

## **Before**

### **UTTARAKHAND ELECTRICITY REGULATORY COMMISSION**

**In the Matter of:**

Approval of Capital Investments under Para 11 of the Transmission and Bulk Supply Licence [Licence No. 1 of 2003].

**In the Matter of:**

Power Transmission Corporation of Uttarakhand Limited. (PTCUL)  
Vidyut Bhawan, Near ISBT Crossing, Saharanpur Road, Majra,  
Dehradun.

**...Petitioner**

#### **AND**

**In the Matter of:**

Petitions No.1 of 2014 to Petition No. 9 of 2014 filed by Power Transmission Corporation of Uttarakhand Limited (PTCUL).

#### **Coram**

<b>Shri Jag Mohan Lal</b>	<b>Chairman</b>
<b>Shri C.S. Sharma</b>	<b>Member</b>
<b>Shri K.P. Singh</b>	<b>Member</b>

**Date of Order: 28<sup>th</sup> February 2014**

#### **ORDER**

The Petitioner, Power Transmission Corporation of Uttarakhand Limited (PTCUL) has submitted proposals for capital investment to the Commission for approval under Para 11 of Transmission and Bulk Supply Licence [Licence No. 1 of 2003].

2. The investment proposals of the Petitioner comprises of augmentation of existing Sub-Stations and construction of new Sub-Stations and the associated line works. In addition to these works PTCUL vide application No. 1980/MD/PTCUL/UERC dated 16.07.2013 has also sought investment approval of 220 kV DC Twin zebra line from 400 kV S/s (PGCIL), Dehradun to 220 kV S/s Dehradun (PTCUL).

3. As all these proposals are system improvement works, the Commission has clubbed all the Petitions and a single Order is being passed.
4. The proposals submitted by the Petitioner involves a capital investment of Rs. 294.79 Crores as per details given below in Table 1:

S. No.	Particulars	Augmented Transformer Capacity MVA	Length of Line(Km.)	Project Cost including IDC as per DPR (Rs. Crore)	Project cost including IDC as approved by the financing Agency (Rs Crore)	Financing Agency
1	220 kV D/C twin Zebra line from 400 kV S/s PGCIL, Dehradun to 220 kV S/s PTCUL, Dehradun	-	6.075	20.80	15.12	REC
2.	Augmentation of 132 kV Sub-Station Kathgodam	1x40 MVA to 2x40 MVA	-	4.45	4.43	PFC
3.	Augmentation of 132 kV Sub-Station Almora	2x20 MVA to 3x20 MVA	-	4.22	4.22	PFC
4.	Augmentation of 132 kV Sub-Station Bazpur including construction of Bay	(2x40) MVA to (1x40 + 1x80) MVA	-	11.90	11.90	PFC
5.	Augmentation 132 kV Sub-Station Bhowali	(2x15) MVA to (2x15 + 1x20) MVA	-	4.79	4.79	PFC
6.	Augmentation 220 kV sub-station Pantnagar along with construction of 02 No. 220 kV Bays and 02.No. 33 kV Bays	(2x80) MVA to (2x80 + 2x50) MVA	-	15.81	15.34	REC
7.	Augmentation of 220 kV S/s SIDCUL Haridwar	(2x100) MVA to (2x160) MVA	-	18.20	-	Funding still not tied up
8.	Construction of 220/33 kV GIS S/s I.I.P. Harrawala Dehradun and LILO of 220 kV Jhajra-Rishikesh line at proposed S/s	(2x50 MVA)	0.07	131.67	97.96	REC
9.	Construction of 220/33 KV S/s at Jaffarpur (U.S. Nagar) and LILO of 220 kV Kashipur-Pantnagar line at proposed S/s	(2x50 MVA)	6.00	82.95	61.07	PFC
			<b>Grand Total</b>	<b>294.79</b>		

5. The Petitioner has submitted extract of the Minutes of Meetings wherein the Petitioner's Board has approved Corporation's proposal for these schemes to be funded through 70% loan assistance and balance through equity to be funded by GoU.
6. On preliminary examination of the DPR of 220 kV DC Twin zebra line from 400 kV S/s (PGCIL), Dehradun to 220 kV S/s Dehradun (PTCUL) the Commission vide its letter dated 19.08.2013 pointed out certain deficiencies in the proposal and directed PTCUL to remove the same.
7. On examinations of the DPRs of the augmentation proposals, deficiencies as reiterated below, were observed which were forwarded to PTCUL vide letter dated 14.10.2013 of the Commission:

*"...On examining the DPRs of the said proposals following deficiencies were found:*

- 1- *The cost benefit analysis of increasing capacity projects is not submitted.*
- 2- *Expected maximum and minimum load on the transformer(s) after the implementation of the increasing capacity work is not provided. The status of present loading of transformer(s) also needs to be submitted by PTCUL.*
- 3- *The approvals with term and conditions of the financing agencies should be submitted.*
- 4- *The consent of GoU for providing 30% equity funding in each case should be submitted.*
- 5- *Comments, exhibit wise, on the system study report of the Kumaon Region, in totality, after implementation of the proposed increasing capacity projects and new 2x50 MVA, 220 kV at Jaffarpur should be submitted.*
- 6- *In the investment approval for increasing capacity of 132 kV sub-station Bazpur, from 2x40 MVA to 1x40+1x80 MVA, the credit of the transformer dismantled is not given to the estimate. Reasons for the same should be submitted.*
- 7- *In the detailed estimate for investment approval of increasing capacity from 100 MVA to 160 MVA of transformers at 220 KV S/s SIDCUL Haridwar, credit of*

*Rs.666.67 lakhs i.e. 50% of the cost of dismantled 2 nos. 100 MVA transformers and their associated equipments has been given in the estimate. However, in the investment approval sought by PTCUL the cost of received back material and its dismantling cost has not been accounted for. Further, the reasons for giving credit of 50% depreciation on the cost of dismantled transformers in the estimate should be submitted.*

*8- On the analysis of the DPRs of the proposed works it has been found that there is appreciable difference in the base cost, construction cost, cost of civil works etc. in the various estimates. Justification for the same should be submitted.*

*9- Taking variation in both quantity and cost @ 20% while framing of estimates for construction of new S/s is not justified.*

*10- In the investment approval for 220/33 kV GIS S/s Harrawala the base cost shown in PCR is Rs. 52.03 Cr. for the substation and Rs. 4.62 Cr. for the associated lines, however, in the abstract of cost the same is shown as Rs. 58.67 Cr. and Rs. 0.31 Cr. This variation in cost should be explained by PTCUL.*

*You are required to remove the above deficiencies at the earliest, so that further necessary action on the submitted investment approval proposals could be taken at the earliest."*

8. PTCUL vide its letter dated 29.08.2013 submitted point-wise reply to the deficiencies pointed out by the Commission pertaining to investment approval of 220 kV DC Twin zebra line from 400 kV S/s (PGCIL), Dehradun to 220 kV S/s Dehradun (PTCUL). Likewise PTCUL vide letters dated 23.12.2013 and 01.01.2014 submitted point wise reply to the deficiencies pointed out by the Commission with regard to augmentation works of existing Sub-Stations and construction of new Sub-Stations and the associated line works in Kumaon and Garhwal Region.
9. The Commission vide its letter dated 28.01.2014 directed PTCUL to make presentation on 03.02.2014 at 3:00 PM before the officers of the Commission and clarify on the need of the investment including the following:

- 1- *Show the status of loading of each station and supply position in Kumaon region under the following conditions namely:*
  - (a) *Before implementing the augmentation proposals.*
  - (b) *After implementing the augmentation proposals.*
  - (c) *After implementing the augmentation proposals and implementing the new schemes as envisaged in the system study.*
- 2- *Clarify if provisions of N-1 contingency after augmentation of the Sub-stations is being fulfilled.*

10. As directed, PTCUL made a presentation before the officers of the Commission on the said date. In the presentation, PTCUL showed load flow studies for transmission network of Kumaon region considering the average peak load on Sub-Stations. During the presentation the Petitioner was directed to include in the load flow studies, the existing peak loads on the transformers instead of average loads and also the load growth in next two years to justify the augmentation and construction of new schemes in Kumaon region. PTCUL was asked to make a detailed presentation on these lines on 06.02.2014.

11. PTCUL again made a presentation on the said date incorporating following conditions in the load flow studies for transmission network of **Kumaon region**:

- (1) **Considering present peak load and without proposed augmentation works i.e. existing network.**

PTCUL in its presentation showed that the existing 132 kV Sub-Stations at Kathgodam, Bhowali, Almora and 220 kV Sub-station at Pantnagar are loaded upto 100 % of their present installed capacity during peak load conditions.

- (2) **Considering present peak load and with proposed augmentation works.**

PTCUL in the load flow studies showed that under the stated conditions the loading on the Sub-Stations, where augmentation is being proposed, shall be in the range of 50-60%. The highest tentative loading of around 70-75 MW was shown to be on 132 kV Pithoragarh (PGCIL)-Almora line which, according to the Petitioner, is within permissible limits. Taking the case of

outage of this line, as one of the conditions, the Petitioner showed that around 93 MW power shall flow in 132 kV Kathgodam–Bhowali line which though is on higher side, however considering the short length of the line is within the permissible limit .

**(3) Considering projected peak loads two years hence and the proposed augmentation works**

The Petitioner in the load flow studies showed that under the stated conditions, the loading on the Sub-Stations, where augmentation is being proposed, shall be in the range of 60-80%. The highest tentative loading of around 80-85 MW was shown to be on 132 kV Pithoragarh (PGCIL)-Almora line, which according to the Petitioner, is within permissible limits. In case of outage of this line, the Petitioner showed that around 110 MW power shall flow in 132 kV Kathgodam–Bhowali line which is on higher side and may require partial load shedding of around 10-15 MW in peak hours.

**(4) Considering projected peak loads two years hence, proposed augmentation works and implementation of the following new schemes:**

- a. Construction of 220/33 kV S/s Jaffarpur and its associated LILO line.
- b. Construction of 132/33 kV-2x20 MVA Lohaghat and its associated LILO line.
- c. Construction of 132/33 kV S/s (2x15) Bageshwar and its LILO line.

PTCUL informed that with coming up of these new schemes, along with the implementation of proposed augmentation proposals, the maximum tentative loading on 132 kV Pithoragarh (PGCIL)-Almora line shall be around 75-80 MW. In case of outage of this line, the tentative loading on 132 kV Kathgodam- Bhowali line shall be around 115 MW, which is on higher side and may require load shedding of 10-15 MW in peak hours. Tentative low voltage conditions of around 110 kV-114 kV may exist at 132 kV Sub-Station Almora, 132 kV Sub-Station Bhowali and proposed 132 kV Sub-Station Bageshwar.

The Petitioner, further informed that low voltage conditions at 132 kV Sub-Station Almora, 132 kV Sub- Station Bhowali and proposed 132 kV Sub-Station Bageshwar and overloading of 132 kV Kathgodam- Bhowali line shall improve after construction of 220 kV S/s Almora, which is proposed to be energised from 220 kV S/s of PGCIL at Pithoragarh and shall be connected to existing 132 kV S/s Almora.

12. In **Garhwal region**, PTCUL proposes to carry out following new schemes:

- (1) Augmentation of 220/33 kV S/s SIDCUL Haridwar from 2x100 MVA to 2x160 MVA.
- (2) Construction of (GIS) 2x50 MVA, 220/33 kV S/s IIP, Harrawala with LILO of 220 kV Jhajra-Rishikesh line
- (3) Construction of 220 kV DC Twin Zebra line from 400 kV S/s PGCIL to 220 kV S/s PTCUL-Dehradun

PTCUL in its presentation showed that with the energisation of 220 kV Sub-Station Jhajra, Dehradun the problem of over loading of critical 132 kV Rishikesh-Majra line and 132 kV Rishikesh-Bindal line during the peak load conditions has been resolved to a great extent. PTCUL further informed that augmentation of 220/33 kV S/s SIDCUL Haridwar is necessary as it is loaded upto 90% which in case of low hydro conditions pose problems on grid stability. The Petitioner stated that the construction of 220/33 kV S/s IIP, Harrawala will provide relief to existing 132 kV S/s Majra which is presently loaded upto 90%. The Construction of 220 kV D/C Twin Zebra line from 400 kV S/s PGCIL to 220 kV S/s PTUCL-Dehradun shall interconnect 400 kV PGCIL S/s with 220 kV S/s of PTCUL at Dehradun which shall improve the reliability of supply in Dehradun area and will also meet the future load growth. Further, the above line shall also evacuate the power generated from proposed Vyasi (120MW) and Lakhwar (300MW) HEP of UJVN Ltd.

13. The Petitioner has proposed PFC loan assistance for some schemes as well as REC loan assistance for some schemes as indicated in Table-1, at the rates prevailing on

the date of each disbursement. The rate prevailing at the date of sanction for PFC loan was 12.25% per annum for three year reset whereas for REC loans it was as under:

<b>Option I</b>	<b>Option II</b>
Effective interest rate with reset after every 3 years	Effective interest rate with reset after every 10 years
12.25% per annum	12.50% per annum

14. As per the REC's sanction letter, the tenure of the loan is 13 years and the Petitioner would pay interest on the loan at the above application rate of interest for the entire period of 13 years from the date of release of first installment. However, with regard to payment of principal there is a moratorium period of 3 years from the 15<sup>th</sup> day of the month of the disbursement of the first installment of loan. As per the sanction letter of PFC the installment of interest shall be payable quarterly after commencement of disbursement. The loan shall be paid in 60 equal quarterly installments.
15. The Petitioner has claimed that the equity component in each scheme shall be funded by GoU. However, the Petitioner has not provided any documentary evidence in support of the State Government's commitment for funding this amount.
16. The Commission is aware that whole of Kumaon region experiences severe low voltage conditions especially during peak hours, so it is imperative, that system improvement schemes as well as new schemes being envisaged in the region must be taken up on top priority. The Commission hereby grants in principal approval to the Petitioner for going ahead with the aforesaid capital investment proposals in Kumaon and Garhwal region , subject to the fulfillment of the following conditions:
  - a) The Petitioner should submit the financial linkage for augmentation of 220/132 kV S/s at SIDCUL Haridwar as soon as it is tied up.
  - b) 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.

- c) The Petitioner shall, as and when the need arises submit details specifying funding arrangement for the balance debt over and above that sanctioned by funding agency.
- d) 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.
- e) After completion of the aforesaid schemes, the Petitioner shall submit the completed cost and financing of the schemes.
- f) The cost of servicing the project cost shall be allowed in the Annual Revenue Requirement of the petitioner after the assets are capitalised and subject to prudence check of cost incurred.

(K.P. Singh)  
Member

(C.S. Sharma)  
Member

(Jag Mohan Lal)  
Member