

Before
UTTARAKHAND ELECTRICITY REGULATORY COMMISSION
Petition No. 54 of 2025

In the Matter of:

Application seeking approval for the investment on the 'Construction of new 33 kV Line from 33/11 kV Substation Pandukeshwar to the proposed 33/11 kV Substation Shri Badrinathji Dham' and 'Construction of new 33/11 kV Indoor GIS S/s at Shri Badrinathji Dham and associated works'.

And

In the Matter of:

Uttarakhand Power Corporation Ltd.,
Victoria Cross Vijeta Gabar Singh Urja Bhawan,
Kanwali Road, Dehradun.

...Petitioner

Coram

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

Date of Order: September 26, 2025

ORDER

This Order relates to the Petition filed by Uttarakhand Power Corporation Limited (hereinafter referred to as "UPCL" or "the Petitioner" or "the licensee") in the matter of 'Construction of new 33 kV Line from 33/11 kV Substation Pandukeshwar to the proposed 33/11 kV Substation Shri Badrinathji Dham at District-Chamoli' for seeking investment approval of the Commission.

Background

- The Petitioner vide its letter No. 2513/D(O)/UPCL/C-4 dated 31.05.2025 submitted its Petition for investment approval on the Construction of new 33 kV Line from 33/11 kV Substation Pandukeshwar to the proposed 33/11 kV Substation Shri Badrinathji Dham at District-Chamoli under the provisions of the Clause 11 of Distribution and Retail Supply Licence and Clause 40 of UERC

(Conduct of Business) Regulations, 2014 read with relevant provision of the Electricity Act, 2003, and the Rules and Regulations made thereunder. Further, the Petitioner in the instant Petition has proposed the construction of 2x5 MVA, 33/11 kV Substation alongwith its associated 33 kV & 11 kV lines, 33 kV Bay at 33/11 kV Substation Pandukeshwar, CSS and LT network under full deposit scheme by Tourism Department of Uttarakhand.

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

“

1. *With a view to ensure reliable power supply, improved voltage profile and in order to provide “24x7” power supply at Shri. Badrinathji Dham and also to meet out the load required to carry out smooth execution of development works proposed under Shri. Badrinathji Dham Master Plan, the applicant company has proposed the construction of 2x5 MVA, 33/11 kV Substation alongwith its associated 33 kV & 11 kV lines, 33 kV Bay at 33/11 kV Substation Pandukeshwar, CSS and LT network in District-Chamoli under full deposit scheme by Tourism Department of Uttarakhand.*

The matter of construction of new 33/11 kV Indoor GIS Substation at Shri. Badrinathji Dham, Civil Works, underground 11 kV and LT line, CSS is being brought for kind information of Hon'ble Commission, as the work is being funded by Tourism Department, GoU as grant.

2. *The associated new 33 kV Line from 33/11 kV Substation Pandukeshwar to the proposed 33/11 kV Substation Shri. Badrinathji Dham has been proposed under SASCI Scheme. The estimated cost of the project is **Rs. 7.33 Cr.** The project is proposed to be implemented on semi-turnkey basis.*

- (i) *The duration of the work for which investment approval has been sought in the present petition is as follows:*

S. No.	Name of Work	Scheduled Date of Completion
1	Construction of new 33 kV Line from 33/11 kV Substation Pandukeshwar to the proposed 33/11 kV Substation Shri. Badrinathji Dham , District-Chamoli	06 months from date of award

- (ii) *The details of project is as follows:*

S. No.	Name of the Project	District	Funding	BoD Approval	Status of Land	Work Detail
1	Construction of new 33/11 kV Indoor GIS S/s at	Chamoli	100% Grant	123 rd BoD	Available	2x5 MVA

S. No.	Name of the Project	District	Funding	BoD Approval	Status of Land	Work Detail
	Shri. Badrinathji Dham		from GoU			
2	Civil Works					-
3	Construction of 11 kV line					2x6 Km. D/c
4	Construction of LT line					16.30 Km.
5	Installation of CSS					4x1000 kVA
6	New 33 kV Line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri. Badrinathji Dham		SASCI		-NA-	22.00 Km.

(iii) 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 **is enclosed herewith at Annexure-A**. The work to be undertaken does not have any adverse environmental effect.

(iv) The proposed investment for the project is as follow:

S. No.	Name of Work	Proposed Investment
1	Construction of new 33 kV Line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri. Badrinathji Dham , District-Chamoli	SASCI (Scheme for Special Assistance to States for Capital Investment) (Annexed as Annexure-B)

(v) The approval from BoD **is enclosed herewith at Annexure-C** for kind perusal."

4. The Petitioner alongwith its Petition has enclosed certified true copy of 123rd Board of Directors meeting dated 01.05.2025. The resolution passed by BoD states that:-

"ITEM NO. 123.11: Construction of new 33/11 kV Indoor GIS Substation along with its associated 33 kV overhead line, underground 11 kV and LT line and installation of CSS at Shri Badrinathji Dham, Distt.-Chamoli.

RESOLVED THAT the approval of the Board be and is hereby accorded for construction of approx. 22.00 km. new 33 kV line frkom 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri Badrinathji Dham with an estimated cost of Rs. 732.39 Lakh at Shri

Badrinathji Dham in District-Chamoli with a variation of $\pm 10\%$ in the total estimated cost.

Sl. No.	Name of Work	Capacity (MVA)	Length (km.)	Estimated Cost (Rs. in Lakh)
1	New 33 kV Line from 33/11 kV S/s, Pandukeshwar to the proposed 33/11 kV S/s ShriBadrinathji Dham	-	22.00	732.39
TOTAL		-		732.39

‘RESOLVED FURTHER THAT 70% of the amount i.e. Rs. 5.12 Cr. shall be met under the Scheme for Special Assistance to states for Capital Investment (SASCI) of Govt. of India, to be repaid in 12 equal annual instalments after 6 months from date of project completion with interest @6.5%.’

‘RESOLVED FURTHER THAT 30% of the amount i.e. Rs. 2.20 Cr. shall be met as equity from Govt. of Uttarakhand.’

‘RESOLVED FURTHER THAT the Board does hereby take a note that construction of new 33/11 kV Indoor GIS Substation, underground 11 kV and LT line and installation of CSS as well as civil works at Shri Badrinathji Dham amounting to Rs. 26.04 Cr. is being funded by Tourism Department, GoU as grant.’

‘RESOLVED FURTHER THAT Director (Finance), UPCL be and hereby severally authorised to execute such deeds, documents and other writing as may be necessary or required for the purpose aforesaid.’

‘RESOLVED FURTHER THAT the above proposal shall be subject to investment approval from Hon’ble UERC.’

5. The Petitioner under ‘Relief Sought’ has submitted that:

“

...

(iii) (a) Grant approval to process the tender of 33/11 kV Indoor GIS Substation alongwith its associated 11 kV and LT line and installation of CSS at Shri. Badrinathji Dham, District-Chamoli as the funding available under grant from GoU has to be utilized at the earliest.

(b) Grant approval to award the tender of 33 kV Line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri. Badrinathji Dham, District-Chamoli as the funding available under SASCI Scheme has to be utilized in current financial year. ”

6. On examination of the proposal made in the Petition & Detailed Project Report (DPR), certain deficiencies/infirmities were identified and accordingly, the Commission vide its letter No. 540 dated 01.07.2025 directed the Petitioner to submit/furnish its reply on the following latest by 15.07.2025: -

“

1. UPCL is required to furnish the details of land acquisition alongwith supporting documents in support of the proposed 2x5 MVA, 33/11 kV S/s at Shri Badrinathji Dham.
2. UPCL is required to furnish the current status of forest/wildlife clearance and Geological approval requirement, if any, for the works proposed under the instant Petition.
3. UPCL is required to furnish the list of parameters governing the design of electrical equipment such as transformers, breakers, measuring instruments, isolators, conductors, cables etc. alongwith its relevant technical standards for high altitude applications.
4. UPCL is required to furnish the details of bidder qualification criteria for the proposed project suitable for the experience of working in high altitude applications.
5. UPCL is required to furnish the status of tendering of each package proposed under the instant Petition/DPR.
6. UPCL is required to confirm that all the specific technical requirements for supply, installation and commissioning of assets proposed to be installed at high altitude substations have been considered.
7. UPCL is required to submit scenario-wise single line diagram emanating from 132/66 kV S/s Srinagar to proposed Shri Badrinathji Dham depicting all 66 kV & 33 kV incoming and outgoing feeders, all 11 kV outgoing feeder with details of type of conductor, its length, loads for following scenario of power supply:-
 - (i) Present scenario of power supply.
 - (ii) Post commissioning of 'N-1' 66 kV line proposed to be constructed from 132/66 kV Srinagar to 66 kV line Karanprayag-Kothiyalsain.
8. UPCL is required to furnish the activity-wise project plan for the proposed works in A3 sheet in hard and soft copy.
9. With regard to the GoU letter for SASCI, it has been observed that the approval under SASCI has been given for construction of 11 kV line from 33/11 kV S/s Pandukeshwar to Shri Badrinathji Dham (by Raccoon conductor & covered conductor). However, the proposed investment has been sought for new 33 kV line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s at Shri Badrinathji Dham. UPCL is required to clarify in this regard and confirm regarding the interest rate applicable for the proposed works under SASCI scheme.
10. UPCL is required to furnish layout diagram of 33/11 kV indoor GIS Substation depicting overall dimensions of transformers, GIS, incoming and outgoing feeders and control room etc.
11. UPCL is required to furnish existing Single Line Diagram of Shri Badrinathji Dham depicting 11/0.4 kV DTs, LT network and load details in kW. Further,

UPCL is required to furnish Single Line Diagram of the proposed GIS substation, 04 nos. 11 kV CSS, 10 nos. 11 kV RMU 3 way, 4 nos. 11 kV RMU 1 way, 11 kV cable size & length in each section and downstream LT network with details of the load in kW and other 11 kV infrastructure which is not covered under the masterplan of Shri Badrinathji Dham.

12. *UPCL is required to confirm whether the existing DTs & LT network installed at Shri Badrinathji Dham would be dismantled or would be utilized. Further, UPCL is required to confirm that whether existing 11 kV lines from Pandukeshwar to Shri Badrinathji Dham would be upgraded or dismantled post completion of the proposals.*
13. *UPCL is required to submit voltage profile for each Substation depicting the values at 66 kV, 33 kV & 11 kV bus for the following scenarios:-*
 - (i) *Existing scenario i.e. connectivity from 132/66 kV Srinagar*
 - (ii) *Post commissioning of 'N-1' 66 kV line proposed to be constructed from 132/66 kV Srinagar to 66 kV line Karanprayag-Kothiyalsain.*
 - (iii) *Post commissioning of the works proposed under instant Petition.*
14. *UPCL is required to furnish the monthly kWh & KVAh figures for the meters installed at 33 kV incomer of 33/11 kV S/s Marwari & 33/11 kV S/s Pandukeshwar and also for 11 kV incomers at 11 kV switching Substation at Shri Badrinathji Dham for last 12 months.*
15. *UPCL at page no. 6 of its DPR has enclosed estimate of work i.e. 'Cons. of 11 kV line from Pandukeshwar to Badrinath & IC of S/s 1x5 MVA to 2x5 MVA'. In this regard, UPCL is required to clarify w.r.t. following points:-*
 - (i) *Why name of work specifies 11 kV instead of 33 kV?*
 - (ii) *Why ACSR Raccoon conductor has been proposed to be used? UPCL is required to clarify why ACSR Dog with higher current carrying capacity and lower resistance has not been proposed?*
 - (iii) *Why 01 no. 33/11 kV, 5 MVA transformer has been included in the estimate of works?*
 - (iv) *Rationale for including 2 nos. 2.4 MVAr three phase capacitor banks in the estimates.*
 - (v) *UPCL at S. No. 43 of labor items has mentioned works 'Shifting of 5/3 MVA' and 'Erection of power T/F (8/5 MVA)'. UPCL is required to clarify regarding the said works.*
 - (vi) *The abstract for works covered under SASCI indicates total cost of work as Rs. 7.32 Crore, whereas, the estimate provided at page 6 of DPR amounts to Rs. 7.43 Crore. UPCL is required to clarify in this regard.*

16. UPCL at page no. 13 of its DPR has mentioned supply of 03 nos. CSS, whereas, in the abstract of estimates the installation of 04 nos. CSS has been shown. UPCL is required to clarify and submit revised estimates, if any.
 17. The cost of proposed works shown in the 'abstract of details of 33/11 kV GIS Substations alongwith its associated 33 kV, 11 kV & LT lines' at page 1 of DPR do not match with the individual estimates of works provided at page no. 6 to 15 of the DPR. UPCL is required to clarify and submit correct estimates alongwith the estimate report.
 18. UPCL is required to furnish pole section-wise SLD of proposed 33 kV line emanating from 33/11 kV S/s Pandukeshwar to proposed 33/11 kV S/s at Shri Badrinathji Dham.
 19. UPCL is required to furnish the basis of cost estimates considered for the proposed works under the instant Petition.
 20. UPCL has proposed civil works pertaining to 'construction of indoor type SGR building and miscellaneous works', 'construction of 03 nos. 1 room set with store and miscellaneous works'. In this regard, it appears that the estimate is on the higher side. UPCL is required to furnish the total built-up area in square feet for the aforesaid works and submit the basis of estimate for the proposed civil works and reasons for higher estimate.
 21. UPCL is required to furnish the estimated annual maintenance cost for the individual proposed works in the instant Petition.
 22. UPCL at page no. 37 to 39 has furnished illegible copy of information pertaining to approval of project under the SASCI scheme FY 2024-25. UPCL is required to furnish legible copy of the same.
 23. UPCL is required to furnish the list of prospective consumers/load expected in next 05 years alongwith the list of consumers with load who have applied for new connection/load enhancement.
 24. UPCL is required to submit the details of all generating stations at Shri Badrinathji Dham that are connected to UPCL's network alongwith last 05 years generation received at UPCL's metering point."
7. In response to the above observations/ deficiencies, Petitioner vide its letter No. 3601/Dir(Opr.)/UPCL/C-4 dated 25.07.2025 submitted its reply and furnished the following:

"

1. ...

Submission of UPCL

The land required for the construction of the 33/11 kV GIS Substation at Shri. Badrinathji Dham has been already formally transferred to UPCL by the Revenue

Department, Government of Uttarakhand. The supporting document is being enclosed as Annexure-A.

2. ...

Submission of UPCL

The proposed site for the 33/11 kV GIS Substation at Shri. Badrinathji Dham and the alignment of the associated 33 kV line from Pandukeshwar do not fall under any notified forest or wildlife area. Hence, no forest or wildlife clearance is required for the works proposed under the instant petition.

Further, a geological feasibility study of the identified substation site has been carried out by a geotechnical expert. The report confirms that the land is suitable for the construction of substation infrastructure and does not pose any geological constraints.

Further, the Petitioner has enclosed a geo-technical survey report of the site proposed for construction of 2x5 MVA 33/11 kV S/s at Shri Badrinathji Dham. The extract of the said report is detailed hereunder:-

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सन्दर्भित स्थल ऋषिकेश-श्री बद्रीनाथ राष्ट्रीय राजमार्ग पर जोशीमठ से श्री बद्रीनाथ तक लगभग 40 किमी० दूरी के बाद श्री बद्रीनाथ-माण्डा मोटर मार्ग पर निकट अमृततारा होटल के समीप स्थित है। सन्दर्भित स्थल की भौगोलिक स्थिति उत्तर 30°44'15.22" व पूरब 79°29'49.29" हैं। रा०उ०नि० क्षेत्र पाण्डुकेश्वर, तहसील जोशीमठ, जनपद चमोली के ग्राम बामणी को ज०वि०र० (N.Z.A) खतौनी खाता संख्या 52 श्रेणी 9(3)ड उत्तराखण्ड सरकार (बंजर) भूमि खसरा नं० 800 रकबा 49.752 मध्ये 0.140 है० भूमि बिजली विभाग 33/11 के०वी० हेतु प्रस्तावित है। प्रस्तावित भूमि मध्ये किसी भी प्रकार के वृक्ष, खण्डर, मकान, मन्दिर, मस्जिद आदि नहीं है।

प्रश्नगत स्थल लगभग उत्तर-दक्षिण विस्तारित पहाड़ी भू-भाग पर स्थित है, जिसका पहाड़ी ढाल लगभग 25° पश्चिमवत् है, जबकि स्थल के ऊपरी पहाड़ी भाग का ढाल लगभग 45° है। प्रश्नगत स्थल उच्च हिमालय क्षेत्रान्तर्गत स्थित पहाड़ी भू-भाग पर हिमनद द्वारा निछेपित मृदा अवसाद (क्वार्ट्ज) के ऊपर अवस्थित है। स्थल व स्थल के निकट स्थित भू-भाग पर स्वस्थाने चट्टानों का अभाव है, स्थल तथा निकट स्थित भू-भाग पर नाईस, शिष्ट, ग्रेनाईट, व क्वार्ट्जाईट प्रकृति की चट्टानों के बड़े-छोटे बोल्डर्स व टुकड़े भूरी-स्लेटी रंग की मृदा के साथ विद्यमान हैं। स्थल के उत्तर में चट्टानों के बड़े-छोटे बोल्डर्स व मृदा अवसाद, दक्षिण में चट्टानों के बड़े-छोटे बोल्डर्स व मृदा अवसाद के बाद लगभग 50 मी० दूरी पर क्षेत्रपाल मन्दिर, पूरब में ऊपरी ढाल पर हिमनद द्वारा निछेपित अवसाद, पश्चिम में निचली ढाल पर लगभग 35 मी० दूरी पर राष्ट्रीय राजमार्ग के साथ पार्किंग स्थल अवस्थित है। वर्तमान स्थलीय निरीक्षण के दौरान सन्दर्भित स्थल व निकट स्थित भू-भाग पर भूस्खलन, भूधंसाव एवं जलरिसाव नहीं पाया गया है।

प्रस्तावित स्थल पर निर्माण कार्य किये जाने से पूर्व व निर्माण कार्य के दौरान स्थल एवं निर्माण की जाने वाली संरचना की सुरक्षा हेतु निम्नलिखित अभियांत्रिकी सुरक्षात्मक सुझाव एवं शर्तों का अनुपालन किया जाना आवश्यक होगा:-

1. स्थल की भार वहन क्षमता का आंकलन किया जाय तथा उक्त के अनुसार संरचनाओं के परिमाण का निर्धारण किया जाय।
2. संरचना की डिजाईनिंग व निर्माण कार्य में भूकम्परोधी अभियांत्रिकी मानकों व तकनीकी का अनुसरण किया जाय।
3. स्थल की भार वहन क्षमता तथा परिमाण के अनुसार संरचना की नींव समुचित गहराई पर रखी जाय।
4. स्थल विकास किये जाने के उपरान्त व संरचना निर्माण किये जाने से पूर्व, विकसित स्थल के उपरी व निचले पहाड़ी ढाल पर अभियांत्रिकी मानकों के अनुरूप मजबूत धारक दीवारों का निर्माण किया जाय।
5. निर्माण की जाने वाली संरचनाओं के समीप प्रयुक्त जल व प्राकृतिक/वर्षाजल निकासी हेतु पक्की नालियों का निर्माण किया जाय एवं एकत्रित जल का सुरक्षित निस्तारण क्षेत्र से दूर किया जाय।

उपरोक्त वर्णित सुरक्षात्मक सुझाव एवं शर्तों का अनुपालन सुनिश्चित किये जाने की दशा में, प्राकृतिक आपदाओं की स्थिति का छोड़कर सन्दर्भित स्थल प्रस्तावित निर्माण कार्य हेतु भूगर्भीय दृष्टिकोण से उपयुक्त है।”

3. ...

Submission of UPCL

The design and selection of all electrical equipment proposed for the 33/11 kV Substation at Shri. Badrinathji Dham, such as power transformers, circuit breakers, current and voltage measuring instruments, isolators, conductors, and cables have been carried out duly considering the site-specific environmental and operational challenges associated with high-altitude terrain.

It is also to apprise that while preparing the estimates/tender the following parameters governing the design of electrical equipment such as transformers, breakers, measuring instruments, isolators, conductors, cables etc. alongwith their relevant technical standards for high altitude applications were considered:

Sl. No.	Climatic Parameter	Values
1	Max. ambient air temperature	50 °C
2	Min. ambient air temperature	-40 °C
3	Average daily ambient air temperature	30 °C
4	Max. Relative Humidity	100%
5	Max. altitude above mean sea level	3200 m
6	Average Annual rainfall	1500 mm
7	Max. wind pressure	195 kg/sq. m
8	Isokeraunic level	50 day/year
9	Maximum Snowfall Accumulation	10 ft.
10	Average no of heavy snowfall/rainy days in a year	150 no.

Accordingly estimates/tender documents of 33/11 kV Substation Shri. Badrinathji Dham has been prepared with Gas insulated panels & other equipment for altitude range of around 3200 meters for sea level & BIL correction factors. The relevant technical specifications **is being enclosed as Annexure-C.**

It is also to be informed that provision of naphthenic based oil has been made for power & station transformers as naphthenic based oil has low pour point to insure proper circulation of oil to provide effective cooling and insulation of electrical equipments.

4. ...

Submission of UPCL

The details of bidder qualification criteria for the proposed project **is being enclosed as Annexure-D .**

5. ...

Submission of UPCL

The proposed works under the instant petition have been structured into three distinct packages based on funding sources, technical scope, and execution strategy. The current status of tendering for each package is as follows:

Package I: For construction of 33/11 kV GIS Substation at Shri. Badrinathji Dham:

The Letter of Indent (LOI) for construction of 33/11 kV Substation has been issued to successful bidder on dated: 11-07-2025. The work is apart of grant received from Tourism Department.

Package II: For civil works:

For civil works including construction of SGR building. The work has been awarded on dated: 25-04-2025 to the successful bidder. The work is a part of grant received from Tourism Department.

Package III: For undergrounding of 11 kV HT and LT Lines in Master Plan Area of Shri. Badrinathji Dham:

The tender documents are under process. The work is a part of grant received from Tourism Department.

Package IV: For construction of 33 kV Line from 33/11 kV Substation Pandukeshwar to Proposed 33/11 kV Substation at Shri. Badrinathji Dham and augmentation of existing Pandukeshwar Substation from 1x5 MVA to 2x5 MVA:

This work is being undertaken under the SASCI Scheme, and the work has already been awarded on dated: 28-02- 2025 to the successful bidder.

6. ...

Submission of UPCL

UPCL confirms that all specific technical requirements (as illustrated in point no. 3) related to the supply, installation, and commissioning of electrical assets at the high-altitude location of Shri. Badrinathji Dham have been duly considered and incorporated in the design, specification, and procurement processes.

7. ...

Submission of UPCL

In compliance with the directions of the Hon'ble Commission, UPCL has prepared the scenario-wise Single Line Diagrams (SLDs) illustrating the power flow from 132/66 kV S/s Srinagar to the proposed 33/11 kV Substation at Shri. Badrinathji Dham, covering all major substations and feeders en route.

It is respectfully submitted that the reference in the Hon'ble Commission's observation to the proposed 66 kV 'N-1' line originating from 132/66 kV Substation Srinagar to 66 kV Karanprayag-Kothiyalsain appears to be inadvertently stated. The correct network reference should be:

"Post commissioning of 'N-1' 66 kV line proposed to be constructed from 132/66 kV Substation Simli to 66 kV line Karanprayag-Kothiyalsain."

The SLDs **enclosed as Annexure-E** have been prepared for the following two scenarios depicting the following details:

- All incoming and outgoing feeders at 66 kV, 33 kV, and 11 kV levels.
- Conductor types and lengths used at each segment (Dog for 66 kV, Dog & Raccoon for 33 kV).
- Load distribution under both scenarios at major nodes.
- Interconnection between existing and proposed infrastructure.
- (i) **Present Scenario of Power Supply:**
 - Power is being supplied from 132/66 kV S/s Srinagar → 66 kV Karnaprayag → 66 kV Marwari → 33/11 kV Pandukeshwar → existing 11 kV line to Shri. Badrinathji Dham.
 - The SLD illustrates existing conductor types (33 kV : Dog, 11 kV : Raccoon), segment-wise lengths, and current loading of each feeder.
- (ii) **Post Commissioning of 'N-1' 66 kV Line from 132/66 kV S/s Simli to Karanprayag-Kothiyalsain:**
 - The proposed 66 kV 'N-1' loop from Simli enhances network redundancy and improves voltage profile for Shri. Badrinathji Dham.
 - The SLD includes reconfigured load flows, enhanced transformation capacity, and alternate power routing through Simli-Karanprayag corridor.

8. ...

Submission of UPCL

In compliance with the directive of the Hon'ble Commission, UPCL has prepared and submitted a detailed activity-wise project implementation plan covering all three packages proposed under the instant petition, namely:

1. *Construction of 33/11 kV GIS Substation at Shri. Badrinathji Dham.*
2. *Construction of SGR building & other civil work.*
3. *Undergrounding of 11 kV HT and LT lines in the Badrinath Master Plan area.*
4. *Construction of 33 kV line from 33/11 kV Pandukeshwar to Shri. Badrinathji Dham and augmentation of Pandukeshwar Substation (from 1x5 MVA to 2x5 MVA).*

The activity-wise project plan is being enclosed as Annexure-F.

9. ...

Submission of UPCL

The Hon'ble Commission's observation regarding the SASCI approval referencing the construction of an 11 kV line, while the present proposal includes a 33 kV line, is respectfully acknowledged.

UPCL would like to clarify the following in this regard:

- *Initially, the line from 33/11 kV Substation Pandukeshwar to Shri. Badrinathji Dham was conceptualized as an additional 11 kV feeder to address the growing power demand at the Dham, particularly during the peak pilgrimage season.*
- *However, in view of the anticipated future load growth and long-term network strengthening requirements under the Shri. Badrinath Master Plan, the line was technically designed and estimated at 33 kV voltage level, using Raccoon & AAAC covered conductor, with full compliance to 33 kV construction standards and insulation clearances.*
- *This approach was proactive and forward-looking, allowing the line to be initially operated at 11 kV to meet immediate demand, while enabling seamless transition to 33 kV operation once the proposed 33/11 kV Substation at Shri. Badrinathji Dham was sanctioned and constructed.*
- *Accordingly, the proposal for the said line was submitted under the State Sector Scheme for Capital Investment (SASCI) and was duly approved by Government of Uttarakhand vide GO No. 251488/XXVII(1)/2024, dated: 05.11.2024 (submitted with DPR). Though the heading in the GO refers to the construction of an 11 kV line, the detailed estimate attached to the DPR clearly reflects 33 kV design parameters and specifications.*

- Subsequently, recognizing the critical infrastructure needs at the Dham, UPCL approached the Department of Tourism, Government of Uttarakhand, for support in constructing the 33/11 kV GIS Substation at Shri. Badrinathji Dham, which was approved under the Deposit Head vide GO No. 1801/Energy Dept./EFC/SPC/2024, dated: 25-11-2024 **is being enclosed as Annexure-G.**
- Therefore, while the SASCI approval may mention the line as 11 kV for administrative purposes, the technical and financial estimates have consistently treated the line as a 33 kV system, and it is now intended to serve as the primary incoming feeder for the new 33/11 kV Substation.

This submission is made to clarify the alignment between administrative approval and technical design, and to reaffirm that the planning and execution of the line have always been in accordance with the long-term infrastructure development vision for Shri. Badrinathji Dham.

10. ...

Submission of UPCL

*In compliance with the directions of the Hon'ble Commission, the layout diagram of the proposed 33/11 kV Indoor GIS Substation at Shri. Badrinathji Dham **is being enclosed as Annexure-H.***

11. ...

Submission of UPCL

In compliance with the Hon'ble Commission's direction, UPCL has prepared and submitted the following comprehensive Network Diagram covering both the existing infrastructure and the proposed works for Shri. Badrinathji Dham:

(i) Existing Network Diagram:

The existing SLD of Shri Badrinathji Dham has been prepared showing:

- Installed 11/0.4 kV Distribution Transformers (DTs) with individual capacities.
- Existing LT network configuration, feeder layout, and connectivity.
- Connected load details (in kW) at each DT location and across downstream load centres.
- Present 11 kV supply route from Pandukeshwar to Shri. Badrinathji Dham.

(ii) Proposed Network Diagram:

The SLD for the proposed 33/11 kV GIS Substation and its downstream 11 kV and LT network includes:

- Layout of the 33/11 kV GIS Substation with transformer bays, busbars, and outgoing feeders.

- Integration of 11 kV CSS (Compact Substations).
- Placement and configuration of 11 kV RMU (3-way) and 11 kV RMU (1-way) units.
- 11 kV cable size and route-wise length details for each section.
- Proposed downstream LT network and corresponding load estimates in kW.
- All additional 11 kV infrastructure not covered under the Master Plan, ensuring complete network representation.

All the above Network Diagram **is being enclosed as Annexure-I(i) and I(ii)** for kind perusal of the Hon'ble Commission. The diagrams have been prepared in alignment with actual field conditions, proposed system configuration, and future load development plans under the Badrinath Master Plan.

12. ...

Submission of UPCL

Regarding the treatment of existing electrical infrastructure at Shri. Badrinathji Dham, UPCL humbly submitted that:

(i) Distribution Transformers (DTs) and LT Network:

The Distribution Transformers (DTs) and HT & LT network presently installed at Shri. Badrinathji Dham within the Master Plan development area shall be dismantled as part of the system restructuring under the proposed plan. The dismantled DTs, after due assessment of their technical health and usability, shall either be redeployed in other suitable locations of UPCL's network where required or retained as standby units to meet any contingency requirements in the region. The HT & LT conductors, wherever dismantled, shall be treated as scrap and processed in accordance with standard disposal procedures.

(ii) 11 kV Line from Pandukeshwar to Badrinath:

Further, the existing 11 kV overhead line from Pandukeshwar to Shri. Badrinathji Dham shall not be dismantled. This line shall remain intact and continue to be part of the network infrastructure. It is proposed to be retained as a standby/alternate power supply route to ensure uninterrupted power supply to the 11 kV feeders emanating from the proposed 33/11 kV Substation at Shri. Badrinathji Dham. This standby arrangement will serve during any planned shutdowns, maintenance activities, or unforeseen breakdowns of the main 33 kV line from Pandukeshwar to Badrinath.

This approach ensures both operational reliability and optimal utilization of the existing assets.

13. ...

Submission of UPCL

In compliance with the Hon'ble Commission's directive, UPCL has prepared and submitted the voltage profile for each relevant substation, including 66 kV, 33 kV, and 11 kV bus voltage levels, under the following three system conditions:

(i) Existing Scenario (Connectivity from 132/66 kV Substation Srinagar)

- *Power is routed from 132/66 kV S/s Srinagar → 66 kV Karanprayag → 66/33 kV S/s Marwari → 33/11 kV S/s Pandukeshwar → 11 kV line to Badrinath.*
- *Due to long feeder lengths and cumulative voltage drops, the voltage at the 11 kV bus at Badrinath is observed to drop below acceptable limits during peak load periods.*

(ii) Post Commissioning of 'N-1' 66 kV Line from 132/66 kV S/s Simli to Karanprayag-Kothiyalsain

- *The proposed 'N-1' 66 kV line from Simli, not Srinagar (as was inadvertently mentioned), will provide an alternate and redundant power path, improving system stability.*
- *This network strengthening is expected to enhance voltage levels at all intermediate substations, including Marwari and Pandukeshwar, thus indirectly benefitting voltage conditions at Badrinath.*

(iii) Post Commissioning of the Proposed Works Under the Instant Petition

With the commissioning of the new 33 kV line from Pandukeshwar to Badrinath and the 2x5 MVA, 33/11 kV GIS Substation at Shri. Badrinathji Dham, the voltage profile will stabilize across all levels:

- *66 kV bus (Marwari, Karanprayag) : ~66 kV*
- *33 kV bus (Pandukeshwar, Badrinath) : ~32.5–33 kV*
- *11 kV bus (Badrinath) : ~10.8–11 kV*

*during peak hours,
within regulation
limits*

Detailed voltage drop calculations and assumptions (including line lengths, conductor types, and load distributions) is being enclosed as Annexure-J.

14. ...

Submission of UPCL

In compliance with the directive of the Hon'ble Commission, UPCL has compiled and submitted the month-wise kWh (active energy) and kVAh (apparent energy) readings for the last 12 months (July 2024 to June 2025) for the following metering points:

1. 33 kV Incomer Meter at 33/11 kV Substation Marwari.
2. 33 kV Incomer Meter at 33/11 kV Substation Pandukeshwar.
3. 11 kV Incomer Meter at 11 kV Switching Substation at Shri. Badrinathji Dham.

The submitted data includes:

- *Meter-wise monthly readings.*
- *Consumption trends aligned with seasonal variations, especially during peak pilgrimage months.*
- *Total energy draw at each incomer for both active and apparent energy parameters.*

The complete data set is enclosed as Annexure-K for kind reference and review by the Hon'ble Commission.

15. ...

Submission of UPCL

It is respectfully submitted the following point-wise clarifications:

(i) Name of Work Specifies 11 kV Instead of 33 kV:

As it has already been disused at Point No. 9 of this submission, the naming as "11 kV line" in the estimate heading is an administrative oversight. Technically, the line has been designed and executed as a 33 kV overhead line, with appropriate specifications (Raccoon & AAAC covered conductor, 33 kV insulation standards) to match future substation integration needs. The detailed cost estimate reflects this 33 kV standard.

(ii) Use of ACSR Raccoon Instead of ACSR Dog:

The choice of ACSR Raccoon conductor was made keeping in mind:

- *The moderate load requirement (initial capacity feeding ~5–9 MVA).*
- *Terrain conditions and span limitations in hilly areas.*
- *The fact that Raccoon conductor offers sufficient ampacity and mechanical strength for the proposed line length and load.*

- Use of ACSR Dog was not justified as it would result in over-sizing, higher costs, and structural strain on pole foundations in high-altitude zones.

(iii) Inclusion of One 33/11 kV, 5 MVA Transformer:

The provision for one no. 33/11 kV, 5 MVA transformer was included in the initial estimate titled "Construction of 11 kV line from 33/11 kV S/s Pandukeshwar to Shri. Badrinathji Dham" to accommodate future expansion of load at Shri. Badrinathji Dham. This proactive inclusion ensures system readiness for scaling up power supply as part of the Master Plan and reduces lead time for energization of the new GIS Substation.

At present, the 33/11 kV Substation Pandukeshwar is equipped with only one number 5 MVA power transformer, which makes the system vulnerable in the event of failure or outage of the existing transformer. To address this reliability concern and in line with standard power system planning practices, the provision of an additional 5 MVA transformer has been proposed under the T-1 contingency criteria to ensure redundancy and reliability of power supply to the region.

(iv) Justification for 2 Nos. 2.40 MVar Capacitor Banks:

The installation of 2x2.40 MVar three-phase capacitor banks at 33/11 kV Substation Pandukeshwar is technically justified as follows:

- **Existing Load Scenario:**
Peak load ~4 MVA at PF 0.80 → reactive power demand ≈ 3 MVar
- **Future Load Consideration (Hemkund Ropeway Project):**
Estimated additional load ~4 MVA (PF 0.85) → reactive power demand ≈ 2.47 MVar
 - Total Expected Reactive Power Demand : ≈ 5.47 MVar
 - Proposed Compensation : 2×2.40 MVar = 4.80 MVar

The proposed capacitor banks will:

- Improve average system power factor to 0.95–0.98
- Reduce I²R losses and enhance transformer capacity.
- Improve voltage stability, especially given the long feeding distance (~140 km) from the upstream grid.
- Hence, the installation is critical for both present and future operational reliability of the substation.

(v) Clarification on Work Items: 'Shifting of 5/3 MVA' and 'Erection of Power T/F (8/5 MVA)':

The entries referred in the estimate (S. No. 43) reflect standard items available in the departmental SAP library. These work items were selected

by the concerned Junior Engineer based on their nearest match with the actual scope of transformer erection. It is a routine practice to select the most applicable predefined line item for the sake of cost referencing and does not imply any deviation in the technical scope.

(vi) Discrepancy Between SASCI Abstract and DPR Estimate:

The minor discrepancy is due to:

- Variation in contingency and centage charges applied during DPR preparation (based on UPCL norms) versus those finalized in the approved SASCI abstract (based on State TAC norms).
- The scope and technical quantities remain consistent across both documents, and the financial variation is limited to policy-based calculation differentials.

16. ...

Submission of UPCL

In reference to the Hon'ble Commission's observation regarding the mention of 03 Nos. CSS (Compact Substations) on page no. 13 of the DPR and 04 Nos. CSS in the abstract of estimates, UPCL would like to submit the mention of 04 Nos. CSS in the abstract was inadvertent. The correct quantity, as per actual requirement and planning, is 03 Nos. CSS, as detailed in the body of the DPR.

17. ...

Submission of UPCL

The revised abstract of details of 33/11 kV GIS Substations alongwith its associated 33 kV, 11 kV & LT lines is as follows:

(Rs. in Lac)							
S. No.	Name of the Project	Fund Resources	BoD Approval	Status of Land	Work Detail	Total Project Cost	Revised Project Cost
1	Construction of new 33/11 kV Indoor GIS S/s at Shri. Badrinathji Dham	100% Grant from GoU	123 rd BoD	Available	2x5 MVA	574.36	814.96
2	Civil Works				-	220.47	220.47
3	Construction of 11 kV line				2x6 km. D/c	616.94	1595
4	Construction of LT line				16.30 Km.	1192.78	
5	Installation of CSS				4x1000 kVA		
Total						2604.55	2630.43
6	New 33 kV Line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri. Badrinathji Dham	SASCI	123 rd BoD	NA	22.00 Km.	732.39	732.39
Sub Total						3336.94	3362.82

18. ...

Submission of UPCL

The pole section-wise SLD of proposed 33 kV line 33 kV line emanating from 33/11 kV S/s Pandukeshwar to proposed 33/11 kV S/s at Shri. Badrinathji Dham is being enclosed as Annexure-L.

19. ...

Submission of UPCL

In response to the Hon'ble Commission's query, UPCL respectfully submits that the cost estimates for the proposed works under the instant petition have been prepared based on the standardized and approved item rates available in the department's SAP (Systems, Applications & Products) software. The rates for decentralized material and labour portion has been taken as prevailing rates in the market. For civil construction work estimates are based on Delhi Schedule of Rates-2018.

20. ...

Submission of UPCL

It is to apprise that the estimate of civil works included construction of SGR building with land development and construction of 03 no. rooms with land development. The estimate is framed as per the prevailing practices and rates are based on Delhi Schedule of Rates-2018.

The build-up area of SGR building is 2250.99 sq.ft. and 03 no. rooms is 1029.73 sq.ft. The abstract of cost alongwith with build-up area is being enclosed as Annexure-M.

21. ...

Submission of UPCL

In response to the Hon'ble Commission's observation regarding the estimated annual maintenance cost of the proposed works under the instant petition, UPCL respectfully submitted that no separate annual maintenance cost has been added under the individual heads of the proposed works in the DPR. However, routine upkeep shall continue to be managed efficiently within the scope of UPCL's existing Operation & Maintenance (O&M) framework.

22. ...

Submission of UPCL

In compliance with the directions of the Hon'ble Commission, a readable copy as available is being enclosed as Annexure-N. However the same is also being mailed for kind perusal.

23. ...

Submission of UPCL

In response to the Hon'ble Commission's query regarding the list of prospective consumers and expected load growth in Shri. Badrinathji Dham over the next five years, UPCL respectfully submits the following:

As part of infrastructure development under the Shri. Badrinath Master Plan, the Public Works Department (PWD), Uttarakhand, has formally submitted its electrical load requirements for newly constructed facilities and planned infrastructure. The demand is phased as follows:

- *Phase-I Load Demand* : 1316 kVA
- *Phase-II Load Demand* : 876 kVA
- *Other Load Demand* : 646 kVA
- *Mana Project Load Demand* : 205 kVA
- *Total Confirmed Load Demand from PWD* : 3101 kVA

*The detailed load demand sheet from PWD including the category-wise distribution of buildings (e.g., tourist accommodations, disaster **management** centers, helipad support facilities, etc.) is being enclosed as Annexure-O.*

Apart from the PWD-requested load, UPCL anticipates a natural annual load growth of approximately 2% in the Shri. Badrinathji Dham area over the next five years. This projection is based on:

- *Increasing number of pilgrimage tourists annually.*
- *Gradual rise in commercial electricity connections.*
- *Load enhancements from existing residential and religious institutions.*
- *Upcoming small-scale hospitality and service sector developments.*

24. ...

Submission of UPCL

In compliance with the directive of the Hon'ble Commission, UPCL hereby submits the details of power generating stations located at Shri. Badrinathji Dham that are connected to UPCL's distribution network.

- *At present, there are two micro-hydel power plants, each of 615 kVA capacity, operating at the Dham **and** maintained by UREDA (Uttarakhand Renewable Energy Development Agency). These are the only generating units presently interfaced with the UPCL system at Shri. Badrinathji Dham.*

- *The energy generated from these plants is connected to UPCL's 11 kV switching substation, and the **energy** fed into the grid is recorded at the UPCL metering point installed at the outgoing feeder from the power house.*

The generation data for the last five (05) years, as received and recorded at the UPCL metering point is being enclosed as Annexure-P."

Commission's Observations, Views & Directions: -

8. Based on the examination and analysis of the proposal & subsequent submissions made by the Petitioner before the Commission, the observations, views & directions of the Commission are as follows:

- (1) The Petitioner in its instant Petition has proposed works amounting to a total estimated cost of Rs. 33.36 Cr., as detailed below:-
 - (i) Construction of 33/11 kV GIS Substation comprising 2x5 MVA Power Transformers alongwith 4x1 MVA CSS, associated 11 kV & LT line network and related civil works at Shri Badrinathji Dham. The Petitioner has estimated the cost of this project as Rs. 26.04 Cr., which was duly noted by its Board of Directors in 123rd meeting held on 01.05.2025. The Government of Uttarakhand vide its GO dated 25.11.2024 approved these works as a grant.
 - (ii) Construction of new 33 kV line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri Badrinathji Dham, alongwith the augmentation of the existing 1x5 MVA to 2x5 MVA 33/11 kV S/s at Pandukeshwar. The Petitioner has estimated the cost of this project at Rs. 07.32 Cr., which was also approved by its Board of Directors in 123rd meeting held on 01.05.2025. The said works were approved under the Scheme for Special Assistance to States for Capital Investment (SASCI) of GoI, in a debt-equity ratio of 70:30 and the loan and equity portions were approved vide GO dated 05.12.2025. The 70% loan is repayable in twelve equal annual instalments with interest @ 6.5%, while the 30% equity portion shall be contributed by the GoU as counter funding.
- (2) The Petitioner has stated that the proposed 33/11 kV S/s at Shri Badrinathji Dham has been planned in-line with the Master Plan of Shri Badrinathji Dham under the State Tourism Department. The Substation is essential to

cater to an estimated electrical load of about 6 MVA for newly constructed facilities and planned infrastructure under the Master Plan. The Petitioner further submitted that the establishment of this Substation will facilitate reliable 24x7 quality power supply in the area and significantly improve network reliability indices such as SAIFI, SAIDI and MAIFI.

- (3) Upon examination of the Petitioner's submissions, the Commission observed that while the abstract of the Petition mentions 4 nos. of 1000 kVA CSS, the detailed estimate accounts for only 3 nos. of 1000 kVA CSS. Moreover, the total of the item-wise estimates did not align with the overall cost indicated in the abstract. In this regard, the Petitioner, through its submission dated 25.07.2025, clarified that the reference to 4 nos. CSS in the abstract was made inadvertently, and the correct quantity is 3 nos. The Petitioner, through the same submission, also furnished the revised project cost, as detailed below:-

S. No.	Name of the Project	Work Detail	Total Project Cost (Rs. in Lac)	Revised Project Cost (Rs. in Lac)
1	Construction of new 33/11 kV Indoor GIS S/s at Shri. Badrinathji Dham	2x5 MVA	574.36	814.96
2	Civil Works	-	220.47	220.47
3	Construction of 11 kV line	2x6 km. D/c	616.94	1595
4	Construction of LT line	16.30 Km.	1192.78	
5	Installation of CSS	3x1000 kVA		
Sub Total			2604.55	2630.43
6	New 33 kV Line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri. Badrinathji Dham and augmentation of the existing 1x5 MVA to 2x5 MVA 33/11 kV S/s at Pandukeshwar.	22.00 Km.	732.39	732.39
Total			3336.94	3362.82

From the aforesaid Petitioner's submissions, it is evident that the total cost of constructing the 33/11 kV GIS Substation, alongwith CSS, associated 11 kV & LT line network, and civil works at Shri Badrinathji Dham, has been revised from 26.04 Cr. to 26.30 Cr., owing to changes in the cost of the 2x5 MVA 33/11 kV GIS Substation and associated works. However, the Board of Directors (BoD) of the Petitioner, in its 123rd meeting held on 01.05.2025, had recorded the cost as Rs. 26.04 Cr.

In this context, the Commission is of the view that financial assistance for the aforesaid works is grant which is fixed at Rs. 26.04 Crore probably considering which the Board of Directors vide its approval dated 01.05.2025 has accorded the approval on the condition that the expenditure of Rs. 26.04 Crore as grant without any variation on the same. Considering which the Commission finds it appropriate to restrict the expenditure against 'Construction of 33/11 kV GIS Substation comprising 2x5 MVA Power Transformers alongwith 3x1 MVA CSS, associated 11 kV & LT line network and related civil works at Shri Badrinathji Dham' from revised estimate of Rs. 26.30 Crore to Rs. 26.04 Crore only i.e. upto the amount approved by the BoD in its 123rd meeting held on 01.05.2025.

- (4) With respect to the Commission's query regarding whether all technical requirements of electrical equipment such as transformers, breakers, measuring instruments, isolators, conductors, cables etc. proposed for installation at the high-altitude substation have been duly considered, the Petitioner, vide its submission dated 25.07.2025, confirmed that all specific technical requirements relating to the supply, installation and commissioning of electrical assets at Shri Badrinathji Dham have been appropriately incorporated in the design specifications and procurement process.

Since, the Petitioner has agreed to comply with all specific technical requirements related to proposed electrical assets at Shri Badrinathji Dham, the Commission finds it necessary to direct the Petitioner to ensure that the design, supply, installation and commissioning of all electrical equipment comply with the relevant technical standards and are capable of

withstanding the environmental and operational challenges associated with an altitude of more than 3200 meters above MSL.

- (5) With reference to the requirement of geological approval for the proposed works at Shri Badrinathji Dham, the Petitioner, vide its submission dated 25.07.2025, furnished the geological feasibility study of the identified Substation site conducted by a geo-technical expert. Upon examination of the report, it has been observed that the expert has provided certain safety suggestions/recommendations and conditions for the construction of the proposed Substation at the identified site, as detailed below:-

“

1. स्थल की भार वहन क्षमता का आंकलन किया जाय तथा उक्त के अनुसार संरचनाओं के परिमाण का निर्धारण किया जाय।
2. संरचना की डिजाईनिंग व निर्माण कार्य में भूकम्परोधी अभियांत्रिकी मानकों व तकनीकी का अनुसरण किया जाय।
3. स्थल की भार वहन क्षमता तथा परिमाण के अनुसार संरचना की नींव समुचित गहराई पर रखी जाय।
4. स्थल विकास किये जाने के उपरान्त व संरचना निर्माण किये जाने से पूर्व, विकसित स्थल के उपरी व निचले पहाड़ी ढाल पर अभियांत्रिकी मानकों के अनुरूप मजबूत धारक दीवारों का निर्माण किया जाय।
5. निर्माण की जाने वाली संरचनाओं के समीप प्रयुक्त जल व प्राकृतिक/वर्षाजल निकासी हेतु पक्की नालियों का निर्माण किया जाय एवं एकत्रित जल का सुरक्षित निस्तारण क्षेत्र से दूर किया जाय।”

In this regard, the Commission is of the view that the Petitioner should make its endeavor to comply with the suggestions/recommendations highlighted in the aforesaid geological feasibility study dated 25.07.2025. The Petitioner shall ensure that the proposed Substation at the identified site is constructed with due consideration of all prescribed safety measures, so as to minimize potential damages during any calamity, natural disaster, or force majeure event.

- (6) With respect to substation expansion and capacity augmentation to meet future load growth, the Commission is of the view that the Petitioner shall

design & implement the proposed 33/11 kV S/s at Shri Badrinathji Dham in accordance with provisions of CEA Regulations on Substation safety, as well as future expansion and capacity augmentation requirements.

- (7) In response to the Commission's query regarding the construction of the 33 kV or 11 kV ACSR Raccoon line from 33/11 kV S/s Pandukeshwar to 33/11 kV S/s Shri Badrinathji Dham, the Petitioner, vide its submission dated 25.07.2025, clarified that the proposed line is a 33 kV ACSR Raccoon overhead line. Further, on the Commission's query regarding the use of ACSR Raccoon conductor instead of ACSR Dog conductor, the Petitioner submitted that the choice of Raccoon conductor was made considering the terrain conditions, span limitations in hilly areas, sufficient ampacity, mechanical strength and moderate load requirements.

In this regard, the Commission is of the view that the justification given by the Petitioner may be correct to the limited extent, however, the constraints of permanent nature cannot undermine the actual requirement and planning for the future/prospective load growth and quality of power supply. Therefore, the Commission finds that the Petitioner should design and implement the proposed 33 kV line in a manner that ensures its capability to meet the future load demand and quality of power supply of Shri Badrinathji Dham and adjoining areas.

Further, the Commission is of the view that the upcoming load at Shri Badrinathji Dham and ropeway at Hemkund Sahib would certainly call for careful planning & designing of robust electrical network at least upto Pandukeshwar. Therefore, the Petitioner is required to work in close co-ordination with the transmission licensee for planning & establishment of long term robust electrical network in the region, as Shri Badrinathji Dham and Hemkund Sahib are one of the most venerated shrines in the State of Uttarakhand attracting pilgrims from all across the Country.

- (8) In response to the Commission's query regarding the status of the existing 11 kV line from Pandukeshwar to Shri Badrinathji Dham after completion of the proposed works, the Petitioner, vide its submission dated 25.07.2025,

submitted that the existing 11 kV overhead line will not be dismantled but will be retained as a standby/alternate power supply route to ensure uninterrupted power supply during the planned shutdowns, maintenance activities, or unforeseen breakdowns of the proposed 33 kV line.

Accordingly, the Commission is of the view that the Petitioner should maintain both the proposed 33 kV line and the existing 11 kV line so that, in the event of any interruption on the 33 kV line, supply to Shri Badrinathji Dham can be ensured through the existing 11 kV line. Moreover, the Commission is of the view that in the event of failure of aforesaid 33 kV line, the maintenance of voltage profile at 11 kV bus at Shri Badrinathji Dham would be a daunting task, thus, care must be taken for proper maintenance of the proposed 2X2.4 MVar capacitor banks in automatic operation mode at 33/11 kV Pandukeshwar S/s (For low and high hydro generation conditions) which may turn out to be a boon in such conditions.

(9) The Petitioner, vide submission dated 25.07.2025, furnished a Single Line Diagram depicting the power supply scenario and voltage profile under the following 3 cases:-

- (1) Existing scenario
- (2) Scenario post commissioning of 66 kV line from 132/66 kV S/s Simli to 66/33 kV S/s Kaleshwar (Karanprayag)
- (3) Scenario post commissioning of aforesaid 66 kV line alongwith the proposed 33/11 kV S/s at Shri Badrinathji Dham.

In the aforesaid 3 cases, the Petitioner computed the voltage drop calculation at Shri Badrinathji Dham with 66 kV line emanating from 132/66 kV S/s Srinagar and accordingly submitted the voltage drop of 36.21% (at 11 kV), 31.50% (at 11 kV) & 9.95% (at 33 kV) at Shri Badrinathji Dham w.r.t. the aforesaid 3 scenarios respectively. Further, the Petitioner vide its e-mail dated 28.08.2025 has submitted the actual recorded minimum voltage at 11 kV feeder node at Shri Badrinathji Dham for the month of May-2025, June-2025, July-2025 & August-2025 were 7.7 kV, 7.6

kV, 9 kV & 9.3 kV respectively. Whereas, the maximum voltage at 11 kV feeder node at Shri Badrinathji Dham for the month of May-2025, June-2025, July-2025 and Aug-2025 were 11.3 kV, 11.9 kV, 12 kV and 11.8 kV respectively. This implies that there is a large variation in the voltage profile at 11 kV node of Sh. Badrinathji Dham which requires careful attention by the Petitioner and calls for effective voltage and reactive power management.

Further, from the aforesaid scenario-wise submission of the Petitioner, it is projected that voltage Regulation at Shri Badrinathji Dham would improve significantly post commissioning of the proposed 33/11 kV S/s at Shri Badrinathji Dham.

However, the Commission cautions the Petitioner that even after construction of proposed 33 kV line from Pandukeshwar to proposed Shri Badrinathji Dham 33/11 kV S/s, the voltage profile at 11 kV node at Sh. Badrinathji Dham is expected to vary due to variation in hydro generation of SHPs connected between 132/66 kV Srinagar to 33 kV S/s Pandukeshwar. Thus, it calls for effective voltage profile management at Shri Badrinathji Dham end by the Petitioner. Further, the anticipated load at Shri Badrinathji Dham is approx. 6 MVA whereas, the load considered by the Petitioner in its voltage profile computation is 3 MVA.

In this regard, the Commission is of the view that the proposed project is crucial for achieving the overall goal of providing reliable & quality power supply to all the existing and prospective consumers at Shri Badrinathji Dham and adjoining areas. Therefore, the Commission finds it necessary that the Petitioner should take all the corrective steps for ensuring reliable & quality power supply for all the existing and prospective loads of Shri Badrinathji Dham and adjoining areas.

- (10) On examination of the SLD for 11 kV U/G network of Shri Badrinathji Dham, the Commission has observed that the Petitioner has depicted 6 nos. 3 way RMU and 4 nos. 4 way RMU. Whereas, in the estimate 10 nos. 11 kV RMU 3 way and 4 nos. 11 kV RMU 1 way were considered. The Petitioner

is required to meticulously check the same and ensure that correct configuration of RMUs are installed at site including appropriate sizing & installation of cables for the same ensuring catering of loads during various contingency conditions. Considering the importance of the work, the Commission is of the view that the Petitioner must make an endeavor for provisioning express feeder for the Main Mandir premise (Shri Badrinathji Dham) in addition to the 3-way RMU depicted in the aforesaid SLD.

- (11) On being queried regarding the status of tender proceeding for the works proposed in the instant Petition, the Petitioner, through its submission dated 25.07.2025, submitted the following details:-
- (i) Construction of new 33/11 kV Indoor GIS S/s at Shri. Badrinathji Dham: LoI has been issued to the successful bidder on 11.07.2025.
 - (ii) Construction of Civil Works: The work has been awarded to the successful bidder on 25.04.2025.
 - (iii) Construction of underground 11 kV HT & LT lines: The tender documents are under process.
 - (iv) Construction of new 33 kV Line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri. Badrinathji Dham and augmentation of the existing 1x5 MVA to 2x5 MVA 33/11 kV S/s at Pandukeshwar: This work has been awarded to the successful bidder on 28.02.2025.

From the aforesaid submission of the Petitioner, it is observed that Letters of Intent/Awards for most of the proposed works (except construction of 11 kV HT & LT lines) have already been issued. While, as per Regulation 40 of UERC (Conduct of Business) Regulations, 2014, prior approval of the Commission is mandatory for investments by the distribution licensee that exceed the prescribed limits laid down by the Commission. Such non-compliances cannot be taken lightly and require strict action against the delinquent. This cannot be a blanket justification for the violation of the Regulations that a particular project is of paramount importance or the time-frame and such other constraints exists, for such

issues the Petitioner must promptly take actions and not indulge in willful violation of the Regulations. However, considering the present circumstances, the Commission feels that the Petitioner must be warned before taking any penal action. Therefore, we warn the Petitioner that it should not violate the Regulations in future and such violation would entail consequential penal action. As one time exception, the Commission considering the request of the Petitioner and criticality of the project for ensuring reliable and resilient power supply at this high altitude pilgrimage destination, the strict timelines in approved funding sources (grant from Tourism Department of GoU and debt- equity support under SASCI scheme), the Commission has taken a lenient view towards consideration of the proposal and warns the Petitioner, not to repeat such acts/actions in future, failing which such proposals would be liable for rejection and appropriate penal action would be initiated against the responsible officers. The Commission further cautions the Petitioner that all proposals, especially those involving critical timelines and site-specific constraints, are submitted before the Commission well in advance for its approval.

Further, approval at this stage i.e., issuance of Letters of Intent/Awards of the works in the instant matter before obtaining in-principle approval of the Commission, is being allowed as a special case keeping in view the necessity of providing reliable & quality power supply to the holy shrine Shri Badrinathji Dham and consumers in vicinity, located at an altitude of over 3200 m above MSL with severe working constraints in terms of limited working months and hours per day. The lenient view and consideration taken by the Commission while granting the instant proposals are due to peculiar and special circumstances and should not be taken as precedence for investment approval application before the Commission. The Commission shall strictly deal with the matter in accordance with the provisions of the Regulations in this regard.

- (12) Since the Letters of Intent/Awards have already been issued for the works
(a) 'Construction of new 33/11 kV Indoor GIS S/s at Shri Badrinathji Dham'

(b) 'Construction of Civil Works' (c) 'Construction of new 33 kV Line from 33/11 kV S/s Pandukeshwar to the proposed 33/11 kV S/s Shri. Badrinathji Dham and augmentation of the existing 1x5 MVA to 2x5 MVA 33/11 kV S/s at Pandukeshwar', therefore, the aforesaid works no longer fall within the ambit of prior investment approval. However, for the reasons stated in the preceding Para, the Commission hereby **grants post facto approval** for the aforesaid works and **grants in-principle approval** for the works pertaining to 'Construction of underground 11 kV HT & LT lines at Shri Badrinathji Dham' subject to strict fulfillment of terms and conditions as mentioned below:-

- (i) The Petitioner is directed to go for the competitive bidding for obtaining most economical prices from the bidders under the prevailing Rules & Regulations.
- (ii) The Petitioner is directed to strictly comply with the suggestions/recommendations highlighted in the geological feasibility study enclosed with submission dated 25.07.2025 and detailed at Para-8(5) of this Order. The Petitioner shall ensure that the proposed Substation at the identified site is constructed with due consideration of all prescribed safety measures, so as to minimize potential damages during any calamity, natural disaster, or force majeure events.
- (iii) The Petitioner is directed to restrict the expenditure against 'Construction of 33/11 kV GIS Substation comprising 2x5 MVA Power Transformers alongwith CSS, associated 11 kV & LT line network and related civil works at Shri Badrinathji Dham' from revised estimate of Rs. 26.30 Cr. to Rs. 26.04 Cr. only i.e. upto the amount approved by the BoD in its 123rd meeting held on 01.05.2025.
- (iv) All the loan conditions laid down by the funding agency under Special Assistance to States for Capital Investment (SASCI) Scheme are strictly complied with. Further, the grant provided by the GoU

against the works proposed at Shri Badrinathji Dham are effectively utilized.

- (v) Petitioner shall submit completion report before the Commission.
- (vi) CAMC contract (if any) be framed in order to ensure highest degree of Service Level Agreement (SLA) with appropriate Liquidated Damages (LD) clause for compensating the Petitioner against default in agreed SLA, and submit the draft of the same for approval.
- (vii) The Commission may verify/check the proposed works to be executed by the Petitioner at any point of time during/post execution of the works from the perspective of not only substantiating that the assertions & commitments made by the Petitioner have been fully complied and correct, but also to assess Quality, Optimum utilization of resources, Benefits accrued from the proposed investments etc. as has been projected by the Petitioner.
- (viii) The Petitioner shall safeguard its commercial interest by taking suitable insurance Policy for the instant project given the geographical and high climatic constraints.
- (ix) Post execution of the project, the Petitioner shall submit the Project Completion Report to the Commission alongwith photographs, expenditure incurred/completed cost, financing of the Project and detailed analysis & calculations of the benefits accrued from the proposed investments etc.
- (x) The Petitioner is directed to ensure that the design, supply, installation and commissioning of all electrical equipment comply with the relevant technical standards and are capable of withstanding the environmental and operational challenges associated with an altitude of more than 3200 meters above MSL.
- (xi) The Petitioner is directed to take all the corrective steps for ensuring quality & reliable power supply for all the existing and prospective loads at Shri Badrinathji Dham especially the Main Mandir premise.

- (xii) The Petitioner shall ensure to conduct proper Factory Acceptance Tests, Routine Tests, Type Tests and Site Acceptance Tests for the proposed Power transformers, Distribution transformers and other electrical assets as per relevant IS/IEC standards.
- (xiii) The Petitioner shall comply to the following CEA and UERC Regulations and amendments thereof at every step of the Construction and Operation & Maintenance of the lines & S/s. The Petitioner shall also ensure the compliance of relevant standards, and the Project should be executed with safety and due diligence so that minimal incidents of break downs/fault occurrences/hindrances are faced during operation & maintenance:
 - (a) Central Electricity Authority (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations, 2011.
 - (b) Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022.
 - (c) Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulations, 2023.
 - (d) UERC (Distribution Code) Regulations, 2018.
- (xiv) 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 (if any) agreed by the State Government or any other source in respect of the proposed schemes.
- (xv) After completion of the aforesaid schemes, the Petitioner shall submit the completed cost and financing of the schemes.
- (xvi) 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.

- (13) 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. In case of violations of any of the condition mentioned above or in case any information provided, if at any time, later on, found to be incorrect, incomplete or in case relevant information was not disclosed, that materially affects the basis for granting the approvals, in such cases, the Commission may cancel the approval or refuse to allow all or part of the expenses incurred in the ARR/True-up apart from initiating plenary action.

Ordered accordingly.

(Prabhat Kishor Dimri)
Member (Technical)

(Anurag Sharma)
Member (Law)

(M.L. Prasad)
Chairman