Before
UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 61 of 2025

In the Matter of:

Investment Approval for DPR of "Increasing capacity of 220 kV Substation SIDCUL, Haridwar from 2x80 (132/33 kV) MVA transformer to 3 X 80 (132/33 kV) transformer".

And

In the Matter of:

Power Transmission Corporation of Uttarakhand Limited (PTCUL)
Vidyut Bhawan, Near ISBT Crossing,
Saharanpur Road, Majra,
Dehradun

...**Petitioner**

Coram

Shri M.L. Prasad	**Chairman**
Shri Anurag Sharma	**Member (Law)**
Shri Prabhat Kishor Dimri	**Member (Technical)**

Date of Order: April 13, 2026

ORDER

This Order relates to the Petition filed by Power Transmission Corporation of Uttarakhand Ltd. (hereinafter referred to as "PTCUL" or "the Petitioner") vide letter No. 1794/Dir. (Operations)/PTCUL/dated 26.10.2024 for Increasing capacity of 220 kV Substation SIDCUL, Haridwar from 2x80 (132/33 kV) MVA transformer to 3x80 MVA (132/33 kV) transformer by procurement, installation, testing & commissioning of 01 no. 80 MVA transformer & it's associated work at 220 kV substation SIDCUL, Haridwar under Para 11 of Transmission Licence. [Licence No. 1 of 2003].

1. Background

1.1. In the aforesaid Petition, the Petitioner has submitted the following proposal for investment approval:

Particulars	Total Project Cost as per DPR (including IDC) (in Crore)
Increasing capacity of 220 kV Substation SIDCUL, Haridwar from 2x80 (132/33 kV) MVA transformer to 3x80 (132/33 kV) transformer.	26.19

1.2. The Petitioner has submitted a copy of the extract of Minutes of 94th meeting of the Board of Directors (BoD) of PTCUL held on 26.09.2024, wherein the Petitioner's Board has approved the Corporation's aforesaid proposals as stated below:

> *"After consideration, the Board passed following resolution unanimously.*
> *RESOLVED THAT the consent of the Board be and is hereby accorded to approve the revised Detailed Project Report for increasing capacity of 220 KV Substation SIDCUL, Haridwar from 2X80 MVA (132/33 KV) Transformer to 3X80 MVA (132/33 KV) transformer at a total scheme cost of Rs 26.19 Cr with IDC and Rs. 25.35 Cr. without IDC.*
> *RESOLVED FURTHER THAT the DPR submitted and approved in the 92nd Bod meeting held on 27/08/2024 vide agenda item no. 92.27 on the same project shall be treated null and void shall be deemed to have been withdrawn by the management.*
> *RESOLVED FURTHER THAT the aforesaid revised DPR be submitted to Hon'ble UERC for investment approval.*
> *RESOLVED FURTHER THAT Managing Director, Director (Operations) or any other functional Director jointly and severally are hereby authorized to sign, seal and certifies all the documents, petitions and all other legal papers that might be required for sending the proposal for investment approval for signing all clarifications and to do all others such legal acts may be necessary to be acted upon in furtherance of the investment approval.*
> *RESOLVED FURTHER THAT the Managing Director and/or Director Finance and/or Company Secretary be and are hereby jointly and severally authorized to approach to REC/PFC/NABARD/HUDCO/Nationalized Banks and other financial*

institution as they deem fit and proper and tie-up the loan component with a debt equity ratio of 70:30.

RESOLVED FURTHER THAT the Managing Director and/or Director (Finance) and/or Company Secretary be and are hereby jointly and severally authorized to accept the lowest interest rates offered by the institution along with other suitable terms and conditions and execute the loan documents along with other legal papers, under the common seal of the Company wherever required, creation of charge by following the prescribed procedure of law.

RESOLVED FURTHER THAT all legal deeds and documents as may be executed and such other legal acts as may be performed by the Managing Director. Director (Finance) and Company Secretary in connection with obtaining the aforesaid loan shall be deemed to have been approved by the board of Director for which the board hereby undertake to ratify and confirm.

RESOLVED FURTHER THAT the action so taken shall be brought before the Board for their information."

1.3. To justify the need of the proposed work, the Petitioner through its Petition has submitted his submission is as follows:

"220/132/33 KV Substation SIDCUL, Haridwar is one of the important grid substations of PTCUL which was commissioned in year 2005-06. Presently there are 02 nos. 80 MVA, 132/33 kV Transformers on 132 KV Bus's and 01 nos. 50 MVA (220/33 kV) & 01 nos. 25 MVA (220/33 kV) Transformers on 220 KV Buses are installed respectively, which caters the load requirement of domestic, commercial, industrial as well as consumers of Haridwar town. The details of 33 KV feeders which connected from 80 MVA (132/33 kV) Transformer-Ist and 80 MVA (132/33 KV) Transformers-IInd at 220 KV Substation SIDCUL, Haridwar is as follows: -

a)	*33 KV Line No. 1*	*: 28 MVA*
b)	*33 KV Line No. 2*	*: 0 MVA*
c)	*33 KV Line No. 3*	*: 33 MVA*
d)	*33 KV Line No. 4*	*: 29 MVA*
e)	*33 kV Line No. 5*	*: 28 MVA*
f)	*33 KV Line No. 6*	*: 02 MVA*
g)	*33 KV Line No. 7*	*: 22 MVA*
h)	*33 KV Line No. 8*	*: 05 MVA*
i)	*33KV Line No. 9*	*: 06 MVA*
	Total Connected Load	***: 153 MVA***

Presently the running load on both 80 MVA (132/33 KV) Transformers is approximately 95-100% of total capacity of these transformers. The chart shows the maximum load on transformers and average load growth in the last four years at 220 KV Substation SIDCUL, Haridwar (enclosed with DPR for reference). Keeping in view growth in load demand in recent times, it is very essential to increase the transformer capacity of substation including other necessary related works. Therefore, a proposal is being consisting of the following works which are required to be carried out for system strengthening of 220 KV Substation SIDCUL, Haridwar.

a) Increasing capacity of 220 KV Sub-station SIDCUL, Haridwar form 2X80(132/33 kV) MVA Transformer to 3X80(132/33 kV) MVA Transformer by procurement, installation and testing & commissioning of 01 No. additional 80 MVA (132/33 KV) Transformer in parallel with 2x80(132/33 KV) MVA Transformer at 220 KV S/S SIDCUL, Haridwar.

Hence this proposal for installation of 01 No. additional 80 MVA (132/33 KV) Transformer in parallel with 2x80(132/33 kV) MVA Transformer at 220 KV S/S SIDCUL, Haridwar.

The estimate of the above-mentioned work has been made on actual basis and rates have been taken from approved Schedules Rate of PTCUL, previous Agreement/ Orders of PTCUL & current market rates."

1.4. The Petitioner in its Petition has mentioned that the estimated cost proposed in the DPR has been prepared on the basis of the PTCUL's SoR 2024-25.

1.5. The Petitioner in its Petition has enclosed the Bar chart for the project with an execution period of 17 months from the date of award of the contract. Further, the Petitioner under the financial analysis has projected an IRR of 15.07% with breakeven in the 10th year of operations.

1.6. On examination of the proposal submitted by the Petitioner, certain queries were raised on the deficiencies/shortcomings observed in the Petition, which were communicated to the Petitioner vide the Commission's letter dated 19.09.2025. In response to the queries, the Petitioner, through its letter dated 22.09.2025 submitted the reply to the Commission. The queries and respective replies are as follows:

Query 1	In the Petition, it has been proposed that the source of financing will be 70% through a loan from REC and 30% through equity from the Government of Uttarakhand (GoU). In this regard, PTCUL is required to submit supporting documents/approval letters from REC and GoU confirming their commitment to the proposed
Reply 1	*The sanction of loan against the work of "Increasing capacity of 220 KV Sub-station SIDCUL, Haridwar form 2X80 (132/33KV) Transformer to 3X80 MVA (132/33KV) Transformer at 220 KV Sub-station SIDCUL, Haridwar" has already been forwarded to the financial institutions for funding against the work on dated 25.08.2025 (copy enclosed) (Annex-1, 04 page). The equity will be arranged through demanding under annual budget FY-2026-27 from Government of Uttarakhand FROM GOU.*
Query 2	While discussing the overloading situation in the substation, PTCUL has not provided: a) Details of the conductors used and load flow data in the associated 220 kV and 132 kV lines. b) Clarification on whether the additional capacities proposed (i.e., 25 MVA in 220/33 kV and 80 MVA in 132/33 kV systems) would not result in overloading the upstream network. Further, PTCUL must clarify how N-1 reliability will be ensured at the 220 kV level, considering the downstream capacity will increase to 240 MVA, while the upstream has only 2 x 160 MVA transformers.
Reply 2	*a) Details of the conductors used are as under:* *i) ACSR Zebra conductor for 220 KV lines.* *ii) ACSR Panther conductor for 132 KV lines.* *Load flow data of associated 220 kV and 132 kV lines enclosed (Annex-2, 01 page).* *b) 80 MVA transformers are connected to 132 kV Bus which are feeded through 2x160 MVA transformers and 132 kV lines, therefore the additional capacity proposed (i.e., 80 MVA in 132/33 kV systems) would not result in overloading the upstream network.*

	Maximum loading of transformers at substation happens during peak hours. Off peak hours loading is at about 80-85% of the total capacity. 3x80 MVA transformers are sufficient to meet out N-1 contingency. At 220 KV level 02 sources are available to meet-out the N-1 contingency.
Query 3	In the proposed single line chart (Page No. 7 of the DPR), no provision for an additional 33 kV Bus has been shown, despite equipment and works being proposed for the same in the estimate. Additionally, in the estimate, two sets of 33 kV CTs are mentioned with ratios of: • 1600/800/400/1 A, and • 800/400/1 A PTCUL is required to: a) Explain the requirement for two sets of CTs, as erection costs have also been considered. b) Justify the inclusion of the 800/400/1 A CT with transformer of 80 MVA capacity.
Reply 3	*In the estimate, two sets of 33 kV CTs are mentioned with ratios of:* • *1600/800/400/1 A, and* • *800/400/1 A* *a) 1600/800/400/1 A CT's are required for 80 MVA Transformer LV side.* *b) 800/400/1 A CT's are required for additioanal 33 kV feeder bay.* *Revised SLD of 132/33 kV Bus submitted by PTCUL*
Query 4	PTCUL has proposed the procurement, installation, testing, and commissioning of an 80 MVA transformer at the 132/33 kV SIDCUL substation. In this regard, PTCUL must submit the following: a. Justification on how T-1 contingency will be maintained, considering the existing 2 x 80 MVA transformers are already operating at 95-100% capacity.

	b. The basis for consideration of 80 MVA for the proposed augmentation. c. Details of conductors used in the 33 kV busbars of the substation. d. Technical specifications of the proposed 80 MVA transformer to be issued for the bidding process
Reply 4	*a) Maximum loading of transformers (95-100%) at substation happens during peak hours. Off peak hours loading s regard, is at about 80-85% of the total capacity. 3x80 MVA transformers are sufficient to meet out T-1 contingency. At 220 KV level 02 sources are available to meet-out the N-1 contingency.* *Also augmentation work of 132 kV substation Jwalapur by additional 40 MVA transformer is ongoing, which will also cater to increase in load demand of nearby area of SIDCUL. Therefore 3x80 MVA transformer will maintained the T-1 contingency.* *b) Due to the following reasons 3x80 MVA transformer was proposed:* *i. Considering projected load growth of SIDCUL industrial area* *ii. Considering overloading of transformer during peak hours.* *iii. Considering request by Director (Operation) UPCL vide letter no. 1917 dt. 21.05.2024 and EE (UPCL) SIDCUL, Haridwar vide letter no. 1601 dt. 26.08.2024 copy submitted by PTCUL.* *c) Details of conductors used in the 33 kV busbars of the substation is as follows. Main Bus: Quad Moose, Transfer Bus: Twin Moose* *d) TS submitted by PTCUL.*
Query 5	PTCUL has submitted the load details of the 09 nos. 33 kV feeders emanating from the 220/33 kV SIDCUL substation. In this regard, PTCUL is required to submit the names of the connected loads on each feeder alongwith Month-wise maximum load (in amperes) for each feeder for the last 2 years.
Reply 5	*load details of the 09 nos. 33 kV feeders submitted by PTCUL.*

<table>
<tr><td>Query 6</td><td>PTCUL has submitted that the existing transformers are operating at nearly 100% capacity. In this regard, PTCUL must provide a summary of major overload instances during the past 1 year using the table format below, specifically where roistering was required in a 33 kV system:
<table><tr><th>S.No.</th><th>Date</th><th>Time of Instance</th><th>Duration (in minutes)</th><th>Detail of Instance (Outage/Tripping)</th></tr><tr><td></td><td></td><td></td><td></td><td></td></tr></table></td></tr>
<tr><td>Reply 6</td><td>During overloading of 80 MVA Transformers PTCUL request to UPCL for load sheding 5-10 MW from UPCL end to avoid the overloading of Transformers.</td></tr>
<tr><td>Query 7</td><td>PTCUL has submitted that the proposed augmentation will meet future load growth. In this regard, PTCUL is required to submit the projected load growth for the SIDCUL substation over the next 3 years alongwith supporting documents substantiating the projection.</td></tr>
<tr><td>Reply 7</td><td>Projected load growth for the SIDCUL substation over the next 3 years submitted by PTCUL.</td></tr>
<tr><td>Query 8</td><td>PTCUL has attached a copy of letter no. 5163, dated 28.12.2023 from the Director (Operations), UPCL to the Managing Director, PTCUL to support the request for an additional 80 MVA transformer. However, the letter does not request this increment. Instead, it only seeks enhancement from 25 MVA to 50 MVA, which has already been allowed by the Commission vide Order dated 30.07.2025.

Therefore, PTCUL must clarify why such a misleading letter has been submitted and also needs to explain whether further capacity enhancement is required beyond the sanctioned 25 MVA to 50 MVA upgradation for the 220/33 kV system.</td></tr>
<tr><td>Reply 8</td><td>Director Operation UPCL also requested vide letter no. 1917 dt. 21.05.2024 to increase the capacity of substation by augmentation which transformer are running more than 50% loding copy submitted by PTCUL</td></tr>
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2. Commission's Observations, Views and Directions:

2.1. Based on the submissions made in the Petition and subsequent submissions of the Petitioner, the Commission observed the following:

2.1.1 The 220/132/33 kV substation SIDCUL, Haridwar, was commissioned during the year 2005–06 and serves as a key node in the transmission network catering to the power requirements of domestic, commercial, and industrial consumers in and around Haridwar.

At present, the total installed transformation capacity of the 220/132/33 kV substation SIDCUL, Haridwar is 235 MVA comprising of 02 nos. of 80 MVA transformers at 132/33 kV, 01 no. of 50 MVA and 01 no. of 25 MVA transformer at 220/33 kV, whereas the total connected load is 396.80 MVA.

Further, the maximum load recorded at the substation is 240 MVA, which corresponds to approximately 102.13% of the installed capacity.

2.1.2 The Petitioner has submitted that total 09 nos. of 33 kV feeders are fed from the 2 X 80 MVA (132/33 kV) transformers and maximum load recorded was 698 Ampere in June, 2025 against the total rated capacity 700 Ampere of 2X80 MVA Transformer, which corresponds to 100% loading on each 80 MVA transformer and such loading, though permissible for short durations under emergency or contingency conditions but is not advisable for prolonged operation. This necessitates augmentation of transformation capacity to ensure reliable and secure operation of the system.

2.1.3 The Petitioner w.r.t. the load growth has submitted that presently, the average load on the 2X80 MVA (132/33 kV) transformers at 220/132/33 kV Substation, SIDCUL, Haridwar, is about 100% of its rated capacity and considering an annual load growth rate of 6%-8% the projected load is as follows:

Year	Transformer I (80 MVA)	Transformer II (80 MVA)
2025-26 (Actual)	349 A	349 A
2026-27 (Projected)	371 A	371 A
2027-28 (Projected)	393 A	393 A

Further, the petitioner has submitted that considering the preparations of State Government, it appears that the upcoming Kumbh Mela, 2027 is proposed to be celebrated in Grand manner, inspired by huge success of Prayagraj Kumbh, 2025. Given this grandeur, an unprecedented increase in the number of devotees (pilgrims) is estimated. Accordingly, a proportionate increase in electricity consumption is expected corresponding to floating population in Kumbh Mela, 2027.

2.1.4 In order to further assess and substantiate the requirement of the proposed augmentation works at 132/33 kV Substation SIDCUL, Haridwar, on the direction of the Commission, PTCUL and UPCL made a joint presentation justifying the necessity of the proposed scheme. In aforesaid presentation, UPCL made the following submissions w.r.t. requirement of the proposed work:

a) At present, nine (09) numbers of 33 kV feeders with total contracted load of 348.35 MW (till March 2025) are emanating from the 132 kV Substation SIDCUL, Haridwar.

b) The maximum recorded load of all 33 kV feeders of 132/33 kV substation is 160.17 MVA.

c) Based on past demand trends, the estimated load growth rate has been projected at 2% per annum for the ensuing years, which is expected to result in an increase in the energy requirement from 348.353 MW from March, 2025 to 355.32 MW by March, 2026.

d) During the Kumbh-2027, it is expected to get additional load on the 132 kV S/s SIDCUL, Haridwar.

2.1.5 The Petitioner has submitted that in present scenario it is very difficult to maintain the T-1 contingency, due to persistent high loading conditions at 132 kV S/s SIDCUL, Haridwar. As a result, UPCL has been compelled to undertake unscheduled rostering of certain feeders to manage the demand and in the event any one of the 80 MVA transformers trips or is taken out of service, the remaining two transformers would not have sufficient spare capacity to accommodate the entire load, which will result in overloading of

the in-service transformers, thereby compromising the reliability and security of supply under T–1 contingency condition, however, Post implementation of the proposed 80 MVA T/f at the 132 kV Substation SIDCUL, Haridwar, the total installed transformation capacity shall increase to 240 MVA at the 132 kV level and thereby able to handle the load in the event of failure of any one of the 80 MVA Transformer.

2.1.6 Based on the submissions made by the Petitioner for the said work, the reasons and benefits stated by Petitioner are summarised as follows:

1. The proposed augmentation works, shall strengthen the transmission system, thereby ensure uninterrupted power supply and enhance the overall reliability and quality of power.
2. It will facilitate handling of exponential load growth in the system by increasing the power evacuation capacity to downstream substations, thereby ensuring adequacy of supply under present and future demand scenarios.
3. Enhanced power handling capability that would provide adequate and reliable power supply for socio-economic growth of the region.
4. Improved voltage profile, leading to better consumer satisfaction.
5. There would be over all strengthening of transmission system in Garhwal region.

2.2. With regard to funding of the project, the Petitioner vide its letters dated 25.08.2025 has requested for 70% loan of the project cost from PFC/REC/NABARD/HUDCO, while, regarding the equity portion, it has stated that the entire 30% equity will be funded by the Government of Uttarakhand which shall be required in phases as per the progress of project during the entire completion schedule of the project. Hence, the year wise equity requirement against the above project will be demanded from Government of Uttarakhand (GoU) through State budget by submitting annual plan to the GoU, as it has been done for all earlier projects. However, PTCUL has not provided any supporting documents from Government of Uttarakhand in this regard.

2.3. The Commission, after due examination of the submissions made by the Petitioner and the material placed on record, is of the considered view that the proposed augmentation works are necessary in the interest of maintaining system reliability and adequacy. The proposed augmentation is expected to cater to the existing demand as well as the projected future load growth in the region, enhancing the overall power-handling capability of the system. The Commission also finds that the proposed works would strengthen the transmission network in the Garhwal region, facilitate reliable power supply to a larger consumer base, and improve system robustness to meet upcoming demand. Accordingly, the proposed works are found to be justified and necessary.

Further, the Commission observes that a contingency scenario may arise during future operational planning under the T–1 condition. In the event of an outage of any one of the 80 MVA transformers, the available substation capacity would reduce to 160 MVA. At present, the maximum loading on the 132/33 kV substation is around 160.17 MVA and considering 6% to 8% load growth the maximum loading in ensuing year would be around 170 MVA to 180 MVA. Hence, the remaining available capacity would be insufficient to meet the load demand. Accordingly, the T–1 contingency criterion does not seem to be satisfied. In view of the requirement for T-1 contingency, the Commission is of the considered view that adhering to the T–1 planning standards being essential to ensure system reliability, grid security, and continuity of supply, the Commission considers necessary to direct the Petitioner to undertake all necessary measures to ensure that the substation remains fully compliant with the T–1 contingency requirement, even in the event of an outage of any transformer. The Petitioner shall submit a detailed contingency plan to the Commission within 30 days from the date of this Order.

Further, the Commission feels a need for meticulous planning of load management and effective coordination with UPCL during the implementation phase, especially in relation to the erection and commissioning of the 80 MVA transformer, so as to ensure uninterrupted power supply to all affected areas. Therefore, Petitioner shall meticulously plan for load management and

effectively coordinate with UPCL during implementation and shall also submit detailed quarterly progress reports to the Commission, covering implementation status, outage management measures, and contingency planning, until completion of the project.

2.4. The Petitioner has considered the Price Contingencies @ 6.8%, Contingency @ 3% and Project Overheads @ 5% in the DPR. The Commission has not considered Price Contingencies @ 6.8% and instead in order to maintain uniformity with recent investment approvals, calculated the total project cost considering only Contingency @ 3% and Project Overheads @ 5%, based on past Commission practice.

Further, as the issue of SoR revisions is currently under deliberation before the Commission, the revised rates in SoR of FY 2024-25 cannot be considered final. Accordingly, estimates based on these rates are also provisional in nature. After finalizing the SoR, the Commission will carry out a prudence check of the costs incurred and financing thereof, in accordance with Licence conditions and MYT Regulations during ARR scrutiny.

2.5. The Commission hereby grants in-principle approval for Rs. 23.91 Crore (including IDC) as shown in the table given below subject to fulfilment of the conditions mentioned below:

Capital Cost Approved by the Commission

Name of the work	**Project Cost including IDC as per DPR (Rs. Crore)**	**Project Cost Considered by the Commission (including IDC) (Rs. Crore)**
Investment Approval for DPR of "Increasing capacity of 220 kV Substation SIDCUL, Haridwar from 2x80 (132/33 kV) MVA transformer to 3 x 80 (132/33 kV) transformer	26.19	23.91

(i) The Petitioner shall undertake competitive bidding for obtaining the most economical prices from bidders.

(ii) All loan conditions as may be laid down by the funding agency in their detailed sanction letter shall be strictly complied with.

(iii) The Petitioner shall undertake all necessary measures to ensure that the substation remains fully compliant with the T–1 contingency requirement, even in the event of an outage of any transformer. The Petitioner shall submit a detailed contingency plan to the Commission within 30 days from the date of this Order.

(iv) The Petitioner shall meticulously plan for load management and effectively coordinate with UPCL during implementation and shall also submit detailed quarterly progress reports to the Commission, covering implementation status, outage management measures, and contingency planning, until completion of the project.

(v) Upon completion of the aforesaid project, the Petitioner shall submit the completed cost and financing details of the project.

(vi) The cost of servicing the project shall be allowed in the Annual Revenue Requirement of the petitioner after the assets are capitalized and subject to prudence check of the cost incurred.

(vii) The estimates based on these rates are also provisional in nature. After finalizing the SoR, the Commission will carry out a prudence check of the costs incurred and financing thereof, in accordance with Licence conditions and MYT Regulations during ARR scrutiny.

2.6. The approval is given subject to the above conditions and on the basis of submissions and statement of facts made by the Petitioner in the Petition under affidavit, therefore, violations of the condition and in case any information provided, if at any time, later on, is found to be incorrect, incomplete or relevant information was not disclosed, and which materially affects the basis for granting the approval, in such cases the Commission may cancel the approval or refuse to allow the expenses incurred in the ARR/True-up apart from initiating plenary action.

Ordered accordingly.

(Prabhat Kishor Dimri)	**(Anurag Sharma)**	**(M.L. Prasad)**
Member (Technical)	**Member (Law)**	**Chairman**