

**Before**  
**UTTARAKHAND ELECTRICITY REGULATORY COMMISSION**

Petition No. 36 of 2023

**In the Matter of:**

**Application seeking approval for the investment on the project covering the construction of 01 no. new 33/11 kV Substation alongwith its associated 33 kV and 11 kV line at Sarkada Sitarganj (U.S. Nagar).**

**And**

**In the Matter of:**

Managing Director,  
Uttarakhand Power Corporation Ltd.,  
Victoria Cross Vijeyta Gabar Singh Bhawan,  
Kanwali Road, Dehradun.

...Petitioner

**Coram**

<b>Shri D.P. Gairola</b>	<b>Member (Law) /Chairman (I/c)</b>
<b>Shri M.K. Jain</b>	<b>Member (Technical)</b>

**Date of Order: September 05, 2023**

**ORDER**

This Order relates to the Petition filed by Uttarakhand Power Corporation Limited (hereinafter referred to as "UPCL" or "the Petitioner" or "the licensee") seeking approval of the Commission for the investment on the project covering the construction of 01 no. new 33/11 kV Substation alongwith its associated 33 kV and 11 kV line at Sarkada Sitarganj (U.S. Nagar).

**Background**

2. The Petitioner vide its letter No. 1815/Dir. (Project)/UPCL/UERC (C-4) dated 20.07.2023 filed its Petition for investment approval under the provisions of clause 11 of Distribution and Retail Supply Licence and Regulation 40 of UERC (Conduct of Business) Regulations, 2014 for obtaining prior approval of the Commission for making investment read with relevant provisions of the Electricity Act, 2003.

3. The Petitioner under the facts of the case has submitted that:

“ ...

- (i) *With a view to ensure reliable power supply, improved voltage profile and to meet future load growth, the applicant company has proposed the construction of 01 No. 33/11 kV Substation & its associated 11.30 km. 33 kV & 16.00 km. 11 kV lines in Sitarganj, U.S. Nagar, Uttarakhand. The estimated cost of the project is Rs. 14.26 Cr. The land for construction of Substation will be made available by the respective Electricity Distribution Division of UPCL. The project is proposed to be implemented partially on turnkey basis. The duration of the project is 01 year (F.Y. 2023-24). The details of substations and lines are as follows:-*

Sl. No.	Name of the Project	Status of Land	Capacity (MVA)	Length of 33 kV Line (Km.)	Length of 11 kV Line (Km.)	Cost of Land	Total Project Cost
(Rs. In Lacs)							
1	Construction of 01 no. new 33/11 kV Substation alongwith its associated 33 kV and 11 kV line near <b>Cheeni Mill Sarkada, Sitarganj</b>	Available	2X 12.5	11.30	16.00	28.14	1426.05
<b>Total</b>			<b>25.00</b>	<b>11.30</b>	<b>16.00</b>	<b>28.14</b>	<b>1426.05</b>

- (ii) *The detailed project report showing examination of an economic technical system together with the outline of the work to be undertaken, the salient features and particulars demonstrating the need for investment alongwith relevant cost benefit analysis is enclosed herewith at **Annexure-A**. The work to be undertaken does not have any adverse environmental effect. The proposed investment will be met out from Debt Equity ratio 70:30. The Debt portion i.e. 70% shall be met out as a loan either from the M/s REC Ltd. or any other financial institution and Equity portion i.e. 30% Counter Funding of the said cost shall be invested either by the State Government or from Internal Resources of the UPCL. The approval from BOD is enclosed herewith at **Annexure-B** for your kind perusal.*

4. UPCL has submitted a Detailed Project Report (DPR) for the aforesaid Substation & Lines alongwith its aforesaid Application. Further, UPCL has also enclosed copy of resolution passed by the Board of Directors in its 110<sup>th</sup> BoD meeting held on 20.06.2023 in support of its aforesaid application. The Board of Directors has approved the aforesaid project with an estimated cost of approximately Rs. 14.26 Cr. with a variation of +10% in the total estimated cost.

5. On examination of the Petition & DPR certain deficiencies/infirmities were identified and accordingly, the Commission vide its letter No. 499 dated 04.08.2023 directed the Petitioner to submit/furnish its compliance on the following latest by **11.08.2023:-**

“

1. UPCL is required to furnish the details of forest clearances and NHAI clearance of the lines (if required) associated with the proposed 33/11 kV S/s at Sarkada, Sitarganj.
2. UPCL is required to furnish the details of land acquisition of the proposed 33/11 kV S/s at Sarkada, Sitarganj.
3. With regard to the UPCL's submission of arranging the 30% equity either from GoU or from its internal resource, UPCL is required to furnish the documentary evidence w.r.t. equity funding from GoU.
4. UPCL is required to clarify whether possibility of providing additional transformer at existing 33/11 kV S/s Sitarganj and strengthening of the incomer system to the existing aforesaid Substation by constructing alternate 33 kV line emanating from 220/132/33 kV Substation Baghora, Sitarganj or any other 33 kV source as an alternate to the proposed investment of Rs. 15.17 Crore (including IDC) has been explored? UPCL is required to furnish techno-economic justification for the same.
5. UPCL in its financial analysis sheet has kept the principal amount of loan constant for initial 04 years. UPCL is required to clarify the reasons in this regard. Further, UPCL has to clarify regarding the interest on loan percentage as the same has been considered as 9.5% in the cost benefit analysis sheet whereas the same has been mentioned as 10.5%/9% in the UPCL's letter dated 04.07.2003 to REC Ltd.
6. In the 'Calculation of annual saving due to reduction in length of 11 kV line' UPCL while calculating the total annual energy saving for 11 kV line has considered the single feeder of 35 Kms. of length having load of 390 Amp. UPCL is required to resubmit annual saving sheet along with the cost benefit analysis sheet (excel sheet format in hard as well as soft copy) by considering the actual length and loading of 04 nos. 11 kV feeders which are proposed to be shifted to the proposed 33/11 kV S/s Sarkada, Sitarganj Substation. Further, UPCL is required to consider the actual 'Average Purchase Rate' and 'Average Sale Rate' as approved by the Commission for FY 2023-24 in the Tariff Order dated 30.03.2023 while calculating the payback period in the 'Calculation of payback period Annexure-1' sheet.
7. On examination of the line chart furnished by UPCL in its Petition, it is observed that 417 amp. load current is being catered through Racoon conductor emanating from 220/132/33 kV Substation Baghora, Sitarganj to 33/11 kV Substation Sitarganj which appears to be incorrect. UPCL is required clarify the same.
8. UPCL is required to submit SLD depicting the pre & post loading scenarios with length, type of conductor in incomer and outgoing feeder of 220/132/33 kV Substation Baghora, Sitarganj, 33/11 kV Substation Sitarganj and proposed 33/11 kV Substation Sarkada, Sitarganj. The SLD should also depict 'N-1' line contingency provision for the aforesaid Substations. Further, UPCL is required to confirm the compliance regarding the line

*contingency provision as per the Regulation 3.6 (4) of UERC (Distribution Code) Regulations, 2018 for the proposed Substation.*

9. *UPCL in its Petition has proposed the construction of total 16.00 Km. (12.70 Km. single circuit overhead & 3.30 Km. double circuit overhead) 11 kV line, however, in the estimate UPCL has proposed the estimate for 56628 m. ACSR dog conductor. It appears that the requirement of ACSR dog conductor has been considered on the lower side in the estimate prepared by UPCL considering 12.70 Km single circuit overhead and 3.30 Km double circuit overhead line. UPCL is required to clarify.*
10. *UPCL has proposed 02 nos. 3000 kVAR 11 kV capacitor banks in its estimate. UPCL is required to clarify regarding the proposed rating of 3000 kVAR and also submit the protection philosophy for the proposed capacitor banks against harmonic currents and confirm whether any provision of harmonic filter has been provided?"*
6. *In compliance to the Commission's letter dated 04.08.2023, UPCL vide its letter dated 14.08.2023 requested time extension of two weeks for submission of its reply to the deficiencies. Further, UPCL vide its letter dated 21.08.2023 furnished its point-wise reply as mentioned below:*

*"*

1. *There is no forest clearance required for the project. However, as per the prevailing rules of UPCL "The case shall be prepared by the contractor and all fees/compensations as legally applicable shall be borne/paid by UPCL". A provision of Rs. 20.00 Lakh has been made in the estimate for NHAI clearances/road cutting charges.*
2. *The copy of land registry is **annexed as Annexure-A**.*
3. *The project cost of the construction of 01 no. 33/11 kV S/s alongwith its associated 33 kV and 11 kV line at Sarkada (U.S. Nagar) is Rs. 15.19 Cr. for which loan has been applied for 70% of the total cost of project from REC Ltd.  
  
REC Ltd., has sanctioned 70% loan of the project cost (excluding cost of land) vide let no. REC/RO/DDN/T&D/2023-24/45, dated: 16.08.2023 & 30% of the cost of project I already been demanded as equity from GoU in the supplementary budget 2023-24 vide letter no. 538/UPCL/GM(F), dated: 07.08.2023 is **annexed as Annexure-B**.*
4. *There is no space for installation of additional power transformer and its associated infrastructure/equipments at existing 33/11 kV S/s Sitarganj. Also, there are no possibilities of construction of new alternate 33 kV line from 220/132/33 kV S/s Baghora, Sitargai existing 33/11 kV S/s Sitarganj due to unavailability of route as the substation is situated in densely populated town area surrounded by houses/private lands/ existing lines etc.*
5. *The request to keep the amount of loan constant for initial 04 years is due to the reason that the complete process for construction of substation and lines and being operational position of the above project. In the previous Capex Loans, M/s REC Ltd., has approved the interest rate of 9.5% p.a. after rebate, cost benefit analysis has been prepared accordingly (copy of REC interest rebate letter dated: 17.02.2023 attached). Presently REC Ltd., interest rates 10.50% p.a. for A category DISCOM (copy of REC*

loan policy circular dated: 01.06.2023 attached). Further, UPCL has requested to REC Ltd., to provide financial assistance to this project with the rebate of 150 bps i.e. at the interest rate 9% p.a. Presently loan and interest rebate is under process at REC end.

6. Revised cost benefit analysis with "Average Purchase Rate" is 4.84 Rs./unit and "Average Sale Rate" is 6.72 Rs./unit as approved by the Commission for FY 2023-24 in the Tariff Order dated: 30.03.2023 **is annexed as Annexure-C.**
  7. The load taken for the calculation has been derived from the maximum load of 11 kV feeders taken at different time. However, maximum load current 355 amp. was being catered through Racoon Conductor once in last FY emanating from 220/132/33 kV S/s Baghora, Sitarganj to 33/11 kV S/s Sitarganj. The SLD **is annexed as Annexure-D.**
  8. A SLD depicting the pre & post loading scenarios with length, type of conductor in incomer and outgoing feeder of 220/132/33 kV Substation Baghora, Sitarganj, 33/11 kV Substation Sitarganj and proposed 33/11 kV Substation Sarkada, Sitarganj is annexed as Annexure-D. To comply the 'N-1' contingency a separate line from nearby status is being explored and shall be made later on. 'N-1' line contingency is taken as future proposal to connect proposed substation with 33/11 kV S/s Bara.
  9. Estimate has been revised as per actual requirement (Length of conductor =  $((12.7+3.3+3.3=19.7)\times 3.09=59637)$ ) 59637m ACSR dog conductor and total cost of project is increased by Rs 2.76 lakh. Now the total cost of project is Rs. 1428.81 lakh which is within a variation of  $\pm 10\%$  as approved in BoD. The revised abstract sheet of project alongwith revised estimates of 11 kV feeders **is annexed as Annexure-E.**
  10. The 02 nos. 3000 kVAR 11 kV capacitor banks proposed in the estimate for Transformer Capacity 12.5 MVA. The protection for the proposed Capacitor Banks (APFC) Power System Relaying, overload protection, unbalance protection, numerical relays are provided. The protection philosophy for the proposed capacitor banks **is annexed as Annexure-F."**
7. Further, UPCL vide its letter dated 29.08.2023 submitted its additional submission as mentioned below:-
- "
1. A proposal has been sent to M/s REC Ltd., to sanction the 70% financial assistance for the project amounting Rs. 15.19 Cr. M/s REC Ltd., vide letter no. REC/RO/DDN/T&D/2023-24/ 45, dated: 16.08.2023 has sanctioned the financial assistance of Rs. 9.22 Cr. considering the project cost of Rs. 13.17 Cr. M/s REC Ltd., has informed telephonically that costing towards civil works including cost of land i.e. Rs. 2.03 Cr. has not been considered. UPCL is trying to get sanctioned the same. It is further, to apprise that in case of urgency of the 70% of balance amount i.e. Rs. 1.42 Cr. will arranged by UPCL through its own fund/ Internal Resources and shall be adjusted after sanctioning the revised loan and remaining 30% i.e. Rs. 0.61 Cr. shall be arranged from State Government as equity.
  2. Proposal for LILO line (2x4.5 Km.) of 33 kV Sitarganj-Bara line on panther conductor is under preparation to comply the N-1 Contingency for 33/11 kV Substation, Sarkada. The

*proposal will also comprise the work to replace the existing dog conductor from 132/33 kV S/s Bahgora, Sitarganj to LILO point of the existing line with panther conductor. Revised Single Line Diagram to comply the N-1 Contingency is enclosed herewith."*

**Commission's Observations, Views & Directions:-**

8. On examination of the Petition and subsequent submissions made by Petitioner and discussions held with the Commission, the observations, views and decision of the Commission are mentioned hereunder:-

- (1) On examination of the Petition, it is observed that the power supply to village Sarkada and its nearby area is being fed through 04 no. feeders namely Bijti, Cheeni Mill., Sisaiya and Town-4 emanating from 33/11 kV Substation Sitarganj which is experiencing overload due to industrialization and urbanization in the surrounding area. As these existing 11 kV feeders are long and overloaded, the problem of low voltage (about 8.5 kV-9.5 kV) is common in the region. The proposed new substation would facilitate revenue realization from the consumers connected to it and also from new consumers in future. Therefore, in view of maintaining quality & reliability of power supply and to cater the increase in demand owing to industrialization in nearby area, the construction of a new 33/11 kV Substation Sarkada Sitarganj (U. S. Nagar) along with its associated 33 kV line seems to be appropriate.
- (2) On examination of the single line diagram furnished by UPCL, it has been observed that the existing 33/11 kV Substation Sitarganj (2x12.5 MVA) is already overloaded and the same is being fed through Racoon conductor which itself is undersized to cater to the load requirements of 33/11 kV Substation Sitarganj. Further, it is also observed that the existing 33/11 kV Substation Sitarganj has no provision for 'N-1' line contingency.
- (3) Further, it is observed that the proposed 33/11 kV Substation Sarkada Sitarganj (2x12.5 MVA) also has been planned without considering 'N-1' line contingency provision which depicts that the Petitioner is attempting to work in firefighting mode only and is not concerned towards providing long term sustainable solutions which are conducive for reliability & quality of power supply. The Commission in past has been highlighting the provisions of Regulation 3.6 (4) of UERC (Distribution Code) Regulations, 2018 which provides that: -

*“ (4) In every Sub-Station of capacity 10 MVA and above there shall be a provision for obtaining alternate 33 kV supply to the Sub-Station in case of a failure in the incoming supply.”*

In this regard, the Commission is of the view that the responsibility of long term planning of distribution system resides with the distribution licensee who should appropriately make consideration for adequacy and redundancy in distribution system capacity so that maintenance of the distribution assets do not create hindrance in power supply of the consumers and the power availability is ensured through the alternative circuit arrangement. Further, with regard to distribution system planning, the Commission is of the view that the Petitioner should ensure to analyze the system capacity and adequacy of the lines/Substations feeding the proposed Substations, as such analysis would help in early identification of bottlenecks in existing sub-transmission and distribution network of the Petitioner. Thus, the same would help in effective distribution system network planning.

- (4) Although, the Petitioner in its reply has submitted that it is planning to provide 'N-1' line contingency for the proposed 33/11 kV S/s Sarkada, Sitarganj by LILO of 33 kV line feeding 33/11 kV S/s Bara. In this regard, the Commission opines that the proposals of the Petitioner should be framed in such a way so that it should not only comply to the provisions of the Regulations but also the same should provide long term sustainable solutions for catering the consumer load demands.
- (5) The Petitioner has furnished the cost benefit analysis in support of its proposal for the 33/11 kV S/s Sarkada, Sitarganj stating that the payback period for the proposed Substation would be approximately 07 years considering an annual load growth of 5% which appears to be a fair period for recovery of capital investment on the proposed Substation.
- (6) With regard to the financing of the project, it has been observed that the Petitioner has received a sanctioned letter dated 16.08.2023 from REC considering total project cost including IDC as Rs. 13.17 Cr. and has sanctioned a loan of Rs. 09.22 Cr. In this regard, it is observed that REC has not considered the cost of control room building and cost of land in the project cost and

accordingly sanctioned the loan as Rs. 09.22 Cr. The Petitioner in its reply dated 29.08.2023 has submitted that they are making efforts to get balance amount i.e. Rs 2.03 Cr. sanctioned and submitted that in case of urgency 70% of balance amount i.e. Rs. 1.42 Cr. will arranged by it through its own fund/ Internal Resources and shall be adjusted after sanctioning the revised loan and remaining 30% i.e. Rs. 0.61 Cr. shall be arranged from State Government as equity.

- (7) With regard to the project cost, it has been observed that the Petitioner was accorded the approval for the project in its 110<sup>th</sup> BoD meeting held on 20.06.2023 with estimated cost of approx. Rs. 14.26 Cr. with variation of +10% in the total estimated cost. Further, it is observed that the Petitioner has slightly revised its proposal from Rs. 15.16 Cr. (*including Civil Works of control room building and cost of land*) to Rs. 15.19 Cr. due to revision in estimate of outgoing 11 kV feeders by Rs. 2.76 Lakh. In this regard, the Commission is of the view that the revised total project cost is within the variation of +10% of the amount approved in aforesaid BoD meeting.
9. In light of above, the Commission hereby grants in-principle approval for the proposed 33/11 kV S/s Sarkada, Sitarganj alongwith its associated 33 kV and 11 kV lines subject to the fulfillment of the conditions mentioned below:-
  - (1) The Petitioner is directed to obtain the prices through competitive bidding for the works allowed by the Commission under the prevailing Rules & Regulations.
  - (2) All the loan conditions as may be laid down by the funding agency in their detailed sanction letter are strictly complied with. However, the Petitioner is directed to explore the possibility of swapping this loan with cheaper debt option available in the market.
  - (3) The Petitioner shall, within one month of the Order, submit letter from the State Government or any such documentary evidence in support of its claim for equity funding agreed by the State Government or any other source in respect of the proposed schemes.
  - (4) After completion of the aforesaid schemes, the Petitioner shall submit the completed cost and financing of the schemes.



- (5) The cost of servicing the project cost shall be allowed in the Annual Revenue Requirement of the Petitioner after the assets are capitalized and subject to prudence check of cost incurred.
- (6) Immediately plan for replacement of racoon conductor of incoming feeder of existing 33/11 kV S/s Sitarganj by higher capacity conductor. Further, the Petitioner is cautioned for ensuring compliance of the provisions of Regulation 3.6 (4) of UERC (Distribution Code) Regulations, 2018 w.r.t. 'N-1' contingency in the instant case as discussed at paras 8 (2) & 8 (3) above and in its future investment proposals.

Ordered accordingly.

**(M.K. Jain)**  
**Member (Technical)**

**(D.P. Gairola)**  
**Member (Law) /Chairman (I/c)**