Before

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 44 of 2018

In the Matter of:

Application seeking approval for the investment on the project covering the construction of 05 No. 33/11 KV Substations & their associated 33 KV Line and 06 No. 33 KV Feeders from 220/132/33 KV Substation IIP Mohkampur.

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: April 04, 2019

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 for the investment on the project covering the construction of 05 No. 33/11 KV Substations & their associated 33 KV Line and 06 No. 33 KV Feeders from 220/132/33 KV Substation IIP Mohkampur.

Background

2. The Petitioner vide its letter No. 776/UPCL/Comm/RMC-6/D(F) dated 26.02.2018 submitted Petition for prior approval of investment under the provisions of the Clause 11 of Distribution and Retail Supply License and Clause 40 of UERC (Conduct of Business) Regulations, 2014.

3. The Petitioner in its Petition has submitted that:-

"

i. *With a view to ensure reliable power supply, improved voltage profile and to meet future load growth, the applicant company has proposed the construction of 05 No. 33/11 KV Substations & their associated 17.70 km 33 KV Line and 06 No. 33 KV Feeders from 220/132/33 KV Substation IIP Mohkampur. 33 KV lines in different regions of the state of Uttarakhand. The estimated cost of the project is Rs. 53.16 Cr., which will be met through loan (70%) from REC and Equity (30%) from State Government. The land for Construction of Substations will be made available by the respective Electricity Distribution Division of UPCL. The project is proposed to be implemented partially on turnkey basis. The duration of the project is 03 years (F.Y. 2018-19 to F.Y. 2020-21). The details of substations and lines are as follows:-*

Abstract of Details of 33/11 kV Substations along with their 33 kV associated lines and 6 No. 33 kV Feeder from 220/33 kV Substation IIP, Mohkampur.

(Rs. In Crores)

Sl. No.	***Name of 33/11kV Substation***	***District***	***Substation Capacity (MVA)***	***Estimated cost of Substation***	***Length of 33KV line (Km)***	***Estimated cost of line***	***Total Cost***
1	*Arya Nagar*	*Haridwar*	*2x10*	*4.91*	*3.00*	*2.16*	*7.08*
2	*Sector-5*		*2x10*	*5.61*	*4.00*	*2.48*	*8.09*
3	*Sector-11*		*2x10*	*4.96*	*4.00*	*2.48*	*7.44*
4	*Sikandarpur*		*2x10*	*5.99*	*6.30*	*2.42*	*8.40*
5	*Chauraas*	*Tehri Garhwal*	*2x3*	*4.50*	*0.40*	*0.11*	*4.61*
6	*6 No. Feeders from 220/132 KV Substation IIP, Mohkampur*	*Dehradun*	*-*	*-*	*16.65*	*17.54*	*17.54*
Total			***86.00***	***25.97***	***34.35***	***27.20***	***53.16***

"

4. The Petitioner in its Petition has also submitted Detailed Project Report showing Techno-Economic Analysis. The proposed investment will be financed through 70% loan from REC for which proposal has been submitted and the remaining 30% will be met through Internal Resources.

5. The Petitioner has enclosed certified true copy of the resolution passed in 84th Board meeting held on 27.11.2017 vide which the approval for the aforesaid projects was taken.

6. On preliminary examination of the Petition, certain deficiencies/requirement of additional information in the Petition were observed, the same are detailed below:-

"

1. *UPCL has enclosed certified true copy of resolution passed by the BoD in 84th BoD Meeting held on 27.11.2017. On comparing the approval taken by UPCL from the BoD w.r.t. the details provided in its Petition following variations have been observed which are highlighted in the below mentioned table:-*

(In Rs. Crore)

Sl. No.	***Name of 33/11kV Substation***	***District***	***As per Petition***					***As per 84th BOD approval***		
			Substation Capacity (MVA)	***Estimated cost of Substation***	***Length of 33KV line (Km)***	***Estimated cost of line***	***Total Cost***	***Substation Capacity (MVA)***	***Length of 33KV line (Km)***	***Total Cost***
1	*Arya Nagar*	*Haridwar*	*2x10*	*4.91*	***3.00***	*2.16*	***7.08***	*2x10*	***2.80***	***7.25***
2	*SIDCUL, Sector-5*		*2x10*	*5.61*	*4.00*	*2.48*	*8.09*	*2x10*	*4.00*	*8.08*
3	*SIDCUL, Sector-11*		*2x10*	*4.96*	*4.00*	*2.48*	*7.44*	*2x10*	*4.00*	*7.44*
4	*Sikandarpur*		*2x10*	*5.99*	***6.30***	*2.42*	***8.40***	*2x10*	***7.00***	***11.17***
5	*Chauraas*	*Tehri Garhwal*	*2x3*	*4.50*	*0.40*	*0.11*	***4.61***	*2x3*	*0.4*	***4.58***
6	*6 No. Feeders from 220/132 KV Substation IIP, Mohkampur*	*Dehradun*	*-*	*-*	***16.65***	*17.54*	*17.54*	*-*	***15.95***	*17.54*
Total			***86.00***	***25.97***	***34.35***	***27.20***	***53.16***	***86***	***34.15***	***56.06***

UPCL is required to submit the justification for the variations as mentioned in the above table.

2. *In case of proposed substation of 2x3 MVA at Chauraas, it is observed that the proposed expenditure includes construction of 66 kV switching station bay at Chauraas amounting to Rs. 81 Lakhs ...*

UPCL is required to furnish justification/objective for construction of 66 kV Switching Station Bay at Chauraas.

3. *UPCL has not furnished the loading of incomer lines & transformers of the feeding 132 kV S/s and 33 kV S/s for a pre & post scenarios, which is very critical*

for evaluating the adequacy of the proposed substations & lines and voltage profiles of the same.

UPCL is required to furnish the lines & S/s loadings alongwith voltage profiles for pre & post scenarios alongwith its revised submission.

*Further, it is also to inform you that the Commission has notified UERC (Distribution Code) Regulations, 2018 (**copy enclosed**) on 31.03.2018. In this context, you are required to re-evaluate your proposal in accordance with the provisions of the Regulation 3.6, Regulation 3.7 and other Regulations provided therein in the aforesaid Regulations which mandate for developing a robust distribution network in the State and accordingly submit the same."*

7. In compliance to the same, the Petitioner vide letter No. 2202 dated 01.06.2018 submitted its point-wise compliance as follows:-

"

In the context, the point wise reply is being given as below:-

(A) 1. <u>33/11 kV Substation Arya Nagar, Haridwar</u>:-

There were two 11/0.43 kV transformers and a LT Switching Substation situated in the proposed land of the new substation, which are to be shifted to some other place. Earlier this work was included in the estimate and is to be done by concerned secondary works division. But then it was decided that this work has to be done by concerned distribution division. Hence, it was excluded from the scope of work which results in reduced cost of the estimate.

*The actual length which is to be laid is 2.8 Km underground line (XLPE cable 3CX400 mm^2) & 0.2 Km 33 kV Line on ACSR Panther Conductor is to be used in switch yard related work which by mistake calculated in total length of line. Revised enclosure related to Arya Nagar is being enclosed as **Annexure-1**.*

2. <u>33/11 kV Substation Sikandarpur, Haridwar</u>:-

Previously two separate 33 kV line were proposed for connecting 33/11 kV S/s Sikandarpur which is as follows:-

a) 6 Km overhead and 300 Meter underground line from Gagalhedi Chowk.

b) 700 Meter underground line from 33 kV Ambuja Cement Factory line.

But after that it was decided to construct only one circuit 6 Km overhead and 300 meter underground line from Gagalhedi Chowk by secondary works division and other circuit will be managed by distribution division itself.

In addition to that, earlier 4 indoor 33 kV feeder panel were proposed for 33 kV connections which later excluded and hence their corresponding cable length also reduced. Therefore the total amount of the estimate reduced.

3. 33/11 kV Substation Chauraas, Tehri Garhwal:-

Earlier earthing of 66/33 kV Switching Substation at Chauraas was not taken in the scope of work but then in the detailed survey it was found that the earthing arrangement and earthmat are not very effective. Hence, earthing work has been included in the scope of work.

4. 6 No. feeders from 220/132 kV Substation IIP, Mohkampur, Dehradun:-

*While preparing the summary of the estimated cost of IIP Mohkampur feeders at Point No. 03 (making of trench and laying of 33 kV XLPE cable from 220 kV GIS Substation IIP to M/s IIP) the length was mistakenly taken as 1400 Meter instead of 700 Meter i.e. 2x**700**=1400 Meter. This results in a difference of 700 Meters in overall length of the feeder. The revised summary of estimated cost is being enclosed as **Annexure-2**.*

(B) 33/11 kV Substation Chauraas, Tehri Garhwal:-

*In Chauraas we are constructing 33/11 kV Substation for supply in local area and at the same time we are also constructing 66 kV Switching Station in between 66 kV Karanprayag line whose length is about 140 Km. The 66 kV line connect 66/33 kV S/s Joshimath, Karanprayag & Kothiyansain. Normally any fault in 66 kV line reflect in the 132 kV S/s Srinagar, Garhwal and for any **Operation & Maintenance** work we need shut down from 132 kV S/s Srinagar, Garhwal. But after construction of Switching Substation of 66 kV line in Chauraas all **Operation & Maintenance** work can be done by this Switching Substation only. So after construction of 66 kV Switching Station, reliability of 66 kV supply will improve.*

(C) *1. The revised line chart for the substation with desired details is being enclosed as **Annexure-3**.*

*2. The voltage profile for all the substations is being enclosed as **Annexure-4**.*

3. *Further in compliance to Distribution Code Regulations, 2018 it is to bring to kind notice of Hon'ble Commission that in all substation we have proposed two power transformers of same rating for maintaining redundancy in the system and for fulfilling N-1 contingency substation-wise detail is given below:-*

Arya Nagar:- *Arya Nagar Substation is being fed by connecting ring main feeder which emanates from 132/33 kV S/s Bhupatwala and the same time another 33 kV feeder Mayapur is there which is emanating from 132 kV S/s Jawalapur.*

Sector-5:- *One 33 kV feeder is being proposed from 220/33 kV S/s SIDCUL and another existing 33 kV line feeding Sector-4 is already passes nearby proposed site. So, alternate supply can be maintained by connecting the substation by above said line.*

Sector-11:- *One 33 kV feeder is being proposed from 220/33 kV S/s SIDCUL and another existing 33 kV line feeding Sector-5(old) is already passes nearby proposed site. So, alternate supply can be maintained, connecting the substation by Sector-5(old) feeder.*

Sikandarpur:- *Another supply can be maintained by Ambuja 33 kV feeder which comes from 33/11 kV S/s Raipur Substation."*

8. On examination of the Petition and subsequent submission vide letter No. 2202 dated 01.06.2018, the Commission vide its letter no. 535 dated 05.07.2018 issued following additional deficiencies/requirement of additional information:-

"

General:-

1. *UPCL in its Petition under 'Status of Land' has mentioned as 'Available'.*

   In this regard, UPCL is required to confirm whether land has been actually acquired or not?

2. *The cost of items in the Schedule of Rates of UPCL are inclusive of taxes & duties which are generally considered for preparing cost estimates. In this regard, it is observed that UPCL has applied GST @18% in its cost estimates for the project, which has resulted in double taxation.*

In this regard, UPCL is required to submit the basis/justification for the same for considering GST @18% on the total project cost.

3. *UPCL is required to provide copy of Schedule of Rates from Schedule-1 to Schedule-28.*

4. *UPCL is required to submit a typical cross section drawing of underground cabling arrangement with details of safety clearances/Standards which would be adopted at site [within the Sub-station and outside the Sub-station with clearance from municipal/civic facilities namely telephone, sewer, drainage etc] for safe underground cable laying.*

5. *UPCL is required to confirm regarding clearances from forest, railway etc. for each proposed 33/11 kV substation and feeders.*

6. *UPCL is required to provide soft copy of all the payback period calculations in excel format.*

7. *On examination of the calculation in improvement of Voltage profile (Annexure-4) of submission dated 01.06.2018, it is observed that the calculation of percentage improvement in voltage profile is not correct as the total load to be transferred to new S/s at 11 kV feeder has been directly used for calculating the voltage profile, while the same should have been done on individual feeder basis.*

   UPCL is required to check and re-submit the aforesaid calculation provided at Annexure-4.

***33/11 kV S/s Arya Nagar, Haridwar*:-**

8. *In case of proposed Arya Nagar S/s, the 33 kV Panther Conductor from 132 kV Bhopthwala & 132 kV Jwalapur to the proposed 33 kV Arya Nagar S/s via 33 kV S/s Mayapur and 33 kV S/s Gurukul would be catering to a load of 56 MVA. Which would exceed the current carrying capacity of Panther conductor and thus, do not guarantee the N-1 contingency criterion under these conditions.*

   UPCL is required to comment on the same as in an event of outage of any of the feeders from 132/33 kV S/s Bhopthwala or 132/33 kV S/s Jwalapur the other circuit would not be able to sustain the load of 56 MVA and thus calls for strengthening of 33 kV network feeding the Mayapur, Gurukul and proposed Arya Nagar S/s.

Sector-11:-

9. *From the details provided in the revised SLD furnished alongwith submission dated 01.06.2018, it is observed that Sec-8 S/s is heavily loaded at 33 kV side with 575 Amps load on Panther Conductor, this does not appear to be correct. Moreover, it is observed that 33 kV line feeding Sector-12 is loaded upto 480 Amps i.e. upto the full load current carrying capacity of Panther Conductor.*

   The revised SLD with Pre & Post loading scenario at 11 kV & 33 kV network is required be submitted by UPCL for proposed Sec-11 S/s.

   The anticipated new load & load to be shifted to proposed Sector-11 S/s do not match with the details provided at Cost Benefit Analysis sheet. The same should be checked as proposed load to be shifted at 11 kV is indicated as 140 Amps in Revised SLD submission dated 01.06.2018 and the same is indicated as approx. 310 Amps in Cost Benefit Analysis sheet (610 Amps – 300 Amps = 310 Amps).

   UPCL is required to comment on the same and check & resubmit its submission.

33/11 kV S/s Sikandarpur:-

10. *In revise SLD, UPCL has shown connectivity to the proposed S/s from 132/33 kV Chudiyala S/s and 33/11 kV S/s Raipur via M/s Ambuja Cement Factory. In this regard,* ***UPCL is required to clarify whether the proposed connection is through LILO. Further, UPCL is required to submit about the status of ownership of the S/s namely M/s Ambuja Cement from where the N-1 provision is proposed.***

33 kV S/s Chaurass:-

11. *UPCL in its submission dated 01.06.2018 has submitted that it is also constructing 66 kV switching station in between 66 kV Karnprayag line for the ease of Operation & Maintenance. It is known that 66 kV network is under the purview of PTCUL as per licence conditions.*

    In this regard, UPCL is required to clarify about the status of Ownership/O&M of the aforesaid 66 kV Lines/Network emanating from Srinagar and also submit documentary evidence in support of the same."

9. In compliance to the same, UPCL vide letter No. 3840 dated 17.10.2018 submitted its point-wise reply as follows:-

"

1. *Land has been acquired and is under possession of UPCL for respective 33/11 kV sub-stations namely Aryanagar, Chauras and Sikandarpur, Sector-5, Haridwar and Sector-11, Haridwar.*

2. *It is to bring into the kind notice of Hon'ble Commission that the estimates for the referred projects were prepared with GST @18% on supply of material and labour charges based on Schedule of Rates April'17.*

   After the implementation of GST in July, 2017, Schedule of Rates (including GST) has been revised as per GST norms & recommendations and subsequently 18% GST shall now be applicable only on labour charges.

   Therefore, in the light of above events and subsequent observations of Hon'ble Commission, the revised estimates for the referred projects are being enclosed herewith as ***Annexure-1.***

3. *Rate schedule is enclosed herewith as* ***Annexure-2****.*

4. *Cross section drawing of underground cable arrangement is enclosed herewith as* ***Annexure-3****.*

   Following safety clearances/Standards are being proposed to be adopted at site for underground cable laying:-

   A) A layer of sand of about 100 mm is proposed to be placed below and above the 33 kV cable.

   B) In case two or more cables are required to laid in a trench, then a layer of brick has been proposed to be placed all along the cable route, as per inter-distance clearance required between different types of cable :-

a)	*Power cable to power cable*	*Clearance not necessary. However, larger the clearance, better would be current carrying capacity*
b)	*Power cable to control cable*	*0.2 meter*
c)	*Power cable to communication cable*	*0.3 meter*
d)	*Power cable to water line*	*0.3 meter*

5. *No forest clearance is required for the construction of proposed 05 no. substations and 06 no. 33 kV feeders emanating from 220/132/33 kV S/s IIP, Mohkampur.*

However, for construction of 06 no. 33 kV feeders emanating from IIP, Mohkampur, clearance/NOC from railway department is required to be obtained for 2 locations, where proposed feeder is crossing the railway line.

Necessary proceedings for obtaining NOC from Railway department for these 2 locations have been initiated and requisite NOC is expected to be obtained shortly.

6. *Payback calculation in excel sheet is being enclosed with the letter in soft as well as in hard copy as* ***Annexure-4****.*

7. *Revised sheet of calculation of percentage improvement in voltage profile is given enclosed as* ***Annexure-5****.*

8. ***33/11 kV Substation Aryanagar, Haridwar:-***

In this context, the existing load on the respective substation is given below as:-

Mayapur (2x10)	-	*160 amp. Load*
Gurukul (2x8)	-	*165 amp. Load*
Aryangar (2x10) (After construction)	-	*140 amp. Load*
	Total -	***465 amp. Load***

Thus, the N-1 contingency criteria can be fulfilled in present scenario of load profile.

9. ***33/11 kV Substation Sector-11, Haridwar:-***

Here it is to mention that the peak load on panther conductor at Sector-8 reached to 575 amp. only once. Since then, the load of this S/s has been transferred to another S/s and presently the load on the 33 kV side of 33/11 kV S/s Sector-8 is 460 amp.

The revised Single Line Diagram as per present load and Cost Benefit Analysis with pre and post loading scenario at 11 kV and 33 kV network is being enclosed herewith as ***Annexure-6****.*

10. ***33/11 kV Substation Sikandarpur, Haridwar:-***

Here it is to inform that 33 kV supply to this sub-station is proposed to be fed directly through 33 kV Ambuja line, which is presently being used to connect Ambuja Cement Factory and power supply to Ambuja Cement Factory shall be

maintained directly from this new proposed sub-station. The revised single line diagram is enclosed herewith as ***Annexure-7****.*

11. ***33/11 kV Substation Chauras, Tehri Garhwal:-***

Here it is to be mention that the power supply in Sringar (G) area is being fed from 66/33 kV S/s Karanprayag, Kothiyalsain, Gulabkoti & Joshimath (Marwari) and ownership of these sub-stations has always been with UPCL, even under erstwhile UPSEB, prior to the creation of Uttarakhand State. For documentary evidence log sheet of 66/33 kV S/s is being enclosed herewith as ***Annexure-8****."*

10. Thereafter, a discussion was held between UERC and UPCL on 16.11.2018, during the discussion, UPCL was directed to furnish additional information. In compliance to the same, UPCL vide its letter No. 156/UPCL/Com/RMC-6/CE dated 17.01.2019 submitted soft copy of payback period calculations, voltage improvement calculation and copy of relevant schedules. Further, the Petitioner submitted that:

(1) Drawing w.r.t. laying of underground power cable is in accordance to the safety schedule/standards specified in IS: 1255 (installation and maintenance of cable).

(2) Sincere efforts are being made on priority to avail timely permission from Railways for power line crossings (at two locations) en-route the 33 kV Feeders-Sports College and Ring Road, Raipur each.

(3) N-1 contingency analysis:

A. 33/11 kV Sub-station, Arya Nagar is proposed to have two independent primary sources i.e. 132/33 kV Sub-station, Bhopatwala & 132/33 kV Sub-station, Jwalapur and in both the cases, whether proposed Sub-station draws power from 132/33 kV Sub-station Bhopatwala or 132/33 kV Sub-station Jwalapur, the maximum load on each circuit will be 445 amps. Considering the above load profile of these Sub-stations, the N-1 contingency criteria can be fulfilled by any of these 33 kV feeders. However, for maintaining N-1 contingency in the future, the conductor of concerning 33 kV line will be augmented in accordance with projected

load by distribution division. After necessary changes, revised Single diagram has been submitted.

B. For Sector-11, Haridwar, 33 kV feeder has been proposed from (2x80+50) MVA, 220/132/33 kV Sub-station, SIDCUL, Haridwar. To meet out the N-1 contingency requirement of supply, the existing 33 kV line feeding 33/11 kV Sub-station, Sector-5 (Old) passing nearby the proposed site shall be used and necessary arrangements in this regard shall be made in future by distribution division. After necessary changes, revised Single diagram has been submitted.

C. For 33/11 kV Sub-station, Sikandpur, Haridwar, 33 kV feeder has been proposed from 132/33 kV Sub-station, Chudiyala and to meet out N-1 contingency requirement, provision has been made to extend 33 kV Ambuja Feeder upto the new Sub-station. At present the said 33 kV line feeds Ambuja Cement Factory exclusively. After making such arrangements power supply to Ambuja cement factory shall be maintained directly from this new proposed sub-station. After necessary changes, revised Single diagram has been submitted.

(4) A set of legible log sheet of 66/33/11 kV Sub-station, Chamoli (Gopeshwar) dated 04.12.2006, 07.01.2008 and 11.06.2008 has been submitted. It is also mentioned that the power supply in Srinagar (Garhwal) area is being fed from 66/33 kV Sub-station Karnprayag, Kothiyalsain & Joshimath (Marwari) and ownership of these sub-stations has always been with UPCL. Actually these 66 kV line is inherited to UPCL by erstwhile UPSEB. However, affidavit with respect to the ownership of these 66 kV sub-station and lines is being submitted.

(5) The load of existing 11 kV automat feeder would be transferred to new proposed 33/11 kV Sub-station sector 11, which will also cater the additional new load.

11. Further, UPCL vide its letter no. 885 dated 22.03.2019 submitted following additional information w.r.t. 33 kV lines associated with the proposed Sub-stations:-

S No.	Name of feeder connecting proposed substation	Substation Capacity (in MVA)	33 kV Overhead line		Length of 33 kV underground line (in meter)		Total Line Length (in meter)
			Length (in meter)	Conductor type	Running	Spare	
1	Arya Nagar	2x10	200	Panther	1300	1300	2800
2	Sector-5	2x10	4000	Panther	850	850	5700
3	Sector-11	2x10	4000	Panther	850	850	5700
4	Sikanderpur	2x10	6000	Panther	150	150	6300
5	Chauraas	2x3	400	LILO Dog	-	-	400
Total		**86**	**14600**		**3150**	**3150**	**20900**

Note:- Considering the growth of future load at 2X10 MVA Substations Sector-5, Sector11, Aryanagar and Sikandarpur overhead conductor-Panther is required.

6 No. feeders from 220/132/33 kV Substation IIP, Mohkampur, Dehradun:-

S No.	Name of proposed 33 kV feeder emanating from 220 kV GIS S/s IIP Dehradun	33 kV Overhead line		Length of 33 kV XLPE underground line (in meter)		Total Line Length (in meter)
		Length (in meter)	Conductor type	Running	Spare	
1	Miyanwala	-	-	150	150	300
2	Ajabpur	-	-	200	200	400
3	IIP	-	-	1400	-	1400
4	Raipur (Kidduwala	-	-	7000	7000	21000
5	Ring Road	-	-	7000		
6	Sports College	6500	Dog	1400	1400	9300
Total		**6500**		**17150**	**8750**	**32400**

Commission's Observations, Views & Directions:-

12. On examination of the Petition and subsequent submissions, following has been observed:-

33 kV (2X10 MVA) Arya Nagar, Haridwar S/s:-

(1) Presently the electricity to Arya Nagar, Haridwar area is being supplied through 11 kV Arya Nagar Feeder emanating from 33/11 kV Substation Gurukul and 11 kV Jwalapur feeder emanating from 33/11 kV Substation

Industrial area. The proposed substation mainly covers fast growing residential & commercial areas with an approximate load growth of 10% each year. Since the 11 kV feeders are passing through densely populated area, the reliability and voltage profile of power supply in this area is not satisfactory. As the quality power supply is not being maintained in this area, the consumers of this area regularly make complaints & also show their dissatisfaction from time to time.

(2) After construction of proposed 2x10 MVA, 33/11 kV Substation the load of 11 kV Arya Nagar feeder & Jwalapur feeder is expected to reduce and reliability & voltage profile of Power supply in Arya Nagar, Haridwar area is also expected to improve.

(3) The Petitioner has revised the cost of construction of proposed 2x10 MVA, 33/11 kV S/s Arya Nagar, Haridwar and its associated 3 Km 33 kV line (2.8 Km underground + 0.2 Km overhead) from Rs. 7.08 Crore to Rs. 6.41 Crore due to revision in calculation on account of implementation of GST.

(4) It is observed that the proposed Arya Nagar S/s is having two incoming sources i.e. ring main feeder emanating from 132/33 kV S/s Bhupatwala and 132 kV S/s Jwalapur. Therefore, the Petitioner is expected to adequately augment the said 33 kV ring main network catering to 3 Nos. 33 kV S/s namely Mayapur S/s, Gurukul S/s and proposed Arya Nagar S/s so that N-1 contingency criterion is maintained as per Regulation 3.6 (4) of UERC (Distribution Code) Regulations, 2018 which states that " *In every Sub-Station of capacity 10 MVA and above there shall be a provision for obtaining alternate 33 kV supply to the Sub-Station in case of failure in the incoming supply*".

33 kV (2X10 MVA) SIDCUL, Sector-5, Haridwar S/s:-

(1) Presently the electricity to SIDCUL Sector-5, Haridwar area is being supplied through 11 kV Creative & Sunpet feeder emanating from 33/11 kV Substation Sector-4, 11 kV M&M, Oxyrich feeder emanating from 33/11 kV Substation Sector-5 (old) and 11 kV Sharda feeder emanating from 33/11 kV Substation Sector-7. The proposed substation mainly covers the industries of

Sector -2, 3, 3A, 5, 6A and 6B with an approximate load growth of 2% each year. Since the 11 kV feeders are passing through densely situated industrial area, the reliability and voltage profile of power supply in the area is not satisfactory and the industrial consumers of this area regularly make complaints & also show their dissatisfaction from time to time.

(2) After construction of proposed 2x10 MVA, 33/11 kV Substation, the load of the existing 11 kV feeders is expected to reduce and reliability & voltage profile of power supply in this area is expected to improve. Post construction of the proposed substation it is expected that not only 60 no. of industrial consumers are expected to be benefitted but also it would help in catering to the upcoming increase in industrial demand.

(3) The Petitioner has revised the cost of construction of proposed 2x10 MVA, 33/11 kV S/s SIDCUL Sector-5, Haridwar and its associated 4 Km overhead 33 kV line from Rs. 8.09 Crore to Rs. 7.33 Crore due to revision in calculation on account of implementation of GST.

(4) It is observed that the proposed SIDCUL Sector-5 Haridwar S/s is having only one incoming source i.e. from 220/132/33 kV S/s SIDCUL Haridwar and no provision for N-1 contingency has been envisaged by the Petitioner. The Petitioner in its submission dated 01.06.2018 has submitted that another 33 kV line feeding Sector-4 is passing near by the proposed site and alternate supply can be maintained by connecting the substation by the said line. In this regard, it is observed that the Petitioner should ensure to plan N-1 contingency provision for incoming feeders while planning for the new substations as per Regulation 3.6 (4) of UERC (Distribution Code) Regulations, 2018 which states that *"In every Sub-Station of capacity 10 MVA and above there shall be a provision for obtaining alternate 33 kV supply to the Sub-Station in case of failure in the incoming supply".*

33 kV (2X10 MVA) SIDCUL, Sector-11, Haridwar S/s:-

(1) Presently the electricity to the Sector-11, Haridwar area is being supplied through 11 kV Havells Feeder emanating from 33/11 kV Substation Sector-12

and 33 kV Ultimate Feeder emanating from 33/11 kV Substation Sector-8. Since, the 11 kV feeders are passing through densely situated industrial area, the reliability and voltage profile of power supply in the area is not satisfactory and quality power supply is not maintained due to which industrial consumers of this area regularly make complaints & also show their dissatisfaction from time to time. The proposed substation would mainly cover the industries of Sec-10 & 11 and VIP area around it with an approximate load growth of 2% each year.

(2) After construction of proposed 2x10 MVA, 33/11 kV Substation, the load of above mentioned existing 33 kV and 11 kV feeders would reduce and the reliability & voltage profile of power supply in this area would also improve. Approx 85 no. of industrial consumer will be benefitted initially and it would also cater to the future increase in load demand.

(3) The Petitioner has revised the cost of construction of proposed 2x10 MVA, 33/11 kV S/s SIDCUL Sector-11, Haridwar and its associated 4 Km overhead 33 kV line from Rs. 7.44 Crore to Rs. 6.68 Crore due to revision in calculation on account of implementation of GST.

(4) It is observed that the proposed SIDCUL Sector-11 Haridwar S/s is having only one incoming source i.e. from 220/132/33 kV S/s SIDCUL Haridwar and no provision for N-1 contingency has been envisaged by the Petitioner. The Petitioner in its submission dated 01.06.2018 has submitted that another 33 kV line feeding Sector-5 (Old) is passing near by the proposed site and alternate supply can be maintained by connecting the substation by the said line. In this regard, it is observed that the Petitioner should ensure to plan N-1 contingency provision for incoming feeders while planning for the new substations as per Regulation 3.6 (4) of UERC (Distribution Code) Regulations, 2018 which states that *"In every Sub-Station of capacity 10 MVA and above there shall be a provision for obtaining alternate 33 kV supply to the Sub-Station in case of failure in the incoming supply".* .

33 kV (2X10 MVA) Sikandarpur, Haridwar S/s:-

(1) Presently the electricity to Sikandarpur area is being supplied through 11 kV Shivganga & Lakesheri Feeder and 33 kV Ambuja Cement & Everest Feeder all emanating from 33/11 kV Substation Raipur. Since, the existing 11 kV & 33 kV feeders are heavily loaded, the reliability and voltage profile of power supply is not satisfactory and the consumers of this area regularly make complaints. The proposed Sikandarpur substation is expected to mainly cater to the industrial load with an approximate load growth of 5% each year.

(2) Post construction of proposed 2x10 MVA, 33/11 kV Substation, load of above mentioned 11 kV feeders is expected to reduce and the reliability & voltage profile of power supply in this area would also improve.

(3) The Petitioner has revised the cost of construction of proposed 2x10 MVA, 33/11 kV S/s Sikandarpur, Roorkee and its associated 6.30 Kms (6 Km overhead + 0.30 Km underground) 33 kV line from Rs. 8.40 Crore to Rs. 7.79 Crore due to revision in calculation on account of implementation of GST.

(4) It is observed that the Petitioner in its submission dated 01.06.2018 has submitted that another 33 kV incoming supply can be maintained by Ambuja 33 kV feeder which emanates from 33/11 kV Raipur S/s. In this regard, it is observed that the Petitioner should ensure to plan N-1 contingency provision for incoming feeders while planning for the new substations as per Regulation 3.6 (4) of UERC (Distribution Code) Regulations, 2018 which states that *"In every Sub-Station of capacity 10 MVA and above there shall be a provision for obtaining alternate 33 kV supply to the Sub-Station in case of failure in the incoming supply".*

33 kV (2X10 MVA) Chauraas, Tehri Garhwal S/s:-

(1) Presently the electricity to Chauraas, Tehri Garhwal area is being supplied through 11 kV Badiyar Feeder, Chauraas Feeder, AHPCL Feeder and Silakakhal Feeder emanating from 33/11 kV Substation Kirtinagar.

(2) Chauraas is a fast developing domestic area and there are upcoming payjal schemes and approximately 5% annual load growth is expected. Since, the 11 kV feeders are passing through densely populated area, the reliability and voltage profile of power supply in the area is not satisfactory and quality power supply is not being maintained due to which the consumers of this area regularly make complaints & also show their dissatisfaction from time to time.

(3) After construction of proposed 2x3 MVA, 33/11 kV Substation the load of existing 11 kV Feeders as mentioned would reduce and reliability & voltage profile of power supply would also improve and the concerned consumers will avail the power supply of high quality.

(4) The Petitioner has revised the cost of construction of proposed 2x3 MVA, 33/11 kV S/s Chauraas, Tehri Garhwal and its associated 0.40 Kms 33 kV line from Rs. 4.61 Crore to Rs. 4.32 Crore due to revision in calculation on account of implementation of GST.

6 No. feeders from 220/132/33 kV Substation IIP, Mohkampur, Dehradun:-

(1) The proposed 6 No. 33 kV feeders emanating from 220/132/33 kV S/s IIP have basically been proposed for distribution system improvement which primarily focuses on reduction in long 33 kV distribution network emanating from 132/33 kV S/s Majra.

(2) The existing 132 kV Majra S/s is running on full load, therefore, in order to meet the load demands of the Dehradun town, PTCUL has constructed 220 kV S/s at IIP.

(3) The Petitioner has decided to construct 6 No. 33 kV feeders emanating from 220 kV S/s IIP which are supposed to feed one 33 kV existing feeder and 5 different 33/11 kV S/s namely Miyanwala, Ajabpur, Ring Road, Raipur Kidduwala and Sports College Raipur.

(4) Post construction of 6 No. 33 kV feeders not only the losses occurring in the existing long 33 kV distribution feeders would reduce but also reliability & voltage profile of power supply would improve. The proposed 6 Nos.

feeders would have developing reliable and high quality distribution network with reduced sub-transmission network losses.

(5) The Petitioner has revised the cost of construction of proposed 6 Nos. 33 kV feeder emanating from 220/132/33 kV S/s IIP, Mohkampur from Rs. 17.54 Crore to Rs. 16.09 Crore due to revision in calculation on account of implementation of GST.

(6) With regard to 6 Nos. feeders emanating from 220/132/33 kV S/s IIP it is observed that approximately 25.90 Kms of XLPE cable is to be laid for the 6 Nos. feeders namely 220/33 kV IIP to 33 kV Miyanwala S/s feeder (2x150=300 meter XLPE cable), 220/33 kV IIP to 33 kV Ajabpur S/s feeder (2x200=400 meter XLPE cable), 220/33 kV IIP to 33 kV IIP S/s feeder (1400 meter XLPE cable), 220/33 kV IIP to 33 kV Ring Road S/s & 33 kV Raipur (Kidduwala) S/s (2 X 7000 + 7000 (Spare)=21000 meter XLPE cable).

13. The Petition & subsequent submissions of the Petitioner 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 the Petitioner 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 length of 33 kV line 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.

14. From the instant Petition, it is observed that Petitioner is not serious towards creating N-1 contingency provisions in its distribution network which plays an important role in planning of distribution and sub-transmission network of the State. In this regard, the Commission is of the view that proper planning of 33 kV network is vital for creating a robust & reliable distribution network for meeting

consumer load demands for atleast 05 ensuing years. Moreover, it is critical to share future load projection details with State Transmission Utility so that timely planning & creation of 132 kV & above network can be taken up at their end.

15. Further, with regard to underground cabling of 33 kV network, the Commission would like to caution the Petitioner to execute the said works as per the prescribed safety norms of the concerned authorities so that safety, security, reliability & sustainability of the same is ensured. Moreover, the Petitioner is cautioned to ensure the availability of required infrastructure and skilled manpower for Operation & Maintenance of such underground distribution networks.

16. 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 33/11kV Substation	District	Substation Capacity (MVA)	Estimated cost of Substation (In Rs Crore)	Length of 33KV line (Km)*	Estimated cost of line (In Rs Crore)	Total Cost (In Rs Crore)
1	Arya Nagar	Haridwar	2x10	4.40	2.80	2.01	6.41
2	Sector-5		2x10	5.03	5.70	2.30	7.33
3	Sector-11		2x10	4.38	5.70	2.30	6.68
4	Sikandarpur		2x10	5.47	6.30	2.32	7.79
5	Chauraas	Tehri Garhwal	2x3	4.22	0.40	0.10	4.32
6	6 No. Feeders from 220/132 KV Substation IIP, Mohkampur	Dehradun	-	-	32.40	16.09	16.09
Total			**86.00**	**23.50**	**53.30**	**25.12**	**48.62**

**As per Petitioner's submission dated 22.03.2019 (including Overhead, Underground and Spare length of 33 kV line).*

The Commission is of the view that the aforesaid capital works would improve the voltage profile, help in reduction of sub-transmission network losses and provide apparent relief to the existing overloaded lines/transformers. Thus strengthening the distribution network resulting in improvement of reliability and quality of power supply to the consumers of the respective areas.

17. Therefore, in view of the above, the Commission hereby grants in-principle approval for the proposed works mentioned in the above Table subject to the fulfillment of the conditions mentioned below:-

(1) The Petitioner is directed to execute the proposed works duly adopting the safety norms prescribed by the authorities.

(2) The Petitioner is directed to obtain the prices through competitive bidding for the works allowed by the Commission under the prevailing Rules & Regulations. Prudency of the prices will be scrutinized at the time of fixation of tariff after completion of the proposed works.

(3) 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.

(4) 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.

(5) After completion of the aforesaid schemes, the Petitioner shall submit the completed cost and financing of the schemes.

(6) 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