

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

**Petition No. 29 of 2022  
Date of Order: 19.04.2023**

Petition Under Section 42, 86 and other applicable provisions of Electricity Act, 2003 seeking approval of the Terms and the Conditions or banking Facility to be provided to Solar Captive Power Plants in the State of Punjab.

AND

In the matter of : Punjab State Power Corporation Limited having its office at PSEB Head Office, The Mall, Patiala, Punjab  
.....Petitioner

Versus

1. Punjab State Transmission Corporation Limited, having its office at PSEB Head Office, The Mall, Patiala, Punjab.
2. Punjab Energy Development Agency, having its office at Plot No.1 and 2, Sector 33-D, Chandigarh, through its Director.  
.....Respondents.

Commission: Sh. Viswajeet Khanna, Chairperson  
Sh. Paramjeet Singh, Member

**ORDER**

PSPCL filed the present petition for approval of the terms and conditions for providing banking facility to Solar Captive Power Plants in the State of Punjab under Section 42, 86 and other applicable provisions of the Electricity Act, 2003 read with Regulation 8(1) of PSERC (Harnessing of Captive Power Generation) Regulations, 2009. PSPCL submitted that banking of energy to Solar and Wind Generating Stations is required since the electricity generated through these sources cannot match the consumption pattern of the captive users due to their variable nature of generation. It was further submitted that banking facility is to be provided on commercial terms and conditions to ensure that it does not result in higher burden on the general consumers of the State. The salient features of the draft banking agreement submitted by PSPCL were as under:-

- (a) The banking facility is to be provided for captive solar generating stations, who fulfill the captive criteria as contained under Rule 3 of the Electricity Rules, 2005;

- (b) The banking facility shall be allowed throughout the financial year and banked energy shall be allowed to be carried forward from month-to-month till the end of the financial year. The unutilized electricity at the end of the financial year shall lapse;
- (c) The drawl of banked energy can be undertaken for the entire year, except for the period from 1<sup>st</sup> June to 30<sup>th</sup> September, which is the peak paddy season in the State of Punjab. Further, the drawl of banked power shall not be permitted during peak hours;
- (d) For the facility of banking, the company is required to apply for open access in accordance with the Open Access Regulations and procedures approved by the Commission;
- (e) The banking charges shall be levied in kind @ 15% of the electricity that is banked by generator with the Petitioner;
- (f) It shall be the obligation of the generating station and the consumer to ensure that captive criteria as provided in Rule 3 of the Electricity Rules, 2005, are complied with at the end of each financial year. In case of such non-compliance, the entire banked units shall lapse with consequent commercial charges on the consumer.

The petition was admitted vide Commission's Order dated 01.06.2022 and the respondents were directed to file reply within 2 weeks.

PEDA filed its reply vide letter dated 26.07.2022. During the hearing on 21.09.2022, Counsel for PSPCL and PEDA submitted that since PSERC (Harnessing of Captive Power Generation) Regulations, 2022 are being framed by the Commission and would have a bearing on the adjudication of the petition, the matter may be heard after notification of the aforesaid Regulations. The request of learned counsel was accepted by the Commission.

The Commission notified PSERC (Harassing of Captive Power Generation) Regulations, 2022 vide Notification dated 27.10.2022 (hereinafter referred as CPP/CGP Regulations, 2022) repealing the PSERC (Harassing of Captive Power Generation) Regulations, 2009 along with amendments. Accordingly, PSPCL was directed vide order dated 24.11.2022 to submit a detailed procedure for banking

along with Model Banking Agreement within a month in accordance with the provisions of the CGP Regulations, 2022. PSPCL was further directed to publish a Public Notice inviting objections/comments of the stakeholders on the draft Banking procedure as per the provisions of PSERC (Conduct of Business) Regulations, 2005. The Public Notice was published on 07.01.2023 inviting objections/comments within 7 days from the date of publication of the notice. Public Hearing was also held on 18.01.2023 in the office of the Commission. During public hearing, counsel for PEDDA and other stakeholders requested the Commission to extend the date of submission of objections/comments. On the request of the stakeholders, the date for submission of objections/comments was extended by 14 days from the date of publication of notice dated 24.01.2023. In response to the Public Notice, objections/comments from the following stakeholders have been received;

<b>Objection Nos.</b>	<b>Name of Objector</b>
1	ITC Limited India Tobacco Division
2	KRBL Limited
3	Steel City Furnace Association
4	Punjab State Transmission Corporation Limited
5	Punjab Energy Development Agency

In response to the objections/suggestions received from the stakeholders, PSPCL submitted its reply along with the revised Banking procedure vide CE/ARR&TR memo No. 5479 dated 28.02.2023.

During the hearing on 01.03.2023, PSPCL was directed to submit its reply to objection no. 5 within a week since it had been received after PSPCL's reply to other responses from the stakeholders. After hearing the matter, the order was reserved. PSPCL submitted its reply to objection no. 5 vide CE/ARR&TR memo No. 5579 dated 13.03.2023.

The gist of the objections/comments received from the stakeholders and reply of PSPCL is as under:

**1. Clause No. 2: Captive User**

**Objection Received**

The objectors submitted that the definition is not as per CPP Regulations. CPP Regulations also cover Co-generation and co-located plants but the

definition in the procedure covers only CPPs bringing green power under open access. The procedure being framed under the CPP regulations cannot exclude CPPs not availing open access.

### **Response of PSPCL**

The definition of captive user was amended for covering only RE based CPPs, as the facility of banking is only applicable for RE based CPP/Captive users. However, the definition now has been amended in line with the provisions of CPP Regulations.

## **2. Clause No. 3: Applicability**

### **Objections Received**

- (i) The objector pointed out that the title of the procedure shows that the procedure is being framed under CPP regulations which are applicable to all CPPs irrespective of the fuel used whereas banking is being permitted to only RE based power and the illustrations/examples in the procedure regarding accounting of the energy under banking and drawl is also of solar power plant supplying power under open access only. The facility of banking should be made available to co-located CPP/CGPs using the captive power within their premises without using PSPCL grid system and no open access as per the Act/Regulations.
- (ii) In view of the peculiar operational requirements of biomass based co located captive and co-generation plants, net metering facility for such plants be allowed on the lines of solar plants. The Commission can impose some additional conditionalities keeping in view the procedural and other reasonable requirements of PSPCL. Since the cost of generation of Biomass fuel-based plants is much higher than the APPC of PSPCL so the banking facility is required for such plants to optimize its operations and also to provide pollution free environment. Such plants also have huge employment potential.

### **Response of PSPCL**

- (i) The draft procedure for banking has been suitably amended to incorporate provisions regarding grant of banking to RE based Co-gen plants/ co-located CPP/CGPs. However, as per the definition of banking in CPP

Regulations, the banking facility is only applicable for RE based CPP/Co-gen (including Co located) Plants.

- (ii) PSPCL does not agree with the proposal to allow net metering facility to biomass based co-generation plants as the same is against the provisions of all prevailing regulations.

**3. Clause No. 4: Terms & Conditions for operating CGP and Registration of CGP:**

**Objection Received**

The objector suggested that in line with the policy of GOP, on-line approval of all the CPP/CGPs may be granted for transparency and ease of doing business. Off line approval has been specified for CPP/CGPs involving sale of power (including open access) which is time consuming, non-transparent and gives rise to unethical practices.

**Response of PSPCL**

The Open Access application module is being implemented by SLDC under SAMAST scheme and is not part of Single window system. Accordingly, the matter will be taken up with SLDC for inclusion of banking module in SAMAST scheme.

**4. Clause No.7: Application for Banking**

**Objections Received**

- (i) The para(s) covers only those RE projects which wheel power through open access. Co-generation plants and captive plants meeting the requirements of Electricity Rules 2005 and co-located with the captive load within the same premises need to be provided banking facility through net metering or any other arrangement as deemed fit.
- (ii) As per the proposed Clause 7.1, applicant shall apply atleast one month prior to the commencement of wheeling/banking after grant of Open Access by the Nodal Agency. Thus, after grant of OA, applicant cannot avail banking facility for one month as there is one-month period gap between start date of Open Access and commencement of Banking as per the proposed Clause.

As such, provision for applicant to apply simultaneously for grant of OA and banking may be added so that Banking facility may be commenced from the start date of Open Access after submission of Open Access agreement by the applicant.

- (iii) In case of Partnership firm, the competent authority for authorization for filing of application etc. may also be specified.
- (iv) In order to provide an assurance to the consumers, who would be putting in significant investments, against any unforeseen regulatory changes, it is recommended that the maximum term of all approvals & agreements be set as 25 years (life of the solar plant).

#### **Response of PSPCL**

- (i) Refer to the comments against para 2(i) above
- (ii) The clause has been incorporated in the draft procedure for banking
- (iii) In case of partnership, authorization letter/ power of attorney from all partners will be required for authorized signatory (entrusted with signing of banking application and documents submitted along).
- (iv) The term of banking agreement shall not be more than the validity of open access approval/agreement or as mutually agreed by the CGP/Captive user and PSPCL.

#### **5. Clause No.8.1:**

##### **Objections Received**

- (i) It is proposed clause 8.1, the drawl of banked energy would not be allowed during the paddy season (4 months in a year from June to September, when generation is at its highest), however the entire banked energy would be allowed to be carry forwarded to the subsequent months. In order to maximize utilization of banked power, it is recommended that the banking cycle start from June and end in May. This would allow the consumers an additional two months to adjust the excess banked energy.
- (ii) Paddy Season / peak season / peak seasonal period appears to be erroneously mentioned as commencing from 1<sup>st</sup> June to 31<sup>st</sup> October

instead of 1<sup>st</sup> June to 30<sup>th</sup> September as contemplated in the CPP Regulations. This may please be corrected.

- (iii) PSPCL has proposed 4 different times for peak hours across all months of the year. However, the ToD tariff in place till date had a peak hour surcharge of Rs. 2 / kVAh only during the Paddy Season. In fact, off-peak ToDs (10 PM – 6 AM) in the non-paddy season had an incentive of Rs.1.25 / kVAh. Considering that the energy accounting procedure is already very stringent (time-block), it is recommended to define peak load hours only during the paddy season (6 PM – 10 PM).

In line with the recommendations of the Forum of Regulators, the Commission may consider the possibility of allowing the energy banked in off-peak hours to be consumed during peak hours by levying a suitable charge.

- (iv) As per TOD tariff, the Commission has approved peak hours for 4-hour duration from 6 to 10 PM during the four months of June to September. While retaining these peak hours, PSPCL has proposed evening peak hours of 2-hour duration and morning peak hours of 2 hours for 8 months of non-paddy period each. Thus, consumer availing banking will not be allowed drawl of banked power during 4 hours daily for  $365-123= 242$  days and 24 hours daily during 123 days of paddy period totaling 3920 Hours out of 8760 which works out to 45%. Thus, a captive consumer will be allowed to draw power from PSPCL for only 55 % of the time. We request that the peak load hours and period need to be pruned drastically. In fact, there is no justification for declaring any period other than approved TOD peak period under TOD regime by the Commission. Only 4 month of TOD peak period may be declared as the period where drawl of banked power will not be allowed.

Further, if all such period where PSPCL faces peak demand are not available for drawl of banked power where PSPCL may have to purchase costly power then there is no justification of any banking charges because PSPCL is not incurring any additional expenditure for providing banking

and consumers will be paying Open Access charges to PSTCL/SLDC/PSPCL also.

Conversely, if drawl of banked power is not permitted for 45% of the period and PSPCL is to return the banked power only from its own cheap sources, completely avoiding power purchase then there is no justification of any banking charges because PSPCL is not incurring any additional expenditure for providing banking and consumers will be paying Open Access charges to PSTCL/SLDC/PSPCL also and helping PSPCL to reduce costly purchases during paddy season.

### **Response of PSPCL**

- (i) It is agreed that the suggestion/proposal is contrary to the provisions of Harnessing of Captive Power Generation Regulations, 2022, yet the proposal was made based on the genuine reason of extension of paddy season. The Commission may decide as it may deem fit.
- (ii) It is agreed that the suggestion/proposal regarding extending the paddy season to 31<sup>st</sup> October is contrary to the provisions of CGP Regulations, 2022, yet the proposal was made based on the genuine reason of extension of paddy season.
- (iii & iv) While allowing the facility of banking, PSPCL has to offtake the variable banked energy at one time and provide drawl of banked energy at another time, absorbing the difference in availability/demand varying throughout the day and energy rates (which varies depending on time of use).

The difference in demand and market rates during peak and off peak period for FY 2021-22 is enclosed for kind perusal of the PSERC. It is observed that while the market rates are higher during morning and evening peak periods throughout the year, the demand is also higher in such period. The demand curves showing variation in demand during the day for each month of the year (based on average time block wise demand of last 9 years, excluding covid period) is enclosed for kind perusal of PSERC.



In view of above, it can be inferred that the peak load hours extend throughout the year (in morning as well as evening) in both paddy season as well as non-paddy season.

It is worth mentioning that the facility of banking is allowed to RE based captive generators in order to ensure that the surplus RE generation can be utilized by the CGP/Captive user during a succeeding period. The intent for CGP is to basically meet its captive demand and under normal circumstances the CGP will not have to bank any energy with PSPCL. The facility of banking is not meant for allowing the captive generator to install additional generation capacity just for the purpose of nullifying consumption of its captive user. As such, in case the CGP avails the facility of banking in its true spirit i.e. by banking its surplus power for later use, it will have enough time to utilize its banked energy in full without any lapse.

**6. Clause 8.2**

**Objections Received**

- (i) Since excess energy at the end of each month (beyond 30%) and at the end of the year is treated as lapsed and no compensation is paid, it is recommended that banking charges be levied only on the energy which is actually utilized and not the total energy which is banked. This would become very significant if and when banking charges are levied as Rs. per kWh.
- (ii) As per the Clause no. 3 “Applicability” of Detailed Procedure for Banking of Power, Banking Facility is applicable only for CGP and Captive Users wheeling power from such CGPs. However, as per clause no. 8.2, banking will be allowed to Green Energy Open Access Consumers (Whether Captive or non-Captive). Hence, the word ‘Green Energy Open Access Consumer’ may be deleted from here if Banking facility is applicable only for CGP and Captive users wheeling power from CGPs.
- (iii) GEOA Rules provides that

*(2) The permitted quantum of banked energy by the Green Energy Open Access consumers shall be at least thirty percent of the total*

*monthly consumption of electricity from the distribution licensee by the consumers.*

However, the Regulation and Procedure in this para provide that

*The permitted quantum of banked energy to be carried forward to next month shall be up to 30% the total monthly consumption of electricity from the distribution licensee of the area. The excess energy banked shall be treated as dumped energy and shall not be carried forward to next month.*

The provision needs to be aligned in line with the rules.

Further, to promote production of green hydrogen and ammonia as per National Green Energy Mission and Green Energy Policy notified by GOI/MOP, this limit of 30% needs to be enhanced appropriately for Hydrogen/Ammonia production facilities to be set up in Punjab to boost investment and create employment.

- (iv) There should be no restrictions on the banking of power keeping in view the present nil/miniscule capacity of renew based captive power plants in the State of Punjab. A view on capping banking facility for renew energy based captive power plant may be taken later on once such capacity grows to 30-40% of the total installed capacity of the State. This would also help the Discom to buy lower power units than otherwise during the peak demand season (June-Sept) for industry supply purpose as same would be partially sourced from such renew energy based captive power plants also. This would also help to bring down the average cost of supply for the Discom.

Without prejudice to the above mentioned, if the banking facility has to be limited to 30% of the power drawn from PSPCL, the same may be restricted on annual basis. While for deviation settlement mechanism (DSM) purpose, the 15 minutes period/monthly may be adopted but **for accounting purpose, the 30% of power drawn from PSPCL on annual basis should be adopted.**

## Response of PSPCL

- (i) The lapse of banked energy in excess of 30% (of consumption from PSPCL) is applicable only on the banked energy to carried forward to next month and not on the whole energy banked during the month.

Moreover, while allowing the facility of banking the distribution company acts as an energy storage system which is used by the generator by storing its surplus energy for later use. As PSPCL has to cater/absorb the variable banked energy injected into the system, the banking charges are liable to be charged on injected banked energy instead of utilized banked energy similar to the monetary banking system. Further, the vigilant generator/captive user is always at liberty to inject/utilise such quantum of banked energy, which can avoid the lapse of energy. Please also refer to comments against para 5(ii) above.

- (ii) The clause has been amended in the draft procedure for banking
- (iii) The provision is in-line with the provisions of Harnessing of Captive Power Generation, Regulation 2022. Further, in regard to the enhancement of limit of 30% for hydrogen/ammonia production, it is submitted that there is no such provision in Green Energy Open Access Rules and Regulations issued by the Commission.
- (iv) PSPCL has proposed 15-minute time-slot wise accounting of banked energy in line with the
- a. provisions of PSERC (Terms & Conditions for Intra-State Open Access Regulations), 2011, as amended from time to time, mandating 15-minute time-block wise scheduling and accounting.
  - b. recommendations of FOR in its report on “developing model regulations on methodology for calculation of open access charges and banking charges for green energy open access consumers”
  - c. recommendations of Prayas Group in its July-2022 report on “Estimating impact of renewable energy wheeling and banking arrangement on Karnataka ESCOMs”, wherein it has been concluded that there is need to shift to monthly slot-wise banking from the existing

annual banking.

d. Accounting methodology being followed in the State of Haryana.

The proposal regarding adopting 30% of power drawn from PSPCL on annual basis is against the provisions of CPP Regulations and PSPCL does not agree with the same.

**7. Clause 8.5**

**Objections Received**

- (i) PSPCL is considering infirm energy generated before COD of project and/or energy injected for banking in excess of 30% and/or all energy injected in case of non-captive status etc. as dumped energy for which no payment will be made. All this power will be supplied by PSPCL to consumers earning revenue or used to reduce its Distribution losses or reduce purchase/back down its generation thus saving fuel cost and also adjust against its RPO. Thus, it will fetch some savings/revenue to PSPCL. Therefore, we request for payment for such dumped energy at the rate of feed in tariff or as deemed fit by the Commission.
- (ii) PSPCL should pay for the dumped energy at the rate of feed in tariff for KUSUM Projects as such energy will be used by PSPCL to reduce its Transmission and Distribution losses, dumped power will earn revenue and such power will be adjusted against RPO.
- (iii) PSPCL should pay for the dumped energy from the date of synchronization to date of commercial operation at the rate of feed in tariff or as per DSM Regulations as per MYT Regulations 2022 as such infirm energy injected into the grid will be sold to consumers thereby earning revenue will be counted by PSPCL to reduce its Transmission and Distribution losses, and such power will be adjusted against RPO.

**Response of PSPCL**

- (I to iii) The suggestion is contrary to the provisions of CGP Regulations, 2022. Absorbing of unwanted, uncertain variable banked power may offset the effect of saving on account of RPO.

**8. Clause 8.6**

**Objection Received**

The liability due to line outage should be related to the ownership and onus of maintenance of the portion of line between generating plant and injection point. If it is owned and maintained by PSPCL, then they need to be made liable.

**Response of PSPCL**

The provision proposed in the draft procedure is in line with the provisions of CPP Regulations and the same may be retained.

**9. Clause 8.7**

**Objections Received**

- (i) The contents of this clause are not clear. It is stated that the power utilized will be treated as dumped power without any payment and also states that PSPCL will claim Cross Subsidy Surcharge and Additional Surcharge on such power. The Commission may amend the provision protecting the rights of consumer.
- (ii) The para of procedure needs to clarify as to on which power drawn from Grid, tariff as per tariff order will be applicable. It is evident that the generating plant has lost the status of CGP/ CPP. In such a case there will be three types of power,
  - a) power drawn from PSPCL already charged at PSPCL tariff,
  - b) RE power supplied by CGP and utilized in each time block on which Cross subsidy and additional surcharge will be payable. As the power remains RE power, open access charges will remain the same.
  - c) RE power supplied for banking and utilized after payment of banking charges which will become infirm power and treated as dumped power.
- (iii) This Para of procedure needs to clarify the status of power wheeled as well as banked during the year in case the consumer fails to meet the criteria of Captive power plant. During the year, there will be following types of power
  - a) Consumer draws power from the Grid as PSPCL consumption,

- b) Captive power wheeled & consumed,
- c) Captive power wheeled & banked,
- d) Drawl from banked Power,
- e) Power wheeled for Banking but surrendered due to more than 30% limit,
- f) Power wheeled but surrendered under DSM
- g) Power retained by PSPCL towards wheeling and transmission charges.
- h) Power retained by PSPCL towards banking charges etc.

The para provides the penalty for non-compliance of CPP/CGP criteria as under:

- A) Imposition of Cross Subsidy Surcharge and Additional Surcharge and such other charges as applicable on open access consumers.
- B) The total energy banked and utilized by the captive user during the year shall be treated as infirm power injected in to the grid by CGP and shall be treated as dumped power as per Regulation 5.2 of CPP regulations.
- C) The energy drawn from the grid by the captive user shall be charged at the tariff rates applicable to the relevant category, as approved by the Commission in the tariff order for the relevant year

It is evidently double penalty for the total energy banked plus utilized by the consumer as it will be replaced with PSPCL power in the billing and after paying open access charges and banking charges, they will have to pay cross subsidy plus additional surcharge under para (A), consumer will have to pay PSPCL tariff on the same power again.

This needs to be clarified appropriately.

#### **Response of PSPCL**

- (i) The clause is very clear that the infirm power injected into the grid by a CGP without any contract with PSPCL shall be treated as dumped power and no compensation shall be paid for such power by PSPCL. However, it is clarified that Cross Subsidy Surcharge and Additional Surcharge shall only be levied if the CGP/Captive user loses its captive status by failing to meet the criteria of ownership and consumption by end of the year.

- (ii) & (iii) The para 8.7 pertains to losses/damages due to outage of any line between point of generation and the injection point and is not related to the tariff on different types of power. As such the comment is ambiguous. Moreover, the detailed banking procedure has various illustrations, which are self-explanatory.

**10. Clause 8.8**

**Objection Received**

- (i) CGP/CPPs based on biomass fuel co-located within the premises using captive power without any wheeling open access, banking facility need to be provided through net metering on the lines of solar CPPs for consumers or as deemed fit by the Commission.
- (ii) As co-located CG/CPPs based on biomass fuel using captive power within the premises without any wheeling open access, banking facility need to be provided in line with NRSE Policy 2012

**Response of PSPCL**

- (i) PSPCL does not agree with the proposal to provide net metering facility as the same is against the provisions of prevailing regulations.
- (ii) The suitable provisions for banking to Co-gen plants (including co-located plants) have been added to the amended draft procedure.

**11. Clause 8.9**

**Objections Received**

- (i) The current draft proposes a 15% banking charge on excess energy recorded at a time-block level. This translates to ~11% of injected energy (30% of solar generation can be adjusted real time and 70% will have to be banked.  $15\% \times 70\% = 10.5\%$ ) and is exorbitantly high and will impact project financials. Even the report on *“Developing Model Regulations on Methodology for Calculation of Open Access Charges & Banking Charges for Green Energy Open Access Consumers”* by the Forum of Regulators recommends a banking charge of 8%, which in itself is still high. The Commission vide order dated 24.11.2022 had directed PSPCL to consider the Draft Model Regulations prepared by the working group of Forum of

Regulators while preparing the draft detailed procedure for banking of power.

Considering the following facts which have a significant impact on project financials:

- a. Solar generation potential in Punjab is lower than states like Rajasthan
- b. Cost of solar power plants has sky rocketed in the recent past
- c. Extremely high cost of land compared to other states &
- d. Open access RE in Punjab needs a huge push in order to improve adoption

It is recommended to have banking charges in the range of 4% - 6% on utilized banked energy. Once RE penetration increases and cost of solar power normalizes, the same can be revised.

- (ii) Proposed banking charges of 15% are extremely excessive and lack any justification. Banking charges should not exceed the expenditure involved in providing banking facility. As is evident,
  - a) Banked power cannot be drawn during peak period and peak hours approved by the PSERC. Thus PSPCL will not return the banked power when the market rate is higher or PSPCL is short of power.
  - b) Consumers are paying open access charges and losses for wheeling of banked power and therefore no compensation is required for open access.
  - c) PSPCL will use such power for meeting its PO which will be saving of around Rs 1 per unit of RE power to PSPCL.
  - d) PSPCL will first get power under banking and return the same in next 6 months which will reduce the working capital requirement of Licensee.
  - e) The major injection of power under banking will be in paddy season which will be drawn by consumers in winter months. This will provide load particularly during night hours of winter thus flattening the load curve of PSPCL.
  - f) Major injection and drawl will be at 66 or 11 KV at the injection substation itself thereby avoiding transfer of power through'



transmission system, thus reducing the transmission and distribution losses.

The banking charges should be nominal say 1 or 2% only as PSPCL is already getting much more than the expenses involved.

- (iii) Proposed banking charges of 15% are extremely excessive and lack any justification. The para of the Green Energy Open access rules of MOP are extracted as under:

*“(2) The framing of methodology referred to in sub-rule (1). of the forum of regulators shall ensure that various permissible charges are not be onerous and shall meet the prudent cost of the distribution licensee in order to fulfil the objective of promoting the procurement of green energy by Green Energy Open Access Consumers.”*

Banking charges should not exceed the expenditure involved in providing banking facility. Major injection and drawl will be at 66 or 11 KV at the injection substation itself thereby avoiding transfer of power through' transmission system, thus reducing the transmission and distribution losses. Further, banked power is not allowed to be drawn during peak period when PSPCL is short of power and thus reducing the power purchase of PSPCL and power will be supplied when PSPCL is surplus in power.

Thus, the banking charges should be nominal say 1 or 2% only as PSPCL is getting much more than the expenses involved. The banking charges for solar projects set up for manufacturing of hydrogen and ammonia need to be fully exempted during some initial years to promote the usage of hydrogen for net zero emissions.

- (iv) A comparative study of the banking charges in about 8-10 states indicates that banking charges are in the range of 2-3% of the power banked. Further, while deciding banking charges, the present renew based captive power plant capacity as percentage of total generation capacity is also to be kept in view. In the initial stage when there is no renew based captive power plant set up so far under green open access in the state or miniscule, the banking charges are kept at 2-3% and sometime even lower.

We strongly recommend that PSERC may conduct an independent study to find out the genuine additional cost incurred by PSPCL for allowing banking facility and how such facility constrain PSPCL system. While doing so, the Commission may look into following factors in addition to other factors:

- (i) Saving during peak months (June-Sept) in terms of power purchase cost as PSPCL would buy lower power to the extent power is banked with PSPCL and relief received from such captive capacity during peak period.
- (ii) Banking charges paid/received by PSPCL to other States' Discom for normal banking transactions being done by PSPCL, here PSPCL gives power first and avails power afterwards.
- (iii) The energy generated by current capacity of such renew based captive power plants in the State as its percentage share in total energy generation of the Discom
- (iv) The value of power dumped, for which no credit to be given to consumer, if the same is not treated as purchased from the consumer, who surrender such power as dumped power. (With the scheme of power banking and its drawl, there is bound to be surrender of banked power due to uneven/varying drawl schedule, infirmness of generation and complying with 30% capping requirements during the months of the year)
- (v) Consumers are paying open access charges and losses for wheeling of banked power and therefore no compensation is required for open access.
- (vi) PSPCL will first get power under banking in advance and return the same in next 6 months which will reduce the working capital requirement of Licensee.
- (vii) The major injection of power under banking will be in the paddy season which will be drawn by consumers in winter months. This will provide

load, particularly during night hours of winter, thus flattening the load curve of PSPCL.

- (viii) Major injection and drawl will be at 66 or 11 KV which will be utilized locally at the injection substation itself thereby avoiding transfer of power through the transmission system, thus reducing the transmission and distribution losses of the licensee.

In view of the above, we submit that banking charges should be kept at 2-3% for the next 8-10 years till the share of RE based captive power plants in the State rises to a significant level.

### **Response of PSPCL**

Banking Charges in the States of Haryana and Gujarat are Rs. 1.50 per kWh, based on the highest DSM charges applicable for solar generation (exceeding 30% deviation limit).

Further, while allowing the facility of banking the discom acts as an energy storage system which is used by the generator for storing its surplus energy for later use. The average cost of Battery Energy Storage System comes out to around Rs. 1.44/unit (for 2020), which also justifies the banking charge of Rs. 1.50/kWh being levied by states like Haryana and Gujarat.

The charges proposed by PSPCL @ 15%, comes out to Rs. 0.97 per kWh for PSPCL (considering revenue at Avg. Cost of Supply i.e. Rs. 6.45 per kWh) and Rs. 0.37 per kWh to Solar generator (considering solar generation cost @ Rs. 2.50 per kWh).

Prayas Group in its July-2022 report on “Estimating impact of renewable energy wheeling and banking arrangement on Karnataka ESCOMs” has recommended banking charges @ 10-12% of wheeled energy or 0.3-0.4 Rs/kWh of wheeled energy (instead of on banked energy, which is much lower than wheeled energy).

While allowing the facility of banking, PSPCL has to offtake the variable banked energy at one time and provide drawl of banked energy at another time, absorbing the difference in availability/demand varying throughout the day and energy rates (which varies depending on time of use).

The difference in demand and market rates during peak and off peak period for FY 2021-22 is enclosed for kind perusal of the PSERC. It is observed that while the market rates are higher during morning and evening peak periods throughout the year, the demand is also higher in such period. The demand curves showing variation in demand during the day for each month of the year (based on average time block wise demand of last 9 years, excluding covid period) is enclosed for kind perusal of PSERC.

In view of the above, it can be inferred that the peak load hours extend throughout the year (in morning as well as evening) in both the paddy season as well as the non-paddy season.

It is worth mentioning that the facility of banking is allowed to RE based captive generators in order to ensure that the surplus RE generation can be utilized by the CGP/Captive user during a succeeding period. The intent for CGP is to basically meet its captive demand and under normal circumstances the CGP will not have to bank any energy with PSPCL. The facility of banking is not meant for allowing the captive generator to install additional generation capacity just for the purpose of nullifying consumption of its captive user. As such, in case the CGP avails the facility of banking in its true spirit i.e. by banking its surplus power for later use, it will have enough time to utilize its banked energy in full without any lapse.

The banking of surplus RE generation by CGP cannot be compared with the banking arrangements executed between different States depending on their Demand Supply scenario, as in case of RE banking PSPCL has to off take/absorb variable RE Power irrespective of the fact as to whether the same is required or not.

Though generally the market rates are higher during peak period/hours, yet it is not always the case. The market rates vary from time to time and cannot be accurately predicted.

The open access charges and losses are applicable on scheduled injection/drawal in line with the provisions of Open Access Regulations which

are regardless of the fact as to whether the facility of banking is being availed or not.

Absorbing of such unwanted, uncertain variable power may nullify the effect of saving on account of RPO and advance availing of power. The effect of banking on working capital requirement of PSPCL and effect on load curve of PSPCL can only be accurately ascertained after a certain period of observing /analyzing data relating to banking operations.

As per the open access regulations and tariff orders issued by the Commission, both transmission and distribution losses are applicable on scheduled energy whether the injection/drawal is at 66KV/11 KV.

It is not possible for PSPCL to purchase power while accurately predicting the banked energy to be injected by the CGP during peak months, which is highly variable and not being scheduled as proposed in the draft banking procedure.

The banking of surplus RE generation by CGP cannot be compared with the banking arrangements executed between different States depending on their Demand Supply scenario. In the case of RE banking PSPCL has to offtake/absorb variable RE Power irrespective of the fact as to whether the same is required or not?

The provision regarding not giving credit for dumped power is in accordance with CPP Regulations. However as per Green Energy Open Access (Amendment) Rules, 2023, RECs for dumped energy can be availed by the CGP.

**12. Clause 8.10**

**Objections Received**

- (i) Availing the startup or standby power and execution of agreement is optional as per CPP regulations and not mandatory for availing banking. Consumer may meet his requirement of power through regular contract demand or standby power or start up power at his option keeping in view the type of CPP / CGP being operated and their viability vis a vis the conditions associated with each type of power and tariff applicable.

- (ii) Consumers availing Solar power from solar plants set up as CPPs will have to get and maintain full demand as Sanctioned Contract demand and imposition of stand by demand will make their operations unviable. As such this aspect needs to be appropriately provided in the Procedure / Regulations to remove any confusion at a later date.

**Response of PSPCL**

- (i) The provisions in draft banking procedure have been suitably amended in line with CPP Regulations.
- (ii) There is no such exemption specifically allowed to Solar plants in the regulations issued by the Commission. As such, PSPCL does not agree with the proposal.

**13. Clause No.10.1:**

**Objections Received**

- (i) It is not understandable as to how the Standby meter has been proposed along with main and check meters. Under Open Access regulations, only two meters were and are being provided for open access being availed as per OA Regulations and Banking procedure can not violate the Regulations.
- (ii) There is no need to provide Standby meter as two meters i.e. main and check meters are provided for metering as per Open Access Regulations and Banking procedure can not violate the Regulations. Further, what is the need of providing one set of metering at Generator and one set at interconnection point since all these projects are RE projects and not covered under RPO. Providing additional metering, CTs and PT and accuracy checking every 6 months will add to the cost of banking/open access and shall make it unviable.
- (iii) Metering of RE Generator/Captive User shall be done in accordance with the applicable provisions of various PSERC Regulations (OA Regulation, State Grid Code etc.) which may be amended from time to time as SAMAST project of SLDC is in process and will be implemented shortly under which SAMAST compatible interface meters may be installed by SLDC at the cost of the applicant.

As such, metering Clause of Detailed Procedure for Banking of Power and stipulated Under Draft Banking Agreement (Clause no. 5.1) may be linked with applicable provisions of PSERC OA Regulations and State Grid Code and Details of metering Guidelines may not be required to mention herein.

**Response of PSPCL**

The provisions in draft banking procedure have been suitably amended in line with Open Access Regulations and State Grid Code.

14. **Clause 10.5**

**Objection Received**

Regulation 18(1) (b) of CEA Metering regulations provide for the checking of meters for accuracy once in every five years. Further, for accuracy check of the main meter, check meter is already provided. As such checking every 6 months is not understandable.

**Response of PSPCL**

The provisions in draft banking procedure have been suitably amended in line with Open Access Regulations and State Grid Code.

15. **Clause 10.9**

**Objection Received**

Agency for timely downloading of data and its transfer to SLDC may be specified in the Procedure. As per letter issued by SLDC to many generators, SAMASAT scheme is almost ready for commissioning as such the scope under SAMASAT and CGP need to be outlined in the procedure.

**Response of PSPCL**

It is clarified that under the SAMAST Scheme the data shall be transferred to SLDC through AMR.

16. **Clause 10.10**

**Objections Received**

(i) There should be a proper procedure to detect, establish and verify any such incidence and opportunity be given to consumer to present his case

before final decision be arrived at. It needs to be referred to CMC where consumer may be called to present his case.

(ii) This Para and Para 10.4 need to be clubbed so that there is no repetition.

**Response of PSPCL**

(i) The CGP/Captive user is always at liberty to approach CMC in case of any dispute pertaining to metering and accounting. However, tampering of meters does not comes under purview of CMC but under purview of field offices of PSPCL/PSTCL.

(ii) The procedure has been amended.

**17. Clause No.11.1:**

**Objections Received**

As we have requested for providing Banking facility under Net metering, as such example for Biomass plant need to be provided to us for consideration. We also request that if any other mode of banking is envisaged under the CPP Regulation/Procedure for Biomass based co-located CGCPs which we are missing, then the same may please be brought out in the Procedure.

**Response of PSPCL**

PSPCL does not agree with the proposal for allowing net metering to biomass based co-generating plants as the same is against the provisions of prevailing regulations.

**18. Clause 11.6**

**Objection Received**

For working out the drawl schedule of the Captive User, the actual injection by CGP in each time block or Scheduled Injection (Whichever is lower) may be considered for working out the actual Banking figures instead of only Scheduled Injection.

**Response of PSPCL**

Agreed & the clause has been amended in the draft procedure for banking .



**19. Clause 11.7**

**Objection Received**

Considering the variable nature of renewable energy (solar generation happens only during the day time), calculation of banked power at a time-block level would pose a huge burden on the consumers. Instead, one of the following models may be considered and adopted:

**Monthly Accounting:** Similar to Karnataka, month end energy accounting can be done with a 2-4% banking charge on injected energy; or

**ToD Accounting:** Similar to Tamil Nadu, a ToD based energy accounting can be done with a 14-15% banking charge on energy being carried forward to the next month.

**Response of PSPCL**

The suggestion is relying on the old banking procedures applicable in States of Tamil Nadu, Telangana & Karnataka, which are now due for revision in line with latest regulations/ recommendations of Forum of Regulators (Telangana is levying banking charges @21%, as compared to 15% banking charges proposed by Punjab).

Karnataka Electricity Regulatory Commission vide its notice dated 05.08.2022 had issued a discussion paper on 'Wheeling Charges and Banking Facility' for RE projects based on a study conducted by Prayas (Energy Group) for estimating impact of renewable energy wheeling and banking arrangement on Karnataka discoms, wherein it has been concluded that there is need to shift to monthly slot-wise banking from the existing annual banking. The said study report has also been endorsed by Forum of Regulators.

In case, the total injection at the end of each month is netted off with the total drawl at the end of each month at an aggregate level, the aforementioned provision (Regulation 11 (i)) of said PSERC Regulations (i.e. ensuring drawl of banked power during off-peak hours only) cannot be complied with.

Further, the Commission vide its order dated 24.11.2022 in this petition has directed PSPCL to draft the detailed procedure for banking in line with the provisions of the notified Regulations, while keeping in view the draft Model Regulations on "Methodology for calculation of Open Access Charges and

Banking charges for Green Energy Open Access Consumers” prepared by the working group of Forum of Regulators (FOR). The said report by Forum of Regulators also emphasizes on Time-Slot/ ToD based banking.

Further, similar practice of time-block wise settlement is being done in the State of Haryana also (where separate drawl schedule for banking is also required to be submitted and high banking charges @ Rs. 1.50/- per kWh are levied, the provisions proposed in Punjab are very lenient as compared to Haryana).

Thus, PSPCL has proposed 15-minute time-slot wise accounting of banked energy in line with the

- a. provisions of PSERC (Terms & Conditions for Intra-State Open Access Regulations), 2011, as amended from time to time, mandating 15-minute time-block wise scheduling and accounting.
- b. recommendations of FOR in its report on “developing model regulations on methodology for calculation of open access charges and banking charges for green energy open access consumers”
- c. recommendations of Prayas Group in its July-2022 report on “Estimating impact of renewable energy wheeling and banking arrangement on Karnataka ESCOMs”

Accounting methodology being followed in the State of Haryana.

**20. Clause No.12 : Security Deposit:**

**Objections Received**

- (i) The security deposit in the form bank guarantee/LC for the entire duration of the banking agreement would place a huge financial burden on the project. We have not provided similar instruments in other states where we have significant RE assets. Instead, it is recommended that PSPCL ask the consumers to issue an undertaking to the same effect, which is legally binding
- (ii) The BG for Security sought for (51% of captive consumption) recovery of Cross subsidy and Additional Surcharge in case of noncompliance of captive status will be additional burden on banking. Moreover, the bank guarantee is to be en-cashed only once after the closure of Financial year but will remain with PSPCL throughout the year. It is proposed that the BG

need to be taken with increasing amount on monthly basis i.e. amount of First month (1/12 of the yearly amount) with validity of 14 months, amount of 2 months (1/6 of yearly amount valid for 13 months and so on.

- (iii) CE/PP&R has issued Revised draft procedure for verification of CPP status seeking comments of stake holders. As per Para 4 of the draft, the Security for maintaining CPP status can be submitted in the form of FD also. As such this option of FD needs to be added here also in this procedure and regulations.

#### **Response of PSPCL**

- (i) The provisions proposed in the draft banking procedure have been amended. The security deposit shall be submitted by the CGP/Captive user to PSPCL online with the detailed procedure for verification of captive status to be approved by the Commission, wherein the security deposit has been proposed in line with the recommendations of FOR in its report on “developing model regulations on methodology for calculation of open access charges and banking charges for green energy open access consumers” and the same may be retained.
- (ii) The security deposit shall be submitted by the CGP/Captive user to PSPCL inline with the detailed procedure for verification of captive status to be approved by the PSERC, wherein the security deposit has been proposed in line with the recommendations of FOR in its report on “developing model regulations on methodology for calculation of open access charges and banking charges for green energy open access consumers” and the same may be retained.
- (iii) The security deposit shall be submitted by the CGP/Captive user to PSPCL inline with the detailed procedure for verification of captive status to be approved by the PSERC. The provisions in banking procedure have been suitably amended.

#### **21. Clause No.13: Events of Default:**

##### **Objections Received**

- (i)(c) The condition spelled out here in this Para regarding

minimum generation should be subject to force majeure conditions.

- (ii) This condition is uncalled for and is an afterthought. It will discourage development of RE generation in the state and needs to be removed. In any case such clauses of minimum generation are always subject to force majeure conditions.

**Response of PSPCL**

- (i) The provisions regarding force majeure conditions are part of banking agreement and shall be read along with the balance provisions of banking agreement and procedure.
- (ii) The provision has been deleted.

**22. Clause No.14:**

**Objection Received**

Encashment of security shall be only for default of non-compliance of captive status. For all other default conditions lapsing of banked power only will be applicable.

**Response of PSPCL**

PSPCL does not agree with the submissions as maximum penalty should be levied in events of default by the CGP/Captive user.

**23. Clause No.16:**

**Objection Received**

The mechanism of Removal of difficulty has been made available to PSPCL only whereas other stakeholders have been left out. We request that this may also be made available for CGPs and Captive users in addition of PSPCL.

**Response of PSPCL**

The provision has been suitably amended in the draft procedure.

**24. Clause No.2.1 of Banking Agreement**

**Objection Received**

The Commission vide its order dated 18.01.2023 in Petition no. 58 of 2021 has directed STU to finalize the Connectivity Procedure of STU for grant of connectivity to Intra State Transmission System. As per the provisions of the

procedure, application for grant of connectivity to Intra State Transmission System can be made to PSTCL by a generating station (including RE/NRSE generators) and open access consumers (other than Generators selling power to the distribution licensee, In-Situ Captive generators and consumers of distribution licensee).

As above, Clause no. 2.1 of Draft Banking Agreement may be amended as below:-

*“The Interconnection/Connectivity between the Project of the Company and/or premises of the User(s) shall be as per the Feasibility Clearance granted by PSPCL/PSTCL as the case may be.”*

#### **Response of PSPCL**

The clause has been amended in the draft procedure.

#### **25. Commission’s Findings and Order**

PSPCL filed the present petition for approval of the terms and conditions for providing banking facility to Solar Captive Power Plants in the State of Punjab under Section 42, 86 and other applicable provisions of the Electricity Act, 2003 read with Regulation 8(1) of PSERC (Harnessing of Captive Power Generation) Regulations, 2009. The proposed procedure was restricted to only Solar Captive Plants. Since the Commission had already initiated the process for framing of comprehensive regulations concerning captive generating plants in accordance with latest policy directions/Rules so PSPCL was directed to re-draft the banking procedure after notification of CGP regulations.

The Commission notified PSERC (Harnessing of Captive Power Generation) Regulations, 2022 vide Notification dated 27.10.2022 (hereinafter referred as CGP Regulations, 2022). Regulations 11 of the CGP Regulations 2022 provides that the licensee shall prepare a detailed procedure for banking along with a model banking agreement within a month of the notification of these regulations and get it approved from the Commission. Accordingly, PSPCL submitted the banking procedure along with model banking agreement as per the provisions of these regulations and also invited public objections/comments on the draft procedure & model agreement. Objections/comments from five stakeholders have been received and PSPCL has also submitted its response to these objections. While considering the

objections/comments of the stakeholders, PSPCL amended the banking procedure/agreement and submitted the same for approval of the Commission.

The Commission has gone through the objections/comments of the stakeholders and PSPCL's response as reproduced above in this order. The substantive issues raised by the stakeholders are discussed as under:

1. Some objectors pointed out that the procedure covers only CGPs using open access to wheel power to the destination of its use and thus excludes co-generation plants using power within the same premises i.e. where both CGP and the user are co-located and are not using open access. The objector also suggested that for co-located captive plants, the banking facility through net metering may be provided.

Regulation 11 of the CGP Regulations, 2022 lays down the terms and conditions for Banking of Energy for the captive generating plants/captive users and allows the facility of banking to Captive User(s) connected to the intra-state transmission and/or distribution system of the licensee getting power from renewable energy based CGPs including co-generation plants. The regulation also mandates that the licensee shall prepare a detailed procedure for banking along with model banking agreement within a month of the notification of these regulations and get it approved from the Commission. Thus the detailed procedure for banking and the model banking agreement are required to be in line with the provisions of the CGP Regulations, 2022. Regulation 3 of the ibid regulations provides that these regulations shall be applicable to all Captive Generating Plants (CGP) as defined in section 2(8) read with section 9 of the Electricity Act, 2003 including cogeneration plants as defined in section 2(12) of the Act connected to the intra-state transmission and/or distribution system of the State and fulfilling the criteria prescribed in Rule 3 of the Electricity Rules 2005, as amended from time to time. Thus, for allowing Banking facility, the two essential conditions are that the captive plants/captive user shall be connected to the intra-state transmission and/or distribution system of the licensee fulfilling the conditions laid down in Rule 3 of the Electricity Rules, 2005 and shall be getting power from renewable energy based CGPs including co-generation plants connected to the intra-

state transmission and/or distribution system. Thus, there is no ambiguity that the co-generation plants fulfilling the above conditions are covered under CGP Regulations. The condition of availing open access is not a mandatory condition in these regulations for allowing banking of energy. So, in case the co-generation plants and captive user are located in the same premises, provided that the conditions specified in the CGP Regulations are fulfilled, the facility of banking shall be allowed. The procedure has been amended accordingly.

The suggestion to allow banking facility to co-located captive plants through net metering is not in accordance with CGP Regulations and cannot be accepted. The energy accounting methodology as approved in the procedure shall be the same for all RE based CGPs/Captive Users to whom banking facility has been allowed.

2. The other issue raised by the stakeholders is regarding the peak seasonal period from 1<sup>st</sup> June to 31<sup>st</sup> October proposed by PSPCL. This is against the proviso to clause (i) of Regulation 11 of the CGP Regulations, 2022 wherein it has been clearly specified that the drawal of banked energy shall not be allowed during the peak seasonal period from 1st June to 30th September and also during peak load hours, as may be approved by the Commission. As the procedure has to be in conformity with the Regulations, the peak seasonal period shall remain from 1<sup>st</sup> June to 30<sup>th</sup> September as specified in the Regulations. The procedure has been amended accordingly.
3. PSPCL has proposed the following peak load hours during which drawal of banked power shall not be allowed;

Period/ Month	Timings of Peak Load Hours	
	Morning Peak	Evening Peak
February, March & October	06:00 Hrs to 08:00 Hrs	18:30 Hrs to 20:30 Hrs
April & May	05:30 Hrs to 07:30 Hrs	19:00 Hrs to 21:00 Hrs
June to September	-	18:00 Hrs to 22:00 Hrs
November to January	06:30 Hrs to 08:30 Hrs	18:00 Hrs to 20:00 Hrs

The objectors submitted that as per TOD tariff, the Commission has approved peak hours from 6.00 PM to 10.00 PM during the four months of June to

September. However, PSPCL has also proposed both morning and evening peak hours of 2-hour duration each during 8 months of the non-paddy period each also. A consumer availing of banking will not be allowed drawl of banked power during the period totalling 3920 Hours out of the total 8760 in a year, which works out to be 45% of the total time period. Thus, a captive consumer will be allowed to draw power from PSPCL for only 55 % of the time. The objectors suggested that only 4 months of TOD peak period may be declared as the period where drawl of banked power will not be allowed.

PSPCL, while submitting the demand curves based on average time block wise demand of the last 9 years (excluding the covid period), argued that while the market rates are higher during morning and evening peak periods throughout the year, the demand is also higher in such periods. The peak load hours extend throughout the year (in the morning as well as in the evening) in both the paddy season as well as the non-paddy season.

The Commission has examined the demand curves and observed that though the demand during the peak paddy season from June to September is very high stretching the electrical system to its limits, it shows a fairly flat demand curve during this period due to rotational supply to the agriculture sector and other regulatory measures. However, the morning and evening peaks during the non-paddy season, particularly in the winter months, are very prominent. The variation of demand is sharp and substantial during the night, morning peak hours, evening peak hours and the day time. This results in non-optimal use of the electrical system. However, the maximum demand during the winter is usually below 8000 MW which is manageable. The drawal of banked power during morning and evening peak hours will certainly add to the peak demand during these hours resulting in inefficient system operation. Also, the market rates during morning and evening peak hours are high as compared to other time slots. However, we agree with the objectors that restricting drawal of banked power during peak hours during the non-paddy season also, as proposed by PSPCL, will drastically limit the period for use of banked energy by captive user(s). Thus, to balance the interests of all the stakeholders, the optimal solution will be to compensate the distribution licensee through commensurate charges for additional cost incurred without putting restrictions



on drawal of banked power. The Commission thus decides to retain the peak hours period from 06.00 PM to 10.00 PM during the peak season period of 1<sup>st</sup> June to 30<sup>th</sup> September during which banked power shall not be allowed to be withdrawn in accordance with clause (i) of Regulation 11 of CGP Regulations, 2022. Since drawal of banked power is not allowed during the peak season period from 1<sup>st</sup> June to 30<sup>th</sup> September, the restriction of peak hours (6.00 PM to 10.00 PM) during this period shall be subsumed under the peak seasonal period and shall not affect the ability of the captive user(s) to draw banked power.

However, the restriction during peak hours shall be subject to periodic review to ensure secure and economic operation of the distribution and transmission system.

4. PSPCL, in the draft banking procedure, has proposed banking charges in kind at the rate of 15% of the banked power. Clause (v) of Regulation 11 of CGP Regulations, 2022 provides that the banking charges shall be levied in kind at the rate and in the manner as may be approved by the Commission.

The objectors submitted that banking charges are very high and without any justification. It has been argued that the Banking charges should not exceed the expenditure involved in providing the banking facility and requested the Commission to consider factors as brought out in para 11 of this order while deciding the banking charges.

The Objectors also referred to the report on *“Developing Model Regulations on Methodology for Calculation of Open Access Charges & Banking Charges for Green Energy Open Access Consumers”* by the Forum of Regulators which recommended a banking charge of 8%, which according to the objectors is still high. It has been recommended that the Commission may conduct an independent study to find out the genuine additional cost incurred by PSPCL for allowing the banking facility.

PSPCL has justified the proposed banking charges on the grounds detailed in its response to objections on clause 8.9 in Para 11 of this Order.

We have gone through the arguments of all the parties. Banking has been allowed to only RE based CGPs due to the infirm nature of the energy generated by such plants. It is not possible for a RE based generator to match generation with consumption of captive user(s) in all time slots. However, banking has not been extended to the CGP/User(s) to use the grid as a storage system. The captive generating plant is entitled to sell its surplus power to the third party but cannot use the grid as a storage system to park surplus power to use it later on as per its convenience. Refer Commission's Findings and Order in para 16(b&c) of the order dated 27.10.2022 which is reproduced below for:

*"The captive generating plants are set up primarily for their own consumption and the purpose of allowing banking in these regulations is only to facilitate captive generation, as provided in National Electricity Policy, by taking care of inadvertent mismatch between generation and consumption. Setting up of extra generating capacity and to use the grid as a battery through banking arrangement cannot be allowed as it will not only create system operation problems but would also have a serious impact on the finances of the licensee resulting in additional burden on other consumers. Thus while allowing banking, reasonable conditions have to be imposed to protect the legitimate interests of all stakeholders. The facility of banking is being provided to RE based CGPs due to the variable nature of generation from such sources and to promote green energy as per Section 86(1)(e) of the Electricity Act, 2003. The banking facility cannot be extended to CGPs running on conventional fuel."*

When the generation in a time slot is more than the consumption of the user(s), the extra energy thus generated and injected into the grid is the banked energy. The generation and consumption i.e. supply & demand should match at all times since the electrical energy cannot be stored. Thus, the extra energy injected in to the grid can be consumed either by creating additional demand in the supply area of the licensee or by backing down generation from other sources or selling the extra energy in the grid as Unscheduled Interchange (UI). Since the injection of surplus power in the grid in a time slot by a RE generator is an unforeseen event, it is difficult for the distribution licensee to predict its availability in each time slot and to create additional demand in the system to absorb such power in a planned manner. The other alternative is to back down generation from costlier power plants

but frequent changes in the generation schedule of conventional plants also has technical limitations and increases the variable cost of power from such sources.

Since such surplus power injected in the grid may vary from time slot to slot, it will be almost impossible for the distribution licensee to predict the exact quantum of such power for selling the same in the exchange/market. The most likely utilization of such surplus power by the distribution licensee will be by allowing such energy to flow in the grid which will be subjected to Deviation Charges as per CERC DSM Regulations. It may be noted that the Grid Code and deviation mechanism notified by the Central Commission stipulates stringent conditions and penal measures for such unscheduled injection or drawal of power.

The reverse happens when the consumer wants to use its banked energy. To supply such unscheduled power demand, the licensee shall either have to buy power from the grid in the real time market or resort to demand management. The liability of the licensee, that is the cost of banking, would be difference in cost of supplying the banked energy and realization from utilization of the same at the time of its injection.

As per section 9 of the Act read with Rule 3 of the Electricity Rules, 2005, a captive generator can sell its surplus power to any 3<sup>rd</sup> party on mutually agreed terms and conditions. However, it may fetch a price at the prevailing market rates. We may, as an example, take the case of a solar power plant, which in case of Punjab may fetch a price of around Rs. 2.80 per unit. On the other hand, the drawal of banked power by the captive users from the grid, as per their need, enable them to avoid payment of electricity consumption charges to the extent of units available for banking the cost of which, in case of large supply industrial consumers is Rs. 6.27 per kVAh (energy charges). In the process, the gain accruing to them on account of extension of banking is nothing but the difference between the applicable electricity consumption rate, that is to say Industrial tariff or commercial tariff, as the case may be and the solar tariff. This is the opportunity cost lost by the licensee due to the extension of banking facility. This is exactly what the distribution licensee

wants to get compensated for to meet its obligation of providing electricity to all consumers on demand which has an inherent fixed and recurring cost. The increasing use of RE power from captive plants will also reduce the revenues of the licensee from open access charges due to exemption granted to them from payment of cross subsidy surcharges and additional surcharge in addition to concessional transmission/wheeling charges.

Section 86(1)(e) of the Act requires the Commission to promote co-generation and generation of electricity from RE sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person. However, while taking steps to promote generation from RE sources, the Commission has to protect the interest of all the stakeholders in the power sector. Banking is a commercial arrangement between a CGP and the distribution licensee and has to take care of their respective commercial interests. The revenue loss to the distribution licensee due to energy transactions under banking arrangements has to be borne by the CGP so that the same is not passed on to other consumers of the state through increased tariff. This has been held in various orders of the Hon'ble Tribunal as quoted below;

Hon'ble Tribunal in its order dated 03.02.2009 in Appeal No.231 and 233 of 2006 has held as under:-

*“19) Whether the generating company and the distribution company would enter into a commercial agreement of purchase with banking is a question of a calculation of profit and loss. **The facility of banking is merely a facility of purchasing power from the distribution company at a concessional price. It is entirely a commercial arrangement and has to be worked out by the parties keeping in view their respective commercial interests.** It is to be noticed further that the Commission itself had clarified in the very first order that the revenue loss, if any, would have to be borne by the parties themselves. This meant that the distribution company was not entitled to pass the loss suffered by the transaction with TSIL to its ultimate consumers by raising the tariff. -----  
--.”*

*30) The Commission has to keep in view the interest of the entire electricity sector so as to (a) develop the electricity industry, (b) promote competition, (c) protect interest of the consumers, (d) supply of electricity*

*to all areas, (e) rationalize electricity tariff, (f) transparency regarding subsidies, (g) promotion of efficient and environmentally benign policies. In this situation, regulation of the procurement process of a distribution licensee would mean that the Commission while encouraging purchase from the CPP which is a co-generation plant has to protect the interests of the consumers. The Commission also had to keep in mind the development of electricity industry and promotion of competition. Obviously all these purposes cannot be achieved if a distribution company is asked to purchase power from the co-generation plant on terms which are not commercially viable. -----“*

In its order dated 01.08.2014 in Appeal No. 59 of 2013 & Appeal No. 116 of 2013, the Hon'ble Tribunal reiterated the position as under:

*“32. ----- We do not find any illegality in continuation of the banking facility to the wind energy generators in pursuance of Section 86(1)(e) of the Electricity Act as a promotion measure for wind energy generators. However, we agree with Ms. Deepa Chawan, Learned Counsel for the Appellant that such banking facility should not be at the cost of other consumers of the Distribution Licensee especially as the wind energy generators are supplying energy to third parties or for captive use on commercial basis. The Distribution Licensee may incur same cost as a result of difference in price of electricity during high wind season when the energy is banked and rest of the year when the banked energy is supplied. If the Distribution Licensee is incurring same cost for providing the banking facility, the same should be recovered from the wind energy generators/open access consumers availing such facility. -----“*

Hon'ble Tribunal in its order dated 28.01.2021 in Appeal No. 191 of 2018 held as under:

*“89. -----We agree and so reiterate what was observed in Maharashtra State Electricity Distribution Company Limited v. Maharashtra Electricity Regulatory Commission (supra) that “banking facility should not be at the cost of other consumers of the Distribution Licensee”. There is possibility that the banking facility is resulting in difficulties for the distribution licensee on account of “must run” nature of wind power, it consequently causing some instability of grid and compelling the licensee to ask its other sources (thermal) to back down, and in the bargain constrained to compensate the latter. All that we are highlighting here is that the regulatory commissions are under a statutory mandate to adopt such measures wherein balance is struck and the legislative objective of encouraging environmentally benign sources is pursued even while larger consumer interest of availability of quality economical electricity is*

*protected. These targets, it is clear, are to be aimed at by minimising the possibility of one interest group feeding at the cost of the other. -----."*

To accurately calculate the liability of the distribution licensee, we need slot wise data of power injected in to the system, power banked, drawal of banked energy and cost of power etc. However, since there is no data relating to banking of power by the consumers/CGP available in the State at present, one of the alternatives to estimate the financial cost/liability is by assuming that such surplus power is sold in the market and also procured at the time of drawal by the captive users from the market.

As per the data submitted by PSPCL, the average DAM per unit rate from April 2022 to Feb. 2023 during morning peak hours i.e. from 0700 hrs to 0900 hrs was Rs. 6.23 and during the evening peak hours i.e. 1800 hrs to 2200 hrs, it was Rs. 8.32. Even during the lean night hours i.e. from 2200 hrs to 0600 hrs., the average DAM per unit rate was Rs. 6.28. The lowest DAM per unit rate was Rs. 4.60 during the peak solar hours i.e. from 1000 hrs to 1500 hrs.

During the non-paddy season (i.e. months other than the months of June to September), when captive users shall be free to draw banked power during any time slot of the day, the average DAM rates for the corresponding periods were Rs. 7.27, Rs. 7.92, Rs. 5.66 and Rs. 5.24 respectively. Thus, both during the year and also during only the non-paddy period, the lowest average DAM rates were during the peak solar period when we can expect injection of surplus energy in the grid from Solar based CGPs. Even if the captive user(s) draw its banked power during night hours in a non-paddy season, the difference of average DAM price of power will be around 42 paise/unit. In case the captive user(s) draw power during the morning peak hours, the difference may be around Rs. 2 per unit which increases to Rs. 2.68 per unit during the evening peak hours. During the non-paddy season, the average DAM price of power during all time slots, except peak solar hours, was Rs. 6.42 per unit which translates to a difference of Rs. 1.18 per unit. Along with concessional transmission and wheeling charges plus loss due to exemption of cross subsidy and additional surcharge, the financial impact on the distribution licensee, even after accounting for RPO saving etc., will be

substantial which will need to be transferred to other consumers of the State if not adequately compensated through recovery from the CGP.

Since the Commission has decided to allow drawal of banked energy during the non-paddy season i.e. from 1<sup>st</sup> October to 31<sup>st</sup> May without putting any restriction for drawal during morning or evening peak hours, as proposed by the distribution licensee, PSPCL must be adequately compensated for this additional cost after factoring in other benefits to the licensee by way of RPO and savings on account of reduced transmission losses etc.,. If we consider the generic tariff of solar power determined by the Commission as Rs.2.748 per kWh, then the value of banking charges @15% proposed by PSPCL comes out be Rs. 0.412 per kWh. At the average power purchase cost of Rs. 4.44 per kWh as determined by the Commission for PSPCL, the banking charges @15% proposed by PSPCL comes out be Rs. 0.666 per kWh. However, Banking is an exercise of hand holding to promote investment in renewable energy and to take care of the variable nature of RE power on which the generator has lesser control as compared to conventional generating plants. Thus some cost of banking has to be borne by the distribution licensee to promote RE power in the State. We have considered the case of a Solar based CGP since it is the most probable source of RE power in the State of Punjab other than co-generation plants.

Keeping all the above factors in mind and taking a balanced view qua all the stakeholders, the Commission decides to levy banking charges in kind at the rate of 10% of the banked energy. Since the facility of banking of power under a regulatory framework is being extended to the captive user(s) in the State for the first time and no time slot wise data is available to estimate the impact on the distribution licensee's finances, the Commission shall re-visit the issue and review the banking charges soon after adequate slot wise data is available after implementation of the banking facility.

5. Another issue raised by the objectors is regarding the interpretation of clause 8.7 of the procedure which states as under;

*"If the CGP or Captive User fails to meet the criteria of ownership and consumption, by the end of the year, such CGP or Captive User shall lose its Captive status for that year leading to imposition of Cross Subsidy*

*Surcharge and Additional Surcharge and such other charges as applicable on open access consumers. Further, in such case the total energy banked and utilized by the captive user during the year shall be treated as infirm power injected in to the grid by CGP and shall be treated as dumped power as per Regulation 5.2 of CPP regulations. The energy drawn from the grid by the captive user shall be charged at the tariff rates applicable to the relevant category, as approved by the Commission in the tariff order for the relevant year.'*

The objectors have sought clarity regarding the banked power which shall be considered as dumped once the generating plant loses its captive status. We may refer to clause 16 of the Regulation 4 of the CGP Regulations 2022, which is reproduced below for reference;

*4(16) In case the CGP/captive user(s) fails to fulfill the conditions to qualify as captive generating plant in a particular financial year, the entire electricity generated in that financial year **shall be treated as if it is a supply of electricity by a generating company** and shall not be eligible for benefits of a captive generating plant.*

It is clear that as per the provisions of the CGP Regulations, once the generating plant loses its status as a captive plant as per Rule 3 of the Electricity Rules, 2005, the supply of electricity from such a plant shall be treated as a supply from a generating plant. Since the facility of banking has been extended only to RE based CGP/captive user(s) under these Regulations, the energy accounting shall be carried out by treating the banked power in a time slot as zero.

6. PSPCL in clause 8.2 of the banking procedure has reproduced the provisions of clause (iii) of Regulation 11 of CGP Regulations, 2022, wherein it has been provided that the captive user, who is a consumer of distribution licensee and getting power from RE based CGP, shall be permitted to bank energy upto 30% of the total monthly consumption of electricity from the distribution licensee of the area. The excess energy banked shall be treated as dumped energy and shall not be carried forward to next month. The objector suggested that either there should be no restrictions on the banking of power keeping in view the present nil/miniscule capacity of RE based captive power plants in the State of Punjab or it may be restricted on an annual basis. Another objector pointed out that as per GEOA Rules, the permitted quantum



of banked energy by the Green Energy Open Access consumers shall be at least thirty percent of the total monthly consumption of electricity from the distribution licensee by the consumers but in the Regulations and Procedure it has been restricted to 30% of the total monthly consumption of electricity from the distribution licensee of the area which should be aligned with the Rules.

The banking procedure has to be in line with the provisions of the Regulations. The provision regarding quantum of energy permitted to be banked has been specified in the CGP Regulations as per the letter and spirit of GEOA Rules, 2022 and the same has been incorporated in the procedure. However, as per GEOA (Amendment) Rules, 2023, the CGP shall be entitled to get REC to the extent of the lapsed banked energy and the same has been provided in the procedure. Also the suggestion that the restriction of banked energy should be on an annual basis is against the Regulations and cannot be accepted.

7. Some objectors pointed out that there is no need to provide Standby meters as two meters i.e. main and check meters are provided for metering as per Open Access Regulations and Banking procedure can not violate the Regulations. Further, there is no need to provide one set of metering at the Generator end and one set at the interconnection point since all these projects are RE projects and not covered under RPO. The objector also pointed that the provision for accuracy check after every 6 months is not as per Metering Regulations.

The procedure has been amended in accordance with OA Regulations, Forecasting and Scheduling Regulations and Grid Code, as applicable.

8. One objector raised the issue of slot wise accounting proposed in the procedure for calculation of banked energy and submitted that considering the variable nature of renewable energy, the calculation of banked power at a time-block level would pose a huge burden on the consumers. It has been suggested that either monthly accounting similar to Karnataka or ToD Accounting as adopted by Tamil Nadu may be adopted.

PSPCL argued that the banking procedures applicable in States of Tamil Nadu, Telangana & Karnataka, are not in line with latest regulations/ recommendations of Forum of Regulators. Karnataka Electricity Regulatory Commission vide its notice dated 05.08.2022 had issued a discussion paper on 'Wheeling Charges and Banking Facility' for RE projects based on a study conducted by Prayas (Energy Group) for estimating impact of renewable energy wheeling and banking arrangement on Karnataka discoms, wherein it has been concluded that there is need to shift to monthly slot-wise banking from the existing annual banking. The said report by the Forum of Regulators also emphasizes on Time-Slot/ ToD based banking. In case, the total injection at the end of each month is netted off with the total drawl at the end of each month at an aggregate level, the provision of the Regulation 11 (i) of CGP regulations i.e. ensuring drawl of banked power during off-peak hours only cannot be complied with.

PSPCL pointed out that a similar practice of time-block wise settlement is being done in the State of Haryana where separate a drawl schedule for banking is also required to be submitted and high banking charges @ Rs. 1.50/- per kWh are levied.

The Commission finds no infirmity in slot wise energy accounting. The Scheduling, as per the Grid Code, is carried out on a 15 min. time slot basis and deviation and energy accounting is carried out accordingly. Slot wise energy accounting is carried out for transactions through Open Access and under Forecasting & Scheduling Regulations. The banking of energy by CGP and its drawal shall have an impact on the deviations of the distribution company also. For calculating the impact of banking on the finances of the distribution licensee, slot wise data of energy banked, energy drawn and cost of power etc. shall be required. Thus the Commission approves the time slot wise energy accounting in case of banking also.

9. Some stakeholders also objected to the clause regarding the deposit of BG equivalent to 51% of the captive consumption sought towards the estimated value of cross subsidy and additional Surcharge and argued that it will be an additional burden on the project. It has been proposed that the BG may be

taken with increasing amounts on a monthly basis i.e. the amount of first month (1/12 of the yearly amount) with validity of 14 months, amount of second month (1/6 of yearly amount) valid for 13 months and so on.

PSPCL submitted that the security deposit shall be submitted by the CGP/Captive user to PSPCL as per the detailed procedure for verification of captive status to be approved by the Commission. The security deposit has been proposed in line with the recommendations of FOR in its report on “Developing model regulations on methodology for calculation of open access charges and banking charges for green energy open access consumers” and the same may be retained.

The verification of the captive status of a generating plant has to be carried out at the end of the financial year whereas the generating plant, claiming to be a captive plant, avails the exemption from payment of cross subsidy and additional surcharge from the very beginning. Thus, to protect the financial interests of the utility, FOR in its report on “Developing Model Regulations for Import of Power from Captive Generators Using Open Access” has recommended the obtaining of a BG and same has been incorporated in the procedure which shall be in accordance with the detailed procedure for verification of captive status to be approved by the Commission separately.

10. PSPCL had proposed that the BG shall be forfeited for reasons other than the failure of CGP to establish their captive status which is not in line with the concept of security deposit and accordingly the procedure has been amended,
11. Some objectors suggested that some agency should act as a Single window system for processing of applications and an on-line facility may be created. We direct the SLDC to explore the possibility of inclusion of a banking module under SAMSAT in the meanwhile PSPCL should strive to create a Single window system for processing of banking applications at the earliest.
12. The objectors pointed out that the dumped power will be earning some revenue or saving to PSPCL, so payment for such dumped energy at the rate of feed-in tariff or as deemed fit by the Commission may be allowed. PSPCL submitted that this suggestion is contrary to the provisions of CGP

Regulations, 2022 and absorbing of unwanted, uncertain variable banked power may in fact offset the savings on account of RPOs. The procedure has to be in-line with the CGP Regulations and no compensation has been provided in these Regulations. However, as per GEOA(Amendment) Rules, 2023, the CGP shall be entitled to get RECs to the extent of the lapsed banked energy and the same has been incorporated in the procedure.

13. In clause 14, PSPCL had proposed that on termination of the agreement, security deposit shall also be forfeited. The objectors pointed out that encashment of security shall be only for default of non-compliance of captive status. For all other default conditions, lapsing of banked power only will be applicable. The security deposit is only for protecting the financial interests of the distribution licensee in case of failure of the generating plant to establish its captive status at the end of financial year and shall be encashed only in such case. The Commission agrees and the procedure has been amended accordingly.

The Commission approves the Banking procedure along with model banking agreement with modifications as discussed above.

**Sd/-**  
**(Paramjeet Singh)**  
**Member**

**Sd/-**  
**(Viswajeet Khanna)**  
**Chairperson**

**Chandigarh**  
**Dated: 19.04.2023**

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