

**KERALA STATE ELECTRICITY REGULATORY COMMISSION**  
**THIRUVANANTHAPURAM**

**Present : Shri. Preman Dinaraj, Chairman**  
**Adv. A.J Wilson, Member (Law)**

**OP No 13/2021**

In the matter of : Petition for approval for the installation of one 8 MVA transformer at 33 kV Substation.

Petitioner : M/s Thrissur Corporation Electricity Department (TCED).

TCED represented by : Shri. Jose T.S, Electrical Engineer, TCED

Respondent : Kerala State Electricity Board Ltd.  
KSEB Ltd represented by : Sri. Manoj. G., Asst: Executive Engineer

Date of the hearing : 30.07.2021

**Order dated 24.08.2021**

1. Thrissur Corporation Electricity Department (TCED), on 22.02.2021 filed a petition before the Commission for the approval for installing one 8MVA transformer at its 33 kV substation.
2. Summary of the petition filed by M/s TCED is given below.
  - (1) M/s TCED has been directly supplying power to 40000 consumers in its licenced area of 12.65 sq.km out of the total corporation area of 101.42 sq.km.
  - (2) TCED has three (3) substations- one 110kV, one 66kV, and one 33kV substation. The existing 33 KV substation of TCED is having 2 Nos. 33/11KV 5 MVA transformers and 4 Nos. of 11 KV outgoing feeders.
  - (3) At the 110 kV/11kV substation, all the seven 11kV feeders are occupied, and having a total demand of 21 MVA. For the 33kV substation, TCED is having 4 feeder capacity and all the 4 feeders are connected. If the existing Eastfort feeder with the load of 170 Amps is shifted from the existing 110 kV substation, it will be more reliable with minimum outages.

- (4) To meet any additional demand, TCED is planning to increase the capacity of the 33 KV substation by adding 1 No. 8 MVA transformer, with 5 Nos. 11 KV panel sets. The existing substation is having enough space to accommodate the proposed panels and transformer, in addition to the existing 2 Nos 5MVA transformers.
- (5) The works involved in the installation of the proposed 8MVA transformer includes the supply & erection of 1 No 8MVA 33KV/11KV Transformer with 11KV 5 Panel set including incomer at 33KV Substation, at Ikkandawarrier Road, Thrissur.
- (6) The advantages expected by installing the proposed 8 MVA transformer are,
- (i) Demand on 110KV/11KV Substation can be maintained below 20MVA out of the transformer capacity of 25 MVA (12.5 MVA X 2).
  - (ii) The feeder length of East fort feeder from 110KV substation is 3.5km, which can be reduced to 500 meters if the load is fed from 33KV substation, with corresponding reduction in loss.
  - (iii) As the shifting of East fort feeder having 170 Amps load from the existing 110KV Substation to 33KV Substation, the 110KV Substation will be more reliable with minimum outages.
- Shifting of the load also reduces the power loss at 110kV substation.
- (iv) The existing 16MVA transformer capacity at 110/33 KV substation can be utilized.
  - (v) Out of the three No's proposed feeders, two feeders can be utilized to meet the growth on present feeders and 3<sup>rd</sup> one can be used as a spare feeder
  - (vi) The proposed project will improve the reliability of supply to great extent.
- (7) TCED had also considered the alternate proposals of upgradation of the existing 2 Nos. of 5 MVA transformers to 8 MVA capacity. But when the matter was discussed with the officials of the transmission wing of KSEB Ltd and the expert advisory committee members of TCED, they opined that addition of 1 no of 8 MVA transformer will be a better option compared to the upgradation of 2 Nos of 5MVA transformers, due to the following.
- (i) As there is no complete back up, power interruption during the upgradation will prolong for months.
  - (ii) TCED will have to replace the existing CTs, metering CT& etc, for which TCED will get only scrap value.

- (iii) The remaining underutilized capacity (of 6 MVA out of the 110/33 kV, 16 MVA transformer presently available) can be utilised, if one no. of 8 MVA transformer is installed.
- (iv) The proposal will not result in duplication of existing infrastructure, but at the same time it will strengthen the present distribution system.

The total cost estimate for the installation of the 8 MVA transformer is Rs 217 Lakh. The estimate was prepared by the Chief Engineer (Transmission – North) KSEB Ltd as requested by TCED.

3. KSEB Ltd vide letter dated 21.04.2011 submitted its comments on the petition filed by M/s TCED for the installation of one 8 MVA transformer at its 33 KV substation. Its summary is given below.

- (1) TCED has not submitted the present load and load growth expected in the ensuing years, necessitating the installation of additional transformer.
- (2) As requested by TCED, Chief Engineer (Transmission North) of KSEB Ltd had prepared the estimate. If the work is allotted to KSEB Ltd, it will execute the work on deposit basis.
- (3) KSEB Ltd further submitted that M/s TCED is yet to enter into a valid PPA with KSEB Ltd specifying the contract demand, in spite of the repeated directions issued by the Commission.
- (4) Without having a contract demand for power purchase, TCED is trying to enhance the connected load and seeking approval for enhanced capacity for catering the future load requirement, which may not be accepted.

4. The Commission admitted the petition as OP 13/2021. Hearing of the petition was held on 30.07.2021 through video conference. Shri. Jose T.S, Electrical Engineer, presented the petition on behalf of the petitioner M/s TCED and Sri. Manoj G, Asst Executive Engineer, presented the comments of KSEB Ltd. The summary of the deliberations during the hearing is given below:

(1) M/s TCED submitted the following during the hearing.

- (i) At present the 110kV substation of TCED is having 2 numbers 12.5 MVA, 110/11 kV transformer and also one number 16 MVA, 110/33 kV transformer.

All the 7 numbers of 11kV feeders from the two 110/11kV transformer is fully loaded at peak. As per the log details, the maximum demand met at the 11kV feeders 110kV substation is 19.4 MVA out of the total installed capacity of 25MVA. The total load on the 11 kV feeders of 110kV/ 11 kV substation is 1016 AMP.

The East fort feeder from the 110/kV transformer is supplying area around the existing 33 kV substation. Hence, TCED had

considered the possibility of shifting the load of the East fort feeder from the 110kV substation to 33kV substation.

- (ii) Though the transformer at 110/33kV side of the 110kV substation is having 16MVA capacity, at present the 33kV substation is having 2 numbers of 5 MVA transformers only. Thus, there exist a spare capacity of 6 MVA in 110/33kV substation.

The present demand of the 33kV substation is only 6.5 MVA out of the installed capacity of 2x 5MVA.

As the 33kV substation is situated in the South East side of TCED, if the East fort feeder is shifted from 110kV s/s to 33kV s/s, it will reduce the feeder length by 3km, that is from 3.5km to 500m. It will also reduce the line loss. It will also ensure optimum utilization of the 16MVA transformer at 110/33kV substation.

Once, a part of the load from 110kV substation is shifted to 33kV substation, the maintenance at 110 kV substation can be done with less interruption. Presently during transformer maintenance, load shedding is imposed within the feeder area of 110kV substation.

Enough space exists at 33kV substation to install an additional 1 x 8MVA transformer including the panels and other electrics of the additional transformer at 33kV substation.

- (iii) TCED further submitted that, the proposal for installation of one additional 8MVA transformer at 33kV s/s was finalized after discussions with the officials of the transmission wing of KSEBL.

As per the detailed estimate prepared by KSEBL, the total estimate for the work is Rs 217 lakh. KSEBL submitted that, the estimate was prepared based on the Transmission Data, Distribution data and market rate.

TCED further submitted that, the Corporation Council approved the estimate prepared by KSEB Ltd. TCED intends to execute the work through KSEBL on deposit work basis.

- (2) KSEB Ltd did not raise any objection on the proposal of the TCED for the installation of 1x 8MVA transformer at 33kV s/s of TCED. However, KSEBL pointed that, in spite of the repeated directions of the Commission, TCED is reluctant to sign PPA with KSEB Ltd. Without regularizing the existing load, seeking approval for catering future load cannot be accepted.

KSEB Ltd is ready to execute the work on 'work deposit basis if the TCED intend so.

- (3) The Commission during the hearing observed that, KSEBL has claimed Rs 23.80 lakh towards consultancy and established charges. This can be avoided or negotiated with KSEB Ltd. Regarding the estimate for the work, TCED proposes to take a decision as to whether to execute the work through KSEB Ltd. TCED can also execute the work by inviting competitive tenders.

KSEB Ltd clarified during the hearing that, KSEBL and TCED may negotiate regarding the consultancy and establishment charges. TCED submitted during the hearing that, the Corporation Council had decided to execute the work through KSEBL considering the urgency of the work.

- (4) Sri Rajagopal, former Chief Electrical Inspector, commented that the proposal for installation of the additional 8MVA transformer at 33kV substation is reasonable and will help in reducing the supply interruptions in the proposed area.

### **Analysis and Decision of the Commission**

5. The Commission has examined in detail the petition filed by M/s Thrissur Corporation Electricity Department (TCED) for the installation of 1 No, 8MVA transformer at its 33kV substation as per the provisions of the Electricity Act, 2003 and KSERC (Terms and Conditions for Determination of Tariff) Regulations, 2018 (herein after referred to as Tariff Regulations, 2018) and other regulations in force, and decided as follows.

6. As per the Section 42 of the Electricity Act, 2003, the distribution licensee is duty bound to develop and maintain an efficient co-ordinated and economical system in its area of supply. The relevant Section of the EA-2003 is extracted below for ready reference.

**Section 42. (Duties of distribution licensee and open access):** --- (1) *It shall be the duty of a distribution licensee to develop and maintain an efficient, co-ordinated and economical distribution system in his area of supply and to supply electricity in accordance with the provisions contained in this Act.....*

7. Regulation 70 of the Tariff Regulations, 2018 provides that every distribution licensee needs to submit its capital investment plan to the Commission for approval. It is further specified that the plan shall be in accordance with the 'Guidelines for In-principle Clearance of Capital Investment' specified at Annexure-IV. As per Clause C in Annexure IV 'Guidelines for in principle clearance of investment scheme' of Tariff Regulations;

*"C. Submission of Detailed Project Reports:*

*The distribution licensees shall submit separate capital investment schemes with Detailed Project Reports for the approval of the Commission, if the capital investment of each of the schemes exceeds the limits specified below against the licensees concerned.*

(i)	KSEB Ltd.	Rs. 10 crore
(ii)	KDHPCL, TCED and CPT	Rs 25 Lakh
(iii)	Other distribution licenses	Rs 15 lakh

*The detailed project report shall include the cost-benefit analysis, details of funding and the capital investments plan shall contain a least cost proposal.*

*The Detailed Project Reports shall necessarily include the scope and objective of the proposed scheme and elaborate how the scheme meets the evaluation criteria mentioned herein.*

*Provided that the capital expenditure if required for emergency work, which has not been approved earlier; the licensee shall submit an application, containing all relevant information along with reasons justifying the emergent nature of the proposed work, and seek approval of the Commission either during its execution or immediately after completion of such emergency work.*

*Provided further that the works undertaken by the licensee within the financial limits as mentioned above and without getting prior approval of the Commission shall be approved in the truing up of accounts after conducting their prudence check by the Commission.”*

8. M/s TCED has filed the present petition for the approval of the capital investment for installing an additional 1 No 8 MVA transformer at its 33 kV substation. The Commission has examined the proposal in detail and noted the following.
- (1) At present, TCED owns and operates three substations, one 110 kV substation, one 66kV substation and one 33 kV substation.
  - (2) The 110kV substation of TCED is having 2 Nos 12.5 MVA 110/11kV transformer and 1 No. 16 MVA 110/33kV transformer.
  - (3) The 33kV substation is having 2 Nos 5 MVA transformer. There is provision for installing additional one more transformer at 33kV substation.
  - (4) As per actual demand met on 27.03.2019, the total demand met in the 11kV feeders of the 2 Nos of 12.5 MVA 110/11 KV transformer is 19.4MVA out of the installed capacity of 25 MVA. The actual demand met is about 78% of the installed capacity of the 110/11kV transformer. The total load on the seven 11 kV feeders of 110kV/11kV substation is 1016 AMP, with details as given below.

SL.NO	110/11KV feeders	11kV feeder load (AMP)	Maximum Demand (MVA)	Installed Capacity (MVA) (110KV/11KV s/s)
1	Ramanilayam	118	19.4 MVA	2 * 12.5 MVA = 25 KVA
2	MO Road	172		
3	Kottapuram	174		
4	Chhembukavu	72		
5	Shoranur Road	160		
6	District Hospital	150		
7	Eastfort	170		
8	TOTAL	1016		

Out of the above seven feeders, the East fort feeder is passing very near to the existing 33kV substation of TCED. If this feeder is shifted to the 33kV s/s, the length of this feeder can be reduced from 3.5kM to 0.50kM. Further the shifting of the East fort feeder with the load of 170 AMP will result in reducing the lines loss and also the loss at the 110kV substation.

- (5) The petitioner submitted that, there is enough space at the existing 33 kV s/s to install an additional transformer. TCED also submitted that, the existing 1 No 16 kVA transformer capacity is not fully utilized, as the transformer capacity installed at 33 kV is 2x 5 MVA= 10 MVA only. The petitioner clarified that, it had discussed the matter with Transmission wing of KSEB Ltd, and they also suggested to install an additional 1 x 8MVA transformer at the space available at the existing 33 kV s/s.
- (6) The Commission noted that, though there may be reduction in T&D loss by shifting the East fort feeder from 110kV/11kV substation to 33kV substation, the petitioner could not submit any quantitative analysis on the quantum of energy that can be saved as reduction in T&D loss by shifting the East fort feeder as proposed by the petitioner.

The Commission further noted that, the petitioner has not provided the details of the load forecast and likely increase in demand within the area fed from the 110/11kV transformers, for establishing the urgent need for shifting the East fort feeder from 110kV/11kV substation to 33kV substation so as to reduce the load of the 110/11kV substation.

During the hearing held on 30.07.2021, the Commission directed the petitioner to clarify whether 1 No of 5MVA additional transformer is sufficient, instead of the 1 No 8 MVA transformer proposed by it at 33kV s/s. The petitioner submitted that, the space available at 33kV substation is sufficient for installing only one transformer. Hence, in anticipating the higher demand in future, TCED proposed to install 1 No 8MVA transformer instead of 1 No 5 MVA transformer.

**The Commission clarified that, the additional transformer loss and T&D loss on account of the under loading of the transformer by**

**installing a high transformer capacity than the capacity required shall be on TCED account only, and the Commission shall not approve such increase in T&D loss of TCED.**

Considering the above aspects in detail, the Commission decided to grant provisional approval to TCED to proceed with the installation of 1 No 8MVA transformer at the space available at its 33kV substation. The Commission further noted that, as per the orders on truing up of TCED dated 20.08.2020 in OA No. 11/2020 for the year 2018-19, the net Regulatory Surplus approved to TCED as on 31.03.2019 is Rs 146.58 crore. This Regulatory surplus approved is after accounting all the legitimate expenses incurred by TCED for its electricity distribution business including the eligible Return on Equity (RoE) allowed. TCED shall meet the funds required for the project from its Regulatory Surplus available as approved by the Commission. Since the fund is met from the Regulatory surplus, which was approved after accounting all the legitimate expenses and RoE, the Commission shall not allow interest cost for the asset created out of such Regulatory Surplus.

9. TCED submitted in the petition as well as during the hearing that, it had proposed to install the 1 No 8 MVA transformer through KSEB Ltd as deposit work. They also submitted that, the estimate of the proposed work amounting to Rs 217.00 lakh is prepared by KSEB Ltd as per the latest cost data. The council of the Thrissur Corporation also approved the estimate prepared by KSEB Ltd and also agreed to execute the work through KSEB Ltd. The representative of the KSEB Ltd also clarified during the hearing that, KSEB Ltd is ready to execute the work as deposit work, if TCED intended so.

The Commission has perused the estimate prepared by KSEB Ltd for the installation of the 1 No 8MVA transformer, amounting to Rs 217.00 lakh. While the Commission does not wish to comment on the costing of equipment and works, the Commission noted that, KSEB Ltd has included 15% of the estimate amount, i.e, Rs 23.80 lakh towards consultancy and establishment charge, besides 10% of the estimate amount as overhead and supervision charges amounting to Rs 14.43 lakh. The Commission hereby clarify that, it cannot approve 15% of the estimate amount claimed as consultancy and establishment charge for a work proposed to be executed through KSEB Ltd as deposit work. Hence, if TCED intend to execute the project as deposit work through KSEB Ltd, it shall negotiate with KSEB Ltd regarding the estimate of the work especially regarding the claim of 15% of the estimate amount as consultancy and establishment charge. ***TCED shall intimate the outcome of the negotiation with KSEB Ltd before taking any decision on awarding the work to KSEB Ltd.***

#### **Orders of the Commission**

10. The Commission, after examining the petition filed by TCED, the remarks of the KSEB Ltd, deliberations during the hearing held on 30.07.2021, other materials and records as per the provisions of the Electricity Act, 2003, KSERC (Terms



and Conditions for Determination of Tariff) Regulations, 2018, hereby orders the following.

- (1) To grant provisional approval to proceed with the installation of 1 No 8 MVA transformer at the space available at the existing 33kV substation of the TCED, subject to the following conditions:
  - (i) The entire funds required for executing the project shall be met from the Regulatory Surplus of Rs 146.58 Crores available with TCED as on 31.03.2019, as ordered by the Commission vide the Order dated 20.08.2020 in Petition OA No.11/2020 for the year 2018-19.
  - (ii) The Commission shall not allow interest for the asset created out of the Regulatory Surplus.
  - (iii) The Commission shall not approve any increase in T&D loss on account of the underloading of the transformers, by the installation of the higher capacity transformer than required due to the present low load growth in the distribution area of TCED.
- (2) If TCED, intends to execute the work through KSEB Ltd as deposit work, it shall negotiate with KSEB Ltd regarding the estimated amount and communicate the outcome before awarding the work to KSEB Ltd.

The Commission hereby clarify that, KSEB Ltd cannot claim 15% of the estimate amount of the proposed work as consultancy and establishment charges. The same shall be negotiated by TCED and the outcome be filed before the Commission before awarding the work. Alternatively, TCED may if it so desire consider allotting this work on public tender basis and take necessary approvals from the Council.

The petition disposed off. Ordered accordingly.

**Sd/-**  
**Adv A J Wilson**  
**Member (Law)**

**Sd/-**  
**Preman Dinaraj**  
**Chairman**

Approved for issue

C R Satheeshchandran  
Secretary (i/c)

**List of stakeholders participated in the public hearing held on 30.07.2021**

1. Sri. M.K Varghese, Mayor Thrissur Corporation
2. Sri. V.V Lathesh Kumar, Assistant Secretary
3. Sri. T.S Jose, Electrical Engineer
4. Sri. Shameer.N., Assistant Engineer Section I
5. Sri. Nikhil.B , Assistant Engineer Substation
6. Sri. Rajagopal M.G, Rtd Chief Electrical Inspector
7. Sri. Manoj G, AEE, TRAC, KSEBL