

Before
UTTARAKHAND ELECTRICITY REGULATORY COMMISSION
Petition No. 51 of 2016

In the Matter of:

Application seeking approval for the investment on the following projects:

- (A) Construction of 9 Nos. 33/11 kV S/s and their associated lines of 109.40 km.
- (B) Construction of 06 No. feeders from 132/33 kV S/s Laltappar.
- (C) Augmentation of 11 Nos. 33/11 kV Sub-stations.

And

In the Matter of:

Uttarakhand Power Corporation Limited. (UPCL),
Victoria Cross, Vijeta Gabar Singh Urja Bhawan,
Kanwali Road,
Dehradun.

.....Petitioner

Coram

Shri Subhash Kumar Chairman

Date of Order: March 08, 2017

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 Capital Investment for the projects covering Construction of 9 Nos., 33/11 kV Sub-station and their associated lines of 109.40 km, Construction of 6 No. feeders from 132/33 kV Sub-station Laltappar and Augmentation of 11 Nos., 33/11 kV Sub-stations located at Garhwal and Haridwar Zones.

Background & Petitioner's Submissions

2. The Petitioner vide its letter No. 3561/UPCL/Comm/RMC-6/D(F) dated 12.10.2016 submitted an Application seeking approval for Capital investment under the provisions of UERC (Conduct of Business) Regulations, 2014 and clause

11 of the Distribution and Retail Supply License [License No. 2 of 2003] for construction and augmentation of following projects for the total estimated cost of ₹62.91 crore as per table given below:

- (A) Construction of 9 Nos. 33/11 kV S/s and their associated lines of 109.40 km
 (B) Construction of 6 Nos. feeder from 132/33 kV S/s Laltappar.
 (C) Augmentation of 11 Nos. 33/11 kV Sub-stations located in Garhwal and Haridwar Zones.

Sl. No.	Name of Sub-station	Sub-station Capacity (MVA)	Estimated cost of Sub-station	Length of 33 KV Line (km)	Estimated cost of Line	Total Cost
A. 33/11 kV Sub-station & their associated lines						
GARHWAL ZONE						
1	IHM Nibuwala, Dehradun	2x10	4.41	0.10	0.11	4.52
2	Maroda, Saklana Patti, Tehri	1x3	2.20	20.00	4.88	7.08
3	Tharali, Chamoli	1x3	2.24	1.20	0.26	2.50
4	Latherdeva, Haridwar	2X8	3.30	8.00	1.34	4.64
5	Sankari, Uttarkashi	2x3	3.25	13.00	2.30	5.55
Total Garhwal Zone		48.00	15.40	42.30	8.89	24.29
KUMAON ZONE						
1	Deghat, Almora	2x5	3.35	20	2.84	6.19
2	Mohanary, Almora	1x5	3.36	26.00	4.22	7.58
3	Bhamrola, Malsa Road, Rudrapur	2x8	3.26	0.30	0.08	3.34
4	Mahuakhera, Ganj U.S. Nagar	2X10	3.89	2.8	0.72	4.61
Total Kumaon Zone		51.00	13.86	49.10	7.86	21.72
Total A			29.26	91.4	16.75	46.01
B. Construction of 6 Nos. Feeder						
1	From 132/33 kV S/s Laltappar, Dehradun	-	-	37.05	-	6.72
Total B				37.05	-	6.72
C. Augmentation of Sub-station						
1	Raipur, Dehradun	1x5+1x3 to 1x5+1x10	1.06	-	-	1.06
2	Jawalpur-2, Haridwar	1x8+1x10 to 2x12.5	1.00			1.00
3	Laljiwala, Haridwar	1X5+1X8 to 2x12.5	0.85			0.85
4	Manglore, Roorkee	2x10 to 2x12.5	0.74	-	-	0.74
5	Jhabreda, Roorkee	1x5+1x8 to 2x10	0.81	-	-	0.81
6	Raipur, Roorkee	3x10 to 3x12.5	1.10	-	-	1.10
7	Himalayan, Guest House, Roorkee	1x5+1x8 to 2x10	0.90	-	-	0.90
8	Ramnagar, Roorkee	1x5+1x8 to 2x12.5	1.39	-	-	1.39
9	Brahampur, Roorkee	2x8 to 2x10	0.65	-	-	0.65
10	Kotdwar, Pauri Garhwal	2x8 to 2x10	0.99	-	-	0.99
11	Guptkashi, Rudraprayag	1x5 to 1x5+1x3	0.69	-	-	0.69
Total C		-	10.18			10.18
Grand Total (A+B+C)						62.91

3. UPCL vide its letter No. 3620/UPCL/Com/RMC-6/D(F) dated 21.10.2016 submitted the certified true copies of the BoD resolutions for the works proposed in the Petition.
4. The Petition was examined with respect to the provisions made in the UERC (Conduct of Business) Regulations, 2014 and it has been observed that the proposal submitted to the Commission suffice the pre-requisites for admissibility and hence the Commission allowed to admit the Petition on dated 16.11.2016.
5. With regard to funding of these projects, the Petitioner has submitted that same will be met through loan from REC and Equity from State Government in the ratio of 70:30 respectively.
6. On preliminary examination of the Petition, the Commission vide its letter No. 1421 dated 19.12.2016 directed the Petitioner to furnish information/clarification/data on the following deficiencies/infirmities for further scrutiny/analysis of the Petition:

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General Comments

1. It has been observed that in case of Tharali, Deghat & Bhamrola sub-stations acquisition of land is pending. UPCL is required to submit documentary evidence for acquisition of land for the aforesaid sub-stations.
2. UPCL has filed the Petition for 'Construction of 9 Nos. 33/11 kV S/s and their associated lines of 109.40 Km'. However, on examination it has been observed that at several places in the Petition the same has been wrongly mentioned as 10 Nos. sub-stations. Besides this, the total length of associated lines as per individual S/s proposals is 91.4 Km against the total length of 109.40 Km as mentioned in the Petition. UPCL is required to clarify and submit the correct submissions.
3. On examination it has been observed that following variations from the BOD approval has been observed in UPCL's petition:-

Name of 33/11 kV S/s/Work	As per Petition			As per BOD		
	S/S capacity	Length of 33 kV line (in Kms)	Total Cost (in Rs Cr)	S/S capacity	Length of 33 kV line	Total Cost (in Rs Cr)
A. 9 Nos. S/s						
IHM Nibuwala	2X10	0.1	4.52	2X10	0.1	4.49
Latherdeva	2X8	8	4.64	2X8	8	4.18

Name of 33/11 kV S/s/Work	As per Petition			As per BOD		
	S/S capacity	Length of 33 kV line (in Kms)	Total Cost (in Rs Cr)	S/S capacity	Length of 33 kV line	Total Cost (in Rs Cr)
Bhamrola	2X8	0.3	3.34	2X8	0.6	3.47
Mahuakhera Ganj	2X10	2.8	4.61	2X10	4	3.76
B. Construction of feeders						
Construction of 6 No. feeder from 132/33 kV S/s Laltappar		37.05	6.72		37.05	3.56
C. Augmentation of S/s						
Laljiwala	5+8 to 2X12.5			2X10 to 2X12.5		

Besides above, with regard to Sankari S/s it has been observed that the BOD approval referred in your petition is 74th BOD. Whereas, the capacity proposed in the Petition was approved in the 77th BOD.

UPCL is required to clarify/confirm the same.

Technical Comments

9 Nos. 33/11 kV S/s

4. UPCL is required to submit the basis of anticipated load in the 1st year and subsequent years.
5. It has been observed that some Sub-stations are heavily under loaded/over loaded in the 1st year:-

Name of 33/11 kV S/s	Total S/s capacity in MVA	Anticipated load in MVA 1 st year	%age loading in 1 st year	Remark
Maroda	1X3	4.00	133.36%	Transformer capacity is insufficient
Tharali	1X3	3.43	114.31%	Transformer capacity is insufficient
Latherdeva	2X8	7.32	45.72%	-
Sankari	2X3	2.57	42.87%	-
Deghat	2X5	2.19	21.91%	S/s has been oversized.
Mohanary	1X5	6.57	131.46%	Transformer capacity is insufficient
Bhamrola	2X8	7.43	46.44%	
Mahuakhera Ganj	2X10	10.67	53.35%	Transformer capacity is insufficient considering contingency

UPCL is required to:-

- a) Submit the justification for the heavy under loading/over loading in the 1st year for the above highlighted sub-stations.
- b) Review its proposal where only 1 no. Transformer has been installed at the proposed S/s w.r.t. Regulation 48.4 & 48.6 of CEA (Technical Standards for construction of Electric Plants and Electric Lines) Regulations, 2010.

6. For Tharali S/s, UPCL in its brief note has mentioned that the area is being fed through 11 kV Tharali feeder of 200 Kms length which appears to be erroneous. UPCL is required to clarify the same.
7. UPCL is required to submit the voltage profile of the feeders being fed by the old feeders for the area where new Sub-stations have been proposed.

Construction of 6 No. feeder from 132/33 kV S/s Laltappar

8. In the SLD, UPCL has shown a 8 kM line to be dismantled between 33/11 kV S/s Laltappar & 33/11 kV S/s Bhaniyawala. Whereas, a 31 Km line between 33/11 kV S/s Lachiwala & 132/33 kV S/s Majra exists. UPCL is required to clarify regarding the dismantling of the aforesaid 8 Kms line which is giving it N-1 contingency provision. Further, UPCL is required to clarify regarding the status of 31 kM line between 33/11 kV S/s Lachiwala & 132/33 kV S/s Majra post Construction of 6 No. feeder from 132/33 kV S/s Laltappar.

Augmentation of S/s

9. On examination of the proposal for augmentation of S/s, it has been observed that the transformers which are being augmented at different S/s can be utilized at upcoming sub-stations/other sub-stations where augmentation is required. Therefore, by prudently shifting the transformers, the proper utilization of the resources can be ensured and expenditure on transformers can be minimized by utilizing the dismantled/spare transformers as mentioned below:-

S. No.	Name of Sub-station	Sub-station Capacity (MVA) as per UPCL's Petition	Remark
Augmentation of S/s			
1	Raipur	1x5+1x3 to 1x5+1x10	3 MVA transformer dismantled can be used at Guptkashi S/s (at S. No. 11) where new 3 MVA transformer is required. 1 no. 10 MVA transformer required can be taken from Jwalapur-2 where 1 No. 10 MVA transformer will be spared.
2	Jawalpur-2	1x8+1x10 to 2x12.5	1 no. 8 MVA transformer spare. 1 no. 10 MVA transformer can be used at Raipur S/s (at S. No. 1) where 10 MVA transformer is required.
3	Laljiwala	1X5+1X8 to 2x12.5	1 no. 8 MVA transformer spare. 1 no. 5 MVA transformer can be used at proposed new S/s at Mohanary of 1X5 MVA capacity (at S. No. 18).
4	Manglore	2x10 to 2x12.5	2 no. 10 MVA transformer can be utilized at Jhabreda S/s (at S.No. 5)

S. No.	Name of Sub-station	Sub-station Capacity (MVA) as per UPCL's Petition	Remark
5	Jhabreda	1x5+1x8 to 2x10	1 no. 8 MVA transformer spare. 1 no. 5 MVA transformer can be used at proposed new S/s at Deghat of 2X5 MVA capacity (at S.No. 17). Required 2X10 MVA transformers can be taken from Mangalore S/s. (at S.No. 4)
6	Raipur	3x10 to 3x12.5	2 no. 10 MVA transformer can be utilized at Himalayan Guest house S/s which require 2X10 MVA (at S.No. 7) and 1 No. 10 MVA transformer can be utilized at Kotdwar S/s where 2X10 MVA transformer are required. (at S.No. 10).
7	Himalayan Guest House	1x5+1x8 to 2x10	1 no. 8 MVA transformer spare. 1 no. 5 MVA transformer can be used at proposed new S/s at Deghat of 2X5 MVA capacity. (at S.No. 17) Required 2X10 MVA transformers can be taken from Raipur S/s (at S.No. 6)
8	Ramnagar	1x5+1x8 to 2x12.5	1 no. 8 MVA transformer spare. 1 no. 5 MVA transformer spare.
9	Brahampur	2x8 to 2x10	2 no. 8 MVA transformer can be utilized at new Bhamrola S/s of 2 X8 MVA capacity (at S.No. 19).
10	Kotdwar	2x8 to 2x10	2 no. 8 MVA transformer can be utilized at new Latherdeva S/s of 2 X8 MVA capacity (at S.No. 15). 1 no. 10 MVA transformer can be taken from Raipur (at S.No. 6).
11	Guptkashi	1x5 to 1x5+1x3	Required 1 no. 3 MVA transformer can be taken from Raipur S/s (at S.No. 1).
New S/s			
12	IHM Nibuwala	2X10	-
13	Maroda	1X3	Moroda S/s is undersized as 4 MVA load is coming in 1 st year of operation. Spare transformer of 8 MVA from Ramnagar S/s at S.No. 8 can be utilized.
14	Tharali	1X3	Tharali S/s is undersized as 3.4 MVA load is coming in 1 st year of operation. Spare transformer of 5 MVA from Ramnagar S/s at S.No. 8 can be utilized.
15	Latherdeva	2X8	Requirement of 2 X8 MVA transformers can be met from spared transformers from Kotdwar S/s. (at S.No. 10)
16	Sankari	2X3	-
17	Deghat	2X5	Requirement of 8 MVA transformer can be met from Jhabreda & Himalayan guest house S/s at S.No. 5 & 7 above
18	Mohanary	1X5	Requirement of 5 MVA transformers can be met from spared transformer Laljiwala S/s at S.No. 3.
19	Bhamrola	2X8	Requirement of 2X8 MVA transformer can be met from Brahampur S/s at S.No. 9.
20	Mahuakheraganj	2X10	-

UPCL is required to comment on the same.

10. *With regard to capacity augmentation of Raipur sub-station from 3X10 MVA to 3X12.5 MVA, UPCL is required to submit Single line diagram mentioning the details of source S/s and connecting lines from where the S/s is being fed.*
11. *UPCL is required to furnish following details for the proposals where augmentation in sub-station capacity is proposed:-*
 - a) *Date of initial commissioning of the sub-station.*
 - b) *Augmentation details (if any), such as Transformer Capacity augmented from & to and date of augmentation.*

Financial Comments

12. *UPCL is required to submit the assurance of GoU for providing 30% equity funding.*
13. *On examination of the petition, it has been observed that for funding of loan, proposal has been submitted to REC for Latherdeva, Sankari, Deghat, Mohanary and Mahuakheraganj sub-stations. UPCL is required to furnish the status and likely date of approval of the same.*
14. *On examination of the SLD and Payback period calculations in the Petition following has been observed:-*
 - c) *The total new load after construction of S/s shown in Single Line Diagram (SLD) of the proposed 9 Nos. 33/11 S/s in Amps is not matching with the anticipated new load in kVA for 1st year shown in payback period calculation.*
 - d) *Power factor is included while calculating anticipated load for 1st year in kVA.*
 - e) *The value of loss load factor used in formula for expected saving in line losses is incorrect.*
 - f) *Diversity factor has not been squared in the calculation for expected saving in line losses.*
 - g) *The remaining loan amount for calculation of interest for each year is required to be checked.*

UPCL is required to clarify and submit the same after necessary corrections.
15. *UPCL is required to submit the cost estimates for the proposals in hard as well as soft copy."*
7. *In response to the deficiencies pointed out, UPCL submitted point-wise information/clarification alongwith the documentary evidences vide its letter No. 297/UPCL /Com/RMC-6/D(F) dated 25.01.2017, details of which is given below:*

- (a) Land for 33/11 kV Sub-station Deghat has been acquired and acquisition of land for Bhamrola & Tharali Sub-station is in process.
- (b) UPCL requested the Commission to discard the error of omission for mistakenly written 10 Nos. Sub-stations instead of 09 Nos. Sub-stations and the total length of associated line is 91.40 km in place of 109.40 km.
- (c) Approval of BoD for construction of 33/11 kV Sub-stations IHM Nibuwala, Latherdeva, Bhamrola and Mahuakhera Ganj & their associated 33 kV lines were granted based on tentative/initial estimates. However, some revisions/modifications based on actual estimates have been made in above figures w.r.t. Capacity, Length of Line & Total cost as illustrated by the Commission. Such changes would duly be got approved from BoD in the next BoD meeting and will be submitted to the Commission. With regard to Sankari Sub-station, it was mistakenly written as 74th BoD instead of 77th BoD.
- (d) The basis for consideration of anticipated load for the calculation of payback period in the first year was submitted on the factors given below:
- (A) Anticipated new load on proposed 33/11 kV Sub-stations, and
- (B) Annual load growth
- Whereas anticipated total load on proposed Sub-stations on its inception are based on following factors:
- (i) Anticipated new load on proposed 33/11 kV Sub-station, and
- (ii) Load to be transferred from the existing 33/11 kV Sub-station to the proposed Sub-station,
- (iii) Annual load growth. i.e. total anticipated load at 1st year = $[(i)+(ii)]*(iii)$.
- (e) Revised load profile calculation sheet with corrected figures has been submitted as below:
- (A) The details of the revised total anticipated loads reckoned on proposed Sub-stations has been submitted.

- (B) 33/11 kV Sub-station at Maroda (1x3), Tharali (1x3) and Mohanary (1x5) have been proposed with only 1 No. transformer due to lesser initial load and lower load growth. However, necessary provisions have been made to install additional transformer as and when required.
- (f) Length of 11 kV Tharali feeder has been re-verified from the concern field unit and found to be 110 km instead of 200 km.
- (g) The voltage profiles of feeders being fed by the old Sub-stations for the area (where new Sub-stations have been proposed) have been provided.
- (h) Dismantling of 8 km line between 33/11 kV Sub-station Laltappar & Bhaniyawala is proposed due to road widening as this section falls in the route of proposed National Highway. This section of line will be reconstructed by NHAI (National Highways Authority of India). Balance 31 km old line will remain as it is and can be used as an alternate supply source to fulfill N-1 contingency provisions.
- (i) The spared transformers after proposed augmentation of Sub-stations, which are being augmented at different places, would be fully utilized and cost of these transformers have already being discounted in the estimates as cost of power transformers in the estimates have been taken with difference in the cost of proposed capacity and cost of existing capacity of transformers from the Corporation's stock issue rates. All the useable received back materials from the sites are deposited into the Corporation's stores, where it is re-issued to other units against sanctioned package.
- (j) Single line diagram of Sub-station Raipur (Roorkee) mentioning the details of source Sub-station and connecting lines has been provided.
- (k) The details for the Sub-stations where augmentations are proposed have been provided.
- (l) The requisition of 30% of equity from the GoU for which loan funding has been approved by REC will be sought upon receipt of funds from REC. Generally, GoU releases funds to UPCL on demand from time to time through Deptt. of Energy, GoU according to the budget provisions of each fiscal year.

- (m) For funding of loan, proposal has been submitted to REC for (a) Latherdeva, Sankari, Deghat, Mohanary and Mahuakheraganj Sub-stations (b) Construction of 6 Nos. feeders from 132/33 KV S/s Laltappar (c) Augmentation of Sub-station. On receipt of approval from REC the same would be submitted to the Commission.
- (n) Revised SLD of all the proposed new Sub-stations indicating the existing and anticipated loading on the 11 KV, 33 KV & 132 KV level feeders have been provided and with regard to payback period calculations, sheets with corrected figures have been provided.
- (o) Besides above UPCL has submitted that cost estimates for the proposals in hard copy have already been provided to the Commission and also requested the Commission to discard the error and consider the figures as mentioned above.

Commission's Observations, Views & directions

8. Based on the submissions made in the Petition and subsequent clarifications, the following has been observed:

(A) Construction of 9 Nos. 33/11 kV S/s and their associated lines of 109.40 km

Garhwal Zone

- (1) **Construction of 2x10 MVA, Indoor Type, 33/11 KV Sub-station at IHM Nibuwala (Dehradun) and 0.10 (2x0.05) km, 33 kV LILO line from 33 kV Bindal-Kaulagarh line.**
 - (a) Presently the electricity to Nibuwala, Garhi Cantt. and nearby area is being supplied through 8 km long 11 kV Soil Feeder and 12 km long 11 kV Kaulagarh Feeder emanating from 33/11 kV Sub-station Kaulagarh. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.
 - (b) This area covers about 2600 consumers with an approximate annual growth of 20% with almost same rate of growth of load. Reliability and voltage profile of power supply in the area is not satisfactory.

- (c) After construction of the proposed 2x10 MVA, 33/11 kV Sub-stations and associated 33 kV line, the load on 11 kV Soil Feeder & Kaulagarh feeder emanating from 33/11 kV Sub-stations Kaulagarh would be reduced resulting in quality power supply to the consumers of the area. Moreover, the reliability and voltage profile of power supply in and around Nibuwala, Garhi Cantt., Dakra and Kaulagarh would also improve.
- (2) Construction of 1x3 MVA, 33/11 kV Sub-station at Maroda Saklana Patti (Tehri Garhwal) and 20 km, 33 kV Tapovan-Maroda line from tapping point at 33 kV Nagani line to 33/11 kV Sub-station at Maroda, Saklana Patti (Tehri Garhwal).**
- (a) Presently the electricity to Maroda is being supplied through 11 kV Kanataal Feeder, which is emanating from 33/11 kV Sub-station Chamba and about 160 km long. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.
- (b) At present there are about 6000 consumers in the area. The annual increase in number of consumers with annual growth in load is approximately 10%. The reliability and voltage profile of power supply in this area is not satisfactory due to very long 11 kV feeder, which also passes through the dense forest.
- (c) After construction of the proposed 1x3 MVA, 33/11 kV Sub-station and associated 33 kV line, the load of 11 kV feeder Kanataal emanating from 33/11 kV Sub-station Chamba would be reduced resulting in reducing technical losses in the long 11 kV feeders and thus, the reliability and voltage profile of power supply in the area would be improved.
- (3) Construction of 1x3 MVA, 33/11 kV S/s at Tharali (Chamoli) and 1.2 km, 33 kV LILO at 33 kV Narayanbagar-Dewal line.**
- (a) Presently the electricity to Tharali is being supplied through 50 km long, 11 kV Gwaldam feeder emanating from 33/11 kV Sub-station Dewal, 110

km long, 11 kV Tharali feeder emanating from 33/11 kV Sub-station Narayanbagar and 50 km long, 11 kV Sankott feeder emanating from 33/11 kV Sub-station Narayanbagar. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.

- (b) This area covers about 5000 consumers with an approximate increase of 10% in no. of consumers as well as in load. Since the 11 kV feeders are very long, the reliability and voltage profile of power supply in this areas is not satisfactory.
- (c) After construction of the proposed 1x3 MVA, 33/11 kV S/s, the load of 3 Nos. aforesaid 11 kV Gwaldam, Tharali & Sankott Feeders emanating from 33/11 kV Sub-station Dewal and Narayanbagar, would reduce, which would improve reliability and voltage profile of power supply in this area.

(4) Construction of 2x8 MVA, 33/11 kV Sub-station at Latherdeva Shekh, Roorkee and 8 km, 33 kV line from 132/33 kV Sub-station Ramnagar to 33/11 kV Sub-station at Latherdeva Shekh, Roorkee

- (a) Presently the electricity to Latherdeva and nearby area is being supplied through 10 km long, 11 kV Paniyala feeder, 10 km long, 11 kV Madhopur feeder, 5 km long 11 kV Military feeder and 5 km long 11 kV Bharatpur feeder, all emanating from 33/11 KV Sub-station Ramnagar. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.
- (b) This area covers about 5415 consumers with an approximate increase of 20% each year with almost same rate of growth in load. The 11 kV feeder passes through dense forest, the reliability and voltage profile of power supply in this area is not satisfactory.
- (c) After construction of proposed 2x8 MVA, 33/11 kV Sub-station, the load on all the 11 kV feeders namely Paniyala, Madhopur, Military and

Bharatpur emanating from 33/11 KV Sub-station Ramnagar would reduce, which will help in increasing the reliability and power quality in the area.

(5) Construction of 2x3 MVA, 33/11 kV Sub-station at Sankri (Natwar) Uttarkashi and 13 km, 33 kV line from 33/11 kV Sub-station Mori to 33/11 KV Sub-station at Saankri (Natwar), Uttarkashi

- (a) Presently the electricity to Sankri is being supplied through 105 km long 11 kV Mori Feeder and 40 km long 11 kV Jarmola feeder both emanating from 33/11 kV Sub-station Mori. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.
- (b) The existing 11 kV feeders are very long and pass through dense forest, the reliability and voltage profile of power supply in this area is not satisfactory due to the passage of line through dense forest. Further, the large length of 11 kV feeders for catering the scattered population that too passing through dense forest affects the reliability and quality power supply adversely.
- (c) After construction of proposed 2x3 MVA, 33/11 kV Sub-station, the length of 11 kV feeders Mori and Jarmola emanating from 33/11 kV Sub-station Mori would reduce, resulting reduction in technical losses of 11 kV feeders.
- (d) Moreover, construction of the proposed 33/11 kV Sub-station would also feed 25 Nos. villages to be electrified by rural Electrification division, UPCL under DDUGJY.

Kumaon Zone

(6) Construction of 2x5 MVA, 33/11 kV S/s at Deghat, Almora and 20 km 33 kV line from 33/11 kV S/s Syaldey to 33/11 kV Sub-station at Deghat, Almora

- (a) Presently the electricity to Deghat is being supplied through 156 km long, 11 kV Deghat Feeder and 140 km long, 11 kV Saraikhet feeder both

emanating from 33/11 kV Sub-station Syaldey. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.

(b) This area covers about 4000 consumers with an approximate increase of 10% each year with almost same rate of growth in load. Since the 11 kV feeders are very long and pass through dense forest, the reliability and voltage profile of power supply in this area is not satisfactory.

(c) After construction of proposed 2x5 MVA, 33/11 kV Sub-station the load of 11 kV feeders Deghat and Saraikhet emanating from 33/11 kV Sub-station Syaldey would reduce, resulting in reduced technical losses in existing 11 kV feeders. Thus, the reliability and voltage profile of power supply in this area will improve.

(7) Construction of 1x5 MVA, 33/11 kV S/s at Mohanary (Almora) and 26 km Single Circuit (10 km. Loop-in line from 33 kV Tarikhet-Bhikiyasain line to Mohanary Sub-station and 16 km Loop-out from 33/11 kV Mohanary to 33/11 kV Khadakot Sub-station).

(a) Presently the electricity to Mohanary is being supplied through 3 km long, 11 kV Town feeder, 65 km long, 11 kV Vinayak feeder, 70 km long, 11 kV Bhatrojkhana feeder, 40 km long, 11 kV Salt Naula feeder and 55 km long, 11 kV Bhasot feeder all emanating from 33/11 kV Sub-station Bhikiyasain. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.

(b) This area covers about 3500 consumers with an approximate increase of 10% each year with almost same rate of growth in load. Since the area is being fed from various 11 kV feeders all emanating from Bhikiyasain Sub-station, therefore, the reliability and voltage profile of power supply in this area is not satisfactory.

- (c) After construction of proposed 1x5 MVA, 33/11 kV Sub-station the load on the abovesaid of 5 Nos. 11 kV feeders namely Vinayak, Bhatrojkan, Salt Naula & Bhasot feeders emanating from 33/11 kV Sub-station Bhikiyasain, would reduce, resulting in reduced technical losses in the existing 11 kV feeders.
- (d) Moreover, the problem of low voltage and recurring 11 kV faults can be reduced by construction of proposed 1x5 MVA, 33/11 kV Sub-station at Mohanary. The proposed 33/11 kV Mohanary Sub-station is proposed with LILO system which would eliminate the portion of line passing through dense forest and thus the reliability and voltage profile of power supply would increase.
- (8) Construction of 2x8 MVA, 33/11 kV S/s Malsi Road, Bhamrola (U.S. Nagar) and Construction of proposed Dckt line Kichha to Bhadipura 33/11 kV S/s Malsi Road Bamrola (U.S. Nagar) (line 0.15x2=0.30 km)**
- (a) Presently the electricity to Bamrola is being supplied through 15.40 km long, 11 kV Bagwara feeder, 23.40 km long, 11 kV Malsi feeder both emanating from 33/11 kV Sub-station Bhadaipura and 13.50 km long, 11 kV industrial feeder and 19.80 km long, 11 kV Pratappur feeder both emanating from 33/11 kV Sub-station Lalpur. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.
- (b) This area covers about 1225 consumers with an approximate increase of 15% each year with almost same rate of growth in load.
- (c) After construction of proposed 2x8 MVA, 33/11 kV Sub-station the load of 4 nos. above 11 kV Bagwar, Malsi, Industrial & Pratappur feeders emanating from 33/11 kV Sub-station Bhadaipura and 33/11 kV Sub-station Lalpur, would reduce, resulting in reduced technical losses in the existing 11 kV feeders. The problem of low voltage and recurring 11 kV faults would also be reduced with the construction of 2x8 MVA, 33/11 kV Sub-station.

(9) Construction of 2x10 MVA, 33/11 kV S/s at Mahuwakhera Ganj (US Nagar) and Construction of proposed 2.8 km, 33 kV line from 132/33 kV Sub-station to 33/11 kV Sub-station Mahuwakhera Ganj (US Nagar).

- (a) Presently the electricity to Mahuwakhera Ganj and nearby area is being supplied through 8.5 km long, 11 kV Mahuakhera Ganj feeder, 15 km long, 11 kV feeder Barkhera, 3.9 km long, 11 kV Industrial-I feeder and 4.5 km long, 11 kV Industrial-II feeder emanating from 220/132/33/11 kV Sub-station Mahuakhera. The existing voltage profile (voltage at tail end of 11 kV feeders) is not in accordance with the provisions of the SoP Regulations and consumers of the area are getting very poor/low voltage during peak hours.
- (b) This area covers about 1650 consumers with an approximate increase of 10% each year with almost same rate of growth in load.
- (c) After construction of proposed 2x10 MVA, 33/11 kV Sub-station the load of 4 nos. above 11 kV Mahuakhera Ganj, Barkhera Ganj, Industrial-I and Industrial-II feeders emanating from 33/11 kV Sub-station Mahuakhera Ganj, would reduce, resulting in reduced technical losses in existing 11 kV feeders and would also improve reliability and voltage profile of power supply in the area.

(B) 6 No. Feeders from 132/33 kV S/s Laltappar, Dehradun

- (1) Presently PTCUL's primary Sub-stations, 132 kV Majra & 220 kV Rishikesh are running on almost full load. For improving the supply condition, PTCUL has constructed 132 kV S/s at Laltappar.
- (2) With commissioning of 132/33 kV Sub-station Laltappar, 5 Nos. 33/11 kV Sub-stations namely Bhaniyawala, Lachiwala, Jollygrant, Ramnagar Danda, Laltappar and one existing feeder Birla Yamaha would be connected to this Sub-station. For which a total length of 37.05 km long, 33 kV line would be required to connect the aforesaid 33/11 kV Sub-stations.
- (3) Presently the areas of Bhaniyawala, Jollygrant, Ramnagar Danda, Lachiwala and Laltappar are being fed from 132/33 kV Majra Sub-station and 132/33 kV Veerbhadra, Rishikesh Sub-station, resulting in power being fed to the

aforesaid areas through long 33/11 kV lines. With the construction of the proposed 6 Nos. feeders emanating from 132/33 kV Laltappar Sub-station, reliability and voltage profile of power supply in the area will improve.

- (4) With the construction of the proposed 6 Nos. feeders, it would not only help in increasing the reliability of power supply in Bhaniyawala, Jollygrant, Ramnagar Danda, Lachiwala and Laltappar areas but would also help in reducing load on 132/33 kV 132/33 kV Majra and 132/33 kV Veerbhadra, Rishikesh Sub-stations.

(C) **Augmentation of 11 Nos. 33/11 kV Sub-stations**

- (1) With regard to the augmentation of 11 Nos., 33/11 kV Sub-stations, UPCL has proposed the capacity augmentation of each Sub-station as per table given below:-

Sl. No.	Name of Sub-station	Sub-station Capacity (MVA)		Length of 33 KV Line (km)	Total Estimated Cost
		Existing	Proposed		
1	Raipur, Dehradun	1x5+1x3	1x5+1x10	-	1.06
2	Jawalpur-2, Haridwar	1x8+1x10	2x12.5	-	1.00
3	Laljiwala, Haridwar	2x10	2x12.5	-	0.85
4	Manglore, Roorkee	2x10	2x12.5	-	0.74
5	Jhabreda, Roorkee	1x5+1x8	2x10	-	0.81
6	Raipur, Roorkee	3x10	3x12.5	-	1.10
7	Himalayan, Guest House, Roorkee	1x5+1x8	2x10	-	0.90
8	Ramnagar, Roorkee	1x5+1x8	2x12.5	-	1.39
9	Brahampur, Roorkee	2x8	2x10	-	0.65
10	Kotdwar, Pauri Garhwal	2x8	2x10	-	0.99
11	Guptkashi, Rudraprayag	1x5	1x5+1x3	-	0.69
Total					10.18

For augmentation of the aforesaid Sub-stations, UPCL has submitted following reasons for justifying the projects:

- (b) For relieving the existing overloading of transformers/Sub-stations.
- (c) To cater future load growth in the area.
- (d) To ensure reliability and quality power supply to consumers.
9. The Petition & subsequent submissions of UPCL has also been analyzed w.r.t the licensee conditions (Clause 11.3 of the Distribution and Retail Supply License (Licence No. 2 of 2003) & prevailing Regulations (Regulation 10 (2) of UERC (Conduct of Business) Regulations, 2014) and it has been observed that UPCL has

shown a lackadaisical approach in furnishing a data in the Petitions as well as the subsequent submission which is evident from the fact that the capacity of the Sub-station, length and total cost of the proposed works as mentioned in the BoD approval was not matching with the Petitions furnished by UPCL. The Commission in past has also highlighted this act of Licensee and had directed it to check the Petitions/submissions systematically and not to repeat such lapses and mistakes in future. However, UPCL adopting callous approach has again made the same mistake in its instant Petition. Accordingly, the Commission directs the Petitioner to restrain from repetition of such lapses and mistakes in future.

10. On further examination of the Petition and subsequent submissions, it has also been observed that in the initial submissions the load projections taken for calculating the payback period/cost benefit analysis were not estimated properly. However, the same were revised in the subsequent submissions to revise the payback period/cost benefit computations of the respective proposals. In this regard, the Commission is of the view that the Petitioner should meticulously estimate the load projections on the basis of actual demand/load growth alongwith proposed developmental activities in the intended areas to avoid any under/over estimation of the loads.
11. Based on the submissions made in the Petition and subsequent clarifications submitted thereof from time to time, the Petitioner's final proposal is as follows:

Sl. No.	Name of Sub-station	Sub-station Capacity (MVA)	Length of 33 KV Line (km)	Total Estimated Cost
(A) 33/11 kV Sub-station & their associated lines				
GARHWAL ZONE				
1	IHM Nibuwala, Dehradun	2x10	0.10	4.52
2	Maroda, Saklana Patti, Tehri	1x3	20.00	7.08
3	Tharali, Chamoli	1x3	1.20	2.50
4	Latherdeva, Haridwar	2X8	8.00	4.64
5	Sankari, Uttarkashi	2x3	13.00	5.55
Total Garhwal Zone		48.00	42.30	24.29
KUMAON ZONE				
1	Deghat, Almora	2x5	20	6.19
2	Mohanary, Almora	1x5	26.00	7.58
3	Bhamrola, Malsa Road, Rudrapur	2x8	0.30	3.34
4	Mahuakhera, Ganj U.S. Nagar	2X10	2.8	4.61
Total Kumaon Zone		51.00	49.10	21.72
Total (A)			91.4	46.01
(B) Construction of 6 Nos. Feeder				

Sl. No.	Name of Sub-station	Sub-station Capacity (MVA)	Length of 33 KV Line (km)	Total Estimated Cost
1	From 132/33 kV S/s Laltappar, Dehradun	-	37.05	6.72
	Total (B)		37.05	6.72
(C) Augmentation of Sub-station				
1	Raipur, Dehradun	1x5+1x3 to 1x5+1x10	-	1.06
2	Jawalpur-2, Haridwar	1x8+1x10 to 2x12.5		1.00
3	Laljiwala, Haridwar	2x10 to 2x12.5		0.85
4	Manglore, Roorkee	2x10 to 2x12.5	-	0.74
5	Jhabreda, Roorkee	1x5+1x8 to 2x10	-	0.81
6	Raipur, Roorkee	3x10 to 3x12.5	-	1.10
7	Himalayan, Guest House, Roorkee	1x5+1x8 to 2x10	-	0.90
8	Ramnagar, Roorkee	1x5+1x8 to 2x12.5	-	1.39
9	Brahampur, Roorkee	2x8 to 2x10	-	0.65
10	Kotdwar, Pauri Garhwal	2x8 to 2x10	-	0.99
11	Guptkashi, Rudraprayag	1x5 to 1x5+1x3	-	0.69
	Total (C)	-		10.18
	Grand Total (A+B+C)			62.91

The Commission is of the view that these proposed capital works would improve the voltage profile and provide apparent relief to the existing overloaded lines/transformers by strengthening of the distribution networks resulting in improvement of reliability and quality of power supply to the consumers of the respective areas.

12. Therefore, in view of the above, the Commission hereby grants in-principle approval for the proposed works of (A) Construction of 9 Nos. 33/11 kV S/s and their associated lines of 91.40 km, (B) Construction of 06 No. feeders from 132/33 kV S/s Laltappar and (C) Augmentation of 11 Nos. 33/11 kV Sub-stations 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. Prudence of the prices will be scrutinized at the time of fixation of tariff after completion of the proposed works.

- (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.

Ordered accordingly.

(Subhash Kumar)
Chairman