

system with interlocking facility for limiting the solar generation from 1MWp Solar Power Plant to grid.

- (iv) Dr. K N Pavithran, Professor (Retd.) – CET, has stated that, he has physically inspected and tested the interlocking system at Hindalco's Solar Plant, the design, engineering and installation of the above system is reliable, failsafe and capable of ensuring no export of energy from 1 MW Solar Power Plant.

12. Third hearing on the petition was conducted on 06.01.2021 through video conference. The summary of deliberations is given below:

- (1) Sri. Sajan Poovayya, Senior Advocate, representing the petitioner submitted that, as instructed by the Commission, they had impleaded SLDC, ANERT and Electrical Inspector as respondents to the petition. Further, a joint virtual meeting was held between the respondents on 30.12.2020 and a copy of the minutes of the meeting was submitted before the Commission vide the affidavit dated 04.01.2021.
- (2) Representatives of ANERT submitted that, on random analysis of the past energy data collected from the petitioner, it is observed that on 13th December, 2020, on three instances there is injection of solar generation while the load of the petitioner is zero. They further submitted that the schematic diagram of the installation was not made available to them.
- (3) SLDC submitted that, they had appraised the time block wise details of the energy transaction of the petitioner for a period of ten days from 01.12.2020 to 10.12.2020. During these periods, in 178 time blocks the petitioner injected energy into the grid for banking of which 138 time block was during the day time. Further, out of the 138 time blocks during which the surplus energy was injected into the grid for banking, about 45% of the time blocks, the petitioner availed power through open access. The petitioner may not be allowed to bank the energy purchased resulting from the excess as a result of purchase through open access from the grid.
- (4) Sri. Tojo Jacob, the representative of the Electrical Inspectorate submitted that, their observation and comments are recorded in the minutes of the meeting held on 30.12.2020. He further submitted that, as per the petitioner Hindalco, the PLC system will drive the 1 MW plant to stop generation under three conditions, viz, (i) when demand is less than 1MW, (ii) at the instances of grid failure (iii) at the instance of communication failure. Anti-islanding is found to be working and hence safety is ensured. There is nothing more to add on this subject matter.

- (5) KSEB Ltd submitted the following during the hearing.
- (i) The contract demand of the petitioner is 5 MVA only. The petitioner has been meeting their power requirement at the factory through three sources of power (a) supply from KSEB Ltd, (b) Self generation from the 1 MW & 2 MW Solar plant owned by the petitioner, and (c) by availing power through open access.
 - (ii) In order to explain the probability of banking the power availed through open access in the pretext of the banking of the power generated from the Solar plants, KSEB Ltd explained in detail the following '5' scenarios.

Case-1.

When the entire demand of the petitioner (up to the contract demand of 5 MVA) is being met from (a) generation from their 1MW and 2MW solar plant and the balance from KSEB Ltd. There is no possibility of gaming under this case.

Case-2.

When the petitioner met their entire demand from (a) self-generation from solar plants (upto 3 MW) and (b) also avails power through Open Access and no supply from KSEB Ltd.

In this case, KSEB Ltd pointed out a scenario when the open access drawal is, say 3 MW, and the Solar generation also 3 MW, as against the load of '5MVA'. Then the net meter shows a drawl of 2MW obtained through Open Access and also there is deemed injection of 1MW into the grid for banking. This injection is on account of availing excess power through Open Access than their load requirement. The power availed through open access is not qualified for banking as per RE Regulations.

Case-3, Case-4 and Case-5 are similar to Case-2, but with increase in quantum of OA power than their requirement after accounting the self-generation from the Solar Plant, and also with no drawl of KSEB Ltd supply.

The summary of the cases presented by KSEB Ltd is given in the Table below.

| Case No | Load in MW (contract demand) | Solar 3MW | OA drawal | KSEB Ltd supply | Net meter reading | Deemed Injection on account of OA |
|---------|------------------------------|-------------------------|-----------|-----------------|-------------------|-----------------------------------|
| 1 | 5.0 | 3.0 | 0.0 | 2 (5-3) | 2 MW drawal | |
| 2 | 5.0 | 3.0 | 3.0 | 0 | 2 MW drawal (OA) | 1.00MW |
| 3 | 5.0 | 3.0 | 4.5 | 0 | 2 MW drawal (OA) | 2.50 MW |
| 4 | 5.0 | 3.0 | 5.0 | 0 | 2 MW drawal (OA) | 3.00 MW |
| 5 | 0.5 | 2.0 (1 MW switched off) | 5.0 | 0 | 0 MW | 6.50 W |

(iii) KSEB Ltd submitted that, at present no intra state ABT mechanism is in place and no time block wise accounting is now followed. So, the entire deemed injection on account of availing Open Access (OA) will be get banked on the pretext of injection from the Solar plants. KSEB Ltd further submitted that, under case-2, case-3 and case-4, deemed injection may include the generation from 1 MW Solar plant also. Banking of deemed generation causes financial loss to KSEB Ltd, which is passed on to consumers of the State. The present RE Regulation also does not envisages banking of power availed through OA.

(iv) Fool proof working of interlocking mechanism cannot be ensured by KSEB Ltd as they are not owned and controlled by KSEB Ltd.

13. Based on the deliberations during the hearing, the Commission, vide daily order dated 12.01.2021, directed the petitioner and respondent to comply the following.

- (1) The respondent KSEB Ltd shall share their presentation with the petitioner and other respondents for their information and comments.
- (2) The petitioner HINDALCO shall submit detailed comments on the issues raised by KSEB Ltd, SLDC and ANERT during the hearing, on or before 12.01.2021.
- (3) All the respondents are also allowed offer their comments, latest by 12.01.2021 with a copy to the petitioner.
- (4) The petitioner HINDALCO is allowed time till 18.01.2021 to submit additional comments, if any, on the comments raised by the respondents after the hearing.

14. In compliance of the direction of the Commission, KSEB Ltd vide the letter dated 13.01.2021 submitted its comments and its summary is given below.

- (1) KSEB Ltd cannot ensure the reliable working of the scheme which is owned and controlled by the Petitioner. M/s ANERT during the hearing held on 06-01-2020 submitted that, on December 13th of 2020, there was export of power from 1MW plant when there was no load. This indicates that the PLC system is not always reliable. In the instant case, commercial and financial considerations are involved affecting KSEB Ltd and the consumers of the State if it fails to work. More importantly, even in case the PLC system works correctly, it is not able to detect and avoid deemed injection from the plant. Moreover, such deemed injection will result in getting the petitioner undue benefit of banking along with REC facility which is against the Regulations issued by CERC on Renewable Energy Certificate mechanism.
- (2) On the accounting system proposed by HINDALCO, KSEB Ltd submitted that,
- (i) HINDALCO avails power from different sources, including KSEB Ltd's supply, open access and also from its own solar generation. The petitioner has installed two Solar plants, first one 1MW plant with REC facility and second unit 2MW with banking facility. This makes the energy accounting complex which has to handle multiple scenarios.
 - (ii) Since HINDALCO is an open access consumer, whenever the actual drawal through open access becomes less than the scheduled open access, there will be deemed injection to the grid. This situation can occur due to reduction in the load which was not anticipated at the time of scheduling open access which is scheduled on day ahead basis or due to the increase in solar generation which is infirm. Moreover, there can also be situations of purposeful underdrawal of scheduled open access in certain time blocks and overdrawal in other time blocks to make use of market price economy. Since there is no time block wise energy accounting, the deemed injection gets banked.
 - (iii) The deemed injection includes energy from 1MW solar plant, 2MW Solar plant and the Open Access drawal as the sources cannot be segregated. Whenever the net drawal from grid is less than scheduled open access, there will be deemed injection. If this difference (Scheduled Open Access - Net drawal) goes below 1MW, it is to be considered that deemed injection occurs from 1MW solar plant also, which gets banked which is against the REC eligibility criteria envisaged in CERC Regulations.
 - (iv) Deemed injection does not gets recorded in the Net Meter. Therefore, the methodology proposed by HINDALCO for segregating 1MW export does not work here. The energy accounting methodology proposed by KSEB Ltd takes into account the actual injection as well as deemed injection and segregate them to ensure that export from 1MW does not get benefit of banking facility.

- (v) The remarks of HINDALCO that there is shortcoming in the energy accounting procedure proposed by KSEB Ltd takes only 2/3rd of the export from 2MW plant even when 1MW solar generation is not available is not correct. The formula used by KSEB Ltd for segregating 1MW energy and 2MW energy for banking purpose is as submitted below.

Energy allowed for banking = Surplus energy at the end of the billing period * $X2/(X1 + X2)$

X1: Solar meter reading 1MW

X2: Solar meter reading 2MW

When 1MW solar generation is not there: $X1=0$

Since $X1 = 0$, Full surplus energy gets banked.

Therefore, the averment of HINDALCO is not correct.

- (vii) Considering the fact that there is no intra state deviation mechanism in the State and also the fact that HINDALCO is an open access consumer and having solar generation of which 1MW solar generation is not eligible for banking, deemed injection is to be seriously considered and accounted.

- (3) KSEB Ltd further submitted that, the averments made herein and the reply of KSEB Ltd filed on 3-11-2020 may kindly be considered and the energy accounting method proposed by KSEB Ltd may be approved, in case Hon'ble Commission is inclined to allow HINDALCO to claim REC benefit for the 1MW plant in future.

15. Chief Engineer (Transmission System Operation), vide the affidavit dated 12.01.2021 submitted the comments of SLDC, Kerala and its summary is given below.

- (1) REC certification - Total energy generated from the 1MW solar plant can be admitted for REC. No banking is allowed for generation from 1MW solar plant. As per the interlocking scheme, 1MW plant will be backed down if the load is very low. Even otherwise, the energy accounting shall not consider the contribution from 1MW plant since banking is not permitted for 1MW plant.
- (2) Solar energy Banking - Surplus generation from 2MW solar plant is only eligible for banking. Net power transfer from consumer bus to KSEB Ltd grid reduced by the generation from 1MW plant, limited to the actual generation from the 2MW plant will alone be eligible for banking'.
- (3) Energy accounting of Open access and KSEB Ltd supply.

HINDALCO is an embedded open access customer. They are purchasing power through IEX Day ahead Market and Real Time Market. The energy consumed from KSEB Ltd is getting accounted as the total energy drawn by the consumer for the billing period minus the energy scheduled through open access route. On analysing the SEM

meter readings of solar plants (both 1MW & 2MW) and the interface meter at 110 kV of M/s. Hindalco for the month of December 2020, the net energy taken from KSEB Ltd was found to be negative (open access purchase more than the requirement in real time). This is in effect, export of power to KSEB Ltd by purchasing from other sources. It was observed that for the month of December 2020, purchase through open access was for 1123 time blocks, and out of this 699 time blocks were net export / deemed export blocks. In 298 time blocks export/ deemed export happened when there was open access purchase. Power is exported to the grid during day time also, when open access and solar generation coexists, ie, export/ deemed export happened for 161 time blocks out of 371 time blocks (between 06:30AM to 06:30PM). It is to be noted that during the above mentioned deemed export period, the actual net transfer of power is from KSEB Ltd grid to the consumer bus. This deemed export need not be accounted as per SLDC view.

The consumer has not so far applied for sale of power from their premises. Hence this aspect is not considered.

16. M/s Hindalco, the petitioner vide the affidavit dated 19.01.2021 submitted the following.

- (1) The system proposed by the petitioner has 'adequate check and balance' in place, ensure that the generation from the existing 1MW solar plant is completely consumed for the essential services in the plant and there is no possibility of power export at any point of time. The petitioner further submitted that, there is no intention of 'gaining'.
- (2) The petitioner submitted that, it is mandatory for all Open Access users of KSEB Ltd to install ABT compliant Special Energy Meter (SEM) which the petitioner is utilising in its system. However, KSEB Ltd is not utilising the 15minute time block wise data for billing. This is the root cause of the purported deemed injection from un-utilised excess open access power. If 15 minute time block accounting is adopted, it will resolve the purported issues of under drawal and deemed injection. Moreover, KSEB Ltd will gain the unutilised energy.

The petitioner undertakes and reiterated that, it is agreeable to forego any excess unutilised open access power.

- (3) The petitioner prepared a tabular representation of its proposed accounting method covering all scenarios, especially under drawal of Open Access power and banking eligibility of Solar Power. The details are given below.

| Accounting method proposed by HINDALCO (Figs in MW every 15 Mins Time Block) | | | | | | | | | | | |
|---|------|-----------|------------|----------------|----------|--------------------|----------------------|-------------------------------|--------------------|--------------------------|-------------------------------|
| Case No | Load | 1MW Solar | 2 MW Solar | Solar Total MW | OA in MW | KSEB Ltd Supply MW | Net Meter reading MW | Under drawn OA power (Lapsed) | Actual Export (MW) | Lapsed Energy(1MW Solar) | Eligible Banking (2 MW Solar) |
| 1 | 5 | 1 | 2 | 3 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| 2 | 3 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 2 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 4* | 0.5 | 1 | 2 | 3 | 0 | 0 | 0 | 0 | 2.5 | 0.5 | 2 |
| 5 | 5 | 1 | 2 | 3 | 5 | 0 | 0 | 3 | 0 | 0 | 0 |
| 6 | 3 | 1 | 2 | 3 | 5 | 0 | 0 | 5 | 0 | 0 | 0 |
| 7** | 2 | 1 | 2 | 3 | 5 | 0 | 0 | 5 | 1 | 0 | 1 |
| 8*** | 0.5 | 1 | 2 | 3 | 5 | 0 | 0 | 5 | 2.5 | 0.5 | 2 |
| | | | | | | | | | | | |
| Note | | | | | | | | | | | |
| Case No.4. * Generation from 1 MW allowed even when plant load is less, but banking restricted to 2 MW Generation only | | | | | | | | | | | |
| Case No.7. **No Deemed Injection/credit on OA Power | | | | | | | | | | | |
| Case No.8. ***Generation from 1 MW allowed even when plant load is less, but banking restricted to 2 MW Generation only | | | | | | | | | | | |

- (4) The petitioner also submitted its remarks on the different case scenarios presented by KSEB Ltd during the third hearing held on 06.01.20220. The details are given below.

| KSEB Ltd submission | | | | | | | HINDACO submission |
|---------------------|------------------------------|--------------------------|-----------|-----------------|-------------------|-----------------------------------|-------------------------|
| Case No | Load in MW (contract demand) | Solar 3MW | OA drawal | KSEB Ltd supply | Net meter reading | Deemed Injection on account of OA | Eligibility for banking |
| 1 | 5 | 3 | 0 | 2 (5-3) | 2 MW draw al | | 0 |
| 2 | 5 | 3 | 3 | 0 | 2 MW draw al (OA) | 1.00MW | 0 |
| 3 | 5 | 3 | 4.5 | 0 | 2 MW draw al (OA) | 2.50 MW | 0 |
| 4 | 5 | 3 | 5 | 0 | 2 MW draw al (OA) | 3.00 MW | 0 |
| 5 | 0.5 | 2.0 (1 MW sw itched off) | 5 | 0 | 0 MW | 6.50 W | 1.5 MW (Export solar) |

- (5) In response to the submission of ANERT that, there was 1 MW solar generation when load was zero on 13.12.2020, the petitioner submitted the following.