

Before

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Petition No. 05 of 2017

In the Matter of:

Approval of 09 nos. projects under Capital Investments under Para 11 of the Transmission Licence involving various works of System Improvement.

And

In the Matter of:

Power Transmission Corporation of Uttarakhand Limited (PTCUL)

Coram

Shri Subhash Kumar Chairman

Date of Order: 7th February, 2017

ORDER

This Order relates to the Applications filed by Power Transmission Corporation of Uttarakhand Ltd. (hereinafter referred to as "PTCUL" or "the Petitioner") vide letters No. 53 to 61/MD/PTCUL/UERC dated 10.01.2017, seeking approval of the Commission for the proposed investments involving various works of System Improvement under Para 11 of Transmission Licence [Licence No. 1 of 2003]

2. The estimated cost of the works proposed by the Petitioner is as follows:

Table 2: Project wise cost proposed by the Petitioner

No.	Particulars	Substation/Transformer Capacity	Length of lines (Km.)	Project Cost including IDC as per DPR (₹ Crore)
(a)	Stringing of second circuit of 132 kV S/C line on D/C tower between 400 kV S/s Kashipur to 132 kV Bazpur S/s on HTLS conductor alongwith construction of 132 kV bay at 132 kV S/s Bazpur.	132 kV S/s	15.28	14.08
(b)	Replacement of ACSR Zebra Conductor in 220 kV Mahuakheraganj (220)-Kashipur (400) II nd Ckt. line with high capacity ACCC conductor	-	16.799	19.65
(c)	Construction of 132 kV D/C line from 220 kV S/s Mahuakheraganj to 132 kV S/s Jaspur	-	23.32	20.34
(d)	Augmentation of 400 kV S/s Kashipur from 2x315 MVA to 3x315 MVA T/F capacity including associated 400 kV and 220 kV bays.	2x315 MVA to 3x315 MVA	-	32.10
(e)	Supply and installation of 125 MVAR Reactor and its associated bay and related work at 400 kV S/s Kashipur.	-	-	14.75
(f)	Construction of 02 nos. 132 kV bay at 132 kV S/s Jaspur	-	-	2.76
(g)	Supply, erection testing and commissioning of 01 no. 40 MNVA 132/33 kV Power T/F at 132 kV S/s Kichha for augmentation of T/F capacity 2x40 MVA to 3x40 MVA	3x40 MVA	-	4.86
(h)	Supply and Installation of 01 no 160 MVA T/F and its associated 220 kV HV side & 132 kV LV side bay at 400 kV S/s Kashipur	160 MVA	-	18.39
(i)	Replacement of ACSR Zebra Conductor in 220 kV Mahuakheraganj (220)-Kashipur (400) I st Ckt. line with high capacity ACCC conductor	-	21.823	25.43
	Total			152.36

3. The Petitioner has submitted copy of extracts of the 55th and 56th Minutes of BoD Meetings of PTCUL held on 27.09.2016 & 12.11.2016 respectively, wherein the Petitioner's Board has approved the Corporation's aforesaid proposals with a funding plan of 70% through loan assistance by financial institutions and balance 30% as equity funding from GoU.
4. As all the stated proposals involve system improvement works, the Commission decided to club the same and accordingly, a single Order is being passed.
5. To justify the need of the works proposed, the Petitioner submitted that:

(a) Stringing of Second Circuit of 132 kV Kashipur (400 kV) Bazpur Line along with Construction of its Associated Bay at 132 kV Substation Bazpur.

The Petitioner submitted that presently 132 kV Bazpur S/s is connected to (i) 400 Kv S/s Kashipur through 132 Kv Kashipur (400)-Bazpur S/C line on D/C tower (ii) 132 Kv Kashipur through 132 Kv S/C line, (iii) 220 kV Kamaluaganj through 132 Kv line. 132 Kv Bazpur- Kamaluaganj remains open most of the time due to load flow limitations. Out of the two lines maximum load flows through S/C Kashipur (400)-Bazpur line and partially from 132 Kv Kashipur-Bazpur line.

To justify its proposal the Petitioner has submitted that 132 kV Kashipur (400 kV)-Bazpur S/C line is generally loaded more than 90% of its maximum capacity during peak load season. In case of outage of any one of 132 kV Kashipur (400)-Bazpur S/C line or 132 kV Kashipur-Bazpur line, the other line trips on over loading resulting in complete blackout of Bazpur S/s. To meet the growing demand in and around Bazpur area and for fulfillment of to meet out N-1 contingency criteria it is essential that stringing of second circuit of 132 kV Kashipur (400 kV)-Bazpur line be done without any further delay.

(b) Replacement of ACSR Zebra conductor in 220 kV Mahuakheraganj (220 kV)-Kashipur (400 kV)-II nd Ckt Line with high capacity ACCC Conductor.

Petitioner has stated that 220/132/33 kV S/s Mahuakheraganj (2x100 MVA+ 2x80 MVA) is connected to 400 Kv S/s Kashipur, 02 Gas based generators (namely M/s Sravanti Energy Pvt. Ltd. and M/s Gama Infra Prop Pvt. Ltd.) at 220 kV voltage level and 02 nos. 132 kV S/s namely 132 kV S/s Kashipur and 132 kV S/s Thakurdwara (UP) resulting in flow of power in the existing 220 kV line between 400 kV Kashipur S/s and 220 kV Mahuakheraganj S/s close to its maximum loading capacity.

The status of present and future maximum power to be generated in future by these gas generating stations, as submitted by PTCUL, is shown below:

Name of power generator	Present load	Max. Load to be generated in future
M/s Sravanthi Energy Pvt. Ltd.	214	225
M/s Gama Infra Prop Pvt. Ltd.	104	225
M/s Beta Infra Pvt. Ltd.	0	225
Total Load	318	675

To justify the proposal, the Petitioner has submitted that there are three 220 kV transmission lines for the evacuation of total generated power by the above gas generating stations. The present 220 kV line network on Zebra conductor is insufficient to evacuate the total power generated by the said generating stations. For evacuation of the generated power efficiently, capacity of 220 kV system is to be enhanced by replacement of existing ACSR Zebra conductor in 220 kV Mahuakheraganj (220 kV)-Kashipur (400 kV)-II nd Ckt Line with high capacity ACCC Conductor.

- (c) **Construction of 02 no. 132 kV Bay at 132 kV S/s Jaspur for termination of newly proposed 132 kV D/C Line from 220 S/s Mahuakheraganj to 132 KV S/s Jaspur.**

Petitioner has stated that for termination of proposed 132 kV D/C Line from 220 S/s Mahuakheraganj to 132 KV S/s Jaspur, 02 nos. 132 kV bays are required at 132 kV S/s Jaspur.

- (d) **Augmentation of 400 kV S/s, Kashipur from 2x315 MVA to 3x315 MVA T/F capacity including construction of associated 400 kV and 220 kV Bays**

The Petitioner submitted that 400/200/132 kV S/s, Kashipur is one of the largest S/s of PTCUL in Kumaon Zone and it caters the power to approximately whole of Kumaon Region and partially to Garhwal region also.

To justify their proposal the Petitioner submitted that at present there are 02 nos. 315 MVA, 400/220 kV transformers of ABB make. The maximum running load of the S/s is approximately 94.71% of the installed transformer load capacity. Keeping in view the exponential growth in load demand in recent times and also meet the T-1 contingency conditions of transformers, the proposed system strengthening of 400 kV S/s Kashipur is essentially required.

(e) Supply and Installation of 125 MVAR Reactor along with its Associated Bay and related works at 400 kV S/s, Kashipur

The Petitioner had submitted that during light load condition the voltage level at 400 kV side shoots up to beyond 400 kV which may be dangerous for basic insulation level (BIL) level of switchyard equipments and also causes over fluxing condition in Transformers. According to the Petitioner the maximum voltage recorded at 400 kV level was 437 kV. Therefore, to keep the voltage level within the permissible limits and to ensure reliable and uninterrupted power supply installation of 125 MVAR Reactor is essential for safety of not only 400 kV S/s Kashipur but all the constituents connected to the Grid.

(f) Construction of 132 kV Double Circuit Line from 220 kV Mahuakheraganj to 132 kV S/s Jaspur.

Presently, according to the Petitioner, 132 kV S/s Jaspur is connected to two source (i) 400 kV S/s Kashipur through 132 kV line (ii) Ramganga hydro power plant. Since the power from the hydro plant is seasonal, the main source of power to the S/s is from 132 kV line from 400 kV s/s Kashipur. The proposal to enhance the capacity of 132 kV Jaspur S/s from 2*40 MVA to 3*40 MVA is proposed. Under the enhanced capacity, 132 kV line from 400 kV s/s Kashipur may get overloaded which may cause total blackout at 132 kV Jaspur S/s. Moreover, two gas based generating plants i.e. M/s Sravanti Energy Pvt. Ltd., M/s Gama Infra Prop Pvt. Ltd are already connected to 220/132 kV/33 kV S/s Mahuakheraganj and other M/s Beta Power Pvt Ltd shall be connected to it in near future. The Petitioner has submitted that to meet out the N-1 condition in case of overloading/tripping of 132 kV line from 400 kV s/s Kashipur and to ensure reliable power evacuation from the said gas based generating stations, construction of 132 kV Double Circuit Line from 220 kV Mahuakheraganj is essential.

(g) Supply of 01 no. 40 MVA, 132 kV/33 kV Power T/F at Kichha for Augmentation of T/F Capacity of 132 kV S/s Kichha from 2x40 MVA to 3x40 MVA

Investment approval of Augmentation of 132 kV transformer capacity including construction of associated 01 No. 132 kV bay and 01 No. 33 bay and dissection of 33 kV main bus has already been approved by the Commission by its Order dated 11.02.2016 under System strengthening of 132 kV S/s Kichha.

The Petitioner has stated that the earlier proposal submitted for augmentation works at Kichha did not include supply of 01 no. 40 MVA, 132/33 kV transformer as spare 40 MVA Transformer was available at 220 kV S/s Jhahhra. However, due to certain exigencies the spare transformer could not be diverted to Kichha. Thus, proposal for procurement of 01 new 40 MVA, 132/33 kV Transformer has been submitted.

(h) Supply and Installation of 01 no. additional 160 MVA T/F and its Associated 220 kV HV side & 132 LV side Bays at 400 kV S/s Kashipur.

The Petitioner has submitted that at present there are 02 nos. 160 MVA 220/132 kV Transformers installed at 400 kV S/s Kashipur.

To justify the proposal the Petitioner submitted that maximum loading of 132/33 kV 160 MVA transformers installed at 400 kV S/s Kashipur has been around 90% of the installed transformer load capacity. Keeping in view the exponential growth in load demand in future and to meet the T-1 contingency, the proposed system strengthening of the S/s, by installing 01 no. 160 MVA T/F and its associated 220 kV HV side & 132 kV LV side bay at 400 kV S/s Kashipur has been proposed.

(i) Replacement of ACSR Zebra Conductor in 220 kV Mahuakheraganj (220kV)-Kashipur (400 kV) 1st Ckt Line (including LILO protection for M/s SPEL) with the High Capacity ACCC Conductor.

The reason submitted by the Petitioner are same as give at (b) above.

Commission's observations, Views and Decision

6. On examination of the proposals submitted by the Petitioner, certain deficiencies/shortcomings were observed, which were communicated to the Petitioner vide Commission's letter's No. 1609 dated 19.01.2017. Reply to these

deficiencies/shortcomings was submitted by the Petitioner vide its letter No.180 dated 30.01.2017.

7. Further, it has also been observed that:
- (i) The Petitioner has included the amount of crop compensation in the main estimate and has applied contingency charges, audit & supervision charges on it.
 - (ii) In addition to the above, the Petitioner has made provisions against initial spares much higher than those specified in the MYT Regulations, 2015 in this regard.
8. While arriving at the approved cost, the Commission has disallowed Contingency charges @3% and audit & supervision charges @15% on the amount claimed against crop compensation, forest clearance, railway crossing etc. The provisions made against initial spares have been made as specified in MYT Regulations, 2015 i.e. @1% of the plant and machinery cost.
9. Based on the above, against the Petitioner's proposed capital expenditure of ₹152.36 Crore, the Commission hereby grants in-principle approval for the expenditure of ₹148.85 Crore only as per Table 2 given below with the direction that the Petitioner should go ahead with the aforesaid works subject to fulfillment of the terms & conditions mentioned in Para 10 below.

Table 2: Project wise cost proposed by the Petitioner vis-a-vis cost considered by the Commission

Sl. No.	Particulars	Substation/Transformer Capacity	Length of lines (Km.)	Project Cost including IDC as per DPR (₹Crore)	Cost considered by the Commission (₹Crore)
(a)	Stringing of second circuit of 132 kV S/C line on D/C tower between 400 kV S/s Kashipur to 132 kV Bazpur S/s on HTLS conductor alongwith construction of 132 kV bay at 132 kV S/s Bazpur.	132 kV S/s	15.28	14.08	13.86
(b)	Replacement of ACSR Zebra Conductor in 220 kV Mahuakheraganj (220 kV)-Kashipur (400 kV) II nd CKT line with high capacity ACCC conductor	-	16.799	19.65	18.29
(c)	Construction of 132 kV D/C line	-	23.32	20.34	19.95

Table 2: Project wise cost proposed by the Petitioner vis-a-vis cost considered by the Commission

Sl. No.	Particulars	Substation/Transformer Capacity	Length of lines (Km.)	Project Cost including IDC as per DPR (₹Crore)	Cost considered by the Commission (₹Crore)
	from 220 kV S/s Mahuakheraganj to 132 kV S/s Jaspur				
(d)	Augmentation of 400 kV S/s Kashipur from 2x315 MVA to 3x315 MVA T/F capacity including associated 400 kV and 220 kV bays.	2x315 MVA to 3x315 MVA	-	32.10	32.10
(e)	Supply and installation of 125 MVAR Reactor and its associated bay and related work at 400 kV S/s Kashipur.	-	-	14.75	14.75
(f)	Construction of 02 nos. 132 kV bay at 132 kV S/s Jaspur	-	-	2.76	2.76
(g)	Supply, erection testing and commissioning of 01 no. 40 MNVA 132/33 kV Power T/F at 132 kV S/s Kichha for augmentation of T/F capacity 2x40 MVA to 3x40 MVA	3x40 MVA	-	4.86	4.86
(h)	Supply and Installation of 01 no 160 MVA T/F and its associated 220 kV HV side & 132 kV LV side bay at 400 kV S/s Kashipur	160 MVA	-	18.39	18.39
(i)	Replacement of ACSR Zebra Conductor in 220 kV Mahuakheraganj (220 kV)-Kashipur (400 kV) I st Ckt. line with high capacity ACCC conductor		21.823	25.43	23.89
	Total			152.36	148.85

10. Terms and conditions subject to which in-principle approval granted by the Commission are as follows:

- (i) The Petitioner should ensure that the material received back from the site is fully accounted in the as executed estimate where ever applicable.
- (ii) The Petitioner should go for the competitive bidding for obtaining most economical prices from the bidders.
- (iii) 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.

- (iv) 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.
- (v) After completion of the aforesaid schemes, the Petitioner shall submit the completed cost and financing of the schemes.
- (vi) 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