPV plant as per his CD/CL as applicable.

Further, the average CUF for Punjab based Solar Rooftop Power Plants operation is 18-19%. Usage of CD by industrial/commercial consumers (MDI) is at 75-85%. With capacity limit of 50% of CD (converted to KW with 0.9 PF, actual energy utilised from solar will be only 8 to 9% of the total energy utilised. Therefore the limit needs to be relooked into as Model Regulations of FOR does not provide any limit.

There should be no limit of 50% for consumers opting for Net billing or Gross metering as in such cases cheap power is available to Licensee which can be replaced with thermal power for supply to other consumers at Prevailing tariff reducing the T&D loss of the Licensee and meeting its RPO.

Shree Cements proposed that the consumers may install solar power plant of capacity up to sanctioned load/demand under Net Metering arrangement. The objector submitted that even after allowing the Renewable Energy Plant of capacity up to connected load, this would only meet energy requirement to the extent of only 20% of (peak) captive requirement. Such conditions should be liberalized to enable wider adoption of renewable energy generation.

PSPCL on the other hand that Net Metering arrangement should be permitted to the eligible consumers with sanctioned load/demand upto 10 kW/kVA. Further, clarification is required i.e. if the eligible consumer having sanctioned load /demand of 500kVA availed Net Metering and in case he extends his load/demand beyond 500kW/kVA, whether he can continue under Net Metering or have to switch to Net Billing or Gross Metering.

Analysis and Decision

The Commission has already discussed this issue in Para 6 of this order. To ensure that Clause (a) of the Regulation 8 is in consonance with the Regulation 4.2, the same has been amended as under:

a) *The consumers shall be eligible to opt for Net Metering arrangement as specified in Regulation 4.*

10. Regulation 10 (Gross Metering Arrangement)

PEDA commented that the provision regarding “restriction based on capacity and configuration of the electricity system and the power flows that the SPV system may cause” is not clear and that the conditions governing such restrictions need to be clearly defined in advance so that consumers are able to plan their project accordingly. Rather the decentralised generation is beneficial to the system as it reduces the drawl of power from the main distribution system also reduces PSPCL distribution losses.

PSPCL sought clarification regarding electric layout/installation of meters etc. i.e. whether the supply of solar plant flows through the main energy meter of consumer or not. PSPCL has also sought clarification as to whether the energy generated by consumer can be fed into incoming feeder or a new dedicated feeder/line has to be erected for taking this supply directly to grid. It also needs to be defined as to who will bear the cost of equipment for step up of supply to dedicated voltage level and if any service line is to be erected/augmented then the cost of same shall be bearable by whom. As power shall be purchased from these consumers, so the mode of agreement to be signed with such consumers based on feed-in-tariff also needs to be clarified.

Analysis and Decision

Regarding the comments of PEDA, the Commission is of the view that since large SPV plants may be set up under gross metering, so system study has to be carried out by the licensee for each case as per the provisions of CEA Connectivity Regulations and these Regulations. Nonetheless to bring more clarity, second Para of Regulation 10 has been amended as under:

The consumers may opt for Gross Metering arrangement as specified in Regulation 4 and shall further be restricted to the capacity and network configuration of the electricity system, and the power flows that SPV system

may cause. The energy accounting and settlement under this arrangement shall be in accordance with Regulation 14.

Regarding the comments of PSPCL, the Commission observes that as specified in this Regulation, entire solar generation in case of gross metering is fed in to grid and is recorded by the generation meter whereas the consumer meter records all the power consumed by the prosumer from PSPCL. So clearly the interconnection point of the SPV system under gross metering arrangement is on the distribution licensee side of the consumer meter. The feeder/service line supplying power to the prosumer has been erected as per his sanctioned contract demand and the same line can take up the power injected in to the distribution system. Thus no further amendment in Regulation 9 is required.

11. Regulation 11 (Procedures for application and registration)

(i) Regulation 11.3

PSPCL proposed that a minimum processing fee of Rs. 500/- should be charged from the consumer irrespective of the capacity of the plant, PSPCL field personnel have to visit the site multiple times for technical feasibility, inspection, installation of meter etc. Moreover, there should be no upper limit for processing fee in case of gross metering.

Analysis and Decision

The Commission agrees with the views of PSPCL regarding minimum processing fee and accordingly, the same has been provided in Regulation 11.3.

(ii) Regulation 11.5

PSPCL commented that instead of the proposed period of 20 days, the period for completion of technical feasibility study by distribution licensee should be within 30 days of the date of acknowledgement issued to the applicant for Net Metering and within 60 days of the date of acknowledgement issued to the applicant in case of Net Billing and Gross Metering. PSPCL contended that longer time period is required as feasibility study of so many generators will become a cumbersome process for

PSPCL and load flow studies may also be needed. PSPCL added that huge penalty/ compensation is imposed on licensee in case of delay, as such a practical time period may be given for feasibility study.

Analysis and Decision

The Commission observes that the timelines specified in Regulation 11.5 are as per the Electricity (Rights of Consumers) Rules, 2020 notified by GoI. Moreover the 'Days' has been defined in these Regulations as 'working days'. Thus no amendment in Regulation 11.5 is required.

(iii) Regulation 11.6

PSPCL commented that instead of the proposed period of 22 days, the distribution licensee may be allowed to approve the application and intimate the same to the applicant by providing a Letter of Approval (LoA) via email/SMS/post/Web Portal within 32 days from the issuance of acknowledgement of the application for Net Metering and within 62 days for Gross Metering & Net Billing. PSPCL pleaded that since Web Portal has been started by PSPCL for Net Metering Consumers, so same may be added in Regulations.

Analysis and Decision

The Commission is of the view that the legal mode of communication is through registered letter or registered email/SMS and not through web portal. Further, the timelines specified in proposed Regulation 11.5 are as per the Electricity (Rights of Consumers) Rules, 2020 notified by GoI. Thus amendment in Regulation 11.6 is not required.

(iv) Regulation 11.7

PSPCL suggested that in case of any deficiencies found in the application or during technical feasibility study, the distribution licensee may intimate the same to the applicant through email/SMS notification/ Web Portal within 30 days, instead of 20 days allowed in proposed Regulation 11.7, from the date of issuance of acknowledgement of the application.

Analysis and Decision

The Commission has already discussed these issues above. Thus amendment in Regulation 11.7 is not required.

(v) Regulation 11.8

PSPCL sought web portal also as the means of communication for the applicant to intimate the distribution licensee about the resolution of deficiencies.

Analysis and Decision

The Commission has already discussed these issues above. Thus amendment in Regulation 11.8 is not required.

(vi) Regulation 11.9

PSPCL suggested to omit this Regulation with the justification that the upgradation of distribution infrastructure like augmentation of service line, distribution transformer capacity, etc., is only carried out to strengthen distribution network for providing power supply to consumer and same should not be carried out for the sole purpose of granting feasibility for the rooftop solar plant. It has further been contended that as per Regulation 5.1, limit on rated capacity of distribution transformer/feeder is in place; hence proposed Regulation 11.9 will contradict the proposed Regulation 5.1 and no upgradation/augmentation of distribution network to be done only to accommodate solar rooftop consumer at the cost of licensee.

Analysis and Decision

The proposed Regulation 11.9 is as per Rule 11(8) of the Electricity (Rights of Consumers) Rules, 2020 notified by GoI. However, to align this Regulation with Regulation 5.1 but at the same time make its implementation time bound, Regulation 11.9 has been amended as under:

In case, there is any requirement of upgradation of distribution infrastructure like augmentation of service line, distribution transformer capacity, etc., for installation of the required capacity of solar PV system, the same shall be carried out by the distribution licensee within

a period of 180 days failing which the application of the consumer for setting up SPV plant shall be deemed to have been approved.

(vii) Regulation 11.11

Mandi Gobindgarh Induction Furnace Association suggested that the period for submission of installation certificate should be minimum eight months which should be extendable up to one year with late fee.

Analysis and Decision

The period of 180 days for installation is adequate and in case of delay, consumer can seek extension as per the Regulation 11.12. Thus there is no need to amend the Regulation.

(viii) Regulation 11.12

The proposed Regulation 11.12 specifies that In case the consumer fails to install the system within 180 days or to get the period extended then the application shall stand cancelled and the prosumer shall need to re-apply. However, the consumer will be eligible to apply afresh in the next financial year but his application will be kept at the bottom of the list of applicants. Such consumer will be permitted to set-up the plant only if after allotting the capacity to all successful applicants above him, there is still capacity available for allotment. PSPCL suggested that for better clarity, the Regulation should specify that such consumer will be permitted to set-up the plant only if after allotting the capacity to all successful applicants above him in the next financial year, there is still capacity available for allotment.

Hero Future Energies Pvt. Ltd. suggested that extension in timeline should be allowed without extension fee in case of delay due to any force majeure event and that the Commission should also recognise the event under which the extension shall not be allowed.

Analysis and Decision

Regarding the suggestion of Hero Future Energies Pvt. Ltd., the Commission is of the view that such provision may germinate different

interpretations and disputes. Accordingly, the foregoing suggestion is not accepted.

Regarding the comments of PSPCL in respect of extension fee, the Commission is of the view that the proposed extension fee is adequate. Further, the Regulation is quite self-explanatory. Nonetheless, to further bring clarity, the words “in the next financial year” has been inserted in the Regulation 11.12 as suggested by PSPCL.

(ix) Regulation 11.13

AP Technologies and REMA have suggested that Contract timelines between licensee and prosumer should be defined. Another Objector Sh. S.S.Bedi has commented that in order to further improve the quality implementation in the field, post installation monitoring i.e. Feedback report on quarterly/ six monthly basis by Service Provider/Empanelled vendor along with comments of consumer should be submitted to PSPCL for some period although main parts - SPV panels & Inverter of the systems are strictly installed as per make approved by MNRE in order to avail Central subsidy. Further, insurance against natural calamities like storm etc may also be looked into.

Analysis and Decision

The Commission is of the view that the operational issues pointed out by the objector cannot be included in the Regulations. The arrangements are purely commercial between the vendor and the consumer. Regarding the suggestion of AP Technologies and REMA to specify contract period for the agreement, the Commission has specified the same in Regulation 11.13.

12. Regulation 12 (Net Metering - Energy Accounting and Settlement)

(i) Regulation 12.1

Sh. S.S.Bedi suggested that in the billing cycle of monthly electricity bill, the new & old meter readings are generally mentioned from 1st of current month to 1st of old month i.e. for 30 /31 days which do not match with actual reading taken date. It should be on the correct date basis as is being done for all the rest residential meters & their billing. This would also match

with Solar smart client app reading (available of current & past days) in mobile of consumer provided by empanelled service provider as a part of their turnkey contract & also show the correctness of both solar generation readings.

Analysis and Decision

The Commission observes that the billing cycle is according to the PSERC (Supply Code and Related Matters) Regulations, 2014. Accordingly, change in the Regulation 12.1 is not required.

(ii) Regulation 12.2

PSPCL suggested that Installed plant capacity is also required to be printed on the energy bill in case of net-metering, as it shall be useful to keep check on installed capacity.

Analysis and Decision

The Commission accepts the suggestion given by PSPCL and accordingly the same has been inserted.

(iii) Regulation 12.3

(i) Prayas commented that the consumer uses the grid as a virtual bank by banking excess generation and un-banking the same as needed throughout the year, thereby saving on the cost and efficiency loss from the use of a battery system. There is a cost to the energy banking service since the price of electricity varies throughout the day and across the year as well, corresponding to demand patterns, weather, generation availability etc. The cost of this energy banking as well as providing reliability is borne by the DISCOM (i.e. the non-rooftop solar consumers). Thus this banking service should be valued appropriately and the prosumer should at least partly bear the cost and risk of reliability and future uncertainty. Accordingly, Prayas has suggested that while allowing net metering to all consumers, a slightly varying treatment for SPV projects of different capacities may be considered in respect of banking charges and buyback rate.

- (ii) PSPCL commented that the Regulation should be kept same as per existing Regulation 11.3 of PSERC (Grid Interactive Rooftop Solar Photo Voltaic Systems) Regulations, 2015. PSPCL contended that the consumers are using the PSPCL's electrical network within the settlement period without any charges and associated losses. With increasing number of consumers opting for Rooftop SPV systems under Net Metering, PSPCL loses revenue due to less sale and also pays the stranded power purchase cost, thus affecting its financial viability. Moreover, Solar power is infirm in nature and distribution licensee has to pay DSM penalties on account of deviations in schedule and drawal. PSPCL has thus requested that the solar rooftops should not eventually grow into a big category of generators wherein, they seek to get into the business of selling power and make commercial benefit out of surplus power generated. As the benefit of banking for settlement period is already being provided to beneficiary free of cost, the excess of 90% of total consumption of energy at the end of settlement period should be considered as inadvertent injection as proposed in the draft Regulations in case of Net-billing where Billing Credit at the end of settlement period is made zero.
- (iii) Sh. S.S.Bedi commented that as most of the states are offering some rates on surplus exported units after settlement period of 1 year, Punjab should also offer some rates to encourage consumers. Mandi Gobindgarh Induction Furnace Association has suggested that any excess generation over consumption should be accounted/billed as per tariff for the time block of excess generation.
- (iv) CleanMax suggested that the Clause (i) of Regulation 12.3 should be applicable to all SPV systems and not only to Net Metering and additional surcharge should also be mentioned as exempted for SPV systems.

Analysis and Decision

- (i) The Commission finds merit in the comments of Prayas in respect of levying banking charges on the prosumer as the latter shall use the

distribution system of the licensee for banking. But a comprehensive proposal after examining all the aspects has to be formulated and put the same in public domain. The Commission will revisit the matter after carrying out detailed analysis of the implementation of these Regulations.

- (ii) All the existing consumers who have set up Rooftop SPV systems are covered in under Net Metering and the deviation in the commercial arrangement under Net Metering in the existing 2015 Regulations and these Regulations is Settlement period and treatment of excess injection by prosumer at the end of settlement period. As discussed in para 3 above, it has been decided to continue with the same settlement period as exists in NEM Regulations 2015. As discussed in para (i) of this objection, the prosumers under Net Metering are enjoying the benefit of free banking for one year which has a cost which is shared by other small consumers of the licensee who do not opt or are not in a position to install SPV plants. Thus, to be fair to all the consumers of the State, in addition to the limit of capacity of solar plants to be installed, the Commission accepts suggestion of PSPCL and amends the clause (d) of Regulation 12.3 as under:

The electricity generated from a rooftop solar system shall not exceed 90% of the electricity consumption by the consumer in a settlement period:

Provided that in the event of electricity generated exceeding 90% of the electricity consumed at the end of the settlement period, no payment shall be made by the distribution licensee and shall not be carried forward to the next settlement period and the same shall be treated as inadvertent injection:

Provided further that at the beginning of each settlement period, cumulative carried over solar electricity injected shall be reset to zero.

It will also take care of the pragmatic difficulty of treating the net metering prosumers with different accounting systems under two sets of Regulations.

- (iii) The Commission has dealt with this matter in Para (ii) above
- (iv) The Commission accepts the suggestion of CleanMax that exemptions should be applicable to all SPV systems. Accordingly, clause (i) of the Regulation 12.3 has been taken out and inserted as Regulation 16 and Regulation 16 shall be renumbered as Regulation 17 and so on.

13. Regulation 13 (Net Billing or net feed-in arrangement- Energy Accounting and Settlement)

(i) Regulation 13.1

PSPCL suggested that the installed plant capacity may also be printed on the energy bill in case of net billing.

Analysis and Decision

The Commission accepts the suggestion given by PSPCL and accordingly the same has been inserted in Regulation 13.1.

(ii) Regulation 13.2

AMP Energy commented that a fair Feed-in Tariff (F.I.T.) will be very crucial for Gross Metering and Net-Billing or Net Feed-in and it must meet the needs of the rooftop generator as well as the DISCOM. In this regard, Average Cost of Supply (ACoS) may be chosen as the appropriate measure for the F.I.T. of rooftop solar, as APPC (national average approx. Rs. 3.6) makes solar rooftop projects unviable while ACoS will give an acceptable return to consumers, while also aiding DISCOMs.

PSPCL suggested that in the equation for Energy Bill, "Billing Credit" may be substituted with "Billing Credit (carried forward from the last billing cycle)". PSPCL has also sought clarification i.e. other applicable charges and levies will be calculated on which figure.

Analysis and Decision

Regarding the suggestion of the AMP Energy, the Commission is of the view that while determining feed-in-tariff all relevant factors shall be taken in to account.

The Commission accepts the suggestion given by PSPCL to add the words “(carried forward from the last billing cycle)” with the “Billing Credit” in the Energy Equation. Further, it is pointed out that the government taxes and levies shall be as per the instructions/guidelines issued by the government.

14. Regulation 14 (Gross Metering arrangement- Energy Accounting and Settlement)

PSPCL commented that the energy accounting of gross metering needs to explained in detail regarding whether a separate monthly invoice shall be raised by the consumer for units sold to licensee or shall be accounted in the single bill raised by the licensee to the consumer and further what details have to be shown in these invoices.

Analysis and Decision

The Commission is of the view that a single invoice may be raised by PSPCL for the convenience of the prosumer and the same has been clarified in Regulation 14

15. Renumbering the Proposed Regulation 16 as Regulation 17 and so on and Insertion of new Regulation 16

The Commission is of the view that to ensure clarity, the Regulations should include an explicit provision that the SPV system installed under these Regulations shall be exempted from all wheeling, cross subsidy, transmission and distribution and banking charges and surcharges. Accordingly, the Regulation 16 shall be renumbered as Regulation 17 and so on for subsequently Regulations and new Regulation 16 shall be inserted as under:

16. Applicability of other charges

The SPV system installed under these Regulations shall be exempted from all wheeling, cross subsidy, transmission and distribution and banking charges and surcharges.

16. Regulation 18 (renumbered as 19)(Penalty or Compensation)

- (i) Prayas suggested that the maximum penalty may be increased from Rs. 2000 to Rs. 5000. Moreover, the consumer should have access and be aware of claims to pending fines through the web-based system. Such provisions for transparent tracking and penal provision can go a long way in ensuring accountability of the DISCOMs for ensuring streamlined and effective processes.

PSPCL has however, commented that the amount of penalty is on very high side in comparison to the processing fees to paid by the consumer. So either the processing fees be increased significantly without any upper bracket or compensation be decreased significantly.

- (ii) PSPCL proposed that there must be a provision regarding penalty in case the installed capacity of RTS plant is found to be more than the approved capacity and recommended that all the units exported to PSPCL by the RTS solar plant, be forfeited with effect from the date of installation of the RTS plant or one year whichever is less. Further, the agreement be terminated immediately and the Rooftop Solar plant be disconnected from the PSPCL Distribution system. Such consumer will be permitted to set-up the plant only if after allotting the capacity to all successful applicants above him in the next financial year, there is still capacity available for allotment.
- (iii) PSPCL proposed that in case a RTS plant is found running in parallel without any approval, his connection should be disconnected and reconnected only after isolation of the RTS plant. One year bill be revised on the basis of consumption of previous year when the RTS plant was not installed. Such consumer will be permitted to set-up the plant only if after allotting the capacity to all successful applicants above him in the next financial year, there is still capacity available for allotment.
- (iv) PSPCL also requested that it may be clarified that only one mode of billing (Either Net metering or Net billing or Gross metering or CPP) shall be

applicable to any one eligible consumer i.e. it shall not be possible to permit Net metering/Net billing up to a particular capacity of Solar Plant and different mode (Gross Metering/CPP) above that. If such case is detected then penalty as proposed above shall be imposed.

Analysis and Decision

- (i) The Commission is of the view that the penalty proposed is adequate. Moreover, as per Rule 11(12) of the Electricity (Rights of Consumers) Rules, 2021, the minimum compensation prescribed is Rs. 500 per day. Thus no change in the proposed Regulation 18 (which shall be numbered as 19 in the approved Regulations) is required.
- (ii) We agree with the suggestion of PSPCL that deterrent must be provided in the Regulations to curb the tendency of some prosumers to install SPV plants of higher capacity than approved/sanctioned by licensee. Accordingly the Commission decides to insert Regulation 19.2 as under;

In case the installed capacity of the SPV plant in the premises of the prosumer is found to more than the sanctioned capacity, the energy injected in to the grid by such prosumer for the last 6 billing cycles or date of installation, whichever is later, shall be treated as inadvertent injection and no payment/credit shall be payable/available to the prosumer for such injection by the distribution licensee. A 15 days notice shall be served to the prosumer to disconnect the excess capacity failing which the agreement may be terminated by the distribution licensee. The consumer may apply afresh in the next financial year but his application will be kept at the bottom of the list of applicants. Such consumer will be permitted to set-up the plant only if after allotting the capacity to all successful applicants above him in the next financial year, there is still capacity available for allotment.

- (iii) The Commission agrees that running of SPV plants in parallel with the distribution system of the licensee without approval and necessary safeguards may result in serious safety issues and needs to be tackled. Accordingly the Commission decides to insert Regulation 19.3 as under;

In case any SPV plant is found to be running in parallel with the supply system of the distribution licensee without approval then supply of such consumer may be disconnected without notice and the supply shall be restored only after the plant is isolated from the supply system of the licensee. Such consumer may apply for SPV plant in the next financial year but his application will be kept at the bottom of the list of applicants. Such consumer will be permitted to set-up the plant only if after allotting the capacity to all successful applicants above him, there is still capacity available for allotment.

No comments/objections/suggestions in respect of other Regulations have been received. Accordingly, the Commission approves the Punjab State Electricity Regulatory Commission (Grid Interactive Rooftop Solar Photo Voltaic Systems) Regulations, 2021 with modifications as discussed above and with some drafting changes necessitated due to amends in the Regulations.

Sd/-
(Paramjeet Singh)
Member

Sd/-
(Anjuli Chandra)
Member

Sd/-
(Viswajeet Khanna)
Chairperson

Chandigarh

Dated: **16.08.2021**