CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 258/MP/2022

Coram:

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

Date of Order: 31.10.2023

In the matter of:

Petition for in-principle approval for inclusion of Additional Capital Expenditure for replacement of equipment at Vindhyachal Sub-station under Section 25(2) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 in the matter of 400 kV S/C Singrauli-Vindhyachal Transmission Link alongwith (2x250 MW) HVDC Back to Back at Vindhyachal between NR and WR for tariff block 2019-24 and beyond.

And in the matter of:

Power Grid Corporation of India Limited,
"Saudamini", Plot No. 2,
Sector-29, Gurgaon (Haryana)-122001. **…Petitioner**

Vs.

1. Ajmer Vidyut Vitran Nigam Limited,
   Corporate Office, Vidyut Bhawan,
   Panchsheel Nagar, Makarwali Road,
   Ajmer-305004 (Rajasthan).

2. Jaipur Vidyut Vitran Nigam Limited,
   Vidyut Bhawan, Janpath, Jyoti Nagar,
   Jaipur-302005 (Rajasthan).

3. Jodhpur Vidyut Vitran Nigam Limited,
   New Power House, Industrial Area,
   Jodhpur-342003 (Rajasthan).

4. Himachal Pradesh Power Corporation Limited,
Himfed Building BCS, New Shimla,
Shimla-171009.

5. Punjab State Power Corporation Limited,
The Mall, PSEB Head Office,
Patiala-147001.

6. Haryana Power Purchase Centre,
Shakti Bhawan, Sector-6,
Panchkula (Haryana)-134109.

7. Jammu Kashmir Power Corporation Limited,
220/66/33 kV Gladni SS SLDC Building,
Narwal, Jammu.

8. Uttar Pradesh Power Corporation Limited,
Shakti Bhawan, 14, Ashok Marg,
Lucknow-226001.

9. BSES Yamuna Power Limited,
B-Block, Shakti Kiran, Building (Near Karkadooma Court),
Karkadooma, 2nd Floor,
New Delhi-110092.

10. BSES Rajdhani Power Limited,
BSES Bhawan, Nehru Place,
New Delhi.

11. Tata Power Delhi Distribution Limited,
33 kV Sub-station, Building, Hudson Lane,
Kingsway Camp, North Delhi-110009.

12. Chandigarh Administration,
Sector - 9, Chandigarh.

13. Uttarakhand Power Corporation Limited,
Urja Bhawan, Kanwali Road,
Dehradun.

14. North Central Railway,
Allahabad.

15. New Delhi Municipal Council,
Palika Kendra, Sansad Marg,
New Delhi-110002.

16. Madhya Pradesh Power Management Company Limited,
Shakti Bhawan, Rampur,
Jabalpur-482008.

17. Maharashtra State Electricity Distribution Company Limited,
Hongkong Bank Building, 3rd Floor,
M. G. Road Fort,
Mumbai-400010.

18. Gujarat Urja Vikas Nigam Limited,
Sardar Patel Vidyut Bhawan,
Race Course Road, Vadodara-390 007

19. Electricity Department,
Government of Goa, Vidyut Bhawan,
Panaji, Near Mandvi Hotel,
Goa-403001.

20. Electricity Department,
Administration of Daman & Diu,
Daman-396210.

21. DNH Power Distribution Corporation Limited,
Vidyut Bhawan, 66 kV Road, Near Secretariat Amli,
Silvassa-396230.

22. Chhattisgarh State Power Distribution Company Limited,
P.O. Sunder Nagar, Dangania, Raipur,
Chhatisgaarh-492013.

23. Gujarat Power Corporation Limited,
Block No. 8, Sixth Floor,
Udyog Bhawan, Sector-11,
Gandhinagar-382011.

…Respondent(s)

For Petitioner : Shri Pallav Mongia, Advocate, PGCIL
Shri Nitish Kumar, PGCIL
Shri B.B. Rath, PGCIL

For Respondents : Shri Anup Jain, Advocate, MSEDCL
Shri Vyom Chaturvedi, Advocate, MSEDCL

ORDER

The Petitioner, Power Grid Corporation of India Limited (PGCIL), has filed the present petition for in-principle approval for the inclusion of Additional Capital Expenditure (ACE) for the replacement of equipment at Vindhyachal Sub-station under Regulation 25(2) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as 'the 2019 Tariff Regulations') in case of 400 kV Single Circuit Singrauli-Vindhyachal Transmission Link along with (2x250 MW) HVDC Back to Back at Vindhyachal between NR and WR (hereinafter referred to as the 'transmission asset') for tariff block 2019-24 and beyond.

2. The Petitioner has made the following prayers in the instant petition:

> *"i) Allow the petitioner for inclusion/incurring of Additional Capitalization expenditure for replacement of equipments at Vindhyachal S/s for equipment submitted at Para-6.*
>
> *ii) Allow the petitioner to club the Additional Capitalisation with the Additional Capitalisation of the assets covered in 121/TT/2020 for Add. Cap. during 2019-24 period at the time of truing up of 2019-24 Tariff block.*
>
> *And to 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 transmission asset covered in the present petition is under commercial operation notionally w.e.f. 6.6.1989.

4. The brief facts of the present case are as follows:

(i) Transmission tariff of the 2009-14 tariff period was trued-up and tariff for the 2014-19 tariff period was allowed in respect of the transmission asset vide order dated 20.9.2016 in Petition No. 543/TT/2014. The Commission vide order dated 20.9.2016 in Petition No. 543/TT/2014 had allowed

projected ACE against the equipment replacement/ reimbursement of Vindhyachal HVDC.

(ii) The Petitioner filed Petition No.121/TT/2020 for truing up of the transmission tariff of the 2014-19 period and determination of transmission tariff of the 2019-24 period in respect of the transmission asset. In Petition No.121/TT/2020, along with ACE already approved in Petition No. 543/TT/2014, a fresh ACE of ₹6052 lakh against the replacement of equipment was claimed during the 2019-24 tariff period.

(iii) The Commission vide Record of Proceedings (RoP) dated 22.6.2021 in Petition No. 121/TT/2020, directed the Petitioner that its claim of ACE in instalments with respect to HVDC Back to Back at Vindhyachal at different time periods cannot be entertained. The Commission in the said RoP also observed that the Petitioner's claim of ACE in the 2019-24 tariff period may be considered only on submission of the results of System Operator Studies/ Comprehensive Proposal regarding the need and relevance for HVDC Back to Back at Vindhyachal. The Commission in the said RoP dated 22.6.2021, gave liberty to the Petitioner to approach the Commission for the grant of ACE in the 2019-24 tariff period with the approved study report of the Competent Committee.

(iv) The Commission vide order dated 26.3.2022 in Petition No.121/TT/2020 trued up the transmission tariff in respect of the transmission asset for the 2014-19 period and determined the tariff for the 2019-24 period. On the issue of ACE of ₹6052 lakh during the 2019-24 period, the Commission in

its order dated 26.3.2022, directed the Petitioner to obtain and submit the technical approval and report of CTUIL and POSOCO on the requirement and usefulness of HVDC back to back at Vindhyachal. The Commission in its said order observed that the proposed ACE of ₹6052 lakh in the case of HVDC back to back at Vindhyachal is in the nature of Renovation and Modernization (R&M), therefore, the Petitioner was directed to follow the procedure laid down under Regulation 27 of the 2019 tariff Regulations.

(v) Having been granted liberty by the Commission to file a separate petition for fresh ACE for the 2019-24 period, the present petition is filed for in-principle approval for inclusion/ incurring of ACE for replacement of equipment at Vindhyachal Sub-station under section 25(2) of the 2019 Tariff Regulations. Tariff revision based on ACE being claimed is not being revised now, and the same will be revised at the time of truing of transmission tariff of the transmission asset for the 2019-24 period.

5. The Petitioner has claimed a fresh ACE of ₹6052 lakh under Regulation 25(2) of the 2019 Tariff Regulations instead of Regulation 27 of the 2019 Tariff Regulations as the major ACE of the project has already been approved under Regulation 25(2) of the 2019 Tariff Regulations.

6. The CTUIL through a letter dated 21.9.2021, has furnished its report on the need and relevance of the transmission asset i.e. 2x250 MW Vindhyachal Back to Back HVDC and concluded that continued operation of the transmission asset would facilitate enhancement of power transfer capability between WR and NR. The said report also

concluded that the transmission asset would also provide operational flexibility wherein the HVDC link operates in parallel with the HVAC link.

7. POSOCO through its letter dated 1.10.2021, has submitted its report on the utilization and usefulness of the transmission asset i.e. 2x250 MW Vindhyachal Back to Back HVDC. POSOCO in the said report has recommended refurbishment of the transmission asset for reliability and flexibility in grid operation.

8. The detailed break-up of equipment proposed for ACE is as follows:

(₹ in lakh)

Sl. No.	Equipment to be replaced	Qty	Name of the bay/Line	Unit rate	Total Estimated Cost
	AT VINDHYACHAL SUB-STATION END				
1	Replacement of CTs	3	400 kV Vindhyachal-Singrauli Line 1, AWL 3 Main Bay	5.67	17.00
2		3	400 kV Vindhyachal-Singrauli Line 2, AWL4 Main Bay	5.67	17.00
3		3	400 kV Vindhyachal-Singrauli Line 1 and 2, AWL5 Tie Bay-T2 Side	5.67	17.00
4		1	400 kV Vindhyachal-Singrauli Line 1 and 2, AWL5 Tie Bay- T1 Side	5.67	5.67
5	Replacement of CVTs	3	400 kV Vindhyachal-Singrauli Line 1, AWL 3 Main Bay	2.41	7.22
6		3	400 kV Vindhyachal-Singrauli Line 2, AWL4 Main Bay	2.41	7.22
7	Replacement of LAs	3	400 kV Vindhyachal-Singrauli Line 1, AWL3 Main Bay	1.89	5.67
8		3	400 kV Vindhyachal-Singrauli Line 2, AWL4 Main Bay	1.89	5.67
9	Replacement of CBs	1	400 kV Vindhyachal-Singrauli Line 1 and 2, AWL5 Tie Bay	65.55	65.55
10		1	400 kV Vindhyachal-Singrauli Line 2, AWL4 Main Bay	65.55	65.55
11	Replacement of Convertor transformer	3	Convertor transformer	1900.00	5700.00
	AT SINGRAULI SUB-STATION END				

11	Replacement of CTs	3	400 kV Vindhyachal-Singrauli Line 1	5.67	17.00
12	Replacement of CVTs	3	400 kV Vindhyachal-Singrauli Line 1	2.41	7.22
13	Replacement of LAs	3	400 KV Vindhyachal-Singrauli Line 1	1.89	5.67
14	Replacement of CBs	1	400 kV Vindhyachal-Singrauli Line 1	65.55	65.55
15	Replacement of Isolator	4	400 kV Vindhyachal-Singrauli Line 1	10.78	43.12
Total ACE proposed					**6052.12**

ACE Justification

A) 420 kV Circuit Breaker (3 nos. ABB make)

(a) These Circuit Breakers (CBs) were installed between 1989 and 1996 (2 nos. in 1989 and 1 no. in 1996). They have completed or are going to complete 25 years of service life in the 2019-24 tariff period.

(b) These are ABB-made pneumatic type CBs. Due to ageing, SF6 leakages from various joints are observed and CBs are difficult to attend to during maintenance.

(c) Multiple air leakages are also observed from pipes of pneumatic operating systems.

(d) Mismatch in timing results and violation of DCRM signature are also observed in many cases. This may cause failure of CBs in service or during operation.

(e) Manufacturers have stopped manufacturing the said model of CBs due to which they are unable to provide spares and timely service support. Frequent adjustment of auxiliary contact is also required due to the ageing of mechanisms.

(f) ABB (OEM) has given a letter regarding the obsolescence of the product.

In view of the above, it is proposed to replace two sets of 420 kV CBs at Vindhyachal and one set at Singrauli.

B) <u>Current Transformer (13 nos.)</u>

(a) These current transformers were installed between 1988 and 1996. These are of TELK/BHEL make and have completed or are going to complete 25 years of service life in the current tariff block. Due to ageing, leakages from multiple points are observed. In some cases, oil seepage from the bottom of the tank is also observed. There is leakage in the current transformer, therefore, in the long run, it may lead to moisture ingress and subsequent failure. The current transformers are hermetically sealed equipments and repair at the site is not feasible. Further, as there is ingress of moisture, complete replacement of winding is required at manufacturer works which will not be techno-economically viable. As such, the accuracy class of some CTs also violates the CEA Metering Regulations, 2006.

(b) The manufacturer has already stopped manufacturing these types of CTs. In view of the above, it is proposed to replace 10 nos. 420 kV CT at Vindhyachal and three nos. at Singrauli.

C) <u>Capacitive voltage Transformers (9 nos.)</u>

i. These capacitive voltage transformers were installed between 1988 and 1996. They have completed or are going to complete 25 years of service life in the current tariff block. Out of nine nos. CVTs proposed for replacement, three nos. are of MICAFIL make WE420F2/S model, three nos. CVT are of

Trench make TEV/TEC model and three nos. CVT are of Alstom make. The service support for these CVTs is not available from manufacturers. Due to ageing, leakages from multiple points are observed. Oil seepage from the capacitor stacks, secondary terminals oil sight glass and other joints in EMU tanks have been observed in these CVTs. Due to ageing, the capacitance of the CVTs has changed resulting in a variation in secondary voltage. CVT plays a major role in metering and protection systems. The variation in secondary voltage may result in improper metering and undesired tripping of transmission elements. The CVTs are hermetically sealed equipment and repairing this equipment at the site level is not recommended. After 25 years of operation, repairing the CVTs at manufacturer works is also not techno-economically viable due to changes in design by the manufacturer and repair requires a change of the majority parts of CVT even in case of a problem in only part of the equipment. Moreover, the manufacturer has also stopped manufacturing and repair works of these types of CVTs. In view of this, it is proposed to replace 6 nos. 420 kV CVT at Vindhyachal and 3 nos. at Singrauli.

D) <u>Surge Arresters/LA (9 nos.):</u>

i) All the installed Surge Arresters/LAs are old and completed 25 years of useful life in the 2019-24 tariff period. THRC value of the Surge Arresters/LAs are deteriorating and may fail at any time. For the healthy operation of the system, LAs are required to be replaced.

ii) It may be dangerous to keep these Surge Arresters/LAs in further service as they will not only cause an outage of the system but may also result in damage to nearby equipment.

In view of this, it is proposed to replace three nos. Surge Arresters/LAs at Vindhyachal and three nos. at Singrauli.

E) <u>Isolators (4 sets):</u>

i) Isolators of S&S were commissioned in 1989. They have already completed 25 years of service.

ii) These isolators are mainly of pantograph type and due to the maloperation of the mechanism, the auxiliary contact is stuck in an intermediate position resulting in improper functioning of interlocks. This is dangerous to the system as well as the operating personnel. One of the HCB type line isolators sometimes gets opened in live line condition due to misalignment and can cause accident.

iii) Due to rusting, many MOM boxes are damaged, and the operation of motors is not possible. Due to ageing, the TBs inside the MOM boxes become brittle and many times DC cables come in contact with boxes and create DC earth fault which may create unnecessary tripping.

iv) Many times, even local operations also become difficult. Further, the isolators have become obsolete, therefore, neither timely support from OEM nor spares are available, and this is creating problems in maintaining these old isolators.

v) S&S vide e-mail dated 12.12.2019 informed that isolators of these lots cannot be repaired and advised their replacement.

In view of the above, it is proposed to replace four sets of 420 kV Isolators at Singrauli.

F) <u>Converter transformer (three sets)</u>

i) HVDC Vindhyachal BTB station (2 x 250 MW) was the first back to back station commissioned in India as well as the first in Asia in the year 1989. Vindhyachal BTB station is an asynchronous link between the Northern Region and the Western Region and helps the System Operator in controlling the loading of adjoining AC network. It is an important fast controllable HVDC inter-regional power link between NR and WR for power exchange and grid stability.

ii) As per the original arrangement, there are a total of nine 400/30.5 kV, 156 MVA (ASEA-ABB make) converter transformers including one spare unit at Vindhyachal HVDC BTB station. The converter transformers at Vindhyachal BTB station have completed 33 years of life in 2022. Recently, the converter transformer failure rate at HVDC Vindhyachal has increased, and details thereof are as follows:

a) One converter transformer (B2T11) failed on 20.9.2015, and the same was replaced on 2.10.2015 with a spare unit available. However, no further spare is available at Vindhyachal.

b) The second converter transformer (B2T22) failed on 26.11.2017 and block-2 remained under break-down for almost one and a half years. Block-2 was charged on 14.5.2019 after the replacement of the failed

converter transformer with the new converter transformer procured under ACE approved in 2014-19.

c) Further, one more converter transformer (B1T11) failed on 31.12.2021.

The three converter transformers have failed randomly at Vindhyachal in quick succession with no prior indications. Due to the failure of the second converter transformer, Block-2 was out of service for a very long period. The lead time for procurement and supply of converter transformers is about 24 to 36 months. In case of non-availability of spare transformer, failure of converter transformer may lead to long outage of HVDC BTB block. Further, the Vindhyachal back to back station has been upgraded for life extension and reliable operation of the HVDC station. In order to match the life of the converter transformer with the upgraded HVDC system, it is necessary to replace the converter transformers. The DGA of all units of ASEA/ABB converter transformers shows high CO and CO2 values which indicates deterioration of paper in transformer.

9. From the above, the following can be summarized:

i) The converter transformers have completed their useful life. The converter transformers were charged in 1989 and completed 33 years of service.

ii) Three converter transformers failed randomly within a span of five years without any indication.

iii) There is a high concentration of CO and CO2 present in DGA which shows the de-gradation of insulating paper.

iv) The up-gradation of Vindhyachal back to back station has been completed to extend the life and for reliable operation of station.

v) The lead time for procurement and supply of converter transformers is approximately 24-36 months.

10. In view of the above facts, for reliable operation of the upgraded Vindhyachal back to back station, additional three converter transformers are sufficient.

Submissions of the Respondent, M.P. Power Management Company Limited (MPPMCL)

11. MPPMCL in its reply filed vide affidavit dated 28.8.2023 has made the following submissions:

i) The Commission may carry out a prudence check of the rates of equipment to be replaced with proper justification as per prudent industry practices.

(ii) The Commission vide order dated 26.3.2022 in Petition No. 121/TT/2020 has granted liberty to the Petitioner to file a petition under Regulation 27 of the 2019 Tariff Regulations whereas the Petitioner has filed the petition under Regulation 25(2) of the 2019 Tariff Regulations.

12. In response, the Petitioner vide affidavit dated 4.9.2023 has made the following submissions:

i) The Commission vide RoP for the hearing dated 22.6.2021 in Petition No. 121/TT/2020 observed that ACE instalments at different time periods cannot be entertained and directed the Petitioner to file a fresh petition for fresh ACE only after a study regarding the need and relevance for HVDC

back to back at Vindhyachal. Accordingly, CTUIL and POSCO have submitted their study report and concluded that Vindhyachal back to back HVDC is useful and is required for the system.

ii) The major ACE of ₹29957 lakh for replacement of equipment in the instant project has already been approved by the Commission vide its order dated 26.3.2022 in Petition No.121/TT/2020 under Regulation 14(3)(vii) & 14(3)(ix) of the 2014 Tariff Regulations and Regulation 25(2) of the 2019 Tariff Regulations. The fresh ACE of ₹6052 lakh in 2019-24 was also claimed in the said petition for which the Commission directed to file a fresh petition.

iii) The fresh ACE of ₹6052 lakh proposed during the 2019-24 tariff period in the instant petition is for the same purpose for which ACE was earlier allowed under above said regulation i.e. for the replacement of the convertor transformer and a few switchgears which have completed their useful life.

iv) The equipment being replaced is part of the original scope of the existing project as specified under Regulation 25(2) of the 2019 Tariff Regulations.

v) Since the major replacements have already been approved under Regulation 25(2) of the 2019 Tariff Regulations and instant ACE of ₹6052 lakh is for the replacement of only a few pieces of equipment and not the entire system, the same has been claimed under Regulation 25(2) of the 2019 Tariff Regulations.

13. MSEDCL in its reply filed vide affidavit dated 28.8.2023 has made the following submissions:

i) The Commission in its order dated 26.3.2022 in Petition No. 121/TT/2020 had specifically observed that the proposed ACE of ₹60.52 crore in the case of HVDC back to back at Vindhyachal is in the nature of Renovation and Modernization (R&M), and hence the Commission had directed to file a separate petition under Regulation 27 of the 2019 Tariff Regulations. As per Regulation 27 of the 2019 Tariff Regulations, the transmission licensee undertaking renovation and modernization shall be required to obtain the consent of the beneficiaries or the long-term customers. However, the Petitioner has failed to obtain the same, and, as such, it has filed a petition under Regulation 25(2) of the 2019 Tariff Regulations which is related to the replacement of assets deployed under the original scope of the existing project after the cut-off date. However, the transmission asset in the present petition is not a replaced asset.

ii) POSOCO vide letter dated 1.10.2021 has referred to the refurbishment of 2 x 250 MW HVDC Vindhyachal back to back, and its better availability is desirable from the perspective of reliability and flexibility in grid operation which means that POSOCO has insisted on improving or renovating the transmission asset and it does not mean the replacement of transmission asset. The prayer of the Petitioner should not be allowed, and the petition should be dismissed.

14. In response, the Petitioner vide affidavit dated 4.9.2023 has reiterated the submissions as made by it in the petition. The Petitioner has, however, submitted that major replacement has already been approved under Regulation 25(2) of the 2019 Tariff Regulations and the instant ACE of ₹6052 lakh is for replacement of only few equipment and not the entire system, the same has been claimed under Regulation 25(2) of the 2019 Tariff Regulations.

15. After hearing the parties at length, the Commission reserved an order in the matter on 3.8.2023.

Analysis and Decision

16. We have considered the submissions of the Petitioner, Respondents - MSEDCL and MPPMCL. The Petitioner filed Petition No. 121/TT/2020 for truing up of transmission tariff of the transmission asset for the 2014-19 period and determination of tariff for the 2019-24 period. The Commission in its order dated 26.3.2022 in Petition No. 121/TT/2020, directed the Petitioner to obtain and submit the technical approval and report of CTUIL and POSOCO on the requirement and usefulness of the transmission asset. For these reasons, the Commission in its order dated 26.3.2022 in Petition No. 121/TT/2020, did not consider the ACE in respect of the transmission asset for the 2019-24 period and granted it liberty to file a separate petition, if needed , under Regulation 27 of the 2019 Tariff Regulations with detailed study and reports from CTUIL and POSOCO.

17. In view of the above, the Petitioner has filed the present petition seeking

approval for incurring/ inclusion of ACE of ₹6052 lakh for the replacement of equipment at Vindhyachal Sub-station under Regulation 25(2) of the 2019 Tariff Regulations along with reports of CTUIL and POSOCO on utilization and usefulness of the transmission asset i.e. 2x250 MW Vindhyachal back to back HVDC. The Petitioner has prayed that ACE of the transmission asset of ₹6052 lakh for 2019-24 period, may be clubbed with the ACE of the transmission asset in Petition No. 121/TT/2020.

18. The Petitioner has given a detailed description of ACE with regard to transmission assets amounting to ₹6052 lakh which is incurred/ proposed to be incurred after the cut-off date under Regulation 25(2) of the 2019 Tariff Regulations. The said description of ACE with justifications in respect of the transmission asset is recorded above in paragraph 8 of this order.

19. Respondent, MPPMCL has mainly submitted that the Commission should carry out a prudence check of the rates of equipment replaced with proper justifications. However, MPPMCL has pointed out that the Commission in its order dated 26.3.2022 in Petition No. 121/TT/2020 granted liberty to the Petitioner to file a fresh petition under Regulation 27 of the 2019 Tariff Regulations whereas the Petitioner has filed the present petition under Regulation 25(2) of the 2019 Tariff Regulations.

20. Respondent, MSEDCL has mainly submitted that the Commission in its order dated 26.3.2022 in Petition No. 121/TT/2020 directed the Petitioner to file a fresh

petition for ACE of ₹6052 lakh in respect of the transmission asset as its nature is 'renovation and modernization' under Regulation 27 of the 2019 Tariff Regulations. MSEDCL has contended that Regulation 27 of the 2019 Tariff Regulations requires a transmission licensee intending to undertake renovation and modernization to obtain the consent of the beneficiaries or the long-term customers. However, the Petitioner in the present case has not obtained any such prior consent of the beneficiaries or long-term customers. Referring to the POSOCO Report submitted with its letter dated 1.10.2021, MSEDCL has submitted that the term 'refurbishment' used by POSOCO refers to 'renovation and modernization' of the transmission asset and that in no way it can be presumed as 'replacement' of the assets.

21. In view of the above contentions of the Petitioner and Respondent MSEDCL, it is necessary for us to refer to the provisions of Regulation 25 and Regulation 27 of the 2019 Tariff Regulations and the same are as follows:

"25. Additional Capitalisation within the original scope and after the cut-off date:
(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;
(c) Deferred works relating to ash pond or ash handling system in the original scope of work;
(d) Liability for works executed prior to the cut-off date;
(e) Force Majeure events;
(f) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and
(g) Raising of ash dyke as a part of ash disposal system.

(2) In case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to prudence check on the following grounds:
(a) The useful life of the assets is not commensurate with the useful life of the Project

and such assets have been fully depreciated in accordance with the provisions of these regulations;

(b) The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;

(c) The replacement of such asset or equipment is necessary on account of obsolescence of technology; and

(d) The replacement of such asset or equipment has otherwise been allowed by the Commission."

"27. Additional Capitalisation on account of Renovation and Modernisation

(1) The generating company or the transmission licensee, as the case may be, intending to undertake renovation and modernization (R&M) of the generating station or unit thereof or transmission system or element thereof for the purpose of extension of life beyond the originally recognised useful life for the purpose of tariff, shall file a petition before the Commission for approval of the proposal with a Detailed Project Report giving complete scope, justification, cost-benefit analysis, estimated life extension from a reference date, financial package, phasing of expenditure, schedule of completion, reference price level, estimated completion cost including foreign exchange component, if any, and any other information considered to be relevant by the generating company or the transmission licensee:

Provided that the generating company making the applications for renovation and modernization (R&M) shall not be eligible for Special Allowance under Regulation 28 of these regulations;

Provided further that the generating company or the transmission licensee intending to undertake renovation and modernization (R&M) shall be required to obtain the consent of the beneficiaries or the long term customers, as the case may be, for such renovation and modernization (R&M) and submit the same along with the petition.

(2) Where the generating company or the transmission licensee, as the case may be, makes an application for approval of its proposal for renovation and modernization (R&M), approval may be granted after due consideration of reasonableness of the proposed cost estimates, financing plan, schedule of completion, interest during construction, use of efficient technology, cost- benefit analysis, expected duration of life extension, consent of the beneficiaries or long term customers, if obtained, and such other factors as may be considered relevant by the Commission.

(3) In case of gas/ liquid fuel based open/ combined cycle thermal generating station after 25 years of operation from date of commercial operation, any additional capital expenditure which has become necessary for renovation of gas turbines/ steam turbine or additional capital expenditure necessary due to obsolescence or non-availability of spares for efficient operation of the stations shall be allowed:

Provided that any expenditure included in the renovation and modernization (R&M) on consumables and cost of components and spares which is generally covered in the O&M expenses during the major overhaul of gas turbine shall be suitably deducted from the expenditure to be allowed after prudence check.

(4) After completion of the renovation and modernisation (R&M), the generating company or the transmission licensee, as the case may be, shall file a petition for determination of tariff. Expenditure incurred or projected to be incurred and admitted by the Commission after prudence check, and after deducting the accumulated depreciation already recovered from the admitted project cost, shall form the basis for determination of tariff."

22. On perusal of clause 2 to Regulation 25 of the 2019 Tariff Regulations, we find that it provides that in case of replacement of assets deployed under the original scope of the existing project after the cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to a prudence check on the grounds enumerated in clause (a) to (d) of Regulation 25(2) of the 2019 Tariff Regulations.

23. On perusal of clause 1 of Regulation 27 of the 2019 Tariff Regulations, we note that it makes a provision that the transmission licensee intending to undertake renovation and modernization (R&M) of the transmission system or element thereof for the purpose of extension of life beyond the originally recognized useful life for the purpose of tariff, shall file a petition before the Commission for approval of the proposal with Detailed Project Report with certain details. Further, the second proviso to Regulation 27(1) of the 2019 Tariff Regulations provides that the transmission licensee intending to undertake renovation and modernization (R&M) shall be required to obtain the consent of the beneficiaries or the long-term customers for such renovation and modernization (R&M) and submit the same along with the petition.

24. It is worthwhile to mention here that in Petition No. 121/TT/2020, the Commission trued up the tariff of the 2014-19 period and determined the tariff for the 2019-24 period in respect of the transmission asset. On scrutiny of the record, we note that the

present petition is filed by the Petitioner under Regulation 25(2) of the 2019 Tariff Regulations. Along with the petition, the Petitioner has also placed on record recommendations and reports of CTUIL and POSOCO as was directed by the Commission in paragraph 69 of the order dated 26.3.2022 in Petition No. 121/TT/2020.

25. However, the Commission in its order dated 26.3.2022, in paragraph 69 further directed the Petitioner to follow the process laid down in Regulation 27 of the 2019 Tariff Regulations and file a petition accordingly. As discussed above, Regulation 27 of the 2019 Tariff Regulations requires a transmission licensee intending to undertake renovation and modernization to obtain the consent of the beneficiaries or the long-term customers as the case may be. The Petitioner has neither placed on record the consent of the beneficiaries or the long-term customers for renovation and modernization mandated under Regulation 27 of the 2019 Tariff Regulations nor has made any such submissions in the present petition. Thus, we find that the Petitioner has not obtained the consent of beneficiaries for renovation and modernization as per Regulation 27 of the 2019 Tariff Regulations. However, we are of the view that the failure to obtain the consent of the beneficiaries is not fatalto the case of the Petitioner. The Commission through RoP dated 22.6.2021 in Petition No. 121/TT/2020 was already given liberty to the Petitioner to file reports of System Operator Studies in respect of ACE for the 2019-24 period, and this arrangement is in accordance with Regulation 25(2)(c) and (d) of the 2019 Tariff Regulations which provide that ACE within the original scope and after the cut-off date can be allowed by the Commission if replacement of such asset or equipment is necessary on account of obsolescence of technology or equipment has otherwise been allowed by the Commission.

26. Be that as it may, the Commission in Petition No. 121/TT/2020 considered ACE for the works during the 2014-19 tariff while ACE proposed during the 2019-24 tariff period was observed to be considered only after the receipt of the reports. The Commission in its RoP dated 22.6.2021 gave the liberty to the Petitioner to approach the Commission for the grant of ACE in the 2019-24 tariff period with the approved study reports of the competent committee.

27. Perusal of the record shows that the Petitioner in the present petition has placed on record a letter of CTUIL dated 21.9.2021 along with report on the need and relevance of the transmission asset. Based on the detailed study conducted by CTUIL, the following conclusions were drawn with regard to the transmission asset:

> *"i. Transfer capability (TTC/ATC) value between WR and NR gets enhanced by about 1000 MW with 500 MW power order (towards NR) on Vindhyachal Back to Back HVDC link. Further, the overall decrease in active power losses at all India levels has been observed considering the 500 MW power order (towards NR) on the Vindhyachal Back to Back HVDC link.*
>
> *ii. Direct AC Inter-connection in place of HVDC Back to Back link between WR and NR (by-passing of HVDC Back to Back link) through 400 kV D/C line sections is not possible owing to increased SC level (beyond design limits) at both the buses on such a synchronous inter-connection.*
>
> *iii. In the NR surplus case, Vindhyachal Back to Back HVDC can be operated in reverse mode, and it gives the network operator flexibility to manage the WR-NR IR flows."*

28. As per the above, CTUIL is of the view that continued operation of the transmission asset would facilitate the enhancement of power transfer capability between WR and NR and it would provide operational flexibility wherein the HVDC link operates in parallel with HVAC link.

29. Similarly, the Petitioner has also placed on record letter of GCIL dated 1.10.2021

along with a report on the utilization and usefulness of the transmission asset which has recommended retention of the same for reliability and flexibility of the grid operations. The recommendations of GCIL for the retention of the transmission asset are as follows:

> ***"5. Recommendations***
>
> *Refurbishment of the 2x250 MW HVDC Vindhyachal BTB and its better availability is desirable from the perspective of reliability and flexibility in grid operation. The advantage of retaining it besides controlling fault level is the 14% relief in 765 kV Vindhyachal -Varanasi D/C loading which is limiting constraint for NR import TTC. Removing back to back HVDC may lead to less flexibility in case of contingencies on either side."*

30. The Petitioner in paragraph 7 of the petition has given justifications for ACE which has been recorded by us in paragraph 8 above of this order for replacement equipment. With regard to Circuit Breakers, the Petitioner has submitted that manufacturers have stopped manufacturing the said model of CBs due to which they are unable to provide spares and timely service support. The Petitioner has also placed on record mail exchanged with ABB, Original Equipment Manufacturer (OEM) regarding obsolescence of the product. For Current Transformers (CT) and Capacitive Voltage Transformers, the Petitioner has submitted that manufacturer has stopped manufacturing and repair works of the same. In case of surge arresters/LA, the Petitioner has submitted that it may be dangerous to keep them in further service as they will not only cause outage of system but may also result in damage to nearby equipment, hence they need replacement. As regards isolators, the Petitioner has submitted that they have become obsolete and cannot be repaired as per e-mail of OEM dated 12.12.2019. For Converter Transformers, the Petitioner has submitted that they have completed their useful life.

31. MSEDCL and MPPMCL have not given any rationale as to how faulty equipment

can be repaired especially when OEM has stopped manufacturing them or discontinued with spares of equipment originally installed by the Petitioner. The objections raised by the Respondents in the present case for the replacement of equipment are not tenable in view of the reports and approval of CTUIL and POSOCO as discussed in detail above. Even otherwise, the Respondents' objections are not tenable in view of the Commission's Record of Proceedings dated 22.6.2021, whereby it was observed that the Petitioner's claim of ACE in the 2019-24 tariff period may be considered only on submission of the results of System Operator Studies/ Comprehensive Proposal regarding the need for and relevance of the HVDC Back to Back at Vindhyachal coupled with Regulation 25(2)(c) and (d) of the 2019 Tariff Regulations.

32. From the reports of CTUIL and POSOCO along with justifications for the replacement of equipment of the transmission asset, as discussed in detail above, we are of the view that ACE in respect of the transmission asset of ₹6052 lakh for the 2019-24 period, should be allowed and we accordingly allow the same. We further agree and allow the prayer of the Petitioner to club the ACE of ₹6052 lakh approved herein with ACE claimed in Petition No. 121/TT/2020 during the 2019-24 period and the same will be allowed at the time of truing up of the tariff of 2019-24 tariff period.

33. In terms of above discussions, Petition No. 258/MP/2022 is disposed of.

sd/-	**sd/-**	**sd/-**	**sd/-**
(P. K. Singh)	**(Arun Goyal)**	**(I. S. Jha)**	**(Jishnu Barua)**
Member	**Member**	**Member**	**Chairperson**