

Before

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 32 of 2017

In the Matter of:

Application seeking approval for the investment on the project covering the construction of 01 No. 66/33 KV Substation & 0.60 Km 66 KV Line and 02 No. 33/11 KV Substations & their associated 15.20 Km 33 KV Line.

And

In the Matter of:

Uttarakhand Power Corporation Limited. (UPCL),
Dehradun.

...Petitioner.

Coram

Shri Subhash Kumar Chairman

Date of Order: December 21, 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 the investment on the project covering the construction of 01 No. 66/33 KV Substation & 0.60 Km 66 KV Line and 02 No. 33/11 KV Substations & their associated 15.20 Km 33 KV Line.

Background

2. The Petitioner vide its letter No. 2480/UPCL/Com/RMC-6/D(F) dated 17.06.2017 submitted Petition for investment approval under the provisions of the Clause 11 of Distribution and Retail Supply License 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.

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 01 No. 66/33 KV Substation & 0.60 Km 66 KV Line and 02 No. 33/11 KV Substations & their associated 15.20 Km 33 KV Line. 33 KV lines in different regions of the state of Uttarakhand. The estimated cost of the project is Rs. 21.29 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. 2017-18 to F.Y. 2019-20). The details of substations and lines are as follows:-*

Sl. No.	Name of Substation	District	Substation Capacity (MVA)	Estimated cost of Substation	Length of Line (Km.)	Estimated cost of Line	Total Cost
i) 33/11 KV Substations & their associated lines:-							
1	Barnigad	Uttarkashi	2X3	2.87	1.2	0.24	3.11
2	Arakot	Uttarkashi	2X3	2.97	14	2.08	5.05
Sub Total (A)			12.00	5.84	15.20	2.32	8.16
ii) 66/33 KV Substation & its associated line:-							
3	Manglore	Roorkee	2X15	11.31	0.60	1.82	13.13
Sub Total (B)			30.00	11.31	0.60	1.82	13.13
Total			42.00	17.15	15.8	4.14	21.29

- ii. *The detailed project report showing examination of an economic technical system together with the outline of the work to be undertaken, the salient features and particulars demonstrating the need for investment alongwith relevant cost benefit analysis is enclosed herewith at Annexure-A. The work to be undertaken does not have any adverse environmental effect. The sanctioned loan letter from REC is enclosed herewith at Annexure-B wherein the loan has been approved for construction of 03 nos. new 33/11 kV S/s and 01 nos. 66/33 kV S/s however at present UPCL only proposed to construct 02 nos. 33/11 kV and for the remaining one 33/11 KV S/s and its associated 33 KV line will be applied separately. The approval from BOD is enclosed herewith at Annexure-C for your kind perusal. ”*

4. The Commission heard the matter for admissibility on 28.07.2017 and admitted the Petition.

5. On examination of the Petition certain deficiencies/infirmities and requirement of additional information were identified, the Commission vide its letter No. 1032 dated 15.09.2017 directed the Petitioner to submit/furnish its compliance on the following latest by 03.10.2017:-

“

(A) General

1. UPCL is required to furnish the soft copy in excel format for the payback period calculations for all the three projects.
2. While calculating the payback period, the total cost of energy billed has been taken into account in 1st and the subsequent years. The Commission has observed that the energy being fed to the area by the new/proposed substation must have been fed by other substations/feeders in present scenario and therefore, the energy billed at the old substation will be reduced proportionately with the installation of new proposed substation. Hence, for calculation of energy billed/cost benefit analysis for the new proposed substation, the expected future load should only be considered.
UPCL is required to clarify the same.
3. UPCL has not indicated the loading of the interconnecting lines i.e. 33 kV, 66 kV and 132 kV in existing and proposed scenarios. UPCL is required to re-submit line chart of all the three projects including the same.
4. UPCL is required to furnish copy of rate schedules for material, erection and civil works which have been considered while preparing the estimates for the proposed works.
5. UPCL is required to furnish the details of forest clearances of the lines associated with the proposed 33 kV Barnigad & 33 kV Arakot substations.
6. UPCL in its Petition has enclosed a copy of resolution passed by BOD in 79th BOD meeting held on 28.03.2017 pertaining to the proposed projects of total Rs. 21.85 Crore without any clear narration of the names of the proposed 33 kV substations. Moreover, UPCL at Item No. 79.26 of the aforesaid BOD meeting has referred for revision/modification in 33 kV Arakot S/s.
UPCL is required to confirm the names of 2 Nos. 33 kV S/s for which approval was taken in 79th BOD meeting at Item No. 79.25.

(B) 33/11 kV S/s Barnigad (2 X 3 MVA)

1. The Commission has observed that UPCL in its DPR has submitted that land acquisition is under progress for 33/11 kV S/s proposed at Barnigad.
UPCL is required to submit the status of the same.
2. In the DPR, UPCL has mentioned that the villages covered under DDUGJY Scheme shall be electrified through the proposed 33 kV S/s Barnigad.
UPCL is required to furnish the details of villages covered under DDUGJY Scheme alongwith the expected load which will be sourced through 33 kV S/s Barnigad. Further, UPCL is required to confirm that the anticipated new load (80 amp.) indicted in the payback period calculation for the first year is inclusive of the load of the villages covered under DDUGJY Scheme or not.
3. On examination of the line chart of the proposed 33 kV S/s Barnigad, it has been observed that the aforesaid S/s would be fed through the LILO line i.e. 33 kV line from 33 kV S/s Nainbag to 33 kV S/s Barkot, whereas, in the line chart, single dotted line has been indicated for the proposed 33 kV Barnigad S/s which indicates a tap-off.
UPCL is required to re-submit its line chart indicating the name of the conductor in use/to be used, line-lengths and confirm whether the connection would be a LILO connection or a tap-off for the proposed 33 kV Barnigad S/s.

(C) 33/11 kV S/s Arakot (2 X 3 MVA)

1. *On examination of the line chart, it has been observed that the proposed 33 kV S/s Arakot would be fed via 33 kV S/s Tyuni. In this regard, it has come to the notice that the 33 kV feeder emanating from 132/33 kV S/s Dhakrani caters to the load of other substations also i.e. 33 kV Tyuni, 33 kV Savra, 33 kV Chakrata and 33 kV Sahiya substations radially.*

UPCL is required to re-submit its line chart indicating the name of the conductor in use/to be used, line-lengths and all the substations being fed through the said 33 kV feeder emanating from 132/33 kV Dhakrani S/s.

(1) *As per point No. 1 above, it is observed that the entire load of 33 kV Tyuni, 33 kV Savra, 33 kV Chakrata, 33 kV Sahiya substations and the proposed 33 kV Arakot S/s would be fed through 33 kV feeder emanating from 132/33 kV Dhakrani S/s, whereas, for a good distribution planning it is important to create redundancy in the system as per Regulation 3.7 (1) of the UERC (State Grid Code) Regulations, 2007 "The Distribution Licensee while planning Distribution System shall take into consideration the adequacy and redundancy of system capacity and capability to allow for long term load growth based on perspective plan and maintaining supply to consumers in the event of forced or planned outage of lines and transformers. The system shall have built in redundancy so that consumers face no interruption in power supply through alternative circuit arrangements. " Therefore, UPCL is required to clarify regarding the N-1 line contingency for the proposed 33 kV S/s Arakot and submit a justification for meeting the N-1 contingency criteria.*

(D) 66/33 kV S/s Manglore (2 X 15 MVA)

1. *UPCL is proposing 66 kV S/s, despite knowing the following facts:-*

- a) *66 kV is not a common voltage level followed in Uttarakhand,*
- b) *any new addition of 66 kV network would result in additional expenditure on procurement of inventories/spares for a non-standard voltage level.*
- c) *66 kV network is termed to be as a network in waiting for upgradation to 132 kV level.*

In this regard, UPCL is required to submit a convincing justification for creating 66 kV sub-station in the area considering the prevailing licence conditions and provisions of Act/Regulations,

2. *The Commission in its Order dated 06.04.2017 (copy available in the Commission's website) has recently given approval for Procurement and Stringing of 132 kV Roorkee-Manglore line by replacing existing Wolf/Panther conductor with ACCC (HTLS) Casablanca conductor and post completion of the said project it is expected that the current carrying capacity of line feeding 132 kV S/s Mangalore would increase considerably, thus resolving UPCL's contention given in its justification for the project that load at 132 kV Mangalore line is reaching to its maximum capacity. UPCL is required to re-examine its proposal for construction of 66/33 kV S/s Mangalore in light of the above and submit its comments to the Commission."*

6. In response to the deficiencies forwarded to UPCL vide letter No. 4082 dated 03.10.2017, UPCL requested for 2 weeks time extension and thereafter it submitted its point-wise reply vide letter No. 4328 dated 25.10.2017 as follows:-

“

1. The cost benefit analysis is being enclosed as annexure-1 and also the excel format of payback period calculation for all the three project in soft copy is being submitted alongwith this letter. **Annexure-1.**
2. For calculating the cost of energy billed in the payback period, the anticipated load has been considered in the filed petition which is based on following factors:-
 - a. Anticipated new load on proposed substations (which is not catered by existing substations).
 - b. Annual load growth.
3. With regard to point no. 3, revised line charts of all the three projects are being submitted which indicates the loading of interconnecting lines i.e. 33 kV, 66 kV & 132 kV S/s as **Annexure-2.**
4. The estimates for material and erection of electrical items are based on the Stock Issue Rates of UPCL for Financial Year 2016-17, which are being submitted as **Annexure-3A.**
Rate Schedule for civil works are based on Delhi Schedule Rate-2014. The BOQ for all three substations indicating the item No. of DSR-2014 is being enclosed as **Annexure-3B.** However the DSR-2014 & cost index is being submitted in soft copy.
5. There is no forest area in the proposed enrout of 33 kV line associated with 33/11 kV Substation, Barnigad. However, forest case is being prepared for the forest area in route of associated 33 kV line of 33/11 kV Substation, Arakot.
6. The resolution passed by BoD during its 79th meeting held on 28.03.2017 pertaining to the proposed projects of total Rs. 21.85 Cr. is for 2 No. 33/11 kV S/s namely Barnigad & Garh-Chamiyala and 1 No. 66/33 kV S/s Manglore. The Agenda item 79.25 is enclosed. Moreover, vide agenda item no. 79.26 of aforesaid meeting the revision/modification for 33/11 kV S/s Arakot has also been approved. **Annexure-4.**

B. 33/11 kV S/s Barnigad (2X3) MVA:-

- (1) Regarding land acquisition for 33/11 kV Barnigad, it is to inform to Hon'ble UERC that registry of proposed land is done and a copy of registry is being submitted as **Annexure-5.**
- (2) The list of villages covered under DDUGJY, which are proposed to be electrified through proposed 33/11 kV S/s Barnigad is being enclosed as **Annexure-6.**
The anticipated new load (80 Amp.) indicated in payback period calculation for the first year is inclusive of the load of villages to be electrified under DDUGJY.
- (3) With regard to point No. 3, the proposed 33/11 kV S/s, Barnigad is proposed to be fed through LILO line. The line chart is being resubmitted alongwith the following details as **Annexure-7.**
 - (i) Double dotted line for LILO connection.
 - (ii) Name of conductor.
 - (iii) Length of line.

C. 33/11 kV S/s Arakot (2X3) MVA:-

- (1) With regard to point No. 1, the line chart for 33/11 kV S/s, Arakot with following details is being enclosed as **Annexure-8.**
 - (i) Name of conductor.
 - (ii) Length of line.

(iii) *Other substations being fed through the said 33 kV feeder emanating from 132/33 kV substation Dhakrani.*

For N-1 contingency, a 33 kV line is also proposed by Distribution Division, Uttarkashi from 33/11 kV substation Mori which is fed from primary source 220 kV substation Tilothe, to feed 33/11 kV substation Tuni which is presently being fed from primary source 132 kV substation Dhakrani. Hence by connecting 33/11 kV S/s, Arakot with 33 kV feeder Dhakrani as well as with 33 kV feeder Tilothe the proposed N-1 contingency will be maintained thus forming a ring main unit.

D. 66/33 kV S/s Manglore (2X15) MVA:-

(1) *UPCL is already maintaining 66 kV line Srinagar to Karanprayag (60 Km), Karanprayag to Kothiyalsain (20 Km), Kothiyalsain to Joshimath (41 Km). Also UPCL is maintaining 3 Nos. 66/33 kV S/s i) Kothiyalsain in Chamoli ii) Karanprayag in Chamoli iii) Marwari in Joshimath with a total capacity of 35.5 MVA.*

Hence, no additional expenditure on procurement of inventories/spares will cost in maintaining 66 kV system.

(2) *It is to bring in the kind notice of Hon'ble Commission that it is said in the filed petition that 132 kV line feeding 132/33 kV S/s, Manglore is overloaded. Re-conductoring will definitely improve the current carrying capacity of the 132 kV line. But it is also to be noted here that 132 kV S/s Manglore does not have enough space for additional bay as 132/33 kV Manglore is situated in densely populated area therefore the increasing load at 33 kV level could not be served by 132/33 kV S/s Manglore, hence construction of overhead line or underground line from this substation is not possible."*

7. Knowing the fact that 66 kV is not a common voltage level followed in the State and is termed to be as network in waiting for up gradation to 132 kV level. The Commission vide its letter No. 1287 dated 09.11.2017 forwarded the aforesaid Petition & UPCL's reply to deficiencies to PTCUL for its comments w.r.t. its transmission plan for the area. Further, the Commission also directed PTCUL to confirm whether any prior consent for construction of 66 kV sub-station & line has been taken by UPCL.

8. In response to the same, PTCUL vide its letter dated 11.12.2017 has submitted that::

"... presently PTCUL has no plan for up-gradation of 66 kV Mohammadpur-Roorkee line to 132 kV level in Roorkee area. It is also to submit to the Hon'ble Commission that there is no record of prior consent for construction of 66 kV Sub-Station & line, which has been taken by UPCL from PTCUL."

Commission's Observations, Views & Directions:-

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

33/11 kV Barnigad S/s:-

- (1) UPCL in its Petition has submitted that there are approx. 1800 consumers in the Barnigad area that are being supplied electricity through 160 KMs long 11 kV Barnigad Feeder emanating from 33/11 kV S/s Barkot and 180 KMs long 11 kV Pudiadamata feeder emanating from 33/11 kV S/s Lakhamandal. Due to long 11 kV feeders and dense forest en route of the existing 11 kV feeders, the quality & reliability of electricity is adversely affected.
- (2) UPCL in its Petition under justification for proposing 33/11 kV Barnigad S/s has submitted that :-
 - a) Apart from the monetary benefits several intangible benefits in the form of enhanced efficiency, reliability, and quality of supply & good services to the consumers are expected from the project.
 - b) With the shifting of load from existing 11 kV feeders Barnigad and Pudiadamata emanating from 33/11 kV substation Barkot and Lakhamandal respectively to the proposed 33/11 kV Barnigad S/s, the reduction in load at 33/11 kV substation Barkot and Lakhamandal would result in improving the quality & reliability of power to the consumers connected to those sub-stations.
 - c) Several villages in this area are covered under village electrification under DDUGJY scheme and thus the proposed 33/11 kV S/s Barnigad would also be beneficial in providing electricity to consumers who have been deprived from it for many years.
- (3) The 33 kV S/s Barnigad has been proposed to be connected through LILO connection on 33 kV Nainbaag-Barkot line, which on one end would be connected through 140 kms long 33 kV line emanating from 132 kV S/s Purkul, Dehradun and on the other side it is connected to 220 kV S/s

Tiloth via 50 kms long 33 kV circuit. In this regard, it is observed that a 220 kV Naugaon S/s is also proposed in the region which would further strengthen the network in the area. Hence, it is advised that provision should be kept for connectivity of the aforesaid S/s with proposed 220 kV Naugaon S/s, this would certainly help in improving the quality & reliability of electricity in the entire region.

33/11 kV Arakot S/s:-

- (1) UPCL in its Petition has submitted that there are approx. 1300 consumers in the Arakot area that are being supplied electricity through 70 KMs long Tuniatari Feeder, 50 KMs long Kathiyaan and 120 kms long Raygemajog 11 kV feeders all emanating from 33/11 kV S/s Tuini. Due to long 11 kV feeders and dense forest in route of the existing 11 kV feeders, the quality & reliability of electricity is significantly affected.
- (2) UPCL in its Petition under justification for proposing 33/11 kV Arakot S/s has submitted that with the shifting of load from existing 11 kV feeders Tuniatari, Kathiyaan and Raygemajog emanating from 33/11 kV substation Tuini to the proposed 33/11 kV Arakot S/s, the reduction in load at 33/11 kV substation Tuini would result in improving the quality & reliability of power to the consumers connected to them.
- (3) It has been observed that the proposed 33 kV S/s Arakot was not provided with alternate 33 kV source to meet out the N-1 contingency criteria in its original Petition. However, Petitioner in its later reply to the deficiencies submitted that for fulfilling the N-1 contingency criteria a 33 kV line is also proposed by distribution division-Uttarkashi from 33/11 kV S/s Mori which is fed through primary source 220 KV S/s Tiloth.

The Commission is of the view that for the robust and reliable distribution system across the State, resulting in quality & reliable electricity supply to the consumers, N-1 contingency criteria should be considered for all S/s on sub-transmission system and the cost of such expenses should be included in the parent investment approval only.

66/33 kV Mangalore S/s:-

- (1) With regard to 66/33 kV Mangalore S/s, UPCL in its Petition has submitted that the electricity to industries in Mangalore and its nearby area is being supplied through 132/33 kV S/s, Mangalore which is heavily loaded. Mangalore area covers around 8513 consumers, presently the industries are mainly fed through 33 kV feeders which are overloaded and due to fault in single feeder all the industries connected to it gets interrupted, resulting in dismay and chaos.
 - (2) The Petitioner in its petition has submitted that as load at 132 kV line feeding 132 kV S/s Mangalore has reached its maximum capacity and it is also proposed that 33/11 kV S/s Landhaura, 33/11 kV Jhabreda S/s & 33/11 kV Makdumpur would be connected to 132 kV Mangalore. Therefore, in order to reduce load on 132 kV Mangalore, 66/33 kV Mangalore S/s has been proposed by connecting to the nearby passing 66 kV double circuit line between Mohammadpur & 132 kV S/s Ramnagar.
10. With regard to construction of proposed 66/33 kV S/s at Mangalore is concerned, following has been observed:-
- (1) Clause 2 of Uttaranchal Transmission Licence (Licence No. 1 of 2003) defines Transmission System as:-

"Transmission System means the system consisting mainly of extra high voltage electric lines having design voltage of 66 kV and higher, owned or controlled by the Licensee, and used for the purposes of the transportation of electricity between the switchyards of two Generating Sets or from the switchyard of a Generating Set to a substation, or between substations, or to or from any external interconnection and includes all bays/equipment up to the interconnection with the Distribution System, and any plant, apparatus and meters owned or used in connection with the transmission of electricity, and shall include any other system which the Commission specifically declare it to be a part of the Transmission System;

- (2) With regard to construction, operation & maintenance of the existing 66 kV network is concerned, it has been observed that 66 kV network do not constitute a major portion of the T&D network of Uttarakhand. Basically, existing 66 kV network in the State of Uttarakhand was created in pre Electricity Act, 2003 period i.e. prior to unbundling of the State Electricity Boards. In a post Electricity Act, 2003 era, separate Licence for Transmission and Distribution of electricity have been issued by the Commission including the definition of the voltage levels for Transmission and Distribution licensee under which they are authorised to develop, operate & maintain. As an exceptional case, some portion of the existing 66 kV network remained with distribution licensee for Operation & Maintenance in a post Electricity Act, 2003 (with separate Transmission Licence) due to field constraints. However, as far as development, operation & maintenance of new 66/33 kV sub-station and its associated lines is concerned, the first right to develop, operate and maintain the same in a post Electricity Act, 2003 (with separate Transmission Licence) lies with the transmission licensee for which it has been vested a Licence.
- (3) In the instant case the investment approval for construction of 66/33 kV S/s and its associated lines at Mangalore has been sought by distribution licensee (UPCL) and not by the transmission licensee (PTCUL). Moreover, from the reply of PTCUL dated 11.12.2017, it has been observed that UPCL has not taken prior approval from it for creating 66 kV sub-station & associated lines. Further, it is pertinent to reproduce clause 5.1.2 of Uttaranchal Transmission Licence (Licence No. 1 of 2003) which reads as:-
- “The Licensee shall not commence any new provision of services to third parties for the transportation of electricity through the Licensee's Transmission System, except with **the general or special approval of the Commission.**”*
- Since, in the instant case neither UPCL has taken prior approval for construction of proposed 66/33 kV S/s at Manglore from PTCUL nor PTCUL has approached the Commission for allowing third party i.e. UPCL (as 66 kV Mohammadpur-Roorkee line is maintained by PTCUL

and transmits generation available from Mohammadpur SHP owned by UJVN Ltd.) for giving authority/responsibility to develop, transmit, operate & maintain 66 kV network as per Licence conditions. Hence, the approval sought by the Petitioner for construction of 66/33 kV S/s at Manglore and its associated lines is not tenable.

11. With regard to the construction of 33/ 11 kV Barnigad & Arakot substation and its associated lines, considering the expected improvement in the quality & reliability of electricity in the Barnigad & Arakot area, the Commission hereby grants in-principle approval for the proposed construction works of 33/ 11 kV S/s Barnigad & 33/ 11 kV S/s Arakot and their associated lines subject to the fulfillment of the conditions mentioned below:
 - (1) The Petitioner is directed to obtain the prices through competitive bidding for the works allowed by the Commission under the prevailing Rules & Regulations. 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.
12. In the matter of Petitioner's proposal for construction of 66/33 kV S/s and its associated lines at Mangalore as discussed at para 10 above, the Commission as of now has decided to reject Petitioner's proposal and **directs both PTCUL and**

UPCL to work out a coordinated plan for meeting the load demand of the Mangalore area and approach the Commission for investment approval accordingly (if required), in accordance with the conditions specified in their respective Licences.

Ordered accordingly.

**(Subhash Kumar)
Chairman**