THE STATE ELECTRICITY OMBUDSMAN

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APPEAL PETITION No. P/052/2022
(Present: A. Chandrakumaran Nair)
Dated: 19th October, 2022

Appellant	:		Sri. M. Padmanabhan, Sr. Divisional Electrical Engineer, TRD, Southern Railway, Palakkad Dist. 678 002
Respondent	:	1)	Deputy Chief Engineer, Transmission Circle, KSEB Ltd., Kannur Dist.
		2)	Special Officer (Revenue) KSEB Ltd., Pattom, Thiruvananthapuram-4.
		3)	Asst. Executive Engineer, Electrical Sub Division., KSEB Ltd., Uppala, Kasaragod Dist.

ORDER

Background of the case:

The appellant is the Senior Divisional Electrical Engineer, Traction Distribution, Southern Railway, Palakkad Division. The appeal petition is connected with the Cheruvathur Traction Substation bearing consumer number 30/8080. There is undue delay in enhancement of Contract Demand of Cheruvathur Traction Substation. The Contract Demand for Cheruvathur Substation is 8 MVA and requested KSEBL to enhance the Contract Demand to 9 MVA during July 2021. As the Licensee has not sanctioned the enhancement of CMD, the appellant is forced to pay the penalty for exceeding the CMD limit at Cheruvathur Traction Substation. The appellant filed petition to Consumer Grievance Redressal Forum (Northern Region) and CGRF(N) issued order vide dated 30-06-2022 and set aside the grievance of the petitioner. Aggrieved by the decision of CGRF(N), the appellant filed the appeal petition to this Authority.

Arguments of the appellant:

Electrical Traction Distribution Department is a part of Indian Railways, catering to the power supply requirement of Electric Trains, drawing power from

concerned Electricity Boards at 110/220kV at 2 phases and converting into single phase 25 kV for the Traction purpose. On following Green Energy concept, Indian Railway is on a mission for 100 % electrifications of all its routes. It is a public transport organization under Govt. of India, meeting the day today transportation needs of common public.

Cheruvathur Traction Substation assumes much more importance in the scheme of things in traction system of Palakkad Division, as the nearby TSS namely Uppala is partially fed by KSEBL and partially by KPTCL, as such the reliability of the power supply at this TSS is at stake. Moreover, Uppala Traction substation feeds towards Mangalore area whereas a part of the section to be fed by Uppala being shifted to Cheruvathur's feeding zone.

Hence, it is natural that Cheruvathur TSS will have much more load than is permitted. Foreseeing this aspect, the Railways promptly approached KSEBL for the enhancement of CMD. had it been approved in time the present scenario could have been avoided. As it is not possible to regulate or stop the trains, since this is planned and executed by the Railway Board, Ministry of Railways, in the interest of travelling public.

KSEBLs claim of many unwanted tripping of 110kV Ambalathara-Cheruvathur feeder and tripping of the feeder from the source end is not acceptable, as the Railway is drawing power through separate feeder and bay in KSEBL substation. It is understood that Railway is drawing power from Cheruvathur Substation of KSEBL with a current capacity of 220A whereas the Ambalathara Substation from where the feed is taken to Cheruvathur Substation has a current setting of 320A. It is suspected that this Substation with fully overloaded having no time lag and trips along with tripping of Cheruvathur Traction Substation feeder. This is due to the system failure of KSEBL because of improper setting of relay. This could be managed by KSEBL instead of blaming Railways for the overload tripping and disturbances to other customers.

Further, the claim of KSEBL that the instantaneous traction load is much more and the two-phase load of Railway traction creates unbalance in the system, is also not acceptable as the same system is being adopted all over India

successfully and in force with much more connected load than in Kerala territory. Moreover, this may be offset due to the cyclic distribution of phase sequence in the nearby Traction substations from the grid. Thus, the unbalanced loading of 110kV feeders also be managed.

It is because of KSEBL's refusal to enhance the CMD. Railway is paying unnecessary penalty for exceeding the CMD on every month. The details of penalty paid for exceeding the CMD limit at Cheruvathur /TSS since the time of application of enhancement of CMD has been worked out to an amount of Rs.32,49,000/-. Railway pleads that KSEBL may be directed to refund this amount to Railways as this is not due to Railway's fault.

KSEBL's claim that Railways drawing more momentary overloads is agreed but the resultant voltage unbalance in the system is well within CEA limits of 3%. It is worthwhile to be mentioned here that Indian Railway is working PAN India basis and drawing power from different EB's without any disturbance on both sides. As such the present objection raised by KSEBL for enhancement of CMD is needlessly created only to tarnish the Railway's image with far reaching consequences, as this will affect the train operations which in turn affect the day today life of the common public.

The Railways request for enhancement of CMD of Cheruvathur/TSS from 8000kVA to 9OOOkVA may be approved by KSEBL and necessary orders may kindly be issued in this regard.

The representative of Railways was very well present during the second hearing of CGRF on 16.06.2022. Proof for this is also submitted in the form of letter submitted in the CGRF office on 16.06.22. Even after the due period of disposal time from the date of admission of the complaint in CGRF there was no communication received from the CGRF, Southern Railway is forced to approach this Authority. As such the decision of CGRF is partisan and hence, Railway is seeking the due justice from this Authority.

Arguments of the respondent:

Even though the Contract Demand of TSS Cheruvathur is 8MVA, its continuous load and short duration load has a marginal difference. The short duration load sometimes increases from 2 to 3 times that of the Contract Demand

for short duration up to 10 minutes. This short duration high currents are due to the style of availing power by M/s Railways in EHV level. M/s Railways is availing power in EHV level by connecting only two phases of 110kV 3 phase supply system of KSEBL. This style of availing power in EHV level causes limitation in full utilization the capacity of system lines and creates disturbances in grid which in turn leads to many unwanted tripping of 110 kV Ambalathara- Cheruvathur feeder. Due to the tripping of the feeder from source end, total supply failure occurs in all type of consumers like domestic, commercial, and various types of industrial consumers at the feeding area of 110kV Substation Cheruvathur, 33kV Substation West Eleri and 33kV Substation Thrikkarippur. This is unnecessarily tarnishing the image of KSEBL among consumers.

Based on the request from M/s Railways for enhancement of Contract Demand of Traction Substation Cheruvathur, load flow study was conducted. The load flow study report observed that short duration value of Traction load sometimes is more than 200A (which is stated by the appellant itself) and remain the condition for some duration and the equivalent demand at that time is more than 22MVA. It is also observed that two phase loads of Railway Traction will create unbalance in the system, affecting power qualities etc and leading to losses and damages to KSEBL system.

Due to the short duration overloads, it Is observed that M/s Indian Railway is drawing more than 150% of Contract Demand from almost all feeding stations (9 Nos. - 70MVA) in Northern region for short duration. This is about 1/5th of load demand of northern region. This leads to following issues

1. Causes unnecessary supply interruptions at substations.
2. Creates unbalancing of Grid.
3. Power quality issues,
4. Under-utilization of capacity of system lines of KSEBL, which creates virtual congestion of transmission corridor.
5. Connectivity problem of solar generators (100MW) near traction substation.

Many interruptions reported in northern region during last six months which in turn resulted heavy load thrown off from the grid in such instances. The resulting load thrown off situation in the order of many hundreds of MW result in heavy loss to KSEBL as it is availing power from central grid on ABT regime. On

the analysis of our data, the major reason for interruption is found to be the unbalance loading 110KV feeders by M/s Railways and the resultant unbalance in the grid. Also, KSEBL is not able to utilize the full capacity of the system lines due to the style of connection M/s Railways is adopted.

Feasibility does not absolve a consumer from maintaining power quality and grid discipline. In this regard, M/s Railways was asked to conduct a power quality study through experts IIT/IISC/NIT for confirming that the traction system is properly designed in agreement with the power quality (IEEE 519,1159,1250 and SEMI) and Electromagnetic compatibility standards (IEC 61000) for ensuring proper operations and to report. But no report is seen received from M/s Railways till this date to facilitate further.

In addition to above, the Chief Engineer, Transmission (North) Kozhikode also asked to conduct power quality study by M/s Railways for ascertaining the parameters like harmonics, flickering, swelling, voltage fluctuations, voltage sag, noise, voltage unbalance, voltage spike, short and long interruptions, transformer Inrush current during energisation etc in coordination with the protection system of KSEBL substations to avoid frequent unwanted interruptions. But no report is seen received from M/s Railways to facilitate further.

KSERC vide order dated 12.12.2019 had accepted KSEBL's view about unbalance effect of Railway Traction loads in the grid. It is also clarified that if Railways does not propose to maintain contract demand with KSEBL, the KSEBL shall have no obligation to prove any back up supply to the appellant at the traction tariff approved by commission. In addition to the load unbalance, following power quality issues are also badly affecting to KSEBL grid by availing two- phase supply i.e., negative phase sequence current (more than 30), total harmonic distortion (more if than 25), zero sequence current and other issues mentioned in the letters addressed to M/s Indian Railway. All the above issues shall be affecting severely the life span of each and every vital equipment of substations.

Due to non-response, the Chief Engineer Transmission (North), Kozhikode once again reminded M/s Indian Railway that to mitigate the issues, required power conditioners needs to be installed by the consumer or by KSEBL at Railway's cost for which willingness is to be informed. It is also decided that

further request from M/s Railways for New/enhancement of contract demand of Traction substations shall be considered only after conducting power quality study and after implementing the recommended corrective measures.

KSEBL had conducted power quality studies in the traction feeders emanating from 110 kV Substation Cheruvathur on 07-03-2022 and the major observations are

- Current THD is found to be extremely nigh.
- Voltage THD is high
- Crest factor of current is very high.
- Crest factor of voltage is beyond limit.

The reports substantiate the fact that power quality is seriously affected by the unbalanced loading pattern of Traction load. Considering this, M/s Railways is requested to conduct detailed power quality study at Traction Substations and to install required RPQC of sufficient capacity and other accessories accordingly. But, M/s Railways has not responded.

As per cause 6.4 of KSERC (Connectivity and intra state open access regulations 2013), the STU shall

a) Accept the application with such modification or such conditions as may be stipulated by other agencies which are not inconsistent with these regulations.

b) Reject the application for reasons to be recorded in writing, if such application is not in accordance with the provisions of these regulations or grant of connectivity is not technically feasible.

From above, the application can be rejected if it violates grid discipline that weakens power quality.

The mere enhancement of Contract Demand and revising relay setting accordingly will not relieve the grid from disturbance caused by unbalance, harmonics, damping etc. Processing further on the request of enhancement of Contract Demand of Traction Substation Cheruvathur, the detailed power quality study to be conducted and reported by M/s Railways. KSEBL could not provide the additional Contract Demand as requested by M/s. Railways for their traction substation at Cheruvathur due to all the above-mentioned issues.

All these issues are because of the method of availing power supply in EHT Network by M/s. Railways. M/s Railways is not availing power supply in 3 phases.

Instead, they avail in single phase by connecting only two of the 3 phases supplied by KSEBL and this is just because of the infrastructural constraints of M/s Railways. To mitigate the issues, KSEBL is proposing to install Scott connected transformers at feeding stations connected to traction substations if M/s Railway is willing to deposit the required expense. In addition to this M/s Railways should also consider options for availing alternate feeding to their traction substations especially from 220kV Substations for ensuring redundancy.

CGRF had conducted two hearings regarding the petition on 25.05.2022 and 16.06.2022. KSEBL officials had attended the hearing both time but there was no participation from the side of the petitioner, M/s Railways both times. Due to this, the Forum prima facia assessed that the petitioner is incurious to move with the petition and the grievance is set aside.

Response of appellant on the statement of the Respondent

CHV/TSS is one of the substations feeding electrical energy to the Railway traction in Palakkad Division of Southern Railway. CMD of CHV/TSS was fixed at 8OOOkVA in the year June 2019. Since then, the traction load has increased considerably due to increase in number of trains hauled by AC traction. As mentioned by KSEBL, the short duration load of Railway traction is going high because of frequent slop and start of trains at halt stations. It is a well-known fact in electrical technology that any machine at starting will take high current and it is not because of the style of' availing power by Indian Railways at EHT level. Railway Traction technology is a tried and trusted method adopted all over the world and there is no reason for apprehension about this method of drawing power at place. If any tripping from the source end, it is because of the faulty method of protection from KSEBL and there is nothing to blame the Railways.

However, the KSEBL is projecting Die nature of supply drawn as new phenomena: The KSEBL's demand for Power Quality Study at this stage is unreasonable and unwarranted as it is not mentioning anywhere in the supply agreement, connectivity agreement, Supply Code 2014. The same is not mentioned in the Hon'ble KSERCs order dated 12.12.2019 either.

As such it is not acceptable to Southern Railway as a party to the connectivity agreement 06/2016-17. The railway has no infrastructural

constraints as it is the age-old practice to draw supply in two phases for the Traction purposes.

Southern Railway has already assessed its load and power requirement there by requested KSEBL for the enhancement of CMD from the existing 8000kVA to 8OOOkVA at appropriate time. It is the KSEBL who is having the infrastructural constrains which does not permit it to transmit the power demanded by Railways. In-order to cover up their inability and inadequacy in their system they are coming up with silly excuses like power quality study, grid discipline, system disturbance etc. which is not desirable.

Indian Railway network spread across the country adopting uniform method of power consumption by drawing power from the grid at 2 phases and converting it into single phase 25kV 50Hz supply approved by the Railway Board and RDSO, Laxmanpuri. This is being practiced all over India without any hindrances in the grid. It is to be mentioned here that Southern Railway Palakkad Division is drawing power from KSEBL right from the year 1998 Fort Kanjikode/TSS. Since then, there was no disturbance in the grid or violation of grid has been mentioned by any authority till date. Further the connectivity to the TSS were granted after conducting Load Flow Study and nature of the traction load and an agreement for supply of energy (EHT) Number EHT1/2016-17/Dist.(N-M) dated 22-03-2017 prepared between Chief Engineer Distribution, North Malabar KSEBL / Kannur and Senior Divisional Electrical Engineer/Tr.D/Palakkad. The agreement Para1 (a) clearly stipulates that "the Licensee shall continue to supply to the consumer and the consumer shall take from the Licensee all the energy required for operating the consumer's equipment and lighting in the premises at Traction Substation, Cheruvathur Station Southern Railway" there by the licensee has already committed up to a total quantity of 5000kVA and the supply to the consumer shall be in the form of 2 phase alternating current and nominal frequency of 50 cycles / seconds. Thus, the licensee is fully aware that the Railway is drawing power on 2 phases at the time of connectivity. It is to be retreated here that before the connectivity agreement a detailed Feasibility study as well as Power Quality study has been conducted and the KSEBL was fully satisfied with load to be drawn by Southern Railway from the grid. As such it is surprised to know that suddenly how the load

has been so much deteriorated without making any basic changes in the load or connected equipments.

KSERC vide order dated 12-12-2019 asked KSEBL to quantify the voltage unbalance, load unbalance, voltage regulation, total harmonic distortion, negative phase sequence current etc. which the KSEBL was unable to reply till date. Because of KSEBL's infrastructural deficiencies Railway cannot be made to suffer as numbers of trains are increasing along with fast electrification of routes and as per the demand from the public. It is the responsibility of Railways towards the common public to meet their demand as the largest and most economical transporter, always working at the National interest.

The clause 6(4) of Kerala State Electricity Regulatory Commission (Connectivity and Infra-state Open Access) Regulations, 2013 stipulates that "the STU or the Transmission licensee other than STU shall, within thirty days from the receipt of an application complete in all respects and after considering all suggestions and comments received from other agencies involved in the intra-state transmission system and/or distribution system and the State Load Dispatch Centre:

(a) accept the application with such modification or such conditions as may be stipulated by other agencies which are not inconsistent with these regulations,

(b) reject the application for reasons to be recorded in writing, if such application Is not in accordance with the provisions of these regulations or grant of connectivity is not technically feasible.

Provided that, before rejecting an application, opportunity of being heard shall be given to the applicant by issuance of a notice, and in case the applicant does not avail of the opportunity within the period specified in the notice, the application shall be rejected forthwith."

Since in this case, thirty days are already completed and KSEBL could not raise any issues within the purview of the Connectivity Agreement, Supply Code or KSERC Regulations, the belated action at this time is creating lot of doubts in the intention of KSEBL.

Further the clause 6 (3) mention about "the STU or the Transmission licensee other than STU shall, in consultation and through co-ordination with other agencies involved in the infra-state transmission system and/or distribution

system and the State Load Dispatch Centre process the application and carry out the necessary feasibility study in accordance with the provisions of the Central Electricity Authority (Technical Standards for Connectivity to the Grid) Regulations, 2007 as amended from time to time and 1EGC / State Grid Code" before granting a connection and there is no provision in either KSERC (Connectivity and Intra-state Open Access) Regulations, 2013 regulation or Kerala Electricity Supply Code 2014 for any interim feasibility or power quality Study, so far the KSEBL has unable to provide the sufficient proof of violation of grid discipline by Southern Railway and hence enhancement of CMD may be considered early.

Since the method of availing power in 2 phases by Railways is not a new phenomenon and it is successfully followed by Indian Railway all over India without any problem in the grid. It is not desirable to change the system which will cost huge revenue expenditure to the National ex-chequer. As such KSEBL is requested to enhance the CMD immediately.

KSEBL is repeatedly blaming the method of power drawn by Railways without any proper and efficient study only to defame the Indian Railways and cover up their own deficiencies and inabilities to trade Electrical energy to a reputed customer who is serving the Nation and its public.

After approaching the CGRF, Southern Railway had waited too long and there was no response, finally Railway was forced to approach this Authority considering the above facts. In the Public and National Interest, it is prayed that to this Authority to advise KSEBL to enhance the CMD of Cheruvathur/TSS immediately.

Analysis and findings:

The hearing of the case was conducted on 30-09-2022 in the office of the State Electricity Ombudsman, Near Gandhi Square/BTH, Ernakulam South. The appellant Sri. Padmanabhan, Sr. DEE/Tr.D of Southern Railway, Palakkad along with the Advocate Sri. Syju. K. were attended the hearing from the appellant's side and Sri. Anil Kumar. G., Dy. Chief Engineer, Transmission Circle, Kannur attended the hearing from the respondent's side. Subsequently, Dy. Chief Engineer, KSEBL has submitted the argument note vide letter dated 18-10-2022.

On examining the appeal petition, the arguments filed by the appellant, the statement of facts of the respondent, argument note submitted, perusing the documents attached and considering all the facts and circumstances of the case, this Authority comes to the following findings and conclusions leading to the decision thereof.

Indian Railway is availing the power from the Kerala State Electricity Boards by 110 kV/220 kV line to their Traction Substations. The Railway is using only two phases and converting into 25 kV and feeding to Traction lines. There are Traction Substations at equal intervals and each Traction Substation is feeding power for both directions. As part of the Clean Energy Initiative, the Railway also converted the Diesel Locomotive trains to AC Tractions and this resulted for the increase in electrical load of Cheruvathur Substation. The appellant applied withs the Licensee to enhance the CMD from 8 MVA to 9 MVA during July 2021. The required application fee etc. was remitted during October 2021.

The Section 99 of Kerala Electricity Supply Code 2014 deals with the "Enhancement of connected load or contract demand" as follow: -

99 (1) Consumer shall apply to the licensee for enhancement of contract demand in case of consumers under demand-based tariff and of connected load in the case of others, in the form specified in Annexure -11 to the Code and the licensee shall process the application form in accordance with the relevant provisions of the Code.

99 (2) For site inspection as well as issuance and payment of demand note for the estimated cost of work if any, both the licensee and the applicant shall follow, mutatis mutandis the procedure and timelines as laid down in regulations 77 to 83 of the Code.

99 (3) The licensee shall give a written intimation along with the demand note to the consumer which shall include the following:-

> (a) whether the additional power can be supplied at the existing supply voltage or at a higher voltage; (b) addition or alteration, if any, required to be made to the distribution system and the expenditure to be borne by the consumer, on that account; (c) amount of additional security deposit and expenditure for alteration of service line and apparatus, if any, to be deposited in advance by the consumer; (d) change in classification of the consumer and applicability of tariff, if required; and (e) any other information relevant to the issue.

99 (4) The application for enhancement of load shall not be considered if the consumer is in arrears of payment of the dues payable to the licensee.

99 (7) The licensee shall issue order on the application for the enhancement of load within thirty days from the date of its receipt and intimate the applicant whether or not the enhancement of load is sanctioned.

The above Section is very clear about the procedure to be followed for the enhancement of Contract Demand. According to the clause 6(4) of Kerala State Electricity Regulatory Commission (Connectivity and Infra-state Open Access) Regulations, 2013 states that "the STU or the Transmission licensee other than STU shall, within thirty days from the receipt of an application complete in all respects and after considering all suggestions and comments received from other agencies involved in the intra-state transmission system and/or distribution system and the State Load Dispatch Centre:

(a) accept the application with such modification or such conditions as may be stipulated by other agencies which are not inconsistent with these regulations,

(b) reject the application for reasons to be recorded in writing, if such application Is not in accordance with the provisions of these regulations or grant of connectivity is not technically feasible.

Accordingly, Licensee has conducted Load Flow Study and found that short duration value of Traction load sometimes is more than 200A this shows that the instantaneous value more than 150%, which is against the Regulation 16 (3) of Kerala Electricity Supply Code2014. The Licensee's point that because of the above time lime of 30 days could not be met is seen to be acceptable. Hence, Section 99 (8) of the Supply Code 2014, which states that after 30 days, the enhancement is deemed to be sanctioned is not applicable.

As the enhancement is not technically feasible, on examining all the parameters, the Licensee has communicated the appellant vide letter dated 21-01-2022 that the enhancement cannot be sanctioned. Though the Licensee is enumerating the reasons for the delay, the time taken to communicate the decision was too long.

The Section 101 of Kerala Electricity Supply Code 2014 "Annual review of contract demand" states as follow: -

101 (1) In the case of HT and EHT connections, if the maximum demand recorded exceeds the contract demand in three billing periods during the previous financial year, the licensee shall issue a notice of thirty days to the consumer directing him to submit within the notice period, an application for enhancement of contract demand.

101 (2) If there is no response from the consumer by the end of the notice period, the licensee shall enhance the contract demand of the consumer to the average of the top three readings of maximum demand shown by the maximum demand indicator (MDI) meter of the consumer during the previous financial year, if the additional load can be sanctioned without augmentation or upgradation or uprating of the distribution system.

101 (4) Consequent to enhancing the contract demand, applicable charges shall be collected from the consumer and the consumer shall be directed to execute supplementary agreement if required.

101 (5) If the distribution system is not adequate to meet the excess demand of the consumer, he shall be directed by the licensee to restrict his demand to the permissible limit, till necessary augmentation or upgradation or uprating works are done as per the provisions of this Code:

Provided that the service may be disconnected after sufficient notice as per the Code if the consumer does not comply with such direction.

This is very clear about the requirement of annual review to be conducted by the Licensee and accordingly consumer has to be asked to apply for the enhancement if not this is to be treated as deemed enhancement. Here, the appellant has promptly approached Licensee for the Contract Demand enhancement and not sanctioned because of technically not feasible.

The argument of the appellant is that as per the agreement signed between the appellant and Licensee, it is the responsibility of the Licensee to supply the power to the consumer and consumer shall take from the Licensee all the energy required for operating the consumers equipment is not factually correct. The Clause 1 (a) of the agreement states that "The Licensee shall supply to the consumer and the consumer shall take all the energy required for operating the consumers equipment and lighting of his premises at …… up to a total quantity of ….. KVA, hereinafter called the Contract Demand."

As per the above clause, the Licensee is bound to supply the energy only up to the Contract Demand.

The Clause 14 (a) of the agreement states that "the consumer shall not make any alteration in the machinery or equipment either by way of addition or substitution or transfer, which may increase the obligation of the Licensee to supply electrical energy in excess of the agreed contract demand and/or which may affect the supply system of the Licensee to its detriment."

If the consumer intent to add more load, prior approval of the Licensee in writing before execution is to be obtained, failing which the Licensee entitled to cut off the supply. In the case in hand, violation of this clause is observed. However, the Railway being the public service utility, the Licensee shall not take any adverse action.

The main allegation of the Licensee is about the high-power demand during the short duration, and high harmonics in the power system. These problems may adversely affect the power system stability. The Railway is taking 2 phase 110 kV supply from KSEBL to their traction substation and converting into 25 kV single phase system for the traction power supply. This is not a balanced three phases system. As the different traction substations are fed from different sources, the overall balancing also not feasible.

The Section 6 (1) of Kerala Electricity Supply Code 2014 states that for 110 kV EHT consumers, the power supply is to be in 110 kV three-phase system and Section 6 (2) states that the Licensee may depending upon the technical conditions of the distribution system and subject to the approval of the commission, give supply at voltage and phase other than the classification of supply in sub regulation.

The request of appellant to KSERC in OP 31/19 to declare that the 2-phase power supply system existing in Southern Railway has no unbalance effect in upstream 3 phase grid has not been approved. That means, the traction load is clearly unbalanced load, which is the violation of Section 14 of the Kerala Electricity Supply Code 2014. Appellant's view is that the Railway is availing and utilizing power in the same manner across India. However, it is very clear that this arrangement is effecting the quality of power and the system stability.

A technical solution is to be arrived and implemented by Railway for balancing the three-phase power by drawing three phase line from the line and

distribute the load of equally by segmenting the traction line. This will be an initiative to achieve electrical power stability in the system.

The Section 23 of Kerala Electricity Supply Code 2014 "Harmonics dumping" states as: -

23 (1) It shall be obligatory for all consumers to restrict the harmonics dumped by them to the levels stipulated by the IEEE STD 519-1992, and also the standards as may be specified by Central Electricity Authority in accordance with Section 53 of the Act:

Provided that IEEE Standard shall be applicable only till Indian Standards are specified by authorities such as Bureau of Indian Standards and Central Electricity Authority.

23 (2) If the licensee detects that the system of consumer is generating harmonics above the permissible limits, the licensee may require the consumer, to take such effective measures within a reasonable time period, which shall not be less than six months, to control harmonics of his installation in accordance with sub regulation (1) above.

23 (3) Failure to comply with this regulation may attract penal charges, if any, as determined by the Commission and if in the opinion of the licensee, the high harmonics dumping by a consumer is detrimental to other consumers or to the distribution system, the supply to such erring consumers may be disconnected with due notice:

Provided that the supply shall be reconnected as soon as effective measures are taken to comply with this regulation.

The Load Flow Study conducted by the Licensee shows that the total harmonic distortion is very high and the presence of 3rd, 5th & 7th harmonics is stays there and occasionally 2nd harmonics also present. This is in violation of Section 23 of the Supply Code 2014. As this is a public utility service, Licensee cannot take any adverse action as per Section 23 (3).

M/s. Southern Railway has to devise a system and a technical solution to arrest the harmonic distortion in the upstream system.

During the hearing, the appellant is mentioned that the strengthening of the Ambalathara-Cheruvathur 110 kV line is in progress and the same will be completed within a period of one year and the load enhancement could be sanctioned on completion of this work. The Licensee has to speed up the project and then allocate additional load asked by the appellant.

The issue of the appellant is in paying huge amount as the penalty for excess demand than the CMD levied by the Licensee. The enhancement could not be sanctioned because of the technical reasons.

Another matter is to be considered is the prayer of appellant to waive off the penal charges for the maximum demand in excess of the contract demand. As the enhancement has not been able to sanction because of the technical reasons, the prayer could not be allowed.

Decision: -

From the analysis of the arguments of appellant and respondent and the hearing, the decision is taken as follows:

(1) The Licensee has to speed up the work of strengthening of Ambalathara-Cheruvathur 110 kV line and complete at the earliest. Sanction the load enhancement on completing this project.

(2) The appellant has to take initiative to modify the Traction Distribution System to balance the load in three phase and also to achieve power system stability.

(3) The appellant has to conduct a detailed Load Flow Study and assess the distortion and take necessary steps to control these parameters within the permissible limit.

(4) The prayer of the appellant regarding the waiver of the penal charges for the maximum demand in excess of contract demand is not permitted.

Having concluded and decided as above, it is ordered accordingly. No order on costs.

ELECTRICITY OMBUDSMAN

P/052/2022/ dated .

Delivered to:

1. Sri. M. Padmanabhan, Sr. Divisional Electrical Engineer, TRD, Southern Railway, Palakkad Dist. 678 002

2. Chief Engineer, Transmission-North, KSEB Ltd., Vydhuthy Bhavanam, Kozhikode
3. Deputy Chief Engineer, Transmission Circle, KSEB Ltd., Kannur Dist.
4. Special Officer (Revenue), KSEB Ltd., Pattom, Thiruvananthapuram-4.
5. Asst. Executive Engineer, Electrical Sub Division., KSEB Ltd., Uppala, Kasaragod Dist.

Copy to:

1. The Secretary, Kerala State Electricity Regulatory Commission, KPFC Bhavanam, Vellayambalam, Thiruvananthapuram-10.
2. The Secretary, KSE Board Limited, Vydhyuthi Bhavanam, Pattom, Thiruvananthapuram-4.
3. The Chairperson, Consumer Grievance Redressal Forum, Vydhyuthi Bhavanam, KSE Board Ltd, Gandhi Road, Kozhikode