

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 335/MP/2022**

**Coram:**

**Shri Jishnu Barua, Chairperson  
Shri I. S. Jha, Member  
Shri Arun Goyal, Member  
Shri P. K. Singh, Member**

**Date of Order: 19.12.2023**

**In the matter of:**

Petition under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations 1999 and Regulation-25 (1) (a) & 25 (1) (b) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations' 2019 seeking in-principle approval for the procurement of Emergency Restoration System (ERS) for Teestavalley Power Transmission Limited.

**And**

**In the matter of:**

Sikkim Power Transmission Ltd.  
(previously known as Teestavalley Power Transmission Ltd.),  
B2/1A, Safdarjung Enclave, Africa Avenue,  
New Delhi-110029

.....Petitioner

**Versus**

1. PTC India Ltd.,  
2<sup>nd</sup> Floor, NBCC Tower  
15, Bhikaji Cama Place, New Delhi-110066

.....Respondent No.1

2. Energy and Power Department,  
Government of Sikkim  
Kazi Road, Gangtok-737101, Sikkim

.....Respondent No.2

3. Teesta Urja Ltd.,  
B2/1A, Safdarjung Enclave, Africa Avenue,  
New Delhi-110029

.....Respondent No.3

4. M/s Sneha Kinetic Power Projects Pvt. Ltd.,  
Sonam Complex, Jeevan Theng Marg Development Area,  
Near Little Pixel International School,  
Gangtok-737101, Sikkim

.....Respondent No.4

5. M/s Powergrid Corporation of India Ltd.,  
Saudamini, Plot No.2, Sector 29,  
Near IFFCO Chowk



- Gurgaon -122001, Haryana .....Respondent No.5
6. Punjab State Power Corporation Ltd.,  
The Mall, Patiala-147001, Punjab .....Respondent No.6
7. Uttar Haryana Bijli Vitran Nigam Limited,  
Vidyut Sadan, Plot No.C16, Sector-6  
Panchkula-134109, Haryana .....Respondent No.7
8. Dakshin Haryana Bijli Vitran Nigam Limited,  
Vidyut Sadan, Vidut Nagar,  
Hisar-125005, Haryana .....Respondent No.8
9. Haryana Power Purchase Centre,  
Shakti Bhawan, Sector-6,  
Panchkula-134109, Haryana .....Respondent No.9
10. Ajmer Vidyut Vitran Nigam Ltd.  
Vidyut Bhavan, Panchsheel Nagar,  
Makarwali Road, Ajmer-305004, Rajasthan .....Respondent No.10
11. Jaipur Vidyut Vitran Nigam Ltd.,  
VidyutBhavan, Janpath  
Jaipur-302005, Rajasthan .....Respondent No.11
12. Jodhpur Vidyut Vitran Nigam Ltd.,  
New Powerhouse, Industrial Area  
Jodhpur-342003, Rajasthan .....Respondent No.12
13. Rajasthan Urja Vikas Nigam Ltd.,  
Vidyut Bhawan, Janpath  
Jyoti Nagar Jaipur-302005, Rajasthan .....Respondent No.13
14. Uttar Pradesh Power Corporation Ltd.,  
Shakti Bhawan, 14, Ashok Marg  
Lucknow-226001, Uttar Pradesh .....Respondent No.14

**Parties Present:**

Shri Anand Ganesan, Advocate, TPTL  
Shri Vidhan Vyas, Advocate, SUL  
SHRI Jaideep Lakhtakia, SUL

**ORDER**

Teestavalley Power Transmission Ltd (TPTL), a joint venture company of POWERGRID, Teesta Urja Ltd. (TUL) and the Government of Sikkim (GoS), has filed the instant petition under Regulation 86 of Central Electricity Regulatory



Commission (Conduct of Business) Regulations 1999 and Regulation-25 (1) (a) & 25 (1) (b) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter called as '2019 Tariff Regulations') seeking in-principle approval for the procurement of Emergency Restoration System (ERS).

2. The Petitioner has made the following prayers:

*i. Issue Admit the Petition*

*ii. Grant in-principle approval for procurement of Emergency Restoration System (ERS)*

*iii. Pass such other relief as Hon'ble Commission deems fit and appropriate under the circumstances of the case and in the interest of justice*

3. The name of Petitioner Company is changed from Teestavalley Power Transmission Ltd to Sikkim Power Transmission Ltd with effect from 06.09.2023.

The Petition title in the instant Order has not been changed for the sake of brevity and consistency with the commission record.

### **Submissions of Petitioner**

4. The Petitioner, has mainly submitted as under:

a) Petitioner has been entrusted with the responsibility of construction, operation & and maintenance of 400 kV D/C Teesta III- Kishanganj transmission line along with 2 nos. line bays and 2 nos. 63 MVAR switchable line reactors at Kishanganj Switchyard as a part of the master plan for evacuation of power from 1,200 MW Teesta III HEP as well as other hydro-electric projects in the State of Sikkim. The Project comprises of the following Assets:

**Ckt 2:** Section of 400 kV D/C Teesta-III HEP - Kishanganj Transmission Line from Teesta III HEP to LILO Point at Rangpo (COD: 17.01.2017);

**Ckt 1(a):** Section of 400 kV D/C Teesta-III HEP - Kishanganj Transmission Line from Dikchu to Teesta III HEP (COD: 14.04.2017);

**Ckt 1(b):** Section of 400 kV D/C Teesta-III HEP - Kishanganj Transmission Line from Dikchu to LILO Point at Rangpo (COD: 02.07.2018);



**Ckt 2(a):** Section of 400 kV D/C Teesta-III HEP - Kishanganj Transmission Line from Rangpo LILO Point to Kishanganj along with 1 No. of bay and 1 No. of 63 MVAR switchable line reactors at Kishanganj (COD: 06.01.2019);

**Ckt 1(c):** Section of 400 kV D/C Teesta-III HEP - Kishanganj Transmission Line from Rangpo LILO Point to Kishanganj along with 1 No. of bay and 1 No. of 63 MVAR switchable line reactors at Kishanganj (COD: 13.02.2019)

- b) The transmission tariff of the Assets based on Capital cost as on their respective COD dates, along with Additional Capital Expenditure for the period 2014-19, has been approved by the Commission vide its order dated 15.05.2018 in the Petition no. 108/TT/2016 {For Ckt 2 and 1(a)}, Order dated 22.01.2020 in the Petition no. 368/TT/2018 {For Ckt 1(b)} and Order dated 09.08.2020 in the Petition no. 96/TT/2019 {For Ckt 2(a) and 1(c)}.
- c) The Commission, vide its order dated 22.03.2022 in Petition No. 35/TT/2021, has approved the truing-up of the transmission tariff of 2014-19 and has also determined the transmission tariff of 2019-24. The details of capital cost admitted by the Commission as on 31.03.2019 and as on 31.03.2024, including Additional Capital Expenditure in the aforesaid Orders, are given as under:

<b>Combined Asset</b>		<i>(Rs. In Lakhs)</i>	
<b>Capital Cost as on 1.4.2019</b>	<b>Admitted ACE</b>		<b>Capital Cost as on 31.3.2024</b>
	<b>2019-20</b>	<b>2020-21</b>	
149724.55	5124.00	4125.42	158973.97

- d) The Board of the Petitioner in its 66<sup>th</sup> meeting dated 12.12.2018 approved the revised project cost of Rs.174,629.00 Lacs including the cost of Emergency Restoration Systems (ERS). Out of the total revised project cost, the Commission vide its order dated 22.03.2022 had approved a Capital Cost of Rs.158,973.97 Lakhs as on 31.03.2024.
- e) Petitioner is seeking in-principle approval of the additional capital expenditure to be incurred by the Petitioner towards procurement of ERS.
- f) ERS is an essential part of Operation & Maintenance of a Transmission System. The same is used for speedy restoration of the transmission line in cases of major breakdown. The advantages of ERS are enumerated below:

- i. **Light in weight:** ERS components are lightweight structures and the shape, size, dimensions and weight of individual components is such that manual handling of modular component is possible and easy to transport. In difficult terrains, viz. hilly tower locations with non – motorable roads & poor approach roads, ERS components can be shifted even with head loading.
  - ii. **No Foundation Required:** ERS does not require a concrete foundation, and therefore, there is no need for excavation of pits, reinforcement & concreting, setting of stubs and other works associated with the execution of the foundation of the transmission line tower. Additionally, as the settling time of concrete is about 2 weeks, ERS, which is supported on guy wires, saves restoration time on this account as well.
  - iii. **Modular Design:** The design of the ERS structure is modular and thus allows easy adoption of various configurations for the transmission line.
- g) The Ministry of Power (MoP) on 05.12.2014 issued a letter directing all States and Union Territories to issue appropriate directions to the transmission licensees within each state to take stock, procure an appropriate number of ERS infrastructure and place them at strategic locations. MoP in the said letter also referred to:
- i. The strategy to be adopted for the procurement of ERS, which prescribed as under:
    - “2. For any transmission utility, one set of ERS has been planned to cater to failure of towers for transmission line lengths of up to 5000 ckt kms Accordingly, two (2) sets of ERS have been planned for transmission line lengths of about 5000 to 10,000 ckt kms and three (3) sets for more than 10,000 ckt kms and so on.*
    - 3. The transmission Utility with line length less than 500 ckt kms (of 400kV lines) may be given option either to procure ERS or have agreement with other transmission utilities for providing ERS on mutually agreed terms, when need arises.”*
- h) Guidelines for Planning, Procurement and Deployment of Emergency Restoration System’ formulated by Central Electricity Authority (CEA). In the said guidelines, CEA has prescribed that:
- i. Proper management of ERS and training of personnel for erection of towers on ERS and use of associated software is essential.
  - ii. ERS should not be used in new lines under construction. Otherwise, the very purpose of ERS will be defeated.

- iii. The transmission utilities may approach the Appropriate Commission for approval and initiate the procurement process on an urgent basis to comply with Grid Standards. Utilities may also approach State Disaster Management Authorities for funding.
- i) In March 2017, CEA issued the 'Crisis and Disaster Management Plan for Power Sector'. Clause 6.1.3.1.7 of the said plan provides that transmission lines are the arteries of the Electricity grid, and these are most prone to damage due to earthquakes, cyclones, terrorist attacks, floods, etc. Accordingly, for the restoration of transmission lines, the Emergency Restoration System (ERS) should be provided/made use of. The ERS, communication and other equipments should be maintained properly so that they can be used without any delay. Further, clause 6.1.4 further provides as under:

*“CEA has issued guidelines for requisition of ERS and advisory has been issued by Ministry of Power to all state utilities. In the case of damage to transmission line, temporary arrangements for restoration of power supply can be made with the help of ERS, which consists of special type of light weight modular structures, with light weight polymer insulators and number of stays. This facility is currently available with Power Grid Corporation of India and GRIDCO, Odisha. It is, however, suggested that based upon the past experience of disaster-prone areas, one set of ERS for each such area should be procured and kept in store at strategic locations.”*

- j) Guidelines issued by CEA in Jan 2021 “Disaster Management Plan for Power Sector” wherein clause 8.2.5.1.2 reiterates the requirement of installing ERS as under:

*“For the restoration of transmission lines, Emergency Restoration System (ERS) should be provided/made use of. The ERS, communication and other equipment should be maintained properly so that it can be used without any delay.”*

- k) All Eastern Region Transmission Utilities, including the petitioner, are directed to update the ERS availability and any ERS which are already engaged. It is prudent to procure one set of ERS by Teestavalley Power Transmission Ltd.
- l) The 400 kV D/C Teesta-III - Kishanganj transmission line of length 215 km (589 towers) falls in North District, East District & South District of Sikkim, Darjeeling District (Hills & Plains) of West Bengal and Kishanganj District of Bihar and passes through the narrow stage of hilly terrain having altitude in the range of 1000m – 2600m. The transmission line crosses the Teesta River in Sikkim, Mahananda River & Dauk River in Bihar. Frequent changes in the river course



were also observed. The line traverses through the hilly and plain area/terrain as below:

- i. **Hill Area:** Mangan (Sikkim) to Chenga Basty (West Bengal) (300 towers)- 110km.
- ii. **Plain Area:** Chenga Basty (West Bengal) to Kishanganj (Bihar) (289 towers)- 105km.

m) The route of the transmission line falls in the most difficult hilly terrain of Sikkim and Darjeeling Hills, falling in the Great Himalayan Range, inner Himalayan Range & Shivalik Range. About half of the towers are located on steep hill slopes with altitudes as high as 2600 m. The towers in the hilly area are vulnerable as the terrain is highly prone to landslides, rockslides, shooting stones, rock mass failure and over burden deposited along the hill slope. The area is also highly earthquake prone. The plain terrain portion of the route of the line, which falls in the Kishanganj District of Bihar, is prone to storms, cyclones and high floods in the Mahananda River, which changes its course often. The power evacuation from the Hydro Generating Stations in Sikkim can be restored in much less time during such events. Accordingly, the availability of ERS is essential for such a critical line.

n) The 400 kV D/C Quad Moose Teesta III-Kishanganj Transmission Line is constructed at an elevation as high as 2,600 m & Basic Impulse Level of 1,821 kV when compared to the typical tower designs. There are thirteen (13) types of towers used in the transmission line against the conventional project requirement of 4-5 types of towers:

Tower Type (Normal):	DA, DB, DC, DD (<1000 m MSL)
Tower Type (High altitude):	DBH, DCH, DDH (>1000 m MSL)
Reinforced Towers:	DBR, DCR, DDR, DBHR & DCHR
Transposition Tower:	DCT

o) Design of DBH/DCH/DDH tower(s) are different than normal DB/DC/DD tower(s), which were specially designed & type tested for installation at an elevation as high as 2,600 m. Also, many angle towers were required to be reinforced due to elevation difference between towers. Due to elevation difference between four

legs of each tower in the entire hilly area, there are twelve (12) types of Leg Extensions in the towers, namely +1.5 m, +3.0 m, +4.5 m, +6.0 m, +7.5 m, +9.0 m and -1.5 m, -3.0 m, -4.5 m, -6.0 m, -7.5 m, -9.0 m. Also, to cross the peak of hills, there are six (6) types of Body Extensions in the towers, namely +3 m, +6m, +9 m, +18 m, +25 m & +30 m.

- p) In the event of a collapse of towers of the line, especially in the hilly terrain of the line, the restoration of the line will take substantial time owing to the difficult geographical terrain and connectivity constraints. The various activities which constitute the completion of restoration activities are: Identification of damage location after patrolling, the extent of damage and assessment of site work; Survey of tower location and finalization of Tower; Shifting of Stubs and materials; Transportation of Foundation Materials from store to nearby motorable location than through head loading of the same to the affected location; Excavation works; Reinforcement & Concreting works including stub setting; Curing period for concrete; Tower Erection; Stringing of Conductor and final charging of the line.
- q) During FY 2019-20, one cross-arm of one Circuit of tower No. AP 254 got damaged due to a cyclonic storm, causing the tripping of the circuit, leading to the generation loss of Hydro Projects in Sikkim.
- r) ERS is not available with the Petitioner. The actual procurement of one set of ERS is proposed to be done through a competitive bidding process within 24 months from the date of receipt of in-principle approval from the Commission.

### **Hearing on 14.03.2023**

5. Petition was admitted on 14.03.2023 and the Commission raised the query of whether ERS formed part of the original scope of work. The Commission further directed the Petitioner to provide information regarding the number of proposed ERS to be procured and the estimated cost of the proposed ERS along with supporting documents.

### **Submissions of the Petitioner:**





6. The Petitioner, vide affidavit dated 10.04.2023, has mainly submitted as under:
- a) In the petition nos. 108/TT/2016 and 96/TT/2019 by the Petitioner, the Detailed Project Report (DPR) of 400 kV D/C (Quad Moose) Teesta III HEP – Kishanganj Transmission Line and 2 nos. line bays and 2 nos. 63 MVAR Reactors at Kishanganj Substation at an estimated cost of Rs.770.80 Crores was prepared by POWERGRID in August 2008, which was approved by the Board of Directors of the Petitioner in their meeting held on 09.11.2009. The Project Cost in the DPR includes the provision of Special Tools & Plants, maintenance during construction, engineering & administration and losses on stock totaling Rs.32.37 Crores for the completed cost. ERS is a part of Special Tools & Plants of the Project.
  - b) The Board of Directors of the Petitioner approved the Revised Project Cost (RCE-I) for Rs.1032.50 Crores vide Board Resolution dated 26.08.2013. During the revision of the Project Cost, the petitioner has included Mould Aluminum Structure (ERS) amounting to Rs.20 Crores under the head of Transmission Lines Equipment Cost in place of under the head of Special Tools and Plants. The Project Cost was further revised (RCE-II) and the same was approved by the Board of Directors of the Petitioner in the meeting held on 05.01.2016, which includes the provision of Mould Aluminum Structure/T&P (ERS) amounting to Rs.20 Crores. The Board of Directors in a meeting dated 24.03.2017, approved Revised Project Cost (RCE-III) as Rs.1624 Crores for the Project, including the provision of Mould Aluminum Structure/T&P (ERS) of Rs.7.86 Crore. The Project Cost has been further revised (RCE-IV) by the Board of Directors of the Petitioner to Rs.1746.29 Crores in their meeting dated 12.12.2018, including the provision of Mould Aluminum Structure/T&P (ERS).
  - c) ERS forms part of the original scope of work of the Project which was commissioned in February 2019. However ERS was not procured.
  - d) One set of ERS comprising of 16 nos. Aluminium Modular Towers is required to be kept as Special Tools & Plants for quick restoration of the 400 kV Teesta III-Kishanganj D/C (Quad Moose) transmission line in case of any breakdown, to prevent loss of large quantum of hydro generation to the National Grid.

- e) Power Grid Corporation of India Ltd (POWERGRID) vide email dated 05.04.2023 also advised that one set of ERS comprising 16 nos. of towers is a practice in POWERGRID up to 400 kV level and it would be prudent to procure one set of ERS comprising of 16 nos. of towers by the Petitioner.
- f) The Petitioner obtained budgetary quotation for one set of ERS comprising 16 nos. Aluminium Modular Towers from one of the suppliers of ERS on 05.04.2023, wherein budgetary quotation for one set of ERS comprising of 16 nos. Aluminium Modular Towers are indicated as Rs.30.68 crores. The estimated cost of the proposed ERS is submitted as Rs.30.68 crores. The actual cost of one set of ERS comprising of 16 nos. Aluminium Modular Towers would be arrived at after invitation of competitive bids.
- g) In continuation to the email of Eastern Regional Load Despatch Center (ERLDC) dated 10.06.2022 and Minutes of 192nd OCC Meeting of Eastern Regional Power Committee (ERPC) dated 21.06.2022 regarding availability of ERS, ERLDC further vide their email dated 05.04.2023 instructed the Petitioner to ensure adequate ERS is maintained in ER grid for early restoration of transmission line due to any tower collapse.

### **Hearing on 08.06.2023**

7. Commission adjourned the matter and further directed the Petitioner to provide the following information:
- (a) Reasons for non-procurement of ERS till date despite it being in original scope of work.
- (b) As per the revised cost estimate-IV (RCE-IV) approved by the Board, the approved cost for the ERS is Rs. 7.86 Crore. However, as per the Petitioner, the estimated cost of ERS as Rs 30.68 Crore. Provide clarification in this regard. Reason for reducing the estimated cost of ERS to 7.86 crore from 20 crore in original cost estimate?
- (c) Justification for considering 16 nos. of towers in the proposed ERS system.
- (d) Justification for the proposed implementation time of 24 months.

### **Submission of Petitioner**



8. Petitioner vide affidavit dated 29.06.2023 has submitted as follows:

a) Action for procurement of ERS was initiated in the year 2011-12. Procurement of ERS was not done in the year 2012 and onwards as the Project faced numerous compelling challenges including force majeure events resulting in substantial time & cost overrun and thereby leading to severe fund constraint. In such a situation, priority was given to the procurement of large quantity of tower materials, conductors, insulators, hardware fittings and earth wire. Additional funds were required for construction of the transmission line and towards compensation against damage to standing properties, as also fund for procurement of substation bay equipment at Kishanganj Substation. The cost substantially increased due to the following reasons, including force majeure events:

- i. Earthquake in 2011 in Sikkim, bringing the construction works to a standstill.
- ii. Collapse of Rangchang Khola Bridge, hampering movement of resources to the project site in Sikkim.
- iii. Stoppage of works due to the Gorkhaland movement in Darjeeling.
- iv. Delay due to forest clearance in Sikkim and Darjeeling.
- v. Delay due to stay granted by the High Court of Delhi and the High Court of Sikkim.
- vi. Severe ROW issues at various locations in private land areas as well as tea estates across Sikkim, West Bengal Hills, West Bengal Plains and Bihar.
- vii. Change in location and type of Substation from AIS to GIS.
- viii. Due to the change in the location of the substation, the line length increased, leading to an increase in number of towers.
- ix. Due to the change of realignment of locations in Goke Reserve Forest and Manjha Reserve Forest, the number and type of towers increased.
- x. Increase in the quantity and type of towers due to extreme uneven site conditions in the hilly terrain, which necessitated heavy weight towers along with long chimney extensions, long leg extensions and long body extensions as well as corresponding heavy tower foundations.



- b) The various force majeure reasons, as well as the resultant time & cost overrun, have been approved by the Commission vide its order dated 22.03.2022 in petition no. 35/TT/2021.
- c) Procurement of ERS could not be carried out till commissioning of the Project in February 2019. After the commissioning of the Project, funds continued to be utilized for balance works viz. construction of Protection Walls, earlier compensation against standing properties & payment to the contractors pertaining to construction works, procurement of mandatory spares for substation bays etc. till March 2022. In the period up to 2022, due to fund constraints and also the nationwide lockdown under the COVID-19 pandemic, as well as subsequent economic/logistics scenarios, the petitioner could not commence the procurement action. The petitioner has always intended to procure the ERS as provisioned in the original scope.
- d) During the execution of the Project, due to an increase in line length, shifting of substation from AIS to GIS and other events, including force majeure events, Project Cost was further increased substantially. To minimize further increase in Project Cost, the number of Mould Aluminium Structures (ERS) was curtailed, as further funding of the Project Cost by the lenders was a serious constraint at that period of time. Funding was prioritized more for the completion of the Project than funding for the ERS. It was envisaged that requirements of ERS for the hilly terrain shall not be reduced due to difficult site conditions. To minimize further increase in Project cost, the number of Mould Aluminium Structures (ERS) for the plain terrain was curtailed as the permanent restoration time of the transmission line after any breakdown in plain terrain would be comparatively less than that of hilly terrain.
- e) In the Project Cost Estimate of Rs. 1624 Crore (RCE-III), approved by the Board of the Petitioner on 24.03.2017, the cost of ERS has reduced from Rs. 20 Crores to Rs. 7.86 Crores, and it remained the same in the further Project Cost Estimate of 1746.29 crore (RCE-IV) as approved by the Board of the Petitioner on 12.12.2018.
- f) The petitioner approached POWERGRID, who was the Design and Engineering Consultant of the petitioner, for clarification on the configuration of the ERS system to be procured for the transmission line of the petitioner. POWERGRID,



vide their mail dated 05.04.2023 had informed that (10 nos. Suspension type + 6 nos. Tension type) ERS towers are being procured by POWERGRID as a practice. It would therefore, be prudent to procure one set of ERS comprising of 16 nos. towers (10 Suspension + 6 tension type) by the Petitioner. The relevant extract of an email dated: 05.04.2023 is as under:

*“For 01 set of Emergency Restoration System (ERS) up to 400kV level, procurement of following nos. of towers are in practice in POWERGRID:*

- *ERS Suspension Towers: 10 nos*
- *ERS Tension Towers: 06.nos”*

- g) The Petitioner obtained a budgetary quotation for one set of ERS comprising 16 nos. ERS Towers (10 Suspension + 6 tension-type) from one of the suppliers of ERS on 05.04.2023, wherein budgetary quotation for one set of ERS comprising of 16 nos. towers is indicated as Rs.30.68 crores and the same has been considered as an estimated cost for approval by the Commission. Subsequent to the in-principal approval by the Commission, the petitioner shall proceed with competitive bidding for the procurement of ERS.
- h) Around 300 nos. towers of the 400 kV Teesta III – Kishanganj D/C Quad Moose transmission line traverse through the hilly terrains of Sikkim and Darjeeling Hills, and all these 300 towers are of tension-type. Therefore, it would be prudent and strategic to keep at least 6 nos. tension-type ERS towers to address any tower collapse in the hilly terrain.
- i) One ERS tower is about 48 meters in height (comprising of 16 modules of 3 m each). Owing to the deep valleys and the difficult hilly terrain, the height of the transmission line towers is as high as 100 meters. Even to replace one no. tower in the hilly terrain, wherein the longest span is 996 meters, multiple nos. of ERS towers would be required to be erected to replace one conventional transmission line tower. Additionally, to cater to a long span, multiple nos. of ERS towers will be required. The conductor configuration in the 400 kV Teesta III-Kishanganj Transmission line is Quad configuration, however, stringing in ERS towers is carried out in twin configuration. Therefore, to maintain the capacity of the transmission system, additional ERS towers are required to be erected with a twin configuration.

- j) The 289 towers, which include 187 suspension-type towers (which are light in weight compared to tension-type towers) of the transmission line, are located in plain terrain. In the plain terrain, most of the sections comprise multiple suspension-type towers at a stretch, and consequently, in case of any heavy storm, which may damage the suspension towers, it would be prudent and strategic to keep the suspension-type ERS towers for the plain terrain.
- k) Considering the constraints on terrain, span length, configuration of conductors, and difficult locations, it would be prudent that at least 16 nos. ERS towers (10 nos. Suspension type + 6 nos. Tension type) would be required to be kept at the stores of the petitioner.
- l) ERS towers to be procured for the 400 kV Teesta III – Kishanganj Transmission line of the petitioner would have to adhere to the specific design criteria of the transmission line, which include Chimney Extensions up to 12m, Leg Extensions from (-) 9m to (+) 9m and Body Extensions up to 30m and Basic Impulse Level of 1821 kV, traversing through the most difficult hilly terrain at an altitude up to 2600m.
- m) Design approval and type tests would be carried out. The ERS towers would then be manufactured, and again, prior to dispatch, acceptance tests would be carried out. Subsequently, the ERS towers would be shipped and supplied to the stores of petitioner.

<b>Description of Activity</b>	<b>Tentative Duration</b>
Pre – Bid Activity	2 months
Bidding & Award of Contract	6 months
Engineering Approval	2 months
Manufacturing & Supply	12 months
Training & Field Demonstration	2 months
<b>Total</b>	<b>24 months</b>

- n) The entire process of procurement of ERS, starting from the preparation of bid documents to the supply of ERS towers at the stores of the petitioner is an

extensive one, and hence, tentatively, 24 months is required for the procurement of ERS.

### **Hearing on 12.09.2023**

9. Petition was reserved for order on hearing held on 12.09.2023, and the Commission further directed the Petitioner to provide the following information:

- a) Basis for arriving at the Estimated Cost of Rs. 30.68 crore for the ERS as now indicated.
- b) Approval of the Petitioner's Board of Directors.
- c) Methodology to be followed for the Procurement of ERS by the Petitioner.

### **Submissions of Petitioner**

10. Petitioner vide affidavit dated 03.10.2023 has made additional submissions as follows:

- (a) The fact regarding non-procurement of ERS in the past due to financial constraints during the construction period as well as due to the Covid-19 Pandemic, etc., post-commissioning of the Project, was taken note of by the Board of the Petitioner in its meeting dated 26.12.2022. The Board also noted the filing of the instant Petition before the Commission as that procurement of ERS would be carried out by the Petitioner through the bidding process after obtaining approval of CERC.
- (b) On the receipt of in-principle approval for procurement of ERS, the petitioner shall once again approach the Board and obtain necessary approval along with a cost estimate for initiation of the procurement process of ERS through competitive bidding as per the 'SOP – Procurement' approved by the Board of the Petitioner.
- (c) As per the 'SoP-Procurement', an Open Tender shall be adopted if the estimated value of Purchase is more than Rs. 1 Crore. The tender committee shall invite bids through 2 national dailies and 2 local dailies, and host the bid documents on the website of the petitioner. Additionally, the petitioner may also obtain bids through GeM. After the receipt of bids, the





tender evaluation committee shall open and evaluate the bids. The outcome of the bidding process shall be approved by the Board of the petitioner.

### **Analysis and Decision**

11. We have perused the submissions of the Petitioner and relevant documents on record. The issue which arises for our consideration is whether in-principle approval of procurement of Emergency Restoration System (ERS) should be accorded to Petitioner, The same is dealt with in subsequent paragraphs.
12. The Petitioner has submitted that ERS was a part of the original scope of work of the project of TPTL, but procurement was not done in the year 2012 and onwards as the project faced numerous compelling challenges, including force majeure events resulting in substantial time and cost overrun and thereby leading to severe fund constraint.
13. Regulation 22 of the CEA (Grid Standards) Regulations, 2010 provides as follows:

*“Emergency Restoration System: Each transmission licensee shall have an arrangement for restoration of transmission lines of 400 kV and above and strategic 220 kV lines through the use of Emergency Restoration System in order to minimise the outage time of the transmission lines in case of tower failures.”*
14. The Eastern Regional Power Committee (ERPC), during the 192<sup>nd</sup> OCC meeting, took the status of ERS in the Eastern region. The relevant extracts of minutes of the 192<sup>nd</sup> Operation Co-ordination Sub-Committee (OCC) meeting dated 21.06.2022 are as under:

*“In line with CEA guidelines for the availability of spares and inventories for power transmission system (transmission lines & substation/switchyard) assets 2020 and the CEA disaster management plan for power sector 2021, adequate ERS is required to be maintained in ER grid for early restoration of transmission line due to any tower collapse. The Eastern region is prone to cyclones, Norwester/ Kalbaisakhi localized storms, hilly terrain with landslides, floods, changes in river course, substation flooding, etc. due to which each year tower collapse occurs causing forced outages of transmission lines. This necessitates adequate ERS maintenance by various utilities in the eastern region for early restoration.”*





“

15. The Board of Directors of the Petitioner, in the 83<sup>rd</sup> Board meeting held on 26.12.2022, noted the requirement of ERS and its procurement. The relevant extract of the Board Resolution is as under:

“

*RESOLVED THAT the Board do hereby take note of tie up of Emergency Restoration System (ERS) with POWERGRID during any exigencies in transmission line till TPTL has its own ERS, The rate of ERS hiring charges (per day) will be as per POWERGRID's approved norms.*

*RESOLVED FURTHER THAT the Board do hereby take note of the Petition filed before Hon'ble Central Electricity Regulatory Commission on 02.11.2022 to get in principal approval for procurement of ERS and subsequent bidding process for procurement of ERS.”*

16. The petitioner has time and again revised cost estimates of the project, which includes revision of estimates for ERS from Rs. 20 crores in 2013 to Rs. 7.86 Crores in 2018. as follows:

<b>Description</b>	<b>As per RCE I (26.08.2013)</b>	<b>As per RCE II (05.01.2016)</b>	<b>As per RCE III (24.03.2017)</b>	<b>As per RCE IV (12.12.2018)</b>
Project Cost	1032.50 Cr	1450.36 Cr	1624.00 Cr	1746.29 Cr
Provision for ERS	20.00 Cr	20.00 Cr	7.86 Cr	7.86 Cr

17. It is evident that the project estimates were increased while provisions for ERS were reduced; this clearly indicates that the petitioner was not serious about undertaking the purchase of ERS.
18. The 2019 Tariff Regulations allow additional Capital expenditure within the original scope and after the cut-off date as under:

*“25 (1) The additional capital expenditure incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the cut-off date may be admitted by the Commission, subject to prudence check:*



- (a) Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority, or order or decree of any court of law;*  
*(b) Change in law or compliance of any existing law;”*

As per above, additional capital expenditure within the original scope of work and after the cutoff date can be allowed by the Commission.

19. We observe that Petitioner did not seek the additional capitalization while it filed the 2019-24 petition, nor any time after it. Petitioner has submitted that due to financial constraints it did not incur expenditure on ERS. The petitioner has now sought “in-principle” approval under Regulation 25(1) (a) &(b) of 2019-24 tariff regulations pertaining to additional capitalization. ERS is part of the original scope. However, , there is no provision in the regulations for in-principle approval for items which were under the original scope. We are of the view that Petitioner may go for ERS under the appropriate provision of additional capitalization of the Tariff Regulations for the 2024-29 period, either after incurring such expenditure or as expenditure projected to be incurred.
20. The Petition No. 335/MP/2022 is disposed of in terms of the above.

Sd/  
**(P. K. Singh)**  
**Member**

Sd/  
**(Arun Goyal)**  
**Member**

Sd/  
**(I. S. Jha)**  
**Member**

Sd/  
**(Jishnu Barua)**  
**Chairperson**

