

KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM

Present: **Shri. Preman Dinaraj, Chairman**
Shri. S. Venugopal, Member
Shri. K. Vikraman Nair, Member

Petition No. OP 31/19

In the matter of : Petition filed by Southern Railway to direct Kerala State Electricity Board Limited to issue No Objection Certificate for availing open access

Petitioner : Southern Railway, represented by the Chief Electrical Distribution Engineer.

Petitioner represented by : Shri. Anoop, Sr. DEE/TRD/TVC
Shri. N.K Subramanian, Standing Counsel
Shri, J Jyothiraman, SSE/TRD/HQ/MAS
Shri. R.Gopakumar, SSE/D/TRD/TVC

Respondent : Kerala State Electricity Board Limited

Respondent represented by : Shri. Sasankan Nair, DCE, TRAC, KSEBL
Sri. K. G. P. Nampoothiri, Executive Engineer
Smt. Latha S.V, AEE, TRAC, KSEBL
Sri. Biju S.S, Asst: Executive Engineer, KSEB Ltd

Order dated 12.12.2019

1. M/s Southern Railway, (hereinafter referred to as the petitioner or Southern Railway) filed a petition on 27.12.2018, before the Commission with the following prayers:

(a) Issue a directive to the respondents herein to issue “No Objection Certificate” and Concurrence to the petitioner for non-discriminatory open access to avail power supply from M/s. Bharatiya Rail Bijlee Company Limited (BRBCL)

Power plant at Nabinagar, Bihar or any other source to the Railway Traction Substations as deemed licensee.

- (b) Direct the Respondents to consider all the drawal points from Inter State Transmission System (ISTS) located within the Kerala State shall be a single entity for the purpose of scheduling and Energy Accounting as laid down by CERC in its order dated 05.11.2015 (Annexure B) that the drawal points from ISTS located within a State shall be treated as single entity for the purpose of scheduling and group of Traction Sub Stations (TSSs) situated in a State and connected directly with ISTS may be treated as one fragmented control area.*
- (c) Direct the Respondents to provide back-up power supply for Railway Traction in the event of Open Access supply interruption and to claim back-up power supply charges as per Traction tariff approved by Hon'ble Commission for the backup power supplied by KSEB Limited only and not for the power which is wheeled through Open Access.*
- (d) To declare that the 2-phase power supply system existing in the Southern Railway has no unbalance effect in upstream 3-phase power grid and alternate power supply scheme is not warranted as already Hon'ble Commission has recognized the 2-phase scheme of Traction power supply and approved separate tariff for Railway Traction.*
- (e) It is prayed that a formal Deviation Settlement Mechanism may be please be enabled to take care of the operational requirement of Open Access.*
2. The Commission admitted the petition as OP 31 No. 31 of 2019. Hearing on the petition is conducted on 19.07.2019 at the court hall of the Commission at Thiruvananthapuram. During the hearing Adv. Sri. N. K. Subramanian and Sri. Jyothiraman presented the petition on behalf of Southern Railway. Sri. K.G.P. Nampothiri presented the counter remarks on behalf of the respondent KSEB Ltd.
3. The summary of the issues raised by the petitioner Southern Railway on the subject petition is given below.
- (i) Indian Railways is a deemed distribution licensee as per Section 11(a) and 11(g) of Indian Railways Act, 1989 read with third proviso to Section 14 and Section 117 of Electricity Act, 2003. Ministry of Power and CERC

has already clarified the position as deemed licensee. Later APTEL has also affirmed the right of railways to get open access.

- (ii) Southern Railway is availing power from Kerala State Electricity Board Limited (KSEBL) under a separate tariff category, Railway Traction. There are 12 supply points within the State of Kerala having contract demand of 91 MVA.
- (iii) Indian Railways is currently drawing a power about 1100MW through open access in various states including Maharashtra, Madhya Pradesh, Gujarat, Rajasthan, Jharkhand, Haryana, Karnataka, Delhi, Uttar Pradesh, Bihar and DVC area.
- (iv) Southern Railway has requested KSEBL to accord NOC for availing power from M/s BRBCL plant, Nabinagar, Bihar, a plant set up by Indian Railways as JV company with NTPC. This was in line with the direction of Ministry of Railways vide letter dated 17.2.2017.
- (v) It has also paid Rs.1.15Cr to KSEBL for provision for ABT meters and associated equipments. Railways has indicated the 8 numbers of traction substations under Palakkad and Trivandrum for which payment towards ABT meters were done by Railways .
- (vi) Director (Transmission) of KSEB Ltd vide the letter dated 14.11.2017 informed that, prevailing Regulations of CERC and KSERC insists 3 phase loading for consumers availing open access. KSEB Ltd will issue NOC for open access only after railways take necessary action for availing 3 phase supply or provide alternate mechanism to avoid harmonic distortion due to load unbalancing.
- (vii) The Scheme of power supply for Railway Traction in the State of Kerala is both mutually and universally accepted scheme and adopted all over the world.
- (viii) There are 426 Traction Substations of Indian Railways connected to various SEB's are in service throughout India with the same configuration and nowhere any problem of unbalance is encountered.
- (ix) Power supply scheme for Railway Traction is well thought-out scheme and it may be noted that the power supply for Railway Traction is availed at

110kV level even for a demand as low as 3MVA for keeping the voltage unbalance due to traction current as low as possible.

- (x) Two phase traction system is in existence in Southern Railway since 1965 and first Traction Substation in Kerala was commissioned on 11.06.1997 and no disturbance to the 110kV grid due to traction load is experienced till date.
- (xi) The voltage unbalance due to two phase current in the 110kV, 3 phase Grid is well within the limit of 3% specified in CEA Grid connectivity Regulation. Considering full load current of 196A for 110/27kV 21.6MVA transformer and assuming an average fault level of 2000MVA and zero current on the 3rd Phase, the voltage unbalance could be 1.078%.
- (xii) Power supply for Railway Traction is availed from 110kV Grid and traction power transformers of contiguous Traction Substations are connected cyclically across two phases of grid in the manner R-Y, Y-B & B-R as such traction load on the grid is essentially a three phase load. Hence technically an alternative power supply scheme for Kerala Region alone is not warranted.
- (xiii) Regarding meters, even today 3 phase 4 wire are only used for metering two phase traction supply at all Traction Substations. Hence switching over to open access has no impact on metering.
- (xiv) Regarding reference to KSERC Supply Code Regulation 6(2) quoted by KSEB permits the licensee to effect supply at a voltage and phase other than specified in Sub-regulation 6(1) i.e. single/Three Phase, with the approval of the Commission. In this regard, it is pointed out that KSERC has already recognised Railway Traction and approved separate tariff for Railway Traction in the State of Kerala, hence the question of any violation of Regulation does not arise.
- (xv) Also the peculiarity of Kerala Grid, as stated by KSEBL if any exist, does not have relevance to availing open access, since no physical change in the system of supply will come into being, there will only be change in the agency doing the energy accounting from KSEBL to SLDC/Kerala. Copy attached hereto and marked as Annexure – N&O.

- (xvi) Railways submitted that delay in issue of NOC by KSEBL will adversely affect the financial functioning of Railways and further added that KSEBL failed to fulfil the statutory obligation and such failure is against the public interest also.

4. The respondent KSEB Ltd, submitted the following on the subject issue.

- (1) The entire transmission and distribution network in the country is envisaged and developed as 3 phase AC systems with frequency of operation designed at 50Hz. Railways is availing two phase supply and the two phase traction load causes following in the KSEBL grid.
 - (i) Severe load unbalance in KSEBL system consequently affects other consumers.
 - (ii) Severely affects capacity of the equipments and reduces its lifetime.
 - (iii) Severe unbalance producing negative sequence currents in the system which adversely affects the feeding transformers and generators due to overheating and development of hot spots. The capacity of the system gets de-rated due to this.
- (2) In addition to the above load unbalance, following damages also occur to KSEBL grid by availing 2 phase supply by the petitioner:
 - (i) the negative phase sequence current due to unbalancing of traction load is more than 30% with a recorded maximum of 43.6%
 - (ii) zero sequence current component is observed to be of the order of 1.2%.
 - (iii) The single phase loading also cause heavy circulating currents in the delta connected tertiary of the feeding 220kV transformers adversely affecting the life of the transformers.
 - (iv) The harmonic distortion due to the load unbalance is found to be more than 10%.
- (3) The total harmonic distortion due to the load unbalancing is found to be more than 10%.
- (4) As per the provisions in the CERC (Grant of connectivity, Long Term and Medium Term Open Access) Regulations, 2009, CEA (Technical Standards for Connectivity) Regulations, 2007, CEA (Grid Standards) Regulations, 2010, CEA (Installation and Operation of Meters) Regulations, 2006, KSERC (Connectivity and Intrastate Open Access)

Regulations, 2013, the open access consumers shall mandatorily avail supply on 3 phase.

- (5) KSEB Ltd further submitted that, unlike other states, the two phase railway traction supply causes serious disturbances in the grid of Kerala in view of the following:
 - (i) The load profile of Kerala unlike other States is such that there is wide variation between peak and off peak demands. The traction system demand peaks in most cases during midnight hours, when the freight trains are also scheduled to run, during which there is minimum demand in Kerala system and correspondingly low generation. This result in higher unbalance and voltage fluctuation in the State grid.
 - (ii) Even though the adjacent TSS are connected cyclically as stated by the petitioner in the petition, it will not help in mitigating the load unbalance occurring at the incoming side of the source substation in the peculiar grid connection pattern of this State, as each TSS are fed from different grid substations. If the same grid substation is feeding many TSS, then this methodology might have worked as is the case with other State networks where often the same grid substation is feeding multiple TSS owing to the reduced inter-distance between the TSSs in those States.
 - (6) KSEB Ltd further submitted that, at present, these damages to the Kerala grid are being borne by KSEBL and consequently other consumers of this State, which is partly compensated by Railways, being the single most largest consumer in the State. However, if Railways opt for open access, action needs to be taken by Railways for availing three phase load so that adverse impact on the State Transmission system can be minimized. KSEB Ltd and its consumers are not bound to bear the damages to be caused by the open access consumers.
5. Based on the deliberations during the hearing, the Commission vide the daily order dated 05.08.2019, directed the petitioner to clarify the following.
- (i) Whether the Railways are making long term power purchase contracts/ arrangements for the entire demand of the Traction Substations in the State?
 - (ii) Whether the Railways will continue to maintain the existing contract demand or a part of the existing contract demand of 91 MVA with KSEB Ltd or not?.

(iii) Whether the petitioner stick on all the prayers in the original petition dated 27.12.2018.

6. Further, vide the daily order dated 05.08.2019, the Commission directed the respondent KSEB Ltd to submit the proposals including charges and other conditions for providing back up supply to the non-embedded open access consumers of the State.

The Commission further directed that, the petitioner Southern Railway and the respondent KSEB Ltd shall submit the details on the clarifications sought by the Commission within 15 days from the date of the daily order dated 05.08.2019, with a copy to either side. The additional comments, if any, on the details submitted by both the parties, may reach the Commission within '7' days from the date of receipt of the comments of the other party.

7. In compliance of the Commission, the petitioner M/s Southern Railway, vide letter dated 19.08.2019 submitted the following;

(i) Whether the Railways are making long term power purchase contracts/ arrangements for the entire demand of the Traction Substations in the State?

The Policy of Railways, on open access is to avail power supply through either (1). Short term or Long term power purchase agreements and also by (2). Bidding through power exchange for the entire demand of the Traction sub-station in the Kerala State and intend to avail power supply in a competitive rate available in the open access market.

(ii) Whether the Railways want to maintain the existing contract demand or a part of the existing contract demand of 91 MVA with KSEB Ltd or not?.

The Railways power supply demand as on open access deemed distribution licensee over time slots of 15 minutes for 24 hrs and this projects the aggregated average demand of Railways to around 40 MW in the open access domain. Indian Railways are already availing open access power supply as "Deemed Licensee" in the following states Delhi, Maharashtra, Rajasthan, Gujarat, Haryana, Jharkhand, Uttar Pradesh, Bihar, Madhya Pradesh, Karnataka and DVC area and nowhere contract demand is maintained with the state discoms, in line to this Southern Railway doesn't intend to maintain the existing or part of the existing contract demand with KSEB Ltd.

- (iii) Whether the petitioner stick on all the prayers in the original petition dated 27.12.2018.

Railways intent to proceed on all the prayers in the original petition dated 27.12.2018.

8. KSEB Ltd, vide letter dated 30.10.2019 submitted the extent of damages caused by the petitioner by availing open access and assess the compensation, if any, recovered from the petitioner while permitting open access. The summary of the details submitted by KSEB Ltd is given below.

- (i) The damages / financial loss caused by the traction power supply system to the KSEB Grid and its consumers is difficult to quantify since the negative effect of the same occurs gradually over a period of time and that too is not specifically related to a certain fixed point, rather the effect is spread throughout the grid.
- (ii) Major factors that contribute to financial loss are
- i. damage / loss / reduction of lifespan of equipments due to overheating,
 - ii. loss of revenue due to failed / constraint supply,
 - iii. reduction of capacity of machines and equipments due to derating and consequent reduction in the power transferred
 - iv. additional investments required in enhancing the lost capacities
 - v. cost towards installation of filters, compensation equipment
 - vi. loss to the consumers on account of lost production etc. In addition to the financial loss as above another major negative effect is the loss of consumer satisfaction and goodwill.
- (iii) Major consequence of two-phase supply for traction system is the voltage unbalance resulting to overheating of rotating machines, increased system losses, suffer from heating effects, interfere with neighbouring communication systems, and cause protection relays and measuring instruments to malfunction making the system less stable.
- (iv) Stable Power systems contain only positive phase sequence (pps) sources, thus the energy conversion at source takes place through this component only. However, due to unbalance traction supplies and mainly unbalance impedances, whether originating from the load or network,

negative phase sequence (nps) and zero phase sequence (zps) currents flow in the network, which have the following main detrimental impacts.

- (a) Negative phase sequence (nps) and zero phase sequence currents and voltages cause additional losses in the network.
 - (b) Zero sequence currents produce extra stator losses and may cause hot spot at the winding ends and rotor bearings. The rotating field or armature reaction, in the air gap created by stator nps current rotates in space in opposite direction to the rotor rotation and induces voltage in the rotor which causes current to flow in the rotor body. This circulating current flowing mainly on the surface of the rotor results in increased rotor temperature.
 - (c) Small amount of nps voltage at the rotating equipment terminal can produce significant amount of nps current in the machine resulting in overheating and pulsating torques. Negative phase sequence current produces pulsating torque due to reverse rotating magnetic field and thus produces additional noise and vibration, which may lead to reduction in life or premature breakdown.
- (v) Due to the non-availability of the measuring infrastructure only a sample study was carried out at 220kV Substation Pallom, which is feeding the traction load at Chingavanam. Studies were carried out to determine the quantum of unbalance in the loading and harmonic content in the traction feeder and the observations are as follows:
- During both morning and evening peak the effect of unbalancing and Harmonics content is almost same. It depends on the number of trains running in the specified line stretch.
 - Voltage unbalance in the traction feeder is seen to be 0.6%
 - Total Harmonic Distortion (THD) in the feeder is found to be varying from more than 10% to a minimum of 3%. It is found 3rd, 5th and 7th harmonic waves are present in the line and occasionally 2nd harmonics are also occurring.
 - The presence of negative sequence component of the current is also found to be more than 30% with a recorded maximum of 43.6%. This indicates a higher than normal unbalanced loading of the feeder. Zero Sequence component is of the order of 1.2%.
- (vi) Another major problem in the traction system is the voltage fluctuation caused by sudden shifts of the traction loads. Further if the incoming supply in an adjacent TSS fails, then the supply is extended to the Sector

fed by the lost TSS which often leads to tripping of the feeders on earth fault due to unbalanced current flow. This phenomenon is often seen in the traction feeding at Uppala, Kasargode whenever the railways extends supply to Karnataka portion in the event of failure of supply in those sections.

Analysis and Decision

9. The Commission examined in detail the petition filed by M/s Southern Railway, the objections raised by KSEB Ltd as per the provisions of the Electricity Act, 2003, KSERC (Connectivity and Intra-state Open Access) Regulations, 2013, orders of the CERC dated 05.11.2015 in Petition No. 197/2015, and other documents placed during the proceedings of the subject petition.
10. During the deliberations of the subject petition, the petitioner M/s Southern Railways submitted that they would press for a decision on all the prayers in the original petition dated 27.12.2018, which is extracted under paragraph-1 above. The Commission examined each prayer of the petitioner in details. The analysis and decision of the Commission on each prayer of the petitioner is discussed in the subsequent paragraphs
11. Prayer-1. Issue a directive to the respondents herein to issue “No Objection Certificate” and Concurrence to the petitioner for non-discriminatory open access to avail power supply from M/s. Bharatiya Rail Bijlee Company Limited (BRBCL) Power plant at Nabinagar, Bihar or any other source to the Railway Traction Substations as deemed licensee.
 - (1) Southern Railway is an existing consumer of KSEB Ltd with a total contract demand of 91 MVA, for 'railway traction. At present the petitioner is availing supply at 12 drawal points across the State. Indian Railways also a deemed licensee as per the provisions of the Electricity Act, 2003.
 - (2) As per the Section 39 (2) (d) and Section 42 of the Electricity Act, 2003 and also as per the Regulation 11 of the KSERC (Connectivity and Intra-State Open Access) Regulations, 2013, KSEB Ltd has to allow open access facility to the petitioner on payment of the charges applicable to the open access consumers approved by the Commission from time to time.

The relevant Sections of the Electricity Act, 2003 and Regulation 11 of the KSERC (Connectivity and Intra-State Open Access) Regulations, 2013 is extracted below.

(i) Section 39 (2) (d) of the Electricity Act, 2003. (State Transmission Utility and functions):

.....

(2) The functions of the State Transmission Utility shall be –

.....

(d) to provide non-discriminatory open access to its transmission system for use by-

- (i) any licensee or generating company on payment of the transmission charges ; or*
- (ii) any consumer as and when such open access is provided by the State Commission under sub-section (2) of section 42, on payment of the transmission charges and a surcharge thereon, as may be specified by the State Commission:*

Provided that such surcharge shall be utilised for the purpose of meeting the requirement of current level cross-subsidy:

Provided further that such surcharge and cross subsidies shall be progressively reduced in the manner as may be specified by the State Commission:

Provided also that the manner of payment and utilisation of the surcharge shall be specified by the State Commission:

Provided also that such surcharge shall not be leviable in case open access is provided to a person who has established a captive generating plant for carrying the electricity to the destination of his own use.

(ii) Section 42. (Duties of distribution licensee and open access): ---

.....

(2) The State Commission shall introduce open access in such phases and subject to such conditions, (including the cross subsidies, and other operational constraints) as may be specified within one year of the appointed date by it and in specifying the extent of open access in successive phases and in determining the charges for wheeling, it shall have due regard to all relevant factors including such cross subsidies, and other operational constraints:

Provided that such open access shall be allowed on payment of a surcharge in addition to the charges for wheeling as may be determined by the State Commission:

Provided further that such surcharge shall be utilised to meet the requirements of current level of cross subsidy within the area of supply of the distribution licensee :

Provided also that such surcharge and cross subsidies shall be progressively reduced in the manner as may be specified by the State Commission:

Provided also that such surcharge shall not be leviable in case open access is provided to a person who has established a captive generating plant for carrying the electricity to the destination of his own use:

.....

(iii) Regulation 11 of the KSERC (Connectivity and Intra-State Open Access) Regulation 2013.

11. Eligibility for open access and conditions to be satisfied.-

(1) Subject to the provisions of these regulations and with due regard to the operational constraints and such other relevant matters, the licensees, generating companies including persons who have established captive generating plants, generation plants, electricity traders and consumers shall be eligible for open access to the intra-state transmission system of the State Transmission Utility or of any transmission licensee other than STU on payment of transmission and other charges as may be determined by the Commission from time to time.

(2) Subject to the provisions of these regulations and with due regard to the operational constraints and such other relevant matters, the licensees, generating companies including persons who have established a captive generating plant, generation plants, electricity traders and consumers shall be eligible for open access to distribution system of a distribution licensee on payment of the wheeling charges and other charges if any, as may be determined by the Commission from time to time:

Provided that the open access customers using intra-state transmission system and distribution system will also be subjected to the load shedding imposed by the distribution licensee unless they are connected through a dedicated feeder emanating from a grid substation.

- (3) The Commission vide the order dated 08.07.2019 in OA No. 15/2018 had approved the charges applicable to the open consumers within the State of Kerala. The same is applicable to Southern Railways also if they avail the open access facility.
- (4) During the deliberations of the subject petition, KSEB Ltd submitted that the two phase railway traction supply causes serious disturbances in the Kerala grid. At present, these damages to the Kerala grid are being borne by KSEBL and consequently by the consumers of the State, which is partly compensated by Railways, being the single largest consumer in the State. However, if Railways opt for open access, action needs to be taken by Railways for availing three phase load, so that adverse impact on the State Transmission system can be minimized. KSEB Ltd and its consumers cannot be expected to bear the burden caused by Railway by becoming an open access consumer.

The Commission noted the concerns raised by KSEB Ltd. Though the Commission vide the daily 05.08.2019 has directed KSEB Ltd to study and appraise the burden caused by the petitioner by availing open access and assess the compensation, if any, to be recovered from the petitioner while permitting open access, KSEB Ltd could not quantify the damages vide its submission dated 30.10.2019.

- (5) KSEB Ltd cannot deny the open access to the petitioner on the premise that the railway traction causes damages to the Kerala Grid. However, KSEB Ltd is directed to study and appraise the damages, if any, caused by Southern Railway, if Railways avail open access, and submit the same before the Commission with all supporting details within 3 months of issue of this order for taking appropriate decision on compensation if any, required. The petitioner M/s Southern Railway, shall sign an undertaking with the respondent KSEB Ltd that, the compensation on damages, if any, on availing open access shall be reimbursed by the petitioner to KSEB Ltd, as approved by the Commission from time to time.
- (6) With the above observation, the Commission hereby direct that, KSEB Ltd shall issue 'No objection Certificate' to Southern Railway for open access for availing power from any source, on payment of the charges applicable for the open access consumers in the State and subject to the assessment of appropriate compensation, if any after its approval by this Commission.

12. Prayer-2. *Direct the Respondents to consider all the drawal points from Inter State Transmission System (ISTS) Located within the Kerala State shall be a single entity for the purpose of scheduling and Energy Accounting as laid down by CERC in its order dated 05.11.2015 (Annexure B) that the drawal points from ISTS located within a State shall be treated as single entity for the purpose of scheduling and group of Traction Sub Stations (TSSs) situated in a State and connected directly with ISTS may be treated as one fragmented control area.*

(1) The Commission examined the prayer of the petitioner in detail. Hon'ble CERC, vide the order dated 05.11.2015 in petition No. 197/2015 decided as follows regarding Traction Sub Stations located within a State for scheduling. The paragraph 52 (c) of the CERC order is extracted below.

(c) The drawl points from ISTS located within a State shall be treated as a single entity for the purpose of scheduling. The group of TSSs situated in a State and connected directly with ISTS may be treated as one „fragmented control area“ and the responsibility for scheduling, metering, balancing, applicability of ISTS charges and losses etc, shall vest in the concerned RLDC. For the TSSs situated in a State and connected to State network, these functions shall vest in the concerned SLDC.

CERC has taken above decision based on the recommendations of the CEA in its report dated February 2015 titled “Report of the Committee for preparation of ‘Energy plan for Indian Railways’”

(2) As per the details submitted by the petitioner, the following are the existing Traction Substations, from where the Southern Railway draw power from the grid of KSEB Ltd.

- (i) Chalakkudi
- (ii) Kadavantra
- (iii) Punnapra
- (iv) Chingavanam
- (v) Perinad
- (vi) Kazhakuttam
- (vii) Kanjikode
- (viii) Shoranur

(3) All the traction substations are connected to STU network at 110 kV level. Hence, duly considering the order of the CERC dated 05.11.2015 in Petition No. 197/2015 based on the recommendations of the CEA, the

Commission hereby directs that, if the petitioner avail open access, SLDC shall consider all Traction Substations of the petitioner within the State of Kerala as one fragmented control area for scheduling, accounting metering, system load balancing, applicable open access charges and losses etc.

However, as mandated in the sub Regulation(4) of Regulation 11 of the KSERC (Connectivity and Intra-State Open Access) Regulations, 2013, the petitioner shall install Special Energy Meters and Remote Terminal Units and carry out proper maintenance at all Traction Substation.

13. **Prayer-3. Direct the Respondents to provide back-up power supply for Railway Traction in the event of Open Access supply interruption and to claim back-up power supply charges as per Traction tariff approved by Hon'ble Commission for the backup power supplied by KSEB Limited only and not for the power which is wheeled through Open Access.**

The Commission examined the prayer of the petitioner in detail and noted the following.

- (i) As of now, the few consumers are availing open access as 'embedded consumers of KSEB Ltd' on day ahead basis. However, these consumers are maintaining the existing contract demand with the licensee by paying demand charges, irrespective of whether they avail power from the licensee or not. Hence, as and when the open access power is not available, these embedded consumers are availing power from KSEB Ltd.
- (ii) But the Southern Railway, in its affidavit dated 19.08.2019 clarified that, the petitioner that, the Southern Railway does not intend to maintain the existing or part of the existing contract demand with KSEB Ltd.
- (iii) Considering the affidavit dated 19.08.2019 of the petitioner, the Commission hereby clarify that,

'If the Southern Railways maintain contract demand with KSEB Ltd, the respondent KSEB Ltd has the obligation and responsibility to provide the supply as and when there is interruption in the power contracted under open access to the extent of the contract demand maintained with KSEB Ltd.

However, if Railways does not propose to maintain contract demand with KSEB Ltd, the respondent shall have no obligation to provide any back up supply to the petitioner at the traction tariff approved by the Commission.

Hence, under such circumstances the petitioner Railways shall make their own backup arrangements, for meeting their electricity demand as when the open access power is not available. Alternatively, the petitioner can make separate agreement with KSEB Ltd for backup power, at mutually agreed terms and subject to the approval of the Commission.

14. **Prayer-4. To declare that the 2-phase power supply system existing in the Southern Railway has no unbalance effect in upstream 3-phase power grid and alternate power supply scheme is not warranted as already Hon'ble Commission has recognized the 2-phase scheme of Traction power supply and approved separate tariff for Railway Traction.**

The Commission examined the prayer of the petitioner in detail. It is a fact that, Southern Railways is availing two phase supply, and the two phase supply has the effect of causing imbalance in the K S E B Ltd. transmission system compared to the three phase supply. During the deliberations of the subject petition, the respondent KSEB Ltd has explained in detail the imbalance effect of the two phase traction supply availed by the petitioner and the impact in the Kerala Power System.

Considering these reasons, the Commission cannot approve the prayer of the petitioner to declare that *2-phase power supply system existing in the Southern Railway has no imbalance effect in upstream 3-phase power grid.*

15. **Prayer-5. It is prayed that a formal Deviation settlement mechanism may please be enabled to take care of the operational requirement of Open Access.**

The Commission noted the prayer of the petitioner. The Commission is yet to notify the Regulations on the intra-state Deviation Settlement Mechanism in the State, since KSEB Ltd is the single agency till date for scheduling internal generation as well as the power purchase for the entire consumers of the State. However, under the changing scenario, the Commission may notify the intra-state Deviation Settlement Mechanism in the State of Kerala, after completing all the procedure formalities.

Order of the Commission

16. The Commission after examining the petition filed by M/s Southern Railway, the objections raised by KSEB Ltd as per the provisions of the Electricity Act, 2003, KSERC (Connectivity and Intra-state Open Access) Regulations, 2013, orders of the CERC dated 05.11.2015 in Petition No. 197/2015, and other documents placed during the proceedings of the subject petition, hereby orders the following.

- (1) KSEB Ltd shall issue 'No objection Certificate' to Southern Railway for availing open access for drawing power from any source, on payment of the charges applicable for the open access consumers in the State.
- (2) If the petitioner avails open access, SLDC shall treat all Traction Substations of the petitioner within the State of Kerala as one "fragmented control area" for scheduling, accounting, metering, balancing, applicable open access charges and losses etc.

However, as mandated in the sub Regulation(4) of Regulation 11 of the KSERC (Connectivity and Intra-State Open Access) Regulations, 2013, the petitioner shall install Special Energy Meters and Remote Terminal Units and maintain them properly at all Traction Substations.

- (3) As detailed in paragraph 13 above, if the petitioner M/s Southern Railways do not propose to maintain contract demand with KSEB Ltd, the licensee do not have the obligation to provide any back up supply to the petitioner at the traction tariff approved by the Commission.
- (4) Considering the reasons cited under paragraph 14 above, the Commission cannot approve the prayer of the petitioner to declare that 2-phase power supply system existing in the Southern Railway has no unbalance effect in upstream 3-phase power grid.

Petition is disposed of accordingly.

Sd/-

**K. Vikraman Nair
Member**

Sd/-

**S. Venugopal
Member**

Sd/-

**Preman Dinaraj
Chairman**

Approved for issue

**G Jyothichudan
Secretary**