Before
UTTARAKHAND ELECTRICITY REGULATORY COMMISSION
Petition No. 95 of 2025

In the Matter of:

Investment Approval for revised DPR of "Supply, Erection, Testing and commissioning of 220 kV Hybrid Bay for 220 kV Piran Kaliyar-Puhana Ckt-III at 220 kV Substation Piran Kaliyar (Imlikhera)".

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: **February 02, 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. 1183/Dir. (Operations)/PTCUL/UERC dated 10.06.2025 for "Supply, Erection, Testing and commissioning of 220 kV Hybrid Bay for 220 kV Piran Kaliyar-Puhana Ckt-III at 220 kV Substation Piran Kaliyar (Imlikhera)" 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)
Supply, Erection, Testing and commissioning of 220 kV Hybrid Bay for 220 kV Piran Kaliyar-Puhana Ckt-III at 220 kV Substation Piran Kaliyar (Imlikhera)	11.05

1.2. The Petitioner has submitted a copy of the extract of Minutes of 98th meeting of the Board of Directors (BoD) of PTCUL held on 07.02.2025, 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 Repot for Supply, Erection, Testing and commissioning of 220 kV Hybrid Bay for 220 kV Piran Kaliyar-Puhana Ckt-III at 220 kV Substation Piran Kaliyar (Imlikhera) at a total scheme cost of Rs. 11.05 Cr. with IDC and Rs. 10.79 Cr. without IDC.*
>
> *RESOLVED FURTHER THAT the aforesaid revised DPR is submitted to Hon'ble UERC for investment approval.*
>
> *RESOLVED FURTHER THAT the Managing Director and/ or Director (Finance) and /or Director (Operation) 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."*

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

> *"…*
>
> *220 KV Substation Piran Kaliyar (Imlikhera) is an important substation of Haridwar District which was commissioned on dated 23.09.2018 and it supplies power to the 220 kV Substation SIDCUL, 132 kV Substation Bhagwanpur, 132 KV Substation Chudiyala, and nearby urban, rural and industrial areas.*

At present there are 04 Nos. of 220 kV Lines terminating at 220 kV Substation Piran Kaliyar (Imlikhera) details of which are given below with their maximum load recorded:

S.No.	Name of Transmission Line	Max Load (Amp)
1	220 kV Piran Kaliyar-SIDCUL Line	777
2	220 kV Piran Kaliyar-Puhana Line (Ckt-1)	473
3	220 kV Piran Kaliyar-Puhana Line (Ckt-II)	671
4	220 kV Piran Kaliyar-Puhana Line (Ckt-III)	N/A

Out of which 03 Nos. 220 kV Lines are connected to the 220 KV Substation Piran Kaliyar while 01 No. 220 kV line i.e. 220 kV Piran Kaliyar-Puhana Line Ckt-III is not connected to the Substation due to non-availability of 220 kV bay at 220 kV Substation Piran Kaliyar

The current carrying capacity of the 220 kV lines is about 800 Amp (ACSR Zebra conductor) and from the above table it can be clearly seen that the maximum load recorded on 220 kV Piran Kaliyar-Puhana Line Ckt-I & II are 473 Amp and 629 Amp respectively which is approx. 59% and 84% of the line loading capacity. Further, the chart showing the maximum load recorded on 220 kV lines emanating from 220 kV Substation Piran Kaliyar during past four years and present year is enclosed herewith as Annex-A, B & C.

The expected load growth in future is approximately 10% per annum.

Keeping in view the growth in load demand of future it is thus important to utilize the 220 kV Piran Kaliyar-Puhana Line (Ckt-III) by Supply, Erection, Testing and commissioning of 220 kV Hybrid Bay at 220 kV Substation Piran Kaliyar (Imlikhera)."

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 07 months from the date of award of the contract. Further, the Petitioner under the financial analysis has projected an IRR of 16.41% 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 25.11.2025. In response to the queries, the Petitioner, through its letter dated

18.12.2025 submitted the reply to the Commission. The queries and respective replies are as follows:

Query 1	In the Petition, it is proposed to construct the 220 kV hybrid bay for 220 kV Piran Kaliyar-Puhana Ckt-III at 220 kV S/s Piran Kaliyar (Imlikhera), in this regard, submit the: a. Reason proposing the Hybrid Bay at 220 kV S/s Piran Kaliyar (Imlikhera). b. Technical specification with their types of already constructed bays in the 220 kV S/s Piran Kaliyar (Imlikhera). c. Reason for proposing the construction of bays for Ckt-III after lapse of 07 years from the commissioning of the S/s and associated line. d. Supporting documents w.r.t. the cost proposed for the Hybrid Bay in the estimate.
Reply 1	*a. Land available within the existing premises of the 220 kV Substation Piran Kaliyar for the construction of a conventional AIS bay is not sufficient. The space requirement for a full AIS bay, including statutory clearances and equipment layout distances cannot be met within the current substation boundary, PTCUL attempted to acquire additional private land adjacent to 220 KV Substation Piran Kaliyar for the construction of the AIS bay but the land is disputed, making acquisition legally and administratively infeasible. In view of the above land constraints at 220kV substation Pirankaliyar the construction of a 220kV Hybrid Bay (GIS+AIS configuration) has been proposed. A Hybrid Bay requires significantly less physical space and can be accommodated within the existing substation boundary without land acquisition. Therefore, the proposal for a 220kV Hybrid Bay for 220kV Pirankaliyar-Puhana Line Ckt-III is technically, spatially, and operationally the most feasible solution under the prevailing circumstances.* *b. Technical Specifications of the already constructed 220kV AIS bays are enclosed.* *c. There is insufficient land available within the existing premises of the 220 kV Piran Kaliyar Substation for the construction of a conventional AIS bay. The land for construction of AIS bay has been identified by PTCUL and the rates for the purchase of identified land has been finalized by the Office of DM Haridwar on dated 17-11-2018 after the mutual consent of land owners and PTCUL.*

	Due to the dispute aroused between the concerned land owners, the process of purchase of land by PTCUL could not be completed. *The matter was filed by landowner's in the court of Joint Magistrate Roorkee. The dispute is under trial since December 2018 in the court of Joint Magistrate Roorkee. PTCUL Civil wing continuously pursued the matter with Office of Joint Magistrate Roorkee but due to continuous hearing of dates since December 2018 to Feb 2022 the matter has not been resolved. The final hearing held on 23-02-2022 and the final verdict was given to transfer the case file to the consolidation office-Roorkee for further process. All effort was made by PTCUL to acquire additional private land adjacent to 220 KV Substation Piran Kaliyar for the construction of the AIS bay, however, the proposed land was disputed, making acquisition legally and administratively infeasible.* *d. All supporting documents pertaining to the cost estimate of the proposed 220 kV Hybrid Bay are enclosed.*
Query 2	In the Petition, it is proposed that the source of financing as 70% loan from financial institution & 30% equity form GoU, in this regard, PTCUL is required to submit the supporting documents/approval letters from financial institution & GoU w.r.t. the proposed financing.
Reply 2	*The DPR of the above project has been submitted to Financial Institutions for financing of 70% of Loan and approval of the same is under process with Financial Institutions. Further, it is to inform that the 30% of entire Equity contribution from the Government of Uttarakhand (GoU) shall not be required at one time. It shall be required in phases as per the progress of the project, during the entire completion schedule of the project. The year-wise equity requirement against the above project will be demanded from Government of Uttarakhand (GoU) through State Budget by submitting Annual Plan, as it has been done for all earlier projects.*

<table>
<tr><td>Query 3</td><td>In the Petition, it is submitted that the line loading of the Ckt-I & Ckt-II are 59% and 84% of its rated capacity, during the shutdown/outage of the 220 kV SIDCUL-Rishikesh line more load carry on the 220 kV Piran Kaliyar-Puhana line Ckt-II w.r.t. Ckt-I, which may lead to overloading of the Ckt-II. In this regard, PTCUL is required to submit the details of such instances occurred in past one year in the Table given below as certified by the SLDC:
<table>
<tr><th>S. N.</th><th>Details breakdown/ shutdown of 220 kV SIDCUL-Rishikesh line</th><th>Date & Time</th><th>Loading of 220 kV Piran Kaliyar-Puhana Ckt-I line during overload condition (in Amperes)</th><th>Loading of 220 kV Piran Kaliyar-Puhana Ckt-II line during overload condition (in Amperes)</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Reply 3</td><td>Details of instances of shutdown/outage of the 220 kV SIDCUL-Rishikesh line in the past one year, along with corresponding loadings on Ckt-I and Ckt-II in the specified table format, duly certified by SLDC, and enclosed separately.
It is further submitted that all operational parameters such as current, voltage, load, etc., are recorded on an hourly basis in the logsheet. Therefore, at times, the maximum load observed at a particular instant of time may not get reflected in the hourly logsheet readings if the load has reduced by the time the scheduled reading is taken.</td></tr>
<tr><td>Query 4</td><td>In the Petition, it is submitted that the expected load growth in future is approximately 10% per annum. In this regard, PTCUL is required to furnish a detailed description of the nature and capacity of the loads expected to be connected to the aforesaid substation over the next five years.</td></tr>
<tr><td>Reply 4</td><td>It is to be submitted that construction of 132 KV Ultratech Switching Substation at Bhagwanpur is in progress and PTCUL are planning to install 132/33 KV, 2X40 MVA Transformer at above Substation. A part of its load requirement will be supplied from the 220 kV Substation Piran Kaliyar through the 132 kV Piran Kaliyar-Chudiyala line

Further, request regarding enhancement of load capacity has also been submitted by the Executive Engineer, Electricity Distribution Division, Bhagwanpur (UPCL) through their letter no. 3194 dated 01.08.2024.

It is also to mention here that in the near future, an additional 33 kV feeder to Lodhiwala is proposed to be connected from the 220 kV Substation Piran Kaliyar. Through this feeder, the load of the 2x12.5 MVA transformers (total capacity: 25 MVA) installed at the 33 kV Substation Lodhiwala will be supplied. The</td></tr>
</table>

	execution of this work is being carried out by Uttarakhand Power Corporation Limited (UPCL). *In addition, the peak loading on the 50 MVA, 220/33 kV transformers has already reached around 85-86% and 100 MVA, 220/132 kV transformers has reached 66%. Considering the present load growth trend, there is a strong possibility of further increase in the near future. To manage this rising load, Detailed Project Report (DPR) for the works of "Augmentation of 220 KV Substation Piran Kaliyar from 2x50 MVA to 2x100 MVA Transformer at 220/33 kV Voltage level" & Augmentation of 220 KV Substation Piran Kaliyar from 2x100 MVA to 2x160 MVA Transformer at 220/132 kV Voltage level" has already been approved by PTCUL BOD DPR's have been submitted to Hon'ble UERC for Investment Approval.* *The above-mentioned load growth is expected to materialize within the next five year.*
Query 5	In the Petition, PTCUL has submitted that it is proposing the construction of a bay for the utilisation of Ckt-III of the 220 kV Piran Kaliyar–Puhana line. However, PTCUL has not furnished details regarding the contingency conditions, i.e., N-1/T-1, that would be addressed through the proposed utilisation of Ckt-III. In this regard, PTCUL is directed to submit a detailed study report, duly supported by a load flow study, indicating the possible contingency scenarios that will be addressed through the proposed work.
Reply 5	*A detailed study report, including load flow studies and analysis of contingency scenarios (such as N-1/T-1 conditions) addressed by utilizing Ckt-III, is enclosed.*
Query 6	In the Petition, PTCUL has submitted the maximum loading of Ckt-I & Ckt-II line till October 2024. In this regard, PTCUL is required to submit the maximum loading (in Amperes) details of Ckt-I & Ckt-II line from November 2024 to October 2025.
Reply 6	*Maximum loading details (in Amperes) of 220 KV Piran Kaliyar-Puhana Ckt-l line & 220 KV Piran Kaliyar-Puhana Ckt-Il line from November 2024 to October 2025 is enclosed.*

2. Commission's Observations, Views and Directions:

2.1. From the submissions made in the Petition alongwith documents on record and subsequent filings by the Petitioner, it has been observed that:

2.1.1 220 kV Substation Pirankaliyar (Imlikhera) was commissioned on dated 23.09.2018 and this substation is important for Haridwar district, as it supplies power to the 220 kV S/s SIDCUL, 132 kV S/s Bhagwanpur, 132 kV S/s Chudiyala and nearby urban, rural and industrial areas. The present transformation capacity of the 220 kV Substation Pirankaliyar (Imlikhera) is 200 MVA at 220/132 kV and 100 MVA at 220/33 kV.

2.1.2 220 kV S/s Pirankaliyar (Imlikhera) is connected to the source substation i.e. 400/220 kV S/s Puhana (PGCIL) through the following 03 nos. of 200 kV transmission lines:

S.No.	Name of Line	Line Length
1	220 kV Pirankaliyar-Puhana Line Ckt-I	19.47 KM
2	220 kV Pirankaliyar-Puhana Line Ckt-II	7.086 KM
3	220 kV Pirankaliyar-Puhana Line Ckt-III *	7.086 KM

**3rd Ckt has not been terminated at the 220 kV Pirankaliyar S/s due to non-availability of bay at the S/s.*

Presently, only two circuits, namely Ckt-I and Ckt-II, are terminated at the 220 kV Substation Pirankaliyar (Imlikhera). The third circuit (Ckt-III) has not been terminated at the said substation owing to the non-availability of a dedicated 220 kV line bay. Consequently, Ckt-III is maintained in an open-ended condition and it has been state by the Petitioner that same is being utilized exclusively as a contingency line to meet the N-1 reliability criterion during planned maintenance or forced outage of Ckt-II.

2.1.3 The Petitioner submitted that, owing to the non-termination of 220 kV Pirankaliyar–Puhana Ckt-III line at 220 kV Substation Pirankaliyar, whole load of the substation is presently being catered by the remaining two transmission lines, namely Ckt-I and Ckt-II. Due to the difference in line lengths and associated electrical parameters, load sharing between the connected circuits is uneven, resulting in a load sharing ratio of approximately 1 : 2.5 between Ckt-I and Ckt-II. Consequently, the 220 kV Pirankaliyar–Puhana Ckt-II experiences higher loading and frequently approaches/ exceeds its permissible thermal limit, leading to overloading of

the said line. The details of the maximum loading (in Amperes) observed on Ckt-I and Ckt-II are as follows:

Month	220 kV Pirankaliyar-Puhana Line Ckt-I	220 kV Pirankaliyar-Puhana Line Ckt-II
May-25	270 Ampere	697 Ampere
June-25	242 Ampere	625 Ampere
July-25	242 Ampere	624 Ampere
Aug-25	265 Ampere	665 Ampere

From the above, it is evident that 220 kV Pirankaliyar–Puhana Ckt-II is presently loaded up to about 90% of its maximum rated capacity. In the existing configuration, the system has negligible margin for further load accretion and, therefore, is inadequate to cater to the projected future load growth of approximately 10% per annum. Any additional load in the present scenario is likely to result in sustained overloading of Ckt-II, thereby adversely impacting system reliability and operational security. Therefore, from the standpoint of system reliability, operational security, and adherence to the N-1 contingency criterion, it is imperative and urgent to operationalize and utilize the 220 kV Pirankaliyar–Puhana Line (Ckt-III) by providing its termination at the 220 kV Substation Pirankaliyar.

Benefits submitted by the Petitioner are summarized below:

a) Proper Utilisations of 220 kV Pirankaliyar-Puhana Line (Ckt-III).
b) It would make existing system more reliable.
c) Increase the capacity of existing system for future load growth.
d) N-1 Contingency option in the power system will be met.
e) Availability of shutdown for preventive maintenance shall be easier.

2.1.4 With respect to the construction of the proposed Hybrid Bay in place of a conventional AIS bay at the 220 kV Substation, Pirankaliyar, the Petitioner has submitted that the land available within the existing premises of the 220 kV S/s Pirankaliyar is not sufficient for the construction of a conventional AIS bay. Hence, statutory clearances and equipment layout distances cannot be met in the present available land within the substation boundary.

The Petitioner has further submitted that attempts were made to acquire additional private land adjacent to the 220 kV S/s Pirankaliyar for the construction of an AIS bay, however, the proposed land was found to be disputed, rendering land acquisition legally and administratively infeasible. In view of the above constraints, it has been decided to utilise the available

land within the existing substation premises for construction of a Hybrid Bay (GIS+AIS) for termination of IIIrd Circuit of Puhana–Pirankaliyar line.

2.1.5 The Petitioner has submitted that the financing of the project will be done from the financial institutions and in this regard, it has submitted the DPR to the financial institutions to grant loan assistance of Rs. 7.74 Crore, which constitutes 70% of the total DPR cost for the proposed project. However, regarding 30% equity portion, Petitioner has not provided any supporting documents from Government of Uttarakhand, but has stated that the entire equity of Rs. 3.32 Crore will be funded by Government of Uttarakhand which shall be required in phases as per the progress of project during the entire completion schedule of the project, therefore, 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.

2.2. In view of the submissions made by the Petitioner and the observations recorded hereinabove, the Commission notes that the construction of a 220 kV Hybrid Bay at the 220 kV Substation, Pirankaliyar (Imlikhera), is intrinsically linked to the integration and effective utilisation of the already constructed 220 kV Pirankaliyar–Puhana Ckt-III transmission line, without which the intended benefits of the said asset cannot be fully realised.

The Commission further observes that commissioning of the proposed Hybrid Bay would enhance the overall transmission capacity of the 220 kV Pirankaliyar–Puhana corridor and alleviate existing operational constraints arising from uneven load sharing between Pirankaliyar–Puhana Ckt-I and Ckt-II lines, which presently poses a risk of overloading of in-use Ckt-II. The proposed works would facilitate balanced load flow, improved system stability and increased power drawal from the 400/220 kV Puhana (PGCIL) Substation.

The Commission also takes note that the proposed infrastructure would ensure compliance with the N-1 contingency criteria and strengthen the reliability and security of power supply to the Roorkee and Haridwar regions, while also catering to the anticipated future load growth of the connected substations.

Based on the above, the Commission finds that the proposed construction of the 220 kV Hybrid Bay at the 220 kV S/s Pirankaliyar (Imlikhera) is technically justified and systemically necessary.

2.3. The Petitioner has considered the Price Contingencies @ 6.8%, Contingency @ 3% and Project Overheads @ 5% in the DPR. In this regard, in order to maintain uniformity with recent investment approvals, the Commission has not considered Price Contingencies @ 6.8% and instead it has calculated the total project cost by considering the contingency @ 3% and project overheads @ 5% based on the past practice of the Commission.

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

2.4. The Commission hereby grants in-principle approval for Rs. 10.64 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)
Supply, Erection, Testing and commissioning of 220 kV Hybrid Bay for 220 kV Piran Kaliyar-Puhana Ckt-III at 220 kV Substation Piran Kaliyar (Imlikhera)	11.05	10.64

(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 ensure to obtain an undertaking/approval from GoU regarding infusion of required equity before issuance of Letter of Award (LoA) for the proposed work.

(iv) The Petitioner should adhere to the applicable technical standards and statutory clearances as per the prevailing guidelines of Central Electricity Authority (CEA) and Ministry of Power (MoP).

(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.

2.5. 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**