Before
UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 77 of 2025

In the Matter of:

Investment Approval for DPR of "Replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 kV SIDCUL-Rishikesh Line".

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: December 29, 2025

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. 1790/Dir. (Operations)/PTCUL/ dated 26.10.2024 seeking "Replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 kV SIDCUL-Rishikesh Line" under Para 11 of Transmission Licence. [Licence No. 1 of 2003].

1. Background

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

Particulars	Total Project Cost as per DPR including IDC (in Crore)
Replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 kV SIDCUL-Rishikesh Line	35.63

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 the following resolution unanimously:

Resolved That the consent of the Board be and is here by accorded to approve the revised Detailed Project Report for "Replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 kV SIDCUL-Rishikesh Line at a total scheme cost of Rs. 35.63 Cr. with IDC and Rs. 34.82 Cr. without IDC.

Resolved Further That the DPR submitted and approved in the 92nd Board meeting held on 27/08/2024 vide agenda item no. 92.49 on the same project shall be treated as null & void and shall be deemed to have been withdrawn by the management.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."

1.3. To justify the need of the proposed work, the Petitioner has submitted as follows:

"220 KV Sub-station SIDCUL, Haridwar are important Sub-stations of Haridwar District and is presently having capacity of 2x160 MVA (220/132 KV), 2x80 MVA (132/33 KV), 1x50 MVA (220/33 KV) & 1x25 MVA (220/33 KV) Transformers. At present 220 kV Sub-station SIDCUL, Haridwar receives power from 220 KV S/S Rishikesh & 220 KV S/S Piran Kaliyar and provide power supply to 132 KV S/S Jwalapur, 132 KV S/S Roorkee & SIDCUL/Bahadrabad & IP-4 industrial areas.

In normal condition, about 450 Amp. load flows through 220 KV SIDCUL-Rishikesh line and if 220 kV SIDCUL-Piran Kaliyar line go tripped then entire load of 220 KV S/S SIDCUL, Haridwar to shift on 220 kV SIDCUL-Rishikesh line more than 700 Amp, in such condition it is very difficult to supplied power to 132 KV S/S Jwalapur. 132 kV S/S Roorkee & SIDCUL/Bahadrabad & IP-4 industrial areas respectively because 220 KV SIDCUL-Rishikesh line has maximum current capacity 800 Amp of ACSR Zebra conductor and is about 50 years old and line does not complaint for N-1 contingency. The load demand is also increasing rapidly day by day.

Therefore, to meet out the present and future demand of load and to provide uninterrupted power supply to consumers connected to 220 KV Sub-station, SIDCUL, Haridwar, it is essential that the capacity of 220 KV SIDCUL-Rishikesh line may be increased by replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 KV SIDCUL-Rishikesh line."

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 12 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 14.11.2025. In response to the queries, the Petitioner, through its letter dated 02.12.2025, submitted the reply to the Commission. The queries and respective replies are as follows:

<table>
<tr><td>Query 1</td><td>In the Petition, it is proposed that the source of financing as 70% loan from REC & 30% equity form GoU, in this regard, PTCUL is required to submit the supporting documents/approval letters from REC & GoU w.r.t. the proposed financing.</td></tr>
<tr><td>Reply 1</td><td>The 70% of Loan against above subject project was sanctioned by REC under Scheme no. UA-TD-TRM-118-2025-19507 (copy of REC sanction letter with terms & conditions.) (Enclosed Annexure-1)

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. May like to apprise here that the above project is already approved in the Master Plan of projects approved by GoU vide GO No. 553/1(2)/2024/05-05/2024 dated 02.09.2024 (Enclosed).</td></tr>
<tr><td>Query 2</td><td>In the Petition, it is submitted that due to restricted capacity of the existing line, the overload condition has occurred many times due to breakdown/shutdown of 220 kV SIDCUL-Piran Kaliyar line, 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 of Overload conditions due to breakdown/shutdown of 220 kV SIDCUL-Piran Kaliyar line</th><th>Date & Time</th><th>Loading of 220 kV SIDCUL-Rishikesh line during overload condition (in Amperes)</th></tr>
<tr><td></td><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Reply 2</td><td>Details enclosed as per prescribed Performa.</td></tr>
<tr><td>Query 3</td><td>At page 8 of the Petition, in the load flow study, it is submitted that, in present scenario, during the outage of the 220 kV PiranKaliyar–</td></tr>
</table>

	SIDCUL line the tentative load on the 220 kV Rishikesh–SIDCUL line rises to 214 MW. In view of this, kindly explain the necessity for upgrading the Rishikesh–SIDCUL line to HTLS when the estimated outage load of 214 MW appears to be within the carrying capacity of the existing Zebra (ACSR) conductor. Please provide technical justification, including assumptions on power factor, ambient conditions, conductor temperature limits, continuous loading margin, and any contingency or future-growth considerations relied upon in proposing the upgrade.
Reply 3	*a) 220 KV SIDCUL-Rishikesh line is main source of 220 KV Substation SIDCUL, Haridwar, which is also feeding power to 132 KV Substation Jwalapur, 132 KV Substation Roorkee and 132 KV Substation, Bhupatwala through 132 KV lines.* *b) Generation is also evacuated through 220 KV SIDCUL-Rishikesh line from 220 KV Substation, Rishikesh.* *c) Existing conductor of line is not capable to cater the load requirement of 220 KV Substation, SIDCUL, Haridwar, during the outage of 220 KV SIDCUL-Piran Kaliyar line. The main source of Haridwar region is 220 KV SIDCUL-Rishikesh line and maximum load feeded through this line, because due to connectivity with generating stations this line voltage is always seen higher side.* *d) The maximum load recorded in last two years 2024 & 2025 (till date) on 220 KV SIDCUL Rishikesh line is as enclosed Annexure-3A, which is 287 MW (or 754 Amp.). At 40°C ambient temprature the contineous current carrying capacity of ACSR Zebra conductor ia only around 650 Amp. (247 MW) (CEA sheet enclosed).*
Query 4	In the Petition, it is submitted that contingency options will be met in the power system by upgrading the 220 kV SIDCUL-Rishikesh line. In this regard, PTCUL is required to submit the detailed study report

	for possible contingency options that will be met through this upgraded line.
Reply 4	*The load flow study of the proposed work has already been carried out by PTCUL. Load flow study report enclosed as Annexure-4. The maximum load recorded in last two years 2024 & 2025(Till date) on 220 KV SIDCUL-Rishikesh line is 754Amp. (287MW), Load demand is increasing day by day in Haridwar area. The future power Load in Haridwar Region will be significantly increased due to load growth in the upcoming Kumbh Mela 2027 and due to load growth of domestic & industrial consumers. To cater this future load growth requirement due to Kumbh Mela 2027 and due to load growth of domestic & industrial consumers, this reconductoring of 220 KV SIDCUL-Rishikesh line is very much essential.*
Query 5	PTCUL has proposed replacing the existing ACSR Zebra conductor with an HTLS conductor. In this regard, PTCUL must submit: a. The type and technical specifications of the proposed HTLS conductor, and b. A detailed comparison of ampacity and sag profile between the existing ACSR Zebra conductor and the proposed HTLS conductor. c. Basis of consideration of Cost of HTLS conductor with supporting documents.
Reply 5	*(a) & (b) PTCUL will use HTLS conductor equivalent to ACSR Zebra conductor with current carrying capacity of 1600 Amp. Technical specifications are enclosed (Annexure 5) c) Basis of consideration of Cost of HTLS conductor is PTCUL SOR 2024-25.*
Query 6	The Petition mentions that under normal conditions, the 220 kV SIDCUL–Rishikesh line carries about 450 Amperes. PTCUL must confirm whether load curtailment will be necessary during the replacement work. If yes, a joint plan with UPCL must be submitted

	detailing how the load will be managed during the replacement period.
Reply 6	*During the replacement of HTLS conductor shutdown will be taken on daily basis (from Morning Hours to Evening Hours). Shutdown will be returned and line will be normalized in the evening. During replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 KV SIDCUL-Rishikesh line, supply will be feeded through 220 KV SIDCUL-Piran Kaliyar line & other 132 kV lines connected with 220 kV Substation, SIDCUL, Haridwar.*

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, the Commission observes the following:

2.1.1 The Petitioner has submitted that 220 kV SIDCUL–Rishikesh transmission line is a critical node for power supply to Haridwar district. The 220 kV Substation SIDCUL, Haridwar primarily receives power from 220 kV Substation Rishikesh (Virbhadra) through the 220 kV SIDCUL–Rishikesh transmission line, making this corridor essential for ensuring reliable power flow to the industrial and urban load centres in the Haridwar region. Further, the Petitioner has stated that the 220 kV S/s SIDCUL, Haridwar feeds major downstream substations—namely the 132 kV Substation Jwalapur and the 132 kV Substation Roorkee—which has significant importance for upcoming Kumbh Mela in 2027 and also to cater to increasing demand of domestic, commercial, and industrial consumers. Any constraint or outage on the upstream 220 kV network directly affects these substations and, consequently, the wider consumer base of Haridwar and adjoining areas.

Given the strategic importance of the 220 kV SIDCUL, Haridwar substation in maintaining system stability and supporting load growth, the Petitioner emphasised the need for strengthening the associated transmission infrastructure to ensure sustained reliability and compliance with operational & planning standards.

2.1.2 The Petitioner has submitted that the demand in the Haridwar region is expected to increase significantly in the upcoming years due to sustained industrial growth, expansion of residential load centres, and upcoming Kumbh Mela in 2027. In anticipation of this future load growth and upcoming Kumbh Mela in 2027, the Petitioner has proposed strengthening of the associated transmission system through augmentation of transformer capacities at key substations. Specifically, the Petitioner has proposed enhancement of the installed capacity at the 220 kV Substation SIDCUL, Haridwar from the existing 2×80 MVA + 1×50 MVA + 1×25 MVA to 3×80 MVA + 2×50 MVA. Similarly, the capacity of the 132 kV Substation Jwalapur is proposed to be upgraded from 3×40 MVA to 1×80 MVA + 3×40 MVA, and the 132 kV Substation Roorkee from 2×40 MVA + 1×20 MVA to 2×40 MVA + 1×80 MVA. These augmentations aim to improve system reliability, accommodate the anticipated demand growth, and ensures compliance with planning and operational criteria.

In view of the above proposed augmentations, the Petitioner has submitted that it is essential to replace the existing Zebra conductor of the 220 kV SIDCUL–Rishikesh line with an HTLS conductor having a rated current-carrying capacity of 1600 A. The existing conductor is already operating near its maximum capacity under current loading conditions, and without upgrading it, the proposed enhancement of substation capacities and future load transfer requirements cannot be reliably supported. Therefore, the conductor replacement is justified as a necessary system strengthening measure to ensure sustained and secure power supply to the Haridwar region.

2.1.3 The Petitioner has submitted that the existing line does not comply with 'N-1 contingency' requirements. Under normal operating conditions, approximately 450 Ampere of load flows through the 220 kV SIDCUL–Rishikesh line. However, in the event of tripping of the 220 kV SIDCUL–Piran Kaliyar line, the entire load of the 220 kV SIDCUL, Haridwar substation is transferred to the SIDCUL–Rishikesh line. Under such contingency, the maximum current rises to about 754 Ampere (287 MW), which is close to the maximum current-carrying capacity of the existing

Zebra conductor. The Petitioner has further submitted that load management measures, such as rostering, are required during peak seasons since the line operates near at its rated capacity. Hence, the proposed HTLS conductor offers enhanced thermal capacity, improved sag characteristics, and superior high-temperature performance, enabling the line to reliably accommodate load shifts during outages or contingency conditions.

2.1.4 Regarding load management during the conductor replacement, the Petitioner has submitted that for the replacement of HTLS conductor, shutdown will be taken on daily basis (from Morning Hours to Evening Hours) and Shutdown will be returned, and line will be normalized in the evening. During replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 KV SIDCUL-Rishikesh line, supply will be fed through 220 KV SIDCUL-Piran Kaliyar line & other 132 kV lines connected with 220 kV Substation, SIDCUL, Haridwar.

2.1.5 The Petitioner has submitted that the financing of the project will be done from the REC and in this regard, it has submitted the letter from REC, wherein, REC vide its letter dated 07.10.2025 has agreed to grant loan assistance of Rs. 24.94 Crore, which constitutes 70% of the total DPR cost for the proposed project. However, regarding the equity portion, PTCUL has not provided any supporting documents from Government of Uttarakhand, but has stated that the entire equity of Rs. 10.69 Crore which 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 is of the view that the 220 kV SIDCUL–Rishikesh transmission line constitutes a critical element of the power infrastructure of Haridwar district, as a number of essential 220 kV and 132 kV substations are being fed through this line. The proposed upgradation is

expected to substantially enhance the transmission capacity of the line, mitigate the risk of overloading, and facilitate increased power drawl from the 220 kV Rishikesh Substation, thereby ensuring N-1 contingency w.r.t. reliable and secure power supply to the Haridwar region, particularly in view of the forthcoming Kumbh Mela in the year 2027.

While acknowledging the complexity involved in execution of the proposed works, the Commission emphasizes the need for meticulous planning and effective coordination. Nevertheless, the Commission takes note of the assurance furnished by PTCUL to manage the implementation in a systematic manner and to ensure uninterrupted power supply to all affected areas. Accordingly, the Petitioner is directed to submit detailed information, including outage-management and contingency plans, to the Commission on a periodic basis until completion of the project.

Further, with regard to the financing of the project, the Commission directs the Petitioner to exhaust all possible avenues to secure funding for the project through a grant from the State Government under the Kumbh Mela Fund, since the project is intrinsically linked to and primarily intended to meet the power requirements of the upcoming Kumbh Mela. The Petitioner shall place on record the status of such efforts before the Commission.

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 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.

2.4. The Commission hereby grants in-principle approval for Rs. 33.41 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)
Replacement of old ACSR Zebra Conductor with HTLS Conductor of 220 kV SIDCUL-Rishikesh Line	35.63	33.41

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

(ii) The Petitioner to exhaust all possible avenues to secure funding for the project through a grant from the State Government under the Kumbh Mela Fund, since the project is intrinsically linked to and primarily intended to meet the power requirements of the upcoming Kumbh Mela. The Petitioner shall place on record the status of such efforts before the Commission.

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

(iv) 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.

(v) The Petitioner shall regularly update the Commission on the project status, including outage management and contingency plan detail, until completion of the project.

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

(vii) 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**