

CENTRAL ELECTRICITY REGULATORY COMMISSION

NEW DELHI

Petition No. 360/TT/2023

Coram:

**Shri Jishnu Barua, Chairperson
Shri Ramesh Babu V. Member
Shri Harish Dudani, Member**

Date of Order: 01.10.2025

In the matter of:

Approval under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for determination of transmission tariff from the date of commercial operation (COD) to 31.3.2024 for replacement of 1x315 MVA, 400/220 kV ICT (ICT-1) at 400/220 kV Ludhiana (PG) Sub-station with 1x500 MVA, 400/220 kV ICT under "Replacement of 1x315 MVA 400/220 kV ICT (ICT-1) at 400/220 kV Ludhiana (PG) Sub-station with 1x500 MVA 400/220 kV ICT".

And in the matter of:

Power Grid Corporation of India Limited,
SAUDAMINI, Plot No. 2,
Sector-29, Gurgaon-122 001 (Haryana).

.....Petitioner

Versus

1. Ajmer Vidyut Vitran Nigam Limited,
Corporate Office, Vidyut Bhawan,
Panchsheel Nagar, Makarwali Road,
Ajmer, Rajasthan - 305004.
2. Jaipur Vidyut Vitran Nigam Limited,
132 KV, GSS RVPNL Sub-station Building,
Caligiri Road, Malviya Nagar,
Jaipur, Rajasthan – 302017.
3. Jodhpur Vidyut Vitran Nigam Limited,
New Power House, Industrial Area,
Jodhpur, Rajasthan – 342003.



4. Himachal Pradesh State Electricity Board Limited,
Vidyut Bhawan, Kumar House Complex Building II,
Shimla – 171004.
5. Uttar Pradesh Power Corporation Limited,
Shakti Bhawan, 14, Ashok Marg,
Lucknow – 226001.
6. Haryana Power Purchase Centre,
Shakti Bhawan, Sector-6,
Panchkula, Haryana – 134109.
7. Jammu Kashmir Power Corporation Limited,
220/66/33 kV Gladni Sub-station SLDC Building,
Narwal, Jammu.
8. Punjab State Power Corporation Limited,
The Mall, PSEB Head Office,
Patiala – 147001.
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. Uttarakhand Power Corporation Limited,
Urja Bhawan, Kanwali Road,
Dehradun.
13. North Central Railway,
Allahabad.
14. New Delhi Municipal Council,
Palika Kendra, Sansad Marg,
New Delhi – 110002.



15. Chandigarh Electricity Department,
UT-Chandigarh, Div-11, Opposite,
Transport Nagar, Industrial Area Phase - I,
Chandigarh.

...Respondent(s)

Parties Present: Shri V.C. Sekhar, PGCIL

ORDER

The instant Petition has been filed by Power Grid Corporation of India Limited for the determination of transmission tariff under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as “the 2019 Tariff Regulations”) from the date of commercial operation (COD) to 31.3.2024 for the replacement of 1x315 MVA, 400/220 kV ICT (ICT-1) at 400/220 kV Ludhiana (PG) Sub-station with 1x500 MVA, 400/220 kV ICT under “Replacement of 1x315 MVA 400/220 kV ICT (ICT-1) at 400/220 kV Ludhiana (PG) Sub-station with 1x500 MVA 400/220 kV ICT” (hereinafter referred to as “the transmission asset”).

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

“1) Admit the capital cost as claimed in the Petition and approve the Additional Capitalisation incurred/projected to be incurred.

2) Approve the Transmission Tariff for the tariff block 2019-24 block for the asset covered under this petition, as per para-8.3 above.

3) Allow the petitioner to submit the Revised Cost estimation for the assets under instant petition.

4) Allow the petitioner to recover the shortfall or refund the excess Annual Fixed Charges, on account of Return on Equity due to change in applicable Minimum Alternate/Corporate Income Tax rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly without making any application before the Commission as provided in Tariff Regulation 2019 as per para 8 above for respective block.

5) Approve the reimbursement of expenditure by the beneficiaries towards petition filing fee, and expenditure on publishing of notices in newspapers in terms of Regulation 70 (1) Central Electricity Regulatory Commission (Terms and



Conditions of Tariff) Regulations, 2019, and other expenditure (if any) in relation to the filing of petition.

6) Allow the petitioner to bill and recover Licensee fee and RLDC fees and charges, separately from the respondents in terms of Regulation 70 (3) and (4) Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019.

7) Allow the Petitioner to claim the overall security expenses and consequential IOWC on that security expenses separately.

8) Allow the petitioner to claim the capital spares at the end of tariff block as per actual.

9) Allow the Petitioner to bill and recover GST on Transmission Charges separately from the respondents, if GST on transmission is levied at any rate in future. Further, any taxes including GST and duties including cess etc. imposed by any statutory/Govt./municipal authorities shall be allowed to be recovered from the beneficiaries.

10) Allow interim tariff in accordance with Regulation 10 (3) of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 for purpose of inclusion in the PoC charges.

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

Background

3. The brief facts of the case are as under:

- a. The Investment Approval (IA) for the project was accorded by the Competent Authority of the Petitioner's Company on 12.2.2023, and circulated vide Memorandum Ref. C/CP/PA2223-11-0AR-IA026 dated 14.2.2023, at an estimated cost of ₹2919.00 lakh, including IDC of ₹124.00 lakh based on September 2022 prices. According to the IA, the project is scheduled for commissioning by 27.5.2024, although efforts may be made to implement the scheme by 31.5.2023, as requested by PSTCL.
- b. The scope of work for the transmission project, according to IA, is as follows:



Sub-station:

Replacement of 1x315 MVA 400/220 KV ICT (ICT-1) at 400/220 kV Ludhiana (PG) Sub-station with 1x500 MVA 400/220 kV ICT*

**along with 66 kV cable for shifting auxiliary supply to SVC from ICT-1 to ICT-2.*

- c. The transmission scheme was discussed and approved at the 4th meeting of the Northern Regional Power Committee (Transmission Planning) held on 5.10.2021 and 12.10.2021. It was also discussed and approved during the 57th meeting of the Northern Regional Power Committee on 31.8.2022. In the 11th consultation meeting for developing transmission schemes in the Northern Region, dated 30.9.2022, the scheme was recommended for implementation by the Petitioner under the regulated tariff with a compressed timetable. The relevant extract from the meeting dated 30.9.2022 is as follows:

"It was stated that in the 4th NRPC(TP) meeting held on 05.10.21 and 12.10.21, replacement of one no. of 315 MVA ICT (ICT-2) at 400/220 kV Ludhiana S/s with a 500 MVA ICT was agreed. The same was awarded by CTU to POWERGRID for its implementation. However, considering requirement of Punjab, shifting of spare ICT from Malerkotla to Ludhiana was implemented commissioned in May'22

With this augmentation, total transformation capacity at 400/220 kV Ludhiana S/s is 1630 MVA (2x315 + 2x500 MVA). Now PSTCL vide their letter requested for replacement of one more 400/220 kV, 315 MVA ICT at Ludhiana S/s. POSOCO in its operational feedback report on transmission constraint (Apr-Jun'22) also highlighted that 400/220 kV Ludhiana ICTs is on the verge of 'N-I' non-compliance. As per data received from POSOCO/NRLDC, loading pattern Of Ludhiana ICTs from May 22 onwards (after replacement of one 315 MVA ICT with a 500 MVA ICT) is as shown below:



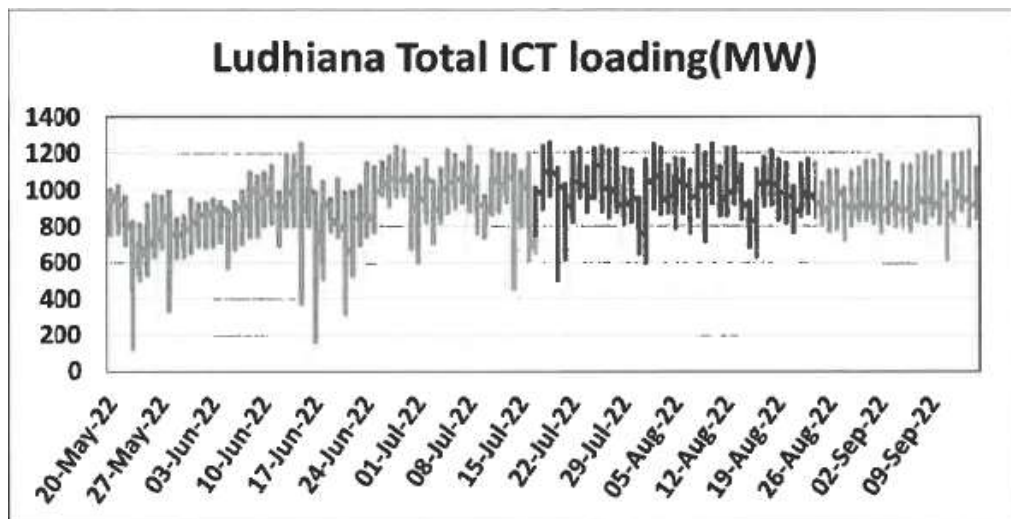


Figure-2 Loading of Ludhiana ICTs (1630MVA) (Source :POSOCO/NRLDC)

From the loading pattern, it emerged that the loading Of ICTs at Ludhiana is consistently in the range Of 1000-1200 MW in paddy season (Jun-Aug) with peak loading of 1257 MW against 1630 MVA transformation capacity (~77% loading). Considering the load growth as indicated by PSTCL, outage of one 500 MVA ICT at Ludhiana, balance ICTs may become ' N-I' non-compliant in future. In the 198th OCC meeting held on 17.08.2022, NRLDC had also highlighted that the loading of 4001220 kV ICTs at Ludhiana was close to N-I limits.

POWERGRID vide mail 14.09.22 confirmed the feasibility to replace the existing 315 MVA ICT (1st or 3rd) at Ludhiana with a 500 MVA ICT. However, POWERGRID informed that currently ICT-I tertiary is being used for auxiliary supply of SVC whereas ICT-3 tertiary is being used for station load at Ludhiana. During replacement any of the option of replacement of ICT-I or ICT-3 needs to be explored. In case of replacement of ICT-I, any outage of SVC on account of auxiliary supply failure may be considered deemed available or 66 kV cable may be considered for loading of tertiary of ICT-2 (500 MVA) or ICT-3 (315 MVA) for SVC auxiliary supply. POSOCO stated that deemed availability cases can be discussed in separate forum i.e. OCC/NRPC meetings. However in case 66 kV cable is deployed, thereon be any issue in SVC auxiliary supply.

CTU enquired about the year of make for ICT-I & 3. POWERGRID replied that ICT-I is year 2008 make whereas ICT-3 is year 2010 make. CTU stated that as there is only 2 years difference in ICT make year, any one of the ICTs (1 or 3), which is more techno economically feasible may be selected for replacement with 500 MVA ICT. POWERGRID stated that they will confirm the techno economically feasibility of both the ICTs. POWERGRID vide mail 10.10.22 informed that for Auxiliary supply arrangement for SVC during replacement of 315MVA ICT-I , it is proposed that 66 kV Cable of approx. 250 Meter length may be considered from adjacent ICT-2 till ICT-I. CGM POWERGRID indicated that PSTCL desired schedule i.e. May'23 gives them only 7 months for ICT replacement, which is not sufficient and implementation timeframe should be at least 15 months. In the meeting, PSTCL was also requested to indicate their requirement well in advance so that TSP get adequate time for implementation.



Considering the unprecedented growth of load in Punjab and request of PSTCL, following ISTS scheme was agreed

- *Replacement of 1x315 WA (3rd) 400/220 kV ICT OCT-I) to 500 MVA at 400/220 kV Ludhiana (PG) Ss'*

**along with 66 kV cable for shifting auxiliary supply to SVC from ICT-I to ICT-2*

It was decided that implementation timeframe shall be kept 15 months (from allocation of project), however POWERGRID may make best efforts for May'23 schedule and 315 MVA ICT will be used as regional spare."

- d. Further, Central Transmission Utility of India Limited (CTUIL) through Office Memorandum Ref. No. C/CTU/AI/00/9th CCTP dated 28.11.2022 awarded the scheme to the Petitioner for its implementation under the Regulated Tariff Mechanism within 18 months from the date of issue of the OM by CTUIL, and the total estimated cost is ₹26.98 Crores.. {TSP may expedite the implementation of the above transmission scheme to the extent possible, as per the request of Punjab State Power Corporation Limited (PSTCL) by letter dated 6.9.2022 for the schedule of May 2023 (reconfirmed to 31.5.2023 by email dated 1.11.2022)}.
- e. Further, in the 64th NRPC meeting held on 24.3.2023, it was discussed and agreed that the replaced 400/220/33 kV, 315 MVA ICT from Ludhiana may be diverted to Bhinmal Sub-station.

4. We have considered the submissions of the petitioner. The Commission vide order dated 1.11.2024 in Petition No. 351/TT/2023 is held as under:

"5. The Commission observes that a number of transmission schemes with estimated costs up to Rs. 100 Crore are being approved by the CTUIL to be implemented through the RTM route. These transmission schemes are being awarded to the existing Transmission Licensees (POWERGRID as well as other TBCB Licensees) along with the estimated cost and implementation timeframe. After the award, the licensees obtain investment approval from their board. It is desirable that the variation in the investment approval cost as compared to the estimated cost by CTUIL, which should be a minimum. In the instant case there is a variation of 18.8% in the IA cost of PGCIL as compared to the cost estimated by CTUIL. This cost variation may be due to some additional scope of work and/or on account of the estimated cost of the items under the scope of work.



6. Accordingly, the commission directs CTUIL to put in place a procedure in consultation with NCT for ratification/approval of the schemes in case of the following (1) variation of IA cost beyond 10% of CTUIL's estimated cost, (2) Where the IA cost arrived at by the implementing agency exceeds 100 cr for a transmission scheme awarded by CTUIL."

5. As per the above direction of the Commission, CTUIL, vide letter dated 14.05.2025 has communicated the procedure for ratification/approval of the schemes in case of (i) variation of IA cost beyond 10% of CTUIL's estimated cost, (ii) Where the IA cost arrived at by the implementing agency exceeds 100 cr for a transmission scheme awarded by CTUIL and the same is as follows:

"4.4 CERC observation on variation in the Investment Approval (IA) cost as compared to the estimated cost by CTUIL for the transmission schemes awarded to the existing Transmission Licensees

4.4.1 Transmission schemes with estimated cost of less than ₹100 Crores are awarded by CTUIL to the existing Transmission Licensees (POWERGRID as well as other TBCB Licensees) along with estimated cost and implementation timeframe.

4.4.2 Representative from CTUIL stated that POWERGRID vide letter dt 04.12.2024 has informed CTUIL that they are in receipt of tariff order dated 01.11.2024 issued by the Hon'ble CERC in the petition Nos. 351/TT/2023 regarding approval of transmission tariff for the tariff period 2019-24 for the project "Eastern Region Expansion Scheme XXVI" in Eastern Region. In the said tariff order, CERC has observed that estimated cost considered by CTUIL while approving the scheme was ₹ 27.00 Crores and Investment approval (IA) approved by the petitioner's board was ₹ 32.10 crores. Thus, there is variation of about ₹5.10 crores (18.88%) compared with the estimated cost of CTUIL. the commission directs CTUIL to put in place a procedure in consultation with NCT for ratification/approval of the schemes in case of the following (1) variation of IA cost beyond 10% of CTUIL's estimated cost, (2) Where the IA cost arrived at by the implementing agency exceeds 100 cr. for a transmission scheme awarded by CTUIL.

4.4.3 The matter was deliberated in NCT and it was decided that the following procedure shall be followed by CTUIL in case variation of DPR cost is beyond 10% of CTUIL's estimated cost.

a. Within 30 days of the allocation of the project/scheme by CTUIL, the Transmission Licensee (TSP) shall intimate the DPR cost alongwith break-up of cost estimate including compensation cost with supporting documents to CTUIL.

b. CTUIL shall analyse the DPR cost as submitted by TSP and may ask for further clarification along with supporting documents as required within 7 days' time. TSP shall furnish the requisite details to CTUIL within another 7 days' time.

c. CTUIL shall prepare a comparison statement of their original estimated cost vs Licensee's DPR cost. After due diligence, CTUIL shall revise the cost estimate of the ISTS project/scheme, if required and intimate the revised cost estimate to TSP without any change in timeline of the project/scheme within 10 working days if the CTUIL revised cost estimate of ISTS project/scheme is less than Rs.100 Cr.



d. If CTUIL revised cost estimate of ISTS project/scheme is greater than Rs. 100 Cr., then CTUIL shall bring up the scheme in the NCT as a fresh agenda.”

6. It is observed that the estimated cost considered by CTUIL while approving the scheme is ₹2698 lakh, whereas the Investment Approval (IA) accorded by the Petitioner's Board is ₹2919 lakh. This results in a variation of ₹221 lakh, which amounts to approximately 8.19% over the CTUIL's estimated cost. In view of the fact that the variation is below 10%, the Petitioner is not required to seek ratification of the cost from CTUIL at this stage. However, the Petitioner is directed to furnish detailed reasons for the cost variation vis-à-vis the CTUIL's estimated cost at the time of truing-up of the tariff for the 2019-24 period.

7. The details of the transmission asset, including the scheduled commercial operation date (SCOD), anticipated date of commercial operation submitted in the instant Petition and time overrun are as under:

SCOD	COD	Time over-run
27.5.2024	27.5.2023	Nil

8. The Respondents are distribution licensees, transmission licensees, and power departments which are procuring transmission service from the Petitioner, mainly beneficiaries of the Northern Region.

9. The Petitioner has served the Petition on the Respondents, and notice of this Petition has been published in newspapers in accordance with Section 64 of the Electricity Act, 2003. No comments or suggestions have been received from the general public in response to the notice published by the Petitioner in the newspapers. No comments or suggestions have been received from the Respondents in response to the Petition filed for the transmission asset by the Petitioner.

10. This order is issued considering the Petitioner's submissions made in the Petition vide affidavits dated 9.8.2023, 26.4.2024, 18.7.2024 and 28.9.2024. The hearings in



this matter were held on 27.6.2024, 28.8.2024, and 30.9.2024 and the order was reserved.

11. Having heard the Petitioner's representatives and perused the material on record, we now proceed to dispose of the Petition.

Determination of Annual Fixed Charges for the 2019-24 Tariff Period

12. The Petitioner in the instant Petition has claimed the following transmission charges as per the affidavit dated 18.7.2024 regarding the transmission asset for the 2019-24 tariff period:

(₹ in lakh)	
Particulars	2023-24 (Pro-rata 310 days)
Depreciation	42.05
Interest on Loan	40.60
Return on Equity	44.88
Interest on Working Capital	9.46
O&M Expenses	174.06
Total	311.05

13. The details of the Interest on Working Capital (IWC) claimed by the Petitioner vide affidavit dated 18.7.2024 concerning the transmission asset in the present Petition are as follows:

(₹ in lakh)	
Particulars	2023-24 (Pro-rata 310 days)
O&M Expenses	17.13
Maintenance Spares	30.83
Receivables	45.15
Total Working Capital	93.11
Rate of Interest (in %)	12.00
Interest on Working Capital	9.46



Data of Commercial Operation (“COD”)

14. The Petitioner has claimed the actual COD of the transmission asset as 27.5.2023. Regarding early commissioning, the Petitioner submitted that the transmission asset was commissioned according to the request received from CTUIL, which specified that the transmission asset should be commissioned by 31.5.2023. Requests were also received from PSTCL vide letters dated 6.9.2022 and 25.11.2022, and discussions and deliberations occurred in various forums. As a result, the transmission asset was put into commercial operation on 27.5.2023. An alternative arrangement was made to address the urgent need to enhance Punjab’s power transfer capacity, which was discussed and approved at the 62nd NRPC meeting held on 31.1.2023. The Petitioner, through an affidavit dated 28.9.2024, has submitted relevant extracts of the minutes, as detailed below.

“A.5.7 MS, NRPC asked POWERGRID representative to confirm whether the replacement of 1x315 MVA 400/220 kV ICT (ICT-I) at 400/220 kV Ludhiana (PG) substation with 1x500MVA 400/220 kV ICT available at Patna sub-station will be completed by 31st May 2023. To this, PGCIL ensured that they will try to complete it within the time frame.

A.5.8 NRPC forum approved the proposal of POWERGRID to divert the spare 400/220 kV 500MVA ICT (without OLTC) available at the Patna substation to Ludhiana substation for replacement of 1x315 MVA 400/220 kV ICT (ICT-I) at 400/220 kV Ludhiana (PG) substation with 1x500 MVA 400/220 kV ICT to meet the upcoming demand in Punjab. PGCIL was requested to replace the transformer by 31st May 2023 before the onset of next summer/paddy season. “

15. Thus, the Petitioner has early commissioned the 400/220 kV ICT 500 MVA at the 400 kV PGCIL Ludhiana Sub-station by May 2023, through the shifting of the transformer from the Patna Sub-station.

16. The Petitioner has submitted a CEA Energisation Certificate dated 22.5.2023, an NRLDC Certificate dated 5.6.2023 certifying the successful completion of the trial run on 26.5.2023, a self-declared COD letter dated 5.6.2023, and a CMD certificate in support of the COD of the transmission asset.



17. Regulation 5 of the 2019 Tariff Regulations provides as under:

“5. Date of Commercial Operation: (1) The date of commercial operation of a generating station or unit thereof or a transmission system or element thereof and associated communication system shall be determined in accordance with the provisions of the Grid Code.

(2) In case the transmission system or element thereof executed by a transmission licensee is ready for commercial operation but the interconnected generating station or the transmission system of other transmission licensee as per the agreed project implementation schedule is not ready for commercial operation, the transmission licensee may file petition before the Commission for approval of the date of commercial operation of such transmission system or element thereof:

Provided that the transmission licensee seeking the approval of the date of commercial operation under this clause shall give prior notice of at least one month, to the generating company or the other transmission licensee and the long-term customers of its transmission system, as the case may be, regarding the date of commercial operation:

Provided further that the transmission licensee seeking the approval of the date of commercial operation of the transmission system under this clause shall be required to submit the following documents along with the petition:

- (a) Energization certificate issued by the Regional Electrical Inspector under Central Electricity Authority;*
- (b) Trial operation certificate issued by the concerned RLDC for charging element with or without electrical load;*
- (c) Implementation Agreement, if any, executed by the parties;*
- (d) Minutes of the coordination meetings or related correspondences regarding the monitoring of the progress of the generating station and transmission systems;*
- (e) Notice issued by the transmission licensee as per the first proviso under this clause and the response;*
- (f) Certificate of the CEO or MD of the company regarding the completion of the transmission system including associated communication system in all respects.”*

18. We have considered the Petitioner's submissions and pursued the documents on record. It is observed that during the 4th NRPC (TP) meeting held on 5.10.2021 and 12.10.2021, the matter of “Enhancement of ATC/TTC for Punjab due to unprecedented load growth of summer” was discussed, and after thorough deliberation, the augmentation of 1x315 MVA, 400/220 kV ICT to 1x500 MVA at Ludhiana was agreed upon. The relevant extract of the meeting is as follows:



9.0 Enhancement of ATC/TTC for Punjab due to unprecedented load growth of summer

- 9.1 Director (PSPA-I), CEA, stated that PSTCL vide letter dated 05.08.2021 has submitted that unrestricted demand of the state during the current paddy season has been intimated as 15500 MW by the distribution licensee i.e. PSPCL. However, Punjab has ability to meet about 13500 MW of load in solar hours with existing ATC limit of 6800 MW with full IPPs generation at 400/220/132 kV generating nodes. Therefore, in order to meet the state's demand, ATC limit is required to be increased to at least 9000 MW (for paddy season 2022). PSPCL has informed that no significant addition of generation within the State is likely in coming year. State of Punjab has to deal with peculiar load profile wherein demand is nearly two times during Paddy season of June-September than that in the rest of the year. Therefore, it would not be a viable option to enter into long/Medium term arrangements at the cost of surrendering power and paying fixed charges in the lean season apart from applicable transmission charges. Hence, to meet the increasing power demand, enhanced ATC/TTC is the only solution.



- 9.2 PSTCL has further mentioned that they have carried out load flow studies and has proposed following transmission works for enhancing ATC/TTC limits to 10,000/10,600 MW (considering 1000 MW annual load growth for FY 2022-23):-

(a) Transmission elements required at ISTS Sub-Stations:

Sl. No.	Sub-Station	Description of Works	Timeline for completion
1	400 kV PGCIL Ludhiana	Augmentation of 1x315 MVA, 400/220 kV ICT to 1x500 MVA.	May, 2022
2	400 kV PGCIL Patiala	Augmentation of 1x315 MVA, 400/220 kV ICT to 1x500 MVA.	May, 2023

(b) Transmission elements required in Intra State Sub-Stations of PSTCL:

Sl. No.	Sub-Station	Description of Works	Timeline for Completion
1	400 kV Dhanansu	Installation of addl. 1x500 MVA,	May, 2023
2	400 kV Dhanansu	LILO of 400 kV Nakodar-Kurukshetra line at 400 kV Dhanansu S/s.	May, 2023

In view of above, PSTCL has proposed augmentation of 1x315 MVA, 400/220 kV ICT to 1x500 MVA at Ludhiana and Patiala.

- 9.3 PSTCL stated that as the demand in Ludhiana is expected to increase, therefore augmentation is much needed in Ludhiana S/s. Further, as there is a strict timeframe for this augmentation by May, 2022, therefore PSTCL requested POWERGRID to check if there is a possibility to divert any 500 MVA ICT to Ludhiana S/s.
- 9.4 POWERGRID stated that the 315 MVA ICTs at Ludhiana and Patiala S/s which are to be replaced by 500 MVA ICTS, can be kept as regional spare. In this regard, CTU suggested that there is requirement of 315 MVA ICT at Bhinmal, therefore ICT can be shifted to Bhinmal or kept as regional spare.
- 9.5 After deliberations, following was agreed:
- Augmentation of 1x315 MVA, 400/220 kV ICT to 1x 500 MVA at Ludhiana
 - The 315 MVA ICT spared from Ludhiana may be shifted to Bhinmal based on the residual life assessment or refurbishment (if required)
 - Augmentation of 1x315 MVA, 400/220 kV ICT to 1x 500 MVA at Patiala. The 315 MVA spared ICT at Patiala may be used as Regional spare.

19. Subsequently, the matter was discussed again at the 11th Consultation Meeting for Developing the Transmission Scheme in the Northern Region, held on 30.9.2022.



After detailed discussions, the proposed transmission scheme of “Replacement of 1x315 MVA ICT (ICT-1) with a 500 MVA 400/220 KV ICT at Ludhiana S/S” was approved, with an implementation timeframe of 15 months from project allocation. It was also decided that the Petitioner should attempt to meet the May 2023 schedule, and 315 MVA ICT will serve as the Regional Spare. The relevant extract from the meeting is as follows:

D. Replacement of 1x315 MVA (3rd) 400/220kV ICT to 500 MVA at 400/220 kV Ludhiana (PG) S/s:

It was stated that in the 4th NRPC(TP) meeting held on 05.10.21 and 12.10.21, replacement of one no. of 315 MVA ICT (ICT-2) at 400/220kV Ludhiana S/s with a 500 MVA ICT was agreed. The same was awarded by CTU to POWERGRID for its implementation. However, considering requirement of Punjab, shifting of spare ICT from Malerkotla to Ludhiana was implemented commissioned in May'22

With this augmentation, total transformation capacity at 400/220kV Ludhiana S/s is 1630 MVA (2x315 + 2x500 MVA). Now PSTCL vide their letter requested for replacement of one more 400/220kV, 315 MVA ICT at Ludhiana S/s. POSOCO in its operational feedback report on transmission constraint (Apr-Jun'22) also highlighted that 400/220kV Ludhiana ICTs is on the verge of 'N-1' non-compliance. As per data received from POSOCO/NRLDC, loading pattern of Ludhiana ICTs from May'22 onwards (after replacement of one 315 MVA ICT with a 500 MVA ICT) is as shown below:



Minutes for 11th Consultation meeting for Evolving Transmission Schemes in NR

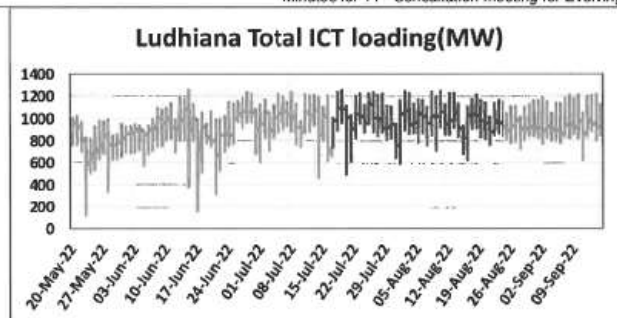


Figure-2 Loading of Ludhiana ICTs (1630MVA) (Source :POSOCO/NRLDC)

From the loading pattern, it emerged that the loading of ICTs at Ludhiana is consistently in the range of 1000-1200 MW in paddy season (Jun-Aug) with peak loading of 1257 MW against 1630MVA transformation capacity (~77% loading). Considering the load growth as indicated by PSTCL, outage of one 500 MVA ICT at Ludhiana, balance ICTs may become 'N-1' non-compliant in future. In the 198th OCC meeting held on 17.08.2022, NRLDC had also highlighted that the loading of 400/220kV ICTs at Ludhiana was close to N-1 limits.

POWERGRID vide mail 14.09.22 confirmed the feasibility to replace the existing 315 MVA ICT (1st or 3rd) at Ludhiana with a 500 MVA ICT. However, POWERGRID informed that currently ICT-1 tertiary is being used for auxiliary supply of SVC whereas ICT-3 tertiary is being used for station load at Ludhiana. During replacement any of the option of replacement of ICT-1 or ICT-3 needs to be explored. In case of replacement of ICT-1, any outage of SVC on account of auxiliary supply failure may be considered deemed available or 66kV cable may be considered for loading of tertiary of ICT-2 (500MVA) or ICT-3 (315MVA) for SVC auxiliary supply. POSOCO stated that deemed availability cases can be discussed in separate forum i.e. OCC/NRPC meetings. However in case 66kV cable is deployed, thereon be any issue in SVC auxiliary supply.



CTU enquired about the year of make for ICT-1 & 3. POWERGRID replied that ICT-1 is year 2008 make whereas ICT-3 is year 2010 make. CTU stated that as there is only 2 years difference in ICT make year, any one of the ICTs (1 or 3), which is more technologically economically feasible may be selected for replacement with 500MVA ICT. POWERGRID stated that they will confirm the technological feasibility of both the ICTs. POWERGRID vide mail 10.10.22 informed that for Auxiliary supply arrangement for SVC during replacement of 315MVA ICT-1, it is proposed that 66kV Cable of approx. 250 Meter length may be considered from adjacent ICT-2 till ICT-1. CGM POWERGRID indicated that PSTCL desired schedule i.e. May'23 gives them only 7 months for ICT replacement, which is not sufficient and implementation timeframe should be at least 15 months. In the meeting, PSTCL was also requested to indicate their requirement well in advance so that TSP get adequate time for implementation.

Considering the unprecedented growth of load in Punjab and request of PSTCL, following ISTS scheme was agreed

- Replacement of 1x315 MVA (3rd) 400/220kV ICT (ICT-1) to 500 MVA at 400/220 kV Ludhiana (PG) S/s*

*along with 66kV cable for shifting auxiliary supply to SVC from ICT-1 to ICT-2

It was decided that implementation timeframe shall be kept 15 months (from allocation of project), however POWERGRID may make best efforts for May'23 schedule and 315MVA ICT will be used as regional spare.

20. Accordingly, vide OM No. C/CTU/AI/00/9th CCTP dated 28.11.2022, the transmission project was allotted to the Petitioner by CTUIL for implementation under RTM mode with a timeframe of 18 months from the issue of the OM by CTUIL. The said OM also stated that the TSP may expedite the implementation of the transmission scheme to the extent possible, as per the request of Punjab State Power Corporation Limited (PSTCL) vide letter dated 6.9.2022 for the implementation schedule of May 2023 (reconfirmed to 31.5.2023 vide email dated 1.11.2022).

21. Therefore, the Petitioner had an early commissioning of the 400/220 kV ICT 500 MVA at 400 kV PGCIL, Ludhiana Sub-station, by May 2023 through the shifting of the transformer from Patna. Further, considering the CEA Energisation Certificate dated 22.5.2023, the NRLDC Certificate dated 5.6.2023 certifying the successful completion of trial operation on 26.5.2023, the self-declared COD letter dated 5/6.6.2023, and the CMD certificate, as per Regulation 5 of the 2019 Tariff Regulations, the COD of the transmission asset is approved as 27.5.2023.

Capital Cost

22. Regulation 19 of the 2019 Tariff Regulations provides as under:

“19. Capital Cost: (1) The Capital cost of the generating station or the transmission system, as the case may be, as determined by the Commission after prudence check in accordance with these regulations shall form the basis for determination of tariff for



existing and new projects.

(2) *The Capital Cost of a new project shall include the following:*

- (a) *The expenditure incurred or projected to be incurred up to the date of commercial operation of the project;*
- (b) *Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*
- (c) *Any gain or loss on account of foreign exchange risk variation pertaining to the loan amount availed during the construction period;*
- (d) *Interest during construction and incidental expenditure during construction as computed in accordance with these regulations;*
- (e) *Capitalised initial spares subject to the ceiling rates in accordance with these regulations;*
- (f) *Expenditure on account of additional capitalization and de-capitalisation determined in accordance with these regulations;*
- (g) *Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the date of commercial operation as specified under Regulation 7 of these regulations;*
- (h) *Adjustment of revenue earned by the transmission licensee by using the assets before the date of commercial operation;*
- (i) *Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
- (j) *Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of the generating station but does not include the transportation cost and any other appurtenant cost paid to the railway;*
- (k) *Capital expenditure on account of biomass handling equipment and facilities, for co-firing;*
- (l) *Capital expenditure on account of emission control system necessary to meet the revised emission standards and sewage treatment plant;*
- (m) *Expenditure on account of fulfilment of any conditions for obtaining environment clearance for the project;*
- (n) *Expenditure on account of change in law and force majeure events; and*
- (o) *Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.*

(3) *The Capital cost of an existing project shall include the following:*

- (a) *Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019;*
- (b) *Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;*
- (c) *Capital expenditure on account of renovation and modernisation as admitted by this Commission in accordance with these regulations;*
- (d) *Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
- (e) *Capital expenditure incurred towards railway infrastructure and its*



augmentation for transportation of coal upto the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and

- (f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.

(4) The capital cost in case of existing or new hydro generating station shall also include:

- (a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and
(b) cost of the developer's 10% contribution towards Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) and Deendayal Upadhyaya Gram Jyoti Yojana (DDUGJY) project in the affected area.

(5) The following shall be excluded from the capital cost of the existing and new projects:

- (a) The assets forming part of the project, but not in use, as declared in the tariff petition;
(b) De-capitalised Assets after the date of commercial operation on account of replacement or removal on account of obsolescence or shifting from one project to another project:

Provided that in case replacement of transmission asset is recommended by Regional Power Committee, such asset shall be de-capitalised only after its redeployment;

Provided further that unless shifting of an asset from one project to another is of permanent nature, there shall be no de-capitalization of the concerned assets.

- (c) In case of hydro generating stations, any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State Government by following a transparent process;
(d) Proportionate cost of land of the existing project which is being used for generating power from generating station based on renewable energy; and
(e) Any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment."

23. The Petitioner, vide Auditor's Certificate dated 7.8.2023, has claimed the capital cost incurred as on COD and ACE projected to be incurred in respect of the transmission asset, the details of the same are as follows:

Apportioned Approved Cost (As per FR)	Expenditure up to Actual COD	Projected ACE			Estimated completion cost
		2023-24	2024-25	2025-26	
2919.00	191.22	1500.13	884.72	589.81	3165.88



24. Due to an inadvertent error, the Petitioner, vide affidavit dated 18.7.2024, had submitted that the revised capital cost incurred as on COD and ACE projected to be incurred in respect of the transmission asset, and the details are as follows:

(₹ in lakh)

Apportioned Approved Cost (As per FR)	Expenditure up to Actual COD	Projected ACE			Estimated completion cost
		2023-24	2024-25	2025-26	
2919.00	189.45	1501.90	884.72	589.81	3165.88

Cost Overrun

25. The details of estimated completion cost vis-à-vis apportioned approved cost (FR) for the transmission asset are as under:

(₹ in lakh)

Approved Cost	Estimated Completion Cost	Cost Variation
2919.00	3165.88	246.88

26. The estimated completion cost of the transmission asset exceeds the approved apportioned cost as per FR. There is a cost overrun of ₹246.88 lakh for the transmission project.

27. Further, the Petitioner, through affidavits dated 26.4.2024, 18.7.2024, and 28.9.2024, has submitted that the Revised Cost Estimate (RCE) is being prepared and will be submitted to the Commission.

28. The Petitioner, in its Petition, has submitted the following major reasons for the cost variation concerning the FR for the transmission asset. The variation in cost compared to the FR apportioned cost of the transmission asset is approximately ₹246.89 lakh.



(₹ in lakh)				
Sl. No.	Description	Cost as per FR	Estimated Capital Cost	Cost Variation
		A	B	C = A-B
	Sub-stations			
1	Site Preparation	20.00	24.00	4.00
2	Foundation for structures	23.80	30.96	7.16
3	Transformer	1849.11	2251.71	402.60
4	Control & relay panel	17.91	18.08	0.17
5	Outdoor lighting & FF	7.16	8.02	0.86
6	Erection	29.92	31.22	1.30
7	Spares	72.65	165.2	92.55
8	Taxes & Duties	436.58	611.55	174.97
9	Over heads	337.87	23.37	(314.50)
10	Interest During Construction (IDC)	124.00	1.78	(122.22)
	Grand Total	2919.00	3165.89	246.89

a. Decrease in IDC & IEDC Cost

- i. The IDC and IEDC were calculated based on the 18 months' timeline from the CTUIL's OM, i.e., from 28.11.2022 to 27.5.2024. However, the transmission asset was commissioned earlier than scheduled. Consequently, the actual costs decrease by around ₹436.73 lakh for IDC and IEDC.

b. Variation in Equipment Cost:

- ii. The Petitioner is responsible for the indigenous development of the manufacturer and for complying with the Government of India guidelines. Accordingly, the Petitioner has been implementing a well-established procurement policy that ensures both transparency and competitiveness in the bidding process. The route of Domestic Competitive Bidding has been chosen to award this project. Through this process, the lowest possible market prices for the required products or services, according to detailed design, are obtained, and contracts are awarded to the lowest evaluated eligible bidder. The most competitive bid prices against tenders may vary from the cost estimate depending on current market conditions, design, and site requirements. The estimates are prepared by the



Petitioner using established procedures for cost estimation. The FR cost estimate is a broad, indicative figure, generally based on the average unit rates of recently awarded contracts or standard practice. The cost received during Domestic Competitive Bidding for transformers is higher than the estimated cost.

- iii.* The FR costs of individual items or materials exclude taxes and duties, which are listed separately, while the cost based on actual expenditure includes taxes and duties. The increase of approximately ₹175.00 lakh mainly reflects actual taxes and duties, octroi, customs duty, excise duty, GST, and other charges paid at prevailing rates and levies imposed by relevant district, state, and statutory authorities during the execution of the transmission project.

29. Thus, the price variation associated with the project is due to the inflationary trend during its execution and the market forces prevailing at the time of bidding for different packages.

30. Further, in compliance with RoP dated 27.6.2024, the Petitioner, through an affidavit dated 18.7.2024, submitted that the diverted 1x500 MVA, 400/220 kV ICT has been procured under the Self Insurance Scheme (SIS) and is kept as a cold spare at Patna Substation. It is not part of any transmission project. The said ICT has not been capitalised for tariff purposes under any project or Petition. Further, in compliance with the RoP dated 27.6.2024 and 28.8.2024, the Petitioner, through an affidavits dated 18.7.2024 and 28.9.2024, has submitted as follows:

a. Procurement Philosophy for Transformers

For transformers and reactors, the Petitioner generally follows a bulk procurement philosophy, as outlined in the extended policy and procedure, which typically involves a domestic competitive bidding process through an



open tender (Single Stage, two-envelope). Traditionally, the Project Specific mode of procurement is followed, where equipment such as transformers, outlined in the scope of works for a particular project, is kept into a package and procured through an open competitive bidding process. However, in some cases, when two or more projects are planned within the same timeframe, transformers needed for a group of projects in a region are combined, and procurement is conducted for multiple projects simultaneously. Additionally, common procurement is also used for smaller projects, as it offers better cost discovery and a more efficient procurement process.

However, meeting stringent timelines, increasing constraints due to limited manufacturing capacity, and the reluctance of manufacturers to repair damaged or burnt equipment are significant challenges being experienced. Of late, to address these issues, it has resorted to Bulk Procurement of equipment. Under bulk procurement, advance procurement is conducted as a rolling buffer stock in tranches, with tentative delivery destinations specified. During the execution stage, amendments are issued for changes to the destination, if necessary. Pending utilisation, if required, the equipment supplied and stored at the site as per the originally envisaged destination.

Furthermore, once the equipment from the buffer stock is utilised in a particular project or for O&M purposes, based on actual utilisation, the cost of the equipment as utilised is booked under the respective project or under O&M— with no issues in cost booking. It is helping in the timely implementation of the project, particularly the evacuation of power from RE projects.



b. New Letter of Award (LOA)

For the ICT booked under the subject project, the LOA Ref. No. *CC/NT/TR/DOM/A00/22/0321/NOA-II/23-100280/02* dated 10.3.2023, for the supply of goods under the 400 kV transformer Package, TR10 was with M/S Toshiba Transmission & Distribution System (India) Pvt. Limited.

c. Original book value for 1x500 MVA, 400/220 kV ICT

The spare ICT, 1x500 MVA, 400/220 kV ICT, procured vide NOA dated 11.5.2018, under the self-insurance scheme, was placed at the Patna Substation. The transformer was supplied in 2019, and the gross block of the transformer is ₹1157.51 lakh, inclusive of applicable taxes.

Regarding the status of the original asset in different transmission projects, which previously included the diverted 1x500 MVA and 400/220 kV ICT, the Petitioner has submitted that the 1x500 MVA, 400/220 kV ICT, installed at Ludhiana Sub-station in May 2023, has not been capitalised under any project. It was procured through SIS and remains stored as a spare at Patna Sub-station.

d. Documentary evidence of the “bulk procurement philosophy”

The Board of Directors, in its 399th meeting held on 29.12.2021, approved incurring advance expenditure for bulk procurement as a rolling buffer stock in tranches to facilitate the timely evacuation of RE projects.

31. We have considered the submissions of the Petitioner and gone through the documents submitted by the Petitioner. In the instant transmission petition, the petitioner has replaced 1X315 MVA ICT with 500 MVA ICT at Ludhiana Substation by diverting the spare 400/220 kV 500 MVA ICT available at Patna Substation to Ludhiana Substation and commissioned it on 27.05.2023. The order for 500 MVA ICT at Ludhiana



substation to replace the existing 315 MVA ICT at Ludhiana was awarded to M/s Toshiba under the 400 kV transformer Package, TR10 vide LOA dated 10.3.2023, at ₹ 2780.00 lakhs with commissioning schedule 27.05.2024. The diverted spare 1X500 MVA ICT is part of the Self Insurance Scheme and was kept as a Cold Spare at Patna with a book value of ₹1157.51 lakh.

32. The Petitioner has obtained Investment Approval(IA) on 12.02.2023 and the same is as follows:



पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्योग)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

ENCL-1

C/CP/PA2223-11-0AR-IA026

February 14, 2023

MEMORANDUM

SUB: Investment Approval for "Replacement of 1x315 MVA 400/220 kV ICT (ICT-1) at 400/220 kV Ludhiana (PG) S/s with 1x500 MVA 400/220 kV ICT"

Investment approval for "Replacement of 1x315 MVA 400/220 kV ICT (ICT-1) at 400/220 KV Ludhiana (PG) S/s with 1x500 MVA 400/220 kV ICT" has been accorded by CMD on February 12, 2023 as per the details given below:

1. SCOPE OF PROJECT

Broad Scope of works:

Substation:

Replacement of 1x315 MVA 400/220 kV ICT (ICT-1) at 400/220 kV Ludhiana (PG) s/s with 1x500 MVA 400/220 kV ICT*

*along with 66kV cable for shifting auxiliary supply to SVC from ICT-1 to ICT-2.

2. PROJECT COST & FUNDING

The estimated cost of the project based on September, 2022 price level is ₹29.19 crore including IDC of ₹1.24 crore. The abstract cost estimate is attached as **Annexure - I**.

The project is proposed to be implemented through Debt (70%) and Equity (30%) with loan component from domestic borrowing/ bonds/ External Commercial Borrowing (ECB) etc. and equity component through internal resources.

3. COMMISSIONING SCHEDULE

The project is scheduled to be commissioned by 27.05.2024.

(Best efforts may be made to implement the scheme by 31.05.2023 as requested by PSTCL)

(A. Jagannath Rao)
Sr.GM (CP)

33. After apporpal of the IA, the Petitioner has placed the LoA for installation of 500 MVA ICT at Ludhina Substation. The details of the same is as follows:



[illegible]

34. After Investment approval on 14.2.2023, the Petitioner placed the award for the ICT on 10.3.2023 with completion schedule as 27.5.2024. The Petitioner planned to commission the 500 MVA ICT at Ludhina Substation in 15 months. However, PSTCL vide letter dated 6.09.2022 (quoted below) requested the CTUIL for execution of the 500 MVA ICT at Ludhina Substation by May 2023.



PUNJAB STATE TRANSMISSION CORPORATION LIMITED

Regd. Office: - PSEB Head Office, The Mall, Patiala - 147001, Punjab, India

O/o SE/Planning, PSTCL, Patiala.

Fax/Ph: - 0175-2205502, Email: - se-planning@pstcl.org

CIN - U40109PB2010SGCO33814

To,

Chief Operating Officer/CTU,
Power Grid Corporation of India Ltd.
Saudamini, Plot No.2, Sector 79, Near IFFCO Chowk,
Gurugram, Haryana 122001.

Memo No. **584** /P-1/267 Dated: **06-09-2022**

Subject: Regarding approval of various works for enhancement of ATC/TTC for Punjab due to unprecedented load growth of summer/paddy season.
Ref.: 57th NRPC meeting dated 31.08.2022.

With reference to the discussion held on agenda point A.9 (*Deemed Enhancement of ATC/TTC for Punjab due to unprecedented load growth of summer/paddy season. (Agenda by PSTCL)*) in 57th NRPC meeting dated 31.08.2022, it is submitted that the following works are required on priority as per the mentioned timelines:

Sr. No.	Scope of work	Remarks
1.	3 rd Addl. 500 MVA ICT at 400 kV substation Patran.	Existing 2 No. 500 MVA ICTs at 400 kV Patran are N-1 non-compliant. Also, in the NLP meeting dated 24.08.2022, it was made known that 3 rd 500 MVA ICT at 400 kV Patran has been considered along with the downstream network of 765 kV substation Sangrur. Considering the load growth of paddy/summer season and the above mentioned facts, 3 rd 500 MVA ICT at 400 kV Patran is required with the timeline of May 2024.
2.	2 Nos. 220 kV bays at 400 kV substation Panchkula (Barwala) for 220 kV substation Dera Bassi.	In order to meet with the unprecedented load growth in Zirakpur-Lalru-Dera Bassi belt and also to reduce the loading of Nalagarh-Mohali circuits, D/C link between 220 kV Dera Bassi and 400 kV Panchkula (Barwala) is required with the timeline of May 2024.
3.	Additional 500 MVA ICT to be installed at 400 kV PGCIL Patiala.	The work is required to be executed with the timeline of May 2023.
4.	Augmentation of 1 no. 315 MVA (3 rd) 400/220 kV ICT to 500 MVA at 400 kV PGCIL Ludhiana.	The work is required to be executed with the timeline of May 2023.
5.	Augmentation of 1 no. 250 MVA, 400/220 kV ICT to 500 MVA at 400 kV PGCIL Moga.	The work is required to be executed with the timeline of May 2023.

585
06-09-2022

CC: Director/Tech, PSTCL, Patiala.

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[Signature]



35. Further, PSTCL vide letter dated 25.11.2022 addressed to CMD, Powergrid and requested for commisiong of the 500 MVA ICT by 31.05.2023. The letter dated 25.11.2022 is extracted herrunder for ready reference:

A Venu Prasad I.A.S.
Chairman-cum-Managing Director



Phone : 0175-2212053
Fax : 0175-2307779
E-mail : cmd@pstcl.org

D.O. No. 673/SPS/D(1)
Punjab State Transmission Corporation Ltd.
Regd. Office : PSEB Head Office,
The Mall, Patiala - 147 001
CIN No. : U40109PB2010SGC033814

Date 25-11-2022

Subject: Addition/ Augmentation at 400kV Substations of PGCIL in the Punjab Control Area.

Dear K. Sreekant ji,

Following additions/ augmentations have been approved in the 57th NRPC and 11th CMETS meeting which are to be carried out at PGCIL substations, before the onset of next summer/ paddy season i.e. by 31.05.2023.

Sr. No.	Description	Status
1.	Augmentation of one 315 MVA 400/220kV ICT with 1 No. 500MVA 400/220kV ICT at 400KV PGCIL Ludhiana.	Work is to be allotted.
2.	Augmentation of one 250 MVA 400/220kV ICT with one 500MVA 400/220kV ICT at 400KV PGCIL Moga.	Work is to be allotted, one 500MVA ICT available at Malerkotla
3.	Addition of one 500MVA 400/220kV ICT at Work in progress 400KV PGCIL Patiala (Fogga Majra).	Work in progress.

The above works are very critical for the power supply needs and ISTS ATC/ TTC limits of the State. You are requested to impart instructions to the concerned officers to complete all these three works within the stipulated time i.e. by 31st May 2023.

With Regards.

Yours sincerely,

(A Venu Prasad)

Sh. K Sreekant,
Chairman & Managing Director,
Power Grid Corporation of India Limited,
Gurgaon.



36. Taking into consideration of the request of PSTCL for early commissioning of ICT, the Petitioner has diverted the ICT from Patna substation to Ludhiana Substation and commissioned on 27.05.2023.

37. The Petitioner has claimed the capital cost of the ICT as ₹2780.00 lakh on the basis of the LoA placed. However, the Petitioner has actually shifted the ICT from Patna Substation and installed it in Ludhiana Substation. Therefore, we are of the view that the book value of the ICT shifted from Patna should be considered instead of the cost of the new ICT, for which the LoA was placed. Further, the cost of preliminary works, civil works, foundation for structures, shifting cost will also be considered as the capital cost. The cost difference of awarded ICT and book value of installed ICT will be capitalised as and when liability is discharged. The newly procured ICT on receipt shall be kept as spare (SIS/regional spare/project site).

38. We propose to consider the book value of the spare ICT at Patna as the capital cost, the cost of preliminary works, civil works, foundation for structures, shifting cost and the cost difference of awarded ICT and book value of installed ICT will be capitalised as and when liability is discharged for the purpose of tariff determination by invoking the Power to Remove Difficulty as provided in Regulation 77 of the 2019 Tariff Regulations, which provides as follows:

39. Regulation 77 of the 2019 Tariff Regulations is extracted as under:

77. Power to Remove Difficulty:

If any difficulty arises in giving effect to the provisions of these regulations, the Commission may, by order, make such provision not inconsistent with the provisions of the Act or provisions of other regulations specified by the Commission, as may appear to be necessary for removing the difficulty in giving effect to the objectives of these regulations.

40. Further, the Petitioner has submitted that the said Cold Spare ICT was never capitalised in any transmission project. Since the spare transformer procured under the



Self Insurance Scheme and kept at Patna Sub-station has been shifted and installed at Ludhiana Sub-station for the early commissioning of the current transmission project, the LoA value dated 10.03.2023 is considered in the instant petition. The Petitioner is directed to adopt the same methodology in all future cases where an ICT is shifted for the purpose of early commissioning at the request of the STU.

41. Further, the Petitioner has apprised that the said Cold Spare ICT was never capitalised in any transmission project. Since the spare transformer procured under the Self Insurance Scheme and kept at Patna Sub-station has been shifted and installed at Ludhiana Sub-station for the early commissioning of the current transmission project, the LoA value dated 10.03.2023 is considered in the instant petition.

42. As per FORM-5 submitted by the Petitioner, a significant cost variation in relation to the spares has been observed, and the details are as follows:

(₹ In lakh)				
Sr. No.	Particulars	Cost as per Original Estimate	Actual Completion Cost	Variation
1	Spares	72.65	165.20	92.55

43. In view of the above, the capital cost of ₹1691.35 lakh claimed by the Petitioner up to 31.3.2024, i.e., for the 2019-24 tariff period, which is within the FR, the same is being considered for the determination of transmission charges for the 2019-24 tariff period in this order. The Petitioner is directed to submit a detailed justification along with supporting documents regarding the aforementioned significant cost variation for review at the time of truing-up.

44. Further, the estimated completion cost of ₹3165.88 lakh as on 31.3.2026 for the transmission asset exceeds the approved FR cost of ₹2919.00 lakh, as submitted by



the Petitioner, and the RCE is still awaiting approval. Therefore, the estimated completion cost of the transmission asset as on 31.3.2026 is limited to the FR cost.

45. The petitioner is directed to revise the capital cost claimed as per the direction mentioned in para 38 while filing the true-up petition. The petitioner also placed the policy of PGCIL for the diversion of ICTs at the request of State transmission utilities.

Shifting of the ICT

46. With regard to 1x315 MVA, 400/220 kV ICT at Ludhiana Sub-station, which is being replaced in the present project, the Petitioner vide affidavit dated 26.4.2024 has submitted that 315 MVA 400/220 kV ICT was originally covered under “Northern Region System Strengthening Scheme-III (NRSS-III)” Project and the transmission asset was capitalised on 1.6.2008, under the same project. It is further submitted that Petition No. 14/TT/2020 was filed for the truing up of the transmission tariff for the 2014-19 tariff period. Subsequently, the Commission, vide order dated 20.5.2021 in Petition No. 14/TT/2020, approved the truing up of the transmission tariff for the 2014-19 tariff period. Furthermore, in the 64th NRPC meeting held on 24.3.2023, it was discussed and agreed that the replaced 400/220/33 kV, 315 MVA ICT from Ludhiana may be diverted to Bhinmal Sub-station based on the residual life assessment or refurbishment.

47. We have considered the submissions of the Petitioner. We think it appropriate here to refer to Regulation 19(5)(b) of the 2019 Tariff Regulations which provides as under:

“19(5) The following shall be excluded from the capital cost of the existing and new projects:

(b) De-capitalised Assets after the date of commercial operation on account of replacement or removal on account of obsolescence or shifting from one project to another project:

Provided that in case replacement of transmission asset is recommended by Regional Power Committee, such asset shall be de-capitalised only after its redeployment;



Provided further that unless shifting of an asset from one project to another is of permanent nature, there shall be no de-capitalization of the concerned assets.”

48. On perusal of Regulation 19(5) of the 2019 Tariff Regulations, as extracted above, the transmission asset shall be de-capitalised on account of replacement. Accordingly, the 315 MVA, 400/220 kV ICT at Ludhiana Sub-station is being replaced with a 500 MVA, 400/220 kV ICT. Therefore, the 315 MVA ICT shall be de-capitalised from Ludhiana Substation, which was originally covered under the “Northern Region System Strengthening Scheme-III (NRSS-III)” Project, as mentioned in Petition No. 14/TT/2020, and re-capitalised after its redeployment at Bhinmal Substation. The Petitioner is directed to submit the details of the de-capitalisation of 1x315 MVA, 400/220 kV ICT from Ludhiana Substation at the time of truing up of the 2019-24 tariff period.

Interest During Construction (IDC) / Incidental Expenditure During Construction (IEDC)

49. The Petitioner has submitted the statement showing IDC claim, discharge of IDC liability as on the date of commercial operation and thereafter concerning the transmission asset as under:

(₹ in lakh)		
IDC as per the Auditor Certificate	IDC Discharged up to COD	IDC discharged during 2023-24
1.78	0.00	1.78

50. We have considered the submissions of the Petitioner. The Petitioner has claimed IDC of ₹1.78 lakh in the Auditor’s Certificate dated 7.8.2023, and the IDC claimed in the IDC statement is ₹1.77 lakh. We have considered the values submitted in the Auditor’s Certificate for our calculation purposes. As discussed above, there is no time overrun in the case of the transmission asset. Accordingly, the IDC on a cash



basis up to the COD has been worked out based on the loan details given in the statement showing discharge of IDC and Form-9C for the transmission asset. The IDC claimed and considered in respect of the transmission asset as on COD and discharge summary of IDC liability up to COD and thereafter, for the purpose of tariff determination, subject to its revision at the time of truing up, is as under:

(₹ in lakh)				
IDC as per the Auditor's Certificate	IDC Disallowed due to a computation error	IDC Allowed	IDC Discharged up to COD	IDC discharged during 2023-24
1.78	0.00	1.78	0.00	1.78

51. The Petitioner has claimed IEDC for the transmission asset amounting to ₹23.37 lakh as per the Auditor's Certificate. It is submitted that the entire amount of IEDC for the transmission asset has been discharged up to COD.

52. We have considered the Petitioner's submissions. As there is no time overrun for the transmission asset, the entire IEDC of ₹23.37 lakh is allowed. Accordingly, the details of IEDC claimed as per the Auditor's Certificate, IEDC disallowed, and IEDC allowed in respect of the transmission asset are as under:

(₹ in lakh)		
IEDC claimed as per Auditor's certificate (A)	IEDC disallowed due to time overrun, not condoned (B)	IEDC Allowed (A-B)
23.37	0.00	23.37

Initial Spares

53. Regulation 23(d) of the 2019 Tariff Regulations provides that Initial Spares shall be capitalised as a percentage of plant and machinery cost up to the cut-off date, subject to the following ceiling norms:



“23. Initial Spares: Initial spares shall be capitalised as a percentage of the Plant and Machinery cost, subject to following ceiling norms:

....

(d) Transmission System

- i. Transmission line: 1.00%
- ii. Transmission sub-station
 - Green Field: 4.00%
 - Brown Field: 6.00%
- iii. Series Compensation devices and HVDC Station: 4.00%
- iv. Gas Insulated Sub-station (GIS)
 - Green Field: 5.00%
 - Brown Field: 7.00%
- v. Communication System: 3.50%
- vi. Static Synchronous Compensator: 6.00%

54. The Initial Spares as claimed by the Petitioner in the instant Petition for the transmission asset are as under:

(₹ in lakh)

Particulars	Plant and machinery cost	Initial spares claimed	Ceiling limit as per Regulations (in %)	Initial Spares Worked Out
		Amount (₹)		
	A	B	C	$D = [(A-B) * C / (100-C)]$
Sub-station (Brown Field)	3140.73	165.20	6.00	189.93

Initial Spares Discharge

55. The Petitioner, vide its affidavit dated 26.4.2024, has submitted that expenditure on Initial Spares included in the Auditor’s Certificate is based on actual cash expenditure incurred. This means that the Initial Spares discharged up to the date of commercial operation (COD) are included in the COD cost in the Auditor’s Certificate, and those discharged after COD have been included in the additional capital expenditure for that year in the same certificate. The details of the discharge of Initial Spares regarding the transmission asset, as furnished in the Auditor’s Certificate, are reproduced below.

(₹ in lakh)



Particulars	Total spares Claimed	Expenditure on Initial Spares up to COD and included in the Auditor's Certificate up to COD	Expenditure on Initial Spares in 2023-24	Expenditure on Initial Spares in 2024-25
Sub-station (AIS - Brown Field)	165.20	0.00	148.68	16.52

56. We have considered the Petitioner's submissions. Based on the information available on record, the Initial Spares of the transmission asset are allowable at the respective percentage of the plant and machinery cost as on the cut-off date on an individual basis. However, the claim of the Petitioner is within the ceiling norms. Therefore, as per Regulation 29(d) of the 2019 Tariff Regulations, the Initial Spares allowed for the transmission asset are as under:

(₹ in lakh)						
Particulars	Plant and Machinery cost (excluding IDC/IEDC, Land cost & Cost of Civil Works) (Rs. in lakh)	Initial Spares claimed (₹ in lakh)	Norms as per 2019 Tariff Regulations (In %)	Initial Spares allowable (₹ in lakh)	Initial Spares disallowed (₹ in lakh)	Initial Spares Allowed (₹ in lakh)
	A	B	C	$D = (A - B) * C / (100 - C)$	$E = B - D$	
Sub-station (Brownfield)	3140.73	165.20	6.00	189.93	0.00	165.20

Capital Cost allowed as on COD

57. The capital cost allowed as on the actual COD of the transmission asset is as under:

(₹ in lakh)				
Capital Cost claimed as on COD (Auditor's Certificate) (A)	IDC Disallowed (B)	Undischarged IDC as on COD (C)	IEDC Disallowed (D)	Capital Cost considered as on COD (E=A-B-C-D)
191.23	0.00	1.78	0.00	189.45



Additional Capital Expenditure (ACE)

58. Regulations 24 and 25 of the 2019 Tariff Regulations provide as under:

“24. Additional Capitalisation within the original scope and upto the cut-off date

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

- (a) Undischarged liabilities recognized to be payable at a future date;*
- (b) Works deferred for execution;*
- (c) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 23 of these regulations;*
- (d) 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;*
- (e) Change in law or compliance of any existing law; and*
- (f) Force Majeure events:*

Provided that in case of any replacement of the assets, the additional capitalization shall be worked out after adjusting the gross fixed assets and cumulative depreciation of the assets replaced on account of de-capitalization.

(2) The generating company or the transmission licensee, as the case may be shall submit the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution.”

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;*
- (g) Raising of ash dyke as a part of ash disposal system.”*

59. The Petitioner has claimed that the ACE incurred or projected to be incurred is mainly due to balance or retention payments, and therefore, the same is claimed under Regulation 24(1)(a) and 24(1)(b) of the 2019 Tariff Regulations. The Petitioner, vide



affidavit dated 18.7.2024, has claimed the following capital cost of the transmission asset as per the cash IDC discharge:

(₹ in lakh)

Projected ACE			Total Projected ACE
2023-24	2024-25	2025-26	
1501.90	884.72	589.81	2976.43

60. It is observed that the Petitioner has also claimed ACE for FYs 2024-25 and 2025-26 in the present Petition. Consequently, the projected ACE claimed by the Petitioner for FYs 2024-25 and 2025-26 will be considered separately, in accordance with the applicable 2024 Tariff Regulations for the 2024-29 tariff period, at a future date.

61. Further, the detailed Liability Flow Statement of ACE for FY 2023-24, as submitted and claimed by the Petitioner vide its affidavit dated 18.7.2024, for the transmission asset is as follows:

(₹ in lakh)

Party	Particulars	Outstanding Liability as on COD	Discharge		Additional Liability recognized (Unexecuted works)		Total Liability Discharged 2019-24	Outstanding Liability as on 31.3.2024
			2022-23	2023-24	2022-23	2023-24		
M/s Toshiba, M/s ODC Logistics, M/s A Tech Builders and misc. petty contractors	Sub-station	15.42	0.00	0.00	0.00	1500.13	1500.13	15.42

62. It is observed that spare 1x500 MVA, 400/220 kV ICT, which was shifted from the Patna Sub-station to the Ludhiana Sub-station, was procured vide NOA dated 11.5.2018 under the Self Insurance Scheme (SIS) and supplied in 2019. The gross block of the said ICT is ₹1157.51 lakh, inclusive of applicable taxes. The ICT was kept



as a Cold Spare at Patna Sub-station and is not part of any other transmission project. However, in this Petition, the Petitioner has claimed the capital cost as per the LOA dated 10.3.2023 of the new ICT supplied by M/s Toshiba for Ludhiana Sub-station. The petitioner is directed to revise the ACE claimed at the time of truing-up as per the procedure mentioned in para 30. Moreover, the ACE claimed by the Petitioner regarding the ICT is provisionally allowed, subject to review during the truing up, based on the Petitioner's submissions.

63. Therefore, as per Regulations 24(1)(a) and 24(1)(b) of the 2019 Tariff Regulations, the ACE allowed in respect of the transmission asset for the 2019-24 tariff period is as follows:

(₹ in lakh)

Particulars	Regulation	ACE allowed
		2023-24
Balance and retention payments for liabilities other than IDC	24(1)(a) and 24(1)(b) of the 2019 Tariff Regulations	1500.13
IDC Discharged after COD		1.78
Total ACE		1501.91

64. Accordingly, the ACE allowed in respect of the transmission asset, subject to truing up, is as under:

(₹ in lakh)

Capital Cost as on COD	ACE 2019-24	Capital Cost as on 31.3.2024
	2023-24	
189.45	1501.91	1691.36

Debt-Equity Ratio

65. Regulation 18 of the 2019 Tariff Regulations provides as follows:

“18. Debt-Equity Ratio: (1) For new projects, the debt-equity ratio of 70:30 as on date of commercial operation shall be considered. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that:

i. where equity actually deployed is less than 30% of the capital cost, actual



- equity shall be considered for determination of tariff:
- ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:
 - iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.

Explanation- The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

(2) The generating company or the transmission licensee, as the case may be, shall submit the resolution of the Board of the company or approval of the competent authority in other cases regarding infusion of funds from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, debt: equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

Provided that in case of a generating station or a transmission system including communication system which has completed its useful life as on or after 1.4.2019, if the equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, equity in excess of 30% shall not be taken into account for tariff computation;

Provided further that in case of projects owned by Damodar Valley Corporation, the debt: equity ratio shall be governed as per sub-clause (ii) of clause (2) of Regulation 72 of these regulations.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2019, the Commission shall approve the debt: equity ratio in accordance with clause (1) of this Regulation.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2019 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this Regulation.”

(6) Any expenditure incurred for the emission control system during the tariff period as may be admitted by the Commission as additional capital expenditure for determination of supplementary tariff, shall be serviced in the manner specified in clause (1) of this Regulation.”

66. The debt-equity ratio considered for the purpose of computation of the tariff for the 2019-24 tariff period in respect of the transmission asset is as under:



Particulars	Capital Cost as on COD (₹ in lakh)	(In %)	ACE during 2019-24 (₹ in lakh)	(In %)	Capital Cost as on 31.3.2024 (₹ in lakh)	(In %)
Debt	132.62	70.00	1051.33	70.00	1183.95	70.00
Equity	56.84	30.00	450.57	30.00	507.41	30.00
Total	189.45	100.00	1501.91	100.00	1691.36	100.00

Depreciation

67. Regulation 33 of the 2019 Tariff Regulations provides as under:

“33. Depreciation: (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system or element thereof including communication system. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units:

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of a transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:

Provided that the salvage value for IT equipment and software shall be considered as NIL and 100% value of the assets shall be considered depreciable;

Provided further that in case of hydro generating stations, the salvage value shall be as provided in the agreement, if any, signed by the developers with the State Government for development of the generating station:

Provided also that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff:

Provided also that any depreciation disallowed on account of lower availability of the generating station or unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life or the extended life.

(4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.



(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-I** to these regulations for the assets of the generating station and transmission system:

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

(6) In case of the existing projects, the balance depreciable value as on 1.4.2019 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2019 from the gross depreciable value of the assets.

(7) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure five years before the completion of useful life of the project along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure.

(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.

(9) Where the emission control system is implemented within the original scope of the generating station and the date of commercial operation of the generating station or unit thereof and the date of operation of the emission control system are the same, depreciation of the generating station or unit thereof including the emission control system shall be computed in accordance with Clauses (1) to (8) of this Regulation.

(10) Depreciation of the emission control system of an existing or a new generating station or unit thereof where the date of operation of the emission control system is subsequent to the date of commercial operation of the generating station or unit thereof, shall be computed annually from the date of operation of such emission control system based on straight line method, with salvage value of 10%, over a period of-

- a) twenty five years, in case the generating station or unit thereof is in operation for fifteen years or less as on the date of operation of the emission control system; or
- b) balance useful life of the generating station or unit thereof plus fifteen years, in case the generating station or unit thereof is in operation for more than fifteen years as on the date of operation of the emission control system; or
- c) ten years or a period mutually agreed by the generating company and the beneficiaries, whichever is higher, in case the generating station or unit thereof has completed its useful life."

68. The depreciation has been worked out considering the admitted capital cost as on COD and any additional capital expenditure thereafter. The Weighted Average Rate of Depreciation (WAROD) has been worked out as per the rates of depreciation



specified in the 2019 Tariff Regulations and is placed as Annexure-I to this order. The depreciation allowed for the transmission asset is as follows:

(₹ in lakh)

Sl. No.	Particulars	2023-24 (Pro-rata 310 days)
A	Opening Capital Cost	189.45
B	Addition during the year 2019-24 due to ACE	1501.91
C	Closing Capital Cost (A+B)	1691.36
D	Average Capital Cost (A+C)/2	940.40
E	Average Capital Cost (90% depreciable assets)	940.40
F	Average Capital Cost (100% depreciable assets)	0.00
G	Depreciable value (excluding IT equipment and software) (E*90%)	846.36
H	Depreciable value of IT equipment and software (F*100%)	0.00
I	Total Depreciable Value (G+H)	846.36
J	Weighted average rate of Depreciation (WAROD) (in %)	5.28
K	Balance useful life at the beginning of the year (Year)	25.00
L	Elapsed useful life at the beginning of the year (Year)	0.00
M	Depreciation during the year (D*J)	42.06
N	Cumulative Depreciation at the end of the year	42.06
O	Remaining Aggregate Depreciable Value at the end of the year (I-N)	804.31

Interest on Loan (IOL)

69. Regulation 32 of the 2019 Tariff Regulations provides as follows:

“32. Interest on loan capital: (1) The loans arrived at in the manner indicated in Regulation 18 of these regulations shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2019 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2019 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2019-24 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalisation of such asset.

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment



for interest capitalized:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered;

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

(5a) The rate of interest on loan for installation of emission control system shall be the weighted average rate of interest of actual loan portfolio of the emission control system or in the absence of actual loan portfolio, the weighted average rate of interest of the generating company as a whole shall be considered.

(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.

(7) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.”

70. The Weighted Average Rate of Interest on Loan (IOL) has been considered as claimed by the Petitioner. Accordingly, the IOL has been calculated based on the actual interest rate submitted by the Petitioner in the present Petition.

71. The following IOL has been worked out in accordance with Regulation 32 of the 2019 Tariff Regulations for the transmission asset:

(₹ in lakh)

	Particulars	2023-24 (Pro-rata 310 days)
A	Gross Normative Loan	132.62
B	Cumulative Repayments up to the Previous Year	0.00
C	Net Loan-Opening (A-B)	132.62
D	Additions	1051.33
E	Repayment during the year	42.06
F	Net Loan-Closing (C+D-E)	1141.89
G	Average Loan (C+F)/2	637.25
H	Weighted Average Rate of Interest on Loan (%)	7.5225
I	Interest on Loan (G*H)	40.60

Return on Equity (RoE)

72. Regulations 30 and 31 of the 2019 Tariff Regulations provide as under:



“30. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulation 18 of these regulations.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of-river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run-of-river generating station with pondage:

Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope, excluding additional capitalization on 7 account of emission control system, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system or in the absence of actual loan portfolio of the generating station or the transmission system, the weighted average rate of interest of the generating company or the transmission licensee, as the case may be, as a whole shall be considered, subject to ceiling of 14%.

Provided further that:

- i. *In case of a new project, the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC;*
- ii. *in case of existing generating station, as and when any of the requirements under (i) above of this Regulation are found lacking based on the report submitted by the concerned RLDC, rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;*
- iii. *in case of a thermal generating station, with effect from 1.4.2020:*
 - a) *rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute;*
 - b) *an additional rate of return on equity of 0.25% shall be allowed for every incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute, subject to ceiling of additional rate of return on equity of 1.00%;*

Provided that the detailed guidelines in this regard shall be issued by National Load Dispatch Centre by 30.6.2019.”

(3) The return on equity in respect of additional capitalization on account of emission control system shall be computed at the base rate of one year marginal cost of lending rate (MCLR) of the State Bank of India as on 1st April of the year in which the date of operation (ODE) occurs plus 350 basis point, subject to ceiling of 14%;”

“31. Tax on Return on Equity. (1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax paid on



income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded for the calculation of effective tax rate.

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

Where “t” is the effective tax rate in accordance with clause (1) of this Regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess.

Illustration-

(i) In case of a generating company or a transmission licensee paying Minimum Alternate Tax (MAT) @ 21.55% including surcharge and cess:

$$\text{Rate of return on equity} = 15.50 / (1 - 0.2155) = 19.758\%$$

(ii) In case of a generating company or a transmission licensee paying normal corporate tax including surcharge and cess:

- (a) Estimated Gross Income from generation or transmission business for FY 2019-20 is ₹ 1,000 crore;
- (b) Estimated Advance Tax for the year on above is ₹ 240 crore;
- (c) Effective Tax Rate for the year 2019-20 = ₹ 240 Crore / ₹ 1000 Crore = 24%;
- (d) Rate of return on equity = $15.50 / (1 - 0.24) = 20.395\%$.

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2019-24 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee, as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term customers, as the case may be, on year to year basis.”

73. The Petitioner has submitted that the MAT rate applies to it. Therefore, the applicable MAT rate has been considered when calculating RoE, which will be trued-up with the actual tax rate in accordance with Regulation 31(3) of the 2019 Tariff



Regulations. The RoE for the transmission asset has been determined and approved as follows:

(₹ in lakh)

	Particulars	2023-24 (Pro-rata 310 days)
A	Opening Equity	56.84
B	Additions	450.57
C	Closing Equity (A+B)	507.41
D	Average Equity (A+C)/2	282.12
E	Return on Equity (Base Rate) (%)	15.500
F	MAT Rate for respective year (%)	17.472
G	Rate of Return on Equity (%)	18.782
H	Return on Equity (D*G)	44.88

Operation & Maintenance Expenses (O&M Expenses)

74. The O&M Expenses claimed by the Petitioner for the transmission asset in the instant Petition for the 2019-24 tariff period are as under:

(₹ in lakh)

Particulars	2023-24 (Pro-rata 310 days)
<i>400 kV Sub-station</i>	
1no. of 500 MVA ICT	
Norms (Rs. lakh/bay)	0.411
O&M expenses claimed	174.06
Total O&M Expenses	174.06

75. The norms specified under Regulation 35(3)(a) of the 2019 Tariff Regulations provide as under:

“35. Operation and Maintenance Expenses:

(3) Transmission system: (a) The following normative operation and maintenance expenses shall be admissible for the transmission system:

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Norms for sub-station Bays (₹ Lakh per bay)					
765 kV	45.01	46.60	48.23	49.93	51.68
400 kV	32.15	33.28	34.45	35.66	36.91



Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
220 kV	22.51	23.30	24.12	24.96	25.84
132 kV and below	16.08	16.64	17.23	17.83	18.46
Norms for Transformers (₹ Lakh per MVA)					
765 kV	0.491	0.508	0.526	0.545	0.564
400 kV	0.358	0.371	0.384	0.398	0.411
220 kV	0.245	0.254	0.263	0.272	0.282
132 kV and below	0.245	0.254	0.263	0.272	0.282
Norms for AC and HVDC lines (₹ Lakh per km)					
Single Circuit (Bundled Conductor with six or more sub-conductors)	0.881	0.912	0.944	0.977	1.011
Single Circuit (Bundled conductor with four sub-conductors)	0.755	0.781	0.809	0.837	0.867
Single Circuit (Twin & Triple Conductor)	0.503	0.521	0.539	0.558	0.578
Single Circuit (Single Conductor)	0.252	0.260	0.270	0.279	0.289
Double Circuit (Bundled conductor with four or more sub-conductors)	1.322	1.368	1.416	1.466	1.517
Double Circuit (Twin & Triple Conductor)	0.881	0.912	0.944	0.977	1.011
Double Circuit (Single Conductor)	0.377	0.391	0.404	0.419	0.433
Multi Circuit (Bundled Conductor with four or more sub-conductor)	2.319	2.401	2.485	2.572	2.662
Multi Circuit (Twin & Triple Conductor)	1.544	1.598	1.654	1.713	1.773
Norms for HVDC stations					
HVDC Back-to-Back stations (₹ Lakh per 500 MW) (Except Gazuwaka BTB)	834	864	894	925	958
Gazuwaka HVDC Back-to-Back station (₹ Lakh per 500 MW)	1,666	1,725	1,785	1,848	1,913
500 kV Rihand-Dadri HVDC bipole scheme (₹ Lakh) (1500 MW)	2,252	2,331	2,413	2,498	2,586
±500 kV Talcher- Kolar HVDC bipole scheme (₹ Lakh) (2000 MW)	2,468	2,555	2,645	2,738	2,834
±500 kV Bhiwadi-Balia HVDC bipole scheme (₹ Lakh) (2500 MW)	1,696	1,756	1,817	1,881	1,947
±800 kV, Bishwanath-Agra HVDC bipole scheme (₹ Lakh)(3000 MW)	2,563	2,653	2,746	2,842	2,942

Provided that the O&M expenses for the GIS bays shall be allowed as worked



out by multiplying 0.70 of the O&M expenses of the normative O&M expenses for bays;

Provided further that:

- (i) the operation and maintenance expenses for new HVDC bi-pole schemes commissioned after 1.4.2019 for a particular year shall be allowed pro-rata on the basis of normative rate of operation and maintenance expenses of similar HVDC bi-pole scheme for the corresponding year of the tariff period;
- (ii) the O&M expenses norms for HVDC bi-pole line shall be considered as Double Circuit quad AC line;
- (iii) the O&M expenses of ± 500 kV Mundra-Mohindergarh HVDC bipole scheme (2500 MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for ± 500 kV Talchar-Kolar HVDC bi-pole scheme (2000 MW);
- (iv) the O&M expenses of ± 800 kV Champa-Kurukshetra HVDC bi-pole scheme (3000 MW) shall be on the basis of the normative O&M expenses for ± 800 kV, Bishwanath-Agra HVDC bi-pole scheme;
- (v) the O&M expenses of ± 800 kV, Alipurduar-Agra HVDC bi-pole scheme (3000 MW) shall be allowed as worked out by multiplying 0.80 of the normative O&M expenses for ± 800 kV, Bishwanath-Agra HVDC bi-pole scheme; and
- (vi) the O&M expenses of Static Synchronous Compensator and Static Var Compensator shall be worked at 1.5% of original project cost as on commercial operation which shall be escalated at the rate of 3.51% to work out the O&M expenses during the tariff period. The O&M expenses of Static Synchronous Compensator and Static Var Compensator, if required, may be reviewed after three years.

(b) The total allowable operation and maintenance expenses for the transmission system shall be calculated by multiplying the number of sub-station bays, transformer capacity of the transformer (in MVA) and km of line length with the applicable norms for the operation and maintenance expenses per bay, per MVA and per km respectively.

(c) The Security Expenses and Capital Spares for transmission system shall be allowed separately after prudence check:

Provided that the transmission licensee shall submit the assessment of the security requirement and estimated security expenses, the details of year-wise actual capital spares consumed at the time of truing up with appropriate justification."

76. We have considered the Petitioner's submissions. The O&M Expenses allowed in respect of the transmission asset for the 2019-24 tariff period are as under:

(₹ in lakh)	
Particulars	2023-24 (Pro-rata 310 days)
500 MVA, 400/220 kV ICT at Ludhiana S/S	
Norms (₹ lakh/bay)	0.411



O&M Expenses	174.06
Total O&M Expenses	174.06

Interest on Working Capital (IWC)

77. Regulation 34(1)(c), 34(3), 34(4), and 3(7) of the 2019 Tariff Regulations specify the following:

“34. Interest on Working Capital:

(1) The working capital shall cover:

(a) For Coal-based/lignite-fired thermal generating stations:

- (i) Cost of coal or lignite and limestone towards stock, if applicable, for 10 days for pit-head generating stations and 20 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;
- (ii) Advance payment for 30 days towards cost of coal or lignite and limestone for generation corresponding to the normative annual plant availability factor;
- (iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;
- (iv) Maintenance spares @ 20% of operation and maintenance expenses including water charges and security expenses;
- (v) Receivables equivalent to 45 days of capacity charge and energy charge for sale of electricity calculated on the normative annual plant availability factor; and
- (vi) Operation and maintenance expenses, including water charges and security expenses, for one month.

(aa) For emission control system of coal or lignite based thermal generating stations:

- (i) Cost of limestone or reagent towards stock for 20 days corresponding to the normative annual plant availability factor;
- (ii) Advance payment for 30 days towards cost of reagent for generation corresponding to the normative annual plant availability factor;
- (iii) Receivables equivalent to 45 days of supplementary capacity charge and supplementary energy charge for sale of electricity calculated on the normative annual plant availability factor;
- (iv) Operation and maintenance expenses in respect of emission control system for one month;
- (v) Maintenance spares @20% of operation and maintenance expenses in respect of emission control system.

(b) For Open-cycle Gas Turbine/Combined Cycle thermal generating stations:

- (i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;



- (ii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor, and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel;
- (iii) Maintenance spares @ 30% of operation and maintenance expenses including water charges and security expenses;
- (iv) Receivables equivalent to 45 days of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel; and
- (v) Operation and maintenance expenses, including water charges and security expenses, for one month.

(c) For Hydro Generating Station (including Pumped Storage Hydro Generating Station) and Transmission System:

- (i) Receivables equivalent to 45 days of annual fixed cost;
- (ii) Maintenance spares @ 15% of operation and maintenance expenses including security expenses; and
- (iii) Operation and maintenance expenses, including security expenses for one month.

(2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this Regulation shall be based on the landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 39 of these regulations) by the generating station and gross calorific value of the fuel as per actual weighted average for the third quarter of preceding financial year in case of each financial year for which tariff is to be determined:

Provided that in case of new generating station, the cost of fuel for the first financial year shall be considered based on landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 39 of these regulations) and gross calorific value of the fuel as per actual weighted average for three months, as used for infirm power, preceding date of commercial operation for which tariff is to be determined.

(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2019 or as on 1st April of the year during the tariff period 2019-24 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later:

Provided that in case of truing-up, the rate of interest on working capital shall be considered at bank rate as on 1st April of each of the financial year during the tariff period 2019-24.

(4) Interest on working capital shall be payable on normative basis notwithstanding that the generating company or the transmission licensee has not taken loan for working capital from any outside agency.”

“3. Definitions. - In these regulations, unless the context otherwise requires:-

‘Bank Rate’ means the onex year marginal cost of lending rate (MCLR) of the State Bank of India issued from time to time plus 350 basis points;”



78. The Petitioner has submitted that it has claimed IWC for the 2019-24 period, considering the SBI Base Rate plus 350 basis points as on 1st April of the year in which the transmission asset is declared under commercial operation, i.e., on 1.4.2023. Accordingly, the Petitioner has considered the rate of IWC as 12.00% for the transmission asset. IWC is worked out in accordance with Regulation 34 of the 2019 Tariff Regulations. The rate of IWC considered is 12.00% (SBI 1-year MCLR applicable) as on 1.4.2023, of 8.50% plus 350 basis points for the 2023-24. The components of the working capital and interest allowed thereon with respect to the transmission asset are as follows:

(₹ in lakh)

	Particulars	2023-24 (Pro-rata 310 days)
A	Working Capital for O&M Expenses (O&M Expenses for 1 month)	17.13
B	Working Capital for Maintenance Spares (15% of O&M Expenses)	30.83
C	Working Capital for Receivables (Equivalent to 45 days of annual transmission charges)	45.15
D	Total Working Capital (A+B+C)	93.10
E	Rate of Interest (in %)	12.00
F	Interest on Working Capital (D*E)	9.46

Annual Fixed Charges for the 2019-24 Tariff Period

79. The following transmission charges allowed for the transmission asset for the 2019-24 tariff period are as under:

(₹ in lakh)

Particulars	2023-24 (Pro-rata 310 days)
Depreciation	42.06
Interest on Loan	40.60
Return on Equity	44.88
O&M Expenses	174.06
Interest on Working Capital	9.46



Particulars	2023-24 (Pro-rata 310 days)
Total	311.06

Filing Fee and the Publication Expenses

80. The Petitioner has sought reimbursement for the fee paid for filing the Petition and publication expenses. The Petitioner shall be entitled to recover the filing fees and publication costs related to this Petition, directly from the beneficiaries on a pro-rata basis in accordance with Regulation 70(1) of the 2019 Tariff Regulations.

Licence Fee & RLDC Fees and Charges

81. The Petitioner shall be entitled to reimbursement of the licence fee in accordance with Regulation 70(4) of the 2019 Tariff Regulations for the 2019-24 tariff period. The Petitioner shall also be entitled to recover RLDC fees and charges in accordance with Regulations 70(3) of the 2019 Tariff Regulations for the 2019-24 tariff period.

Goods and Services Tax

82. The Petitioner has submitted that, if GST is levied at any rate and at any time in the future on charges for the transmission of electricity, the same shall be borne and additionally paid by the Respondent(s) to the Petitioner, and the Petitioner shall charge and bill it separately. Furthermore, any additional taxes, if applicable, resulting from demands by the Government/Statutory authorities, may be allowed to be recovered from the beneficiaries.

83. We have considered the Petitioner's submissions. Since GST is not levied on transmission service at present, we are of the view that the Petitioner's prayer is premature.



Security Expenses

84. The Petitioner has submitted that security expenses for the transmission asset are not claimed in the instant Petition, and it will file a separate Petition to claim the overall security expenses and the consequential IWC.

85. We have considered the submissions of the Petitioner. The Petitioner has claimed consolidated security expenses on a projected basis for the 2019-24 tariff period on the basis of actual security expenses incurred in the year 2018-19 in Petition No. 260/MP/2020. The Commission vide order dated 3.8.2021 in Petition No. 260/MP/2020 approved the security expenses from 1.4.2019 to 31.3.2024. Therefore, security expenses will be shared in terms of the order dated 3.8.2021 in Petition No. 260/MP/2020. Accordingly, the Petitioner's prayer in the instant Petition to allow it to file a separate Petition for claiming overall security expenses and consequential IWC has become infructuous.

Capital Spares

86. The Petitioner has sought reimbursement of capital spares at the end of the tariff period. The Petitioner's claim, if any, shall be dealt with in accordance with the provisions of the 2019 Tariff Regulations.

Sharing of Transmission Charges

87. The billing, collection and disbursement of the transmission charges approved shall be governed by the provisions of Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) Regulations, 2020, as amended from time to time as provided in Regulation 57 of the 2019 Tariff Regulations for the 2019-24 tariff period.



Interim Tariff

88. The Petitioner in the present Petition has prayed for an interim tariff in accordance with Regulation 10(3) of the 2019 Tariff Regulations.

89. We have considered the Petitioner's submissions. Since the tariff has already been determined for the 2019-24 period, the Petitioner's request for an interim tariff has become infructuous.

90. To summarise, the AFC claimed by the Petitioner and the Annual Fixed Charges allowed for the transmission asset for the 2019-24 tariff period in this order are as follows:

(₹ in lakh)	
Particulars	2023-24 (Pro-rata 310 days)
AFC claimed	311.05
AFC allowed	311.06

91. The Annexure-I to this order forms part of the order.

92. This order disposes of Petition No. 360/TT/2023 in terms of the above findings and discussions.

sd/-
(Harish Dudani)
Member

sd/-
(Ramesh Babu V.)
Member

sd/-
(Jishnu Barua)
Chairperson



ANNEXURE-I

2019-24	Admitted Capital Cost as on 1.4.2019 (₹ in lakh)	Projected ACE (₹ in lakh)			Admitted Capital Cost as on 31.3.2024 (₹ in lakh)	Rate of Depreciation as per Regulations (%)	Annual Depreciation as per Regulations (₹ in lakh)
Capital Expenditure		2022-23	2023-24	Total			2023-24
Sub-station	189.45	0.00	1501.91	1501.91	1691.36	5.28	49.65
Total	189.45	0.00	1501.91	1501.91	1691.36		49.65
					Average Gross Block (₹ in lakh)		940.40
					Weighted Average Rate of Depreciation (%)		5.28

