Before

UTTARAKHAND ELECTRICITY REGULATORY COMMISSION

Pet. No. 37 of 2022

In the Matter of:

Application seeking approval of the investment on the Construction of 33 kV line (Underground and Overhead Lines) in Haridwar and US Nagar District of Uttarakhand.

And

In the Matter of:

Managing Director,
Uttarakhand Power Corporation Ltd.,
Victoria Cross Vijeyta Gabar Singh Bhawan,
Kanwali Road, Dehradun.

…Petitioner

Coram

Shri D.P. Gairola **Member (Law) /Chairman (I/c)**

Shri M.K. Jain **Member (Technical)**

Date of Order: November 29, 2022

ORDER

This Order relates to the Petition filed by Uttarakhand Power Corporation Limited (UPCL) (hereinafter referred to as "UPCL" or "the Petitioner" or "the licensee") seeking prior approval of the Commission for 'Construction of 33 kV line (Underground and Overhead Lines) in Haridwar and US Nagar District of Uttarakhand'.

Background

2. The Petitioner has filed its Petition vide its reference No. 4083/UPCL/Comm/RMC-6/D(F) dated **06.10.2022** under clause 11 of Distribution and Retail Supply Licence and Regulation 40 of Uttarakhand Electricity Regulatory Commission (Conduct of Business) Regulations, 2014 which stipulates that licensee shall obtain prior approval of the Commission for making investment in the licensed business if such investment is above the limits laid down by the Commission in the Licensee Conditions i.e. investment exceeding Rs. 2.5 Crore.

3. The Petitioner under 'Facts of the case' has submitted that:

"

(i) *Taking into consideration the existing saturated 33 KV Lines and thus remedial measures sought with a view to ensure reliable power supply, improved voltage profile and to meet future load growth, the applicant company has proposed the following work:*

(a) *Construction of 6.7 Km 33 KV Line from 132 KV S/s Padhartha to 33/11 KV S/s Pathri (4.0 Km Underground Line with Trenchless Technology and 2.7 Km overhead line).*

(b) *Construction of 7.4 Km 33 KV Line from 132 KV S/s Padhartha to 33/11 KV S/s Bhattipur Haridwar (4.7 Km Underground Line with Trenchless Technology and 2.7 Km overhead line).*

(c) *Construction of new 33 KV Line from 132/33 KV S/s Chudiyala to 33/11 KV S/s Raipur.*

(d) *Construction of new 33 KV Line from 220/33 KV S/s Mahuakhedaganj to 33/11 KV S/s Mahuakhedaganj-II.*

(ii) *The estimated cost of the project is Rs. 2143.91 Lacs, which will be met through loan (70%) from IREDA and Equity (30%) from State Government/Internal resources. The project is proposed to be implemented on turnkey basis. The duration for completion of the project is 01 years. The details of 33 kV lines are as follows:-*

Abstract of Details of 33 kV lines

Sl. No.	***Name of the Project***	***District***	***Fund Resources***	***BoD Approval***	***Length of 33 kV Line (km.)***	***Total Cost (Rs. in Lakh)***
1	*Construction of new 33 KV Line from 132/33 KV S/s Chudiyala to 33/11 S/s Raipur.*	*Haridwar*	*(70 % Loan from M/s IREDA + 30% Government equity/ Internal Resources)*	*Approved in 105th BoD*	*13.00 (Approx.)*	*870.00*
2	*(i) Construction of 6.7 Km 33 KV Line from 132 KV S/s Padhartha to 33/11 KV S/s Pathri (4.0 Km Underground and 2.7 Km overhead)* *(ii) Construction of 7.4 Km 33 KV Line from 132 KV S/s Padhartha to 33/11 KV S/s Bhattipur Haridwar (4.7 Km Underground and 2.7 Km overhead)*				*(i) 6.7* *(ii) 7.4*	*752.86* *(350.97 Pathri Line) + (401.88 (Bhattipur Line)*
3	*Construction of new 33 KV Line from 220/33 KV S/s Mahuakhedaganj to 33/11 KV S/s Mahuakhedaganj-II.*	*U.S. Nagar*			***3.20*** *(Approx.)*	***520.43***
Total					***30.30***	***2143.29***

"

4. The Petitioner has enclosed DPRs and certified true copy of the resolution passed by the BoD in 105th BoD meeting held on 30.08.2022 for the proposed works in its

Petition. Further, the Petitioner has also enclosed copy of letter no. 688 dated 30.09.2022 sent to M/s IREDA, New Delhi for debt financing of the proposed investments.

5. On examination of the submissions made in the Petition & DPRs certain deficiencies/infirmities were identified and accordingly, the Commission vide its letter No. 871 dated 17.10.2022 directed the Petitioner to submit/furnish its reply on the following latest by 28.10.2022 and also directed it to make a Power Point Presentation before the Commission in the matter on 31.10.2022:-

*"**General***

1. *UPCL is required to furnish the project-wise details of land acquisitions and forest clearances required for the proposed works.*
2. *UPCL is required to furnish a general arrangement drawing & cross section drawing for underground cabling indicating the depth of laying, inspection chambers, clearance from the other civic facilities and necessary protections for the same.*
3. *UPCL in 'abstract the details of 33 kV lines' has mentioned fund sources 70% loan from M/s IREDA & 30% Government equity/internal resources. UPCL is required to furnish documentary evidence w.r.t. the financial approval from M/s IREDA.*
4. *UPCL is required to furnish a write-up on pros and cons of using trenchless technology for underground cabling alongwith the maintenance philosophy adopted for underground cabling.*
5. *UPCL is required to confirm the current carrying capacity of 3X400 sqmm. XLPE 33 kV cable at the specified depth of laying for the proposed projects duly considering the derating factors on account of laying in ground and ambient conditions. Further, UPCL is required to confirm regarding type XLPE cable armored or unarmored.*
6. *UPCL has proposed construction of underground 33 kV lines to 33/11 S/s Pathri, 33/11 kV S/s Bhattipur, 33/11 kV S/s Raipur & 33/11 kV S/s Mahuakhedaganj-II.*
7. *In this regard, UPCL is required to clarify that why the aforesaid works are not being proposed under any centrally funded schemes wherein a substantial portion of the expenditure is available through grant/soft loan.*
8. *UPCL is required to furnish soft copy of all the calculation sheets including payback period in excel format.*

(A) Construction of new 33 kV line from 132/33 kV S/s Chudiyala to 33/11 kV Raipur S/s

1. *UPCL is required to furnish the Single Line Diagram (SLD) of 132/33 kV S/s Bhagwanpur, 132/33 kV S/s Chudiyala & 33/11 kV S/s Raipur depicting all the 132 kV & 33 kV incoming and outgoing feeders alongwith details of conductor and maximum loading in ampere. Further, the said SLD should also indicate the installed capacity of transformers.*

2. *UPCL is required to confirm that no other option of feeding the existing incoming 33 kV feeders namely Raipur-I, Raipur-II & Raipur-III from 132/33 kV S/s Chudiyala exists wherein, the distance between the source feeder from 132 kV S/s Chudiyala to the aforesaid 33 kV feeders is minimum and requires less capital investment.*

3. *UPCL is required to furnish the details of 33 kV consumers being fed through 33/11 kV S/s Raipur alongwith their contracted load. Further, UPCL is required to confirm regarding the details of consumers, if any on 33 kV feeders namely Raipur-I, Raipur-II & Raipur-III.*

4. *UPCL is required to furnish a load flow analysis in a 'pre and post construction of proposed underground line for 132/33 kV S/s Chudiyala, 132/33 kV S/s Bhagwanpur & 33 kV S/s Raipur' scenario.*

5. *UPCL is required to furnish the justification for constructing 33 kV underground line instead of 33 kV overhead line. Further, UPCL is required to furnish the rationale for not considering a double run for the proposed underground line as usually for underground systems double run cables are being provided for meeting the contingency requirements.*

(B) <u>Construction of 6.7 Km. (04 Km. underground line with trenchless technology and 2.7 Km. overhead line) 33 kV line from 132/33 kV S/s Padhartha to 33/11 kV S/s Pathri</u>

1. *UPCL is required to furnish the Single Line Diagram (SLD) of 132/33 kV S/s Jwalapur, 132/33 kV S/s Padhartha & 33/11 kV S/s Pathri depicting all the 132 kV & 33 kV incoming and outgoing feeders alongwith details of conductor and maximum loading in ampere. Further, the said SLD should also indicate the installed capacity of transformers.*

2. *UPCL is required to confirm that no other option of taking the underground/overhead through shorter route is feasible from 132/33 kV S/s Padhartha to 33/11 kV S/s Pathri which requires lesser efforts, time and capital investment.*

3. *UPCL is required to furnish a load flow analysis in a 'pre and post construction of proposed underground line for 132/33 kV S/s Padhartha, 132/33 kV S/s Jwalapur & 33 kV S/s Pathri' scenario.*

4. *UPCL is required to furnish the justification for constructing 33 kV underground line instead of 33 kV overhead line. Further, UPCL is required to furnish the rationale for not considering a double run for the proposed underground line as usually for underground systems double run cables are being provided for meeting the contingency requirements.*

(C) <u>Construction of 7.4 Km. (4.7 Km. underground line with trenchless technology and 2.7 Km. overhead line) 33 kV line from 132/33 kV S/s Padhartha to 33/11 kV S/s Bhattipur</u>

1. *UPCL is required to furnish the Single Line Diagram (SLD) of 132/33 kV S/s Laksar, 132/33 kV S/s Padhartha & 33/11 kV S/s Bhattipur depicting all the 132 kV & 33 kV incoming and outgoing feeders alongwith details of conductor and maximum*

loading in ampere. Further, the said SLD should also indicate the installed capacity of transformers.

2. *UPCL is required to confirm that no other option of taking the underground/overhead through shorter route is feasible from 132/33 kV S/s Padhartha to 33/11 kV S/s Bhattipur which requires lesser efforts, time and capital investment.*
3. *UPCL is required to furnish a load flow analysis in a 'pre and post construction of proposed underground line for 132/33 kV S/s Padhartha, 132/33 kV S/s Laksar & 33 kV S/s Bhattipur' scenario.*
4. *UPCL is required to furnish the justification for constructing 33 kV underground line instead of 33 kV overhead line. Further, UPCL is required to furnish the rationale for not considering a double run for the proposed underground line as usually for underground systems double run cables are being provided for meeting the contingency requirements.*

(D) <u>Construction of new 33 kV line from 220/33 kV S/s Mahuakheraganj to 33/11 kV S/s Mahuakheraganj-II under Kashipur Division.</u>

1. *UPCL is required to furnish the Single Line Diagram (SLD) of 220/33 kV S/s Mahuakheraganj & 33/11 kV S/s Mahuakheraganj -II depicting all the 132 kV & 33 kV incoming and outgoing feeders alongwith details of conductor and maximum loading in ampere. Further, the said SLD should also indicate the installed capacity of transformers.*
2. *UPCL is required to confirm that no other option of taking the underground/overhead through shorter route is feasible from 220/33 kV S/s Mahuakheraganj to 33/11 kV S/s Mahuakheraganj-II which requires lesser efforts, time and capital investment.*
3. *UPCL is required to furnish a load flow analysis in a 'pre and post construction of proposed underground line for 220/33 kV S/s Mahuakheraganj & 33 kV S/s Mahuakheraganj-II' scenario.*
4. *UPCL is required to furnish the justification for constructing 33 kV underground line instead of 33 kV overhead line."*

6. Instead of submitting the reply, the Petitioner vide its letter dated 29.10.2022 requested the Commission for allowing 10 days additional time for submitting its reply and accordingly schedule the Power Point Presentation on other date convenient to the Commission. In this regard, the Commission vide its letter dated 31.10.2022 directed UPCL to furnish its reply by 10.11.2022 and make the Power Point Presentation before the Commission on 14.11.2022.

7. In response to this, UPCL vide its letter dated 10.11.2022 furnished its point-wise reply to the deficiencies/infirmities/additional information as mentioned below: -

"(A) General

1. *There is no case of land acquisition and no forest clearance is required for all the proposed work.*
2. *General arrangement drawing & cross section drawing for underground cabling for Single and Double Circuit is enclosed herewith as Annexure-A*
3. *Since the process of seeking approval for the projects from M/s IREDA was taking long, therefore, approval for the same has also been sought from M/s REC Ltd. vide lt no. 738 dated 31-10-2022 for which all required documents have been submitted to M/s REC. As soon as UPCL will get loan approval letter, it will be intimated separately to Hon'ble Commission.*
4.

Pros-

- *In trenchless technology, time taking in laying underground cable is much lower than the trench or manual digging process.*
- *In trenchless technology, minimum excavation work is required for laying the underground cable as compared to other processes.*
- *After laying the cable, land can be used for other purposes like footpath, park etc. while in trench process it is not possible.*

Cons-

- *Trenchless technology requires high cost of equipment.*
- *Chances of damage to other utilities like water pipeline, gas pipeline, optical fiber cable.*

Trenchless technology is being proposed to lay the 33 KV underground cable as it is not possible to dig approx. 1.5 to 2.0 mtr. deep trench along the linking road & highway, also the charges to be paid to NHAI or PWD is quite large if we execute the work after doing manual excavation along the whole route.

Maintenance philosophy adopted for underground cabling

- *Checking electric cable route for possible damage after excavation or road work.*
- *Insulation resistance testing to detect faults between conductors and ground connections.*
- *Pinpointing faulty areas using a sheath tester and cable fault locator.*
- *Repairing, re-testing and re-commissioning faulty electric cables.*
- *The majority of maintenance work for underground cable is done by external agency.*

5.

Type of XLPE Cable	*Armored (3x400 Sqmm)*
Current carrying capacity of 3x400sqmm XLPE armoured cable	*400 amp at 30℃*
Depth of laying-	*1500mm*
*Maximum ac resistance of conductor at 90°**C**(ohm/km)*	*0.102*
Approx cable capacitance(mfd/km)	*0.24*
Impedance of cable(ohm/km)	*0.144*

6. *Padartha line project (Pathri & Bhatipur 33 KV line) of EDD, Laksar got approved by UPCL headquarter in July, 2020 i.e. much before the launch of centrally funded scheme RDSS (launched on 29, July 2021). This project was in process for taking necessary approvals of OMRIC and Board.*

Other two lines, Mahuwakheraganj line of Kashipur and Chudiyala line of Bhagwanpur division got approved in January, 2022 and was needed to be constructed at the earliest.

Also, there was budget constraint in RDSS scheme and proposing these lines under RDSS would have taken much more time, that is why they have not been included in the Centrally Funded Scheme RDSS.

7. *Soft copy of all the calculation sheets including payback period in .xls format is being attached as CD.*

(B) Construction of new 33 kV line from 132/33 kV S/s Chudiyala to 33/11 kV Raipur S/s

1. *The required line diagrams are being enclosed as Annexure "B"*
2. *According to survey conducted, there is no other alternative option to construct the said line. The route proposed is shorter and feasible. This will require lesser efforts, time and capital investment.*
3. *Total No. of 33 KV consumers being fed through 33/11 KV S/S Raipur is as follows:*

S.No.	***Details of consumers***	***Contracted load (in KVA)***	***33 KV Source Feeder***
1.	*M/S TIRUPATI STRUCTRAL LTD.*	*1600*	*Raipur – I*
2.	*M/S FIRROTERRO INDIA*	*1200*	*Raipur – I*
3.	*M/S EVEREST INDUSTRIES LTD.*	*2200*	*Raipur – I*
4.	*M/S JUBLIENT GENERICS LTD.*	*4100*	*Raipur – I*
5.	*M/S DESANA POLYPLASTIC INDUST.*	*1800*	*Raipur – I*
6.	*M/S AMBUJA CEMENTS LIMITED*	*6500*	*Raipur – I*
7.	*M/S INDOMAX INDUSTRIES*	*750*	*Raipur – I*
8.	*M/S ALUCO PANEL INDUSTRIES*	*1000*	*Raipur – I*
9.	*M/S LIVGREEN CLEANTECH (P) LTD*	*1000*	*Raipur – I*
10.	*M/s.BML PARENTERAL DRUGS*	*1200*	*Raipur – I*
11.	*M/s.V GUARD INDUSTRIES LIMITED*	*700*	*Raipur – I*
12.	*M/S PARAGON IND. LTD.*	*10000*	*Raipur – II*
13.	*M/s PREETAM INTERNATIONAL*	*2300*	*Raipur – III*
14.	*M/S SHIV SHAKTI FLOOT GLASS (P*	*1500*	*Raipur – III*
15.	*M/S SHREYA LIFE SCIENCES (P) L*	*1500*	*Raipur – III*
16.	*M/S LAXMI FOILS PVT. LTD.*	*1500*	*Raipur – III*

4. *The required load flow analysis in pre and post construction is being enclosed herewith as Annexure "C"*

5. *This line is proposed to be constructed using 33 KV underground cable due to the site constraint. As there is one double ckt. overhead 33 KV line at one side of the road and two 11 KV feeder on another side of the road from 132 KV Chudiyala to GagalhediChowk and GagalhediChowk to Sub Station there are three overhead 33 KV lines and multiple 11 KV feeders on another side, so only underground line can be laid from 132 KV Chudiyala to Raipur.A double run for the porposed underground line has not been proposed as this Sub Station already has an existing source which can be used in case of any breakdown in the underground cable.*

33/11 KV Raipur Sub Station is majorly feeding industrial consumers of Bhagwanpur / Raipur area and is very important Sub Station for UPCL as stated above. It is connected to only one 132/33 KV Sub Station Bhagwanpur which affects the power quality to the substation. After construction of this 33 KV line, Raipur Sub Station will be connected with two 132 KV Sub Stations which will enhance the power quality of the consumer and will also share the future load growth.

33 KV Bhagwanpur feeder which emanates from 132 KV Bhagwanpur Sub Station is running with a max. load of 670 Amp. One furnace with load of 10 MVA (165 Amp.) is also connected to this feeder. This load can be shifted to Raipur – III feeder after construction of newly proposed 33 KV line Chudiyala. This will reduce the load of 33 KV Bhagwanpur line.

(C) Construction of 6.7 km. (04 km. underground line with trenchless technology and 2.7 km overhead line) 33 kV line from 132/33 kV S/s Padhartha to 33/11 kV S/s Pathri.

1. *The required line diagrams are being enclosed as Annexure"D"*
2. *According to survey conducted, there is no other alternative option to construct the said line. The route proposed is shorter and feasible. This will also require lesser efforts, time and capital investment.*
3. *The required load flow analysis in pre and post construction is being enclosed herewith as Annexure "E"*
4. *This line is proposed to be constructed using 33 KV underground cable partially due to the site constraint. There is already one 11 KV feeder on one side of the road from Pathri to Ferupur. The road width from Pathri to Ferupur is also very narrow and due to some town area at Ferupur, 33 KV underground line has been proposed in the town area portion. Again, there are two 11 KV feeders on both sides of the road from Ferupur to Padhartha and due to towns Dhanpura and Padartha, 33 KV underground line has been proposed in that town area portion. So, 33 KV line from 132 Padartha to 33/11 KV Pathri is partially proposed overhead and partially underground.*

   A double run for the proposed underground line has not been proposed as this sub-station has already an existing alternative source which can be used in case of any breakdown in the underground cable.

(D) Construction of 7.4 k (4.7 km underground line with trenchless technology and 2.7 km overhead line) 33 kV line from 132/33 kV S/s Padhartha to 33/11 kV S/s Bhattipur

1. *The required line diagrams are being enclosed as Annexure "F"*
2. *According to survey conducted, there is no other alternative option to construct the said line. The route proposed is shorter and feasible. This will also require lesser efforts, time and capital investment.*
3. *The required load flow analysis in pre and post construction is being enclosed herewith as Annexure "G"*
4. *This line is proposed to be constructed using 33 KV underground cable partially due to the site constraint. There is already one 33 KV feeder on one side of the road and two 11 KV feeders on another side of the road and two towns Shahpur and Badshahpur lie on the route, so we have proposed 33 line from 132 KV Padartha to Bhatipur partially overhead and partially underground.*

   A double run for the proposed underground line has not been proposed as this sub-station has already an existing alternative source which can be used in case of any breakdown in the underground cable.

(E) Construction of new 33 kV line from 220/33 kV S/s Mahuakheraganj to 33/11 kV S/s Mahuakheraganj-II under kashipur Division.

1. *The required line diagrams are being enclosed as Annexure "H"*
2. *According to our survey, there is no other option of taking the underground/overhead through shorter route feasible from 220/33KV s/s mahuakheraganj to 33/11kv s/s mahuakheraganj-II. This will also require lesser efforts, time and capital investment.*
3. *The required load flow analysis in pre and post construction is being enclosed herewith as Annexure "I"*
4. *Existing overhead line is double circuit line, so breakdown in any line leads to power failure in both circuits. Being industrial area there is movement of heavy vehicles and as the roads is also congested and having trees along the road, these vehicle causes breakdown in the feeder, so overhead line are avoided.*

   This will ensure 24x7 quality power supply to the industrial consumer with minimum line loss and safety."

8. Meanwhile, to have a glance of general site conditions of the proposed works, a field visit was conducted by officers of the Commission in Haridwar District on 10.11.2022.

9. As per direction issued by the Commission earlier vide letter dated 31.10.2022 for Power Point Presentation scheduled on 14.11.2022, officers of the concerned field units reported to the Commission's office on the scheduled date of presentation i.e.

14.11.2022 for making the presentation, however, due to absence of concerned Director/Managing Director, the Commission did not allow for making the Presentation and expressed its displeasure over the indifferent approach of the Petitioner. Thereafter, the Commission vide letter dated 14.11.2022 directed the Petitioner to ensure presence of Director/Managing Director alongwith concerned officers during the next date of Power Point Presentation on 22.11.2022.

Further, on 14.11.2022, a list of following additional deficiencies was handed over to the concerned field officers of the Petitioner present in the Commission's office with the instruction to submit the reply on the same before 22.11.2022:-

"

1. *UPCL is required to substantiate the rationale for the need for all the proposed investments.*
2. *Please provide the pros and cons of trenchless technology and conventional underground*
3. *UPCL is required to recheck and confirm regarding the computation of I2R losses in the sheet namely "monitoring value of loss saving for new 33 kV feeder Pathri & Bhattipur".*
4. *UPCL is required to submit the reference document indicating the maximum current carrying capacity of DOG and Panther conductor at 200C & 400C temperature respectively alongwith the calculation of losses for proposed project at Pathri & Bhattipur at 200C & 400C temperature respectively.*
5. *UPCL is required to produce the reference documents for current carrying capacity of underground 3x400 mm2 XLPE cable and justify the use of Panther conductor in Pathri & Bhattipur project.*
6. *UPCL is required to explain the trenchless technology alongwith the detail of the procedure for laying the underground cable alongwith the methodology to be taken up while attending the faults.*
7. *Estimates submitted by UPCL for the proposed projects are not uniform as the project-wise cost are varying for standard items/services. Further, it is observed that certain vital elements have been missed out/not clearly mentioned while preparing estimate. In this regard, UPCL is required to clarify the aforesaid observations and submit the information in the following format:-*

S. No.	***Project***	***Depth of laying in meter***	***Cost of drilling in Rs. Per meter***	***Cost of supply of HDPE pipe in Rs. per meter***	***Cost of laying of HDPE pipe in Rs. per meter***	***Cost of laying of XLPE cable in Rs. per meter***
1.	*33/11 kV S/s Raipur*					
2.	*33/11 kV S/s Pathri*					
3.	*33/11 kV S/s Bhattipur*					
4.	*33/11 kV S/s Mahuakheraganj-II*					

8. *UPCL has adopted different percentages for computation of centage charges /contingency charges/supervision charges in proposed projects. UPCL is required to clarify regarding the non-uniformity of such charges.*
9. *No provision of cable route marker has been provided in the estimate. Please clarify. Further, clarify how drainage/sewerage/other civic facilities would be tackled alongwith the roads/highway crossings incase of trenchless technology including laying of GI pipe/HDPE pipe for such vulnerable patches.*
10. *UPCL is required to clarify number of inspection holes proposed, its distances.*
11. *UPCL is required to clarify that how the fault shall be identified in the underground system and availability of necessary testing/inspection equipment for various activities pertaining to underground systems including cable fault locators.*
12. *UPCL is required to clarify the procedure of fixing the joint of 400 mm2 XLPE cable as proposed in trenchless technology."*

10. The Petitioner made the Power Point Presentation on 22.11.2022 and presented its submissions in the matter before the Commission. Further, based on the discussions held during the Presentation and observations made during the field visit 10.11.2022, the Commission issued a letter dated 24.11.2022 to the Petitioner directing it to furnish its reply under affidavit at the earliest on the following alongwith reply on the additional deficiencies mentioned that Para 9 above:-

"

(A) Construction of 6.7 Km. (04 Km. underground line with trenchless technology and 2.7 Km. overhead line) 33 kV line from 132/33 kV S/s Padhartha to 33/11 kV S/s Pathri

1. *UPCL is required to furnish the 03 sets of colored Single Line Diagram (SLD) indicating all the incoming and outgoing feeders at 33/11 kV Pathri Substation as per the present situation at the Substation, duly highlighting the changes from the facts presented in the Petition/subsequent submission. The said SLD shall indicate load flow study for pre and post implementation scenarios including details of conductor used, length, loading in ampere, distance amongst 33 kV and 132 kV Substation in vicinity, details of transformers installed in Substations and its loading alongwith connectivity arrangement for TP Nagar Substation from 132 kV Padhartha Substation.*
2. *UPCL is required to confirm that the proposed route is the shortest possible route amongst all the available routes for the construction of proposed 33 kV line between 132/33 kV Padhartha Substation & 33/11 kV Pathri Substation.*
3. *Since as on date the 33 kV feeder emanating from 33 kV Pathri Substation for M/s Patanjali is spare as M/s Patanjali is now being directly fed from 132/33 kV Padhartha Substation. In this regard, UPCL is required to furnish rationale for not utilizing the said spare 33 kV feeder for the purpose of incomer for 33 kV Pathri Substation from 132 kV Padhartha Substation and also submit the details/utilization of the existing line post-construction of line as proposed in the instant Petition.*

(B) Bhattipur Construction of 7.4 Km. (4.7 Km. underground line with trenchless technology and 2.7 Km. overhead line) 33 kV line from 132/33 kV S/s Padhartha to 33/11 kV S/s Bhattipur

1. *UPCL is required to clarify its proposal for construction of 33 kV line comprising of underground and overhead line in different sections instead of constructing uniform overhead line or underground line between 132/33 kV Padhartha Substation & 33/11 kV Bhattipur Substation.*
2. *During the visit of UERC officers, it was observed that there is possibility for construction of 33 kV overhead line from 132/33 kV Padhartha Substation to 33/11 kV Bhattipur Substation by realignment/shifting of existing 33 & 11 kV line at either side of the road. UPCL is required to submit the reason for not opting the same.*

(C) Construction of new 33 kV line from 132/33 kV S/s Chudiyala to 33/11 kV Raipur S/s

1. *UPCL is required to furnish the load flow analysis of the 33/11 kV Raipur Substation post energization of 33/11 kV Sikanderpur Substation from 132/33 kV Chudiyala Substation.*
2. *UPCL is required to submit the details of the loads proposed to be shifted from 33/11 kV Raipur Substation to 33/11 kV Sikanderpur Substation post energization of 33/11 kV Sikanderpur Substation from 132/33 kV Chudiyala Substation."*

11. In compliance to the deficiencies, the Petitioner vide its letter dated 26.11.2022 submitted its point-wise reply under affidavit as mentioned below:-

"

(A) Construction of 6.7 Km. (04 Km. Underground line with trenches technology and 2.7 km overhead line) 33 KV line from 132/33 KV S/s Padhartha to 33/1 KV S/S Pathri

1. *SLD indicating all the required information is been annexed as Annexure-"A" (in 3 Sets)*
2. *It is to confirm that, the proposed route is the shortest possible route amongst all the available routes for the construction of proposed 33 KV line between 132/33 KV Padhartha Substation and 33/11 KV Pathri Substation.*
3. *The said spare 33 KV feeder will be used for 33/11 KV substation TP Nagar Substation and for any other Substation connected to 132 KV Jwalapur Substation, and because of this, we are not using spare 33 KV feeder for the purpose of incomer for 33 KV Pathri Substation.*

(B) Bhattipur Construction of 7.4 Km. (4.7 Km underground line with trenchless technology and 2.7 Km overhead line) 33 KV line from 132/33 S/s Fadhartha to 33/11 KV S/s Bhattipur.

1. *This line is proposed to be constructed using 33KV underground cable partially due to the site constraint. There is already one 33KV feeder on one side of the road and two 11KV feeders on both side of road. Besides, two*

towns, Shahpur and Badshahpur also lie on the same route. Therefore, to avoid congestion and to minimize cost of project the 33KV line from 132KV Padartha to 33/11KV S/S Bhattipur has been proposed partially overhead and partially underground.

2. *There is no possibility for construction of 33 KV overhead line from 132/33 KV Padartha Substation to 33/11 KV Bhattipur substation by realignment/ shifting of existing 33 and 11 KV line at either side of the road because of the right of way issue, agitation of the locals and too much disturbance will be caused in the power supply.*

(C) Construction of new 33 KV line from 132/33 KV S/s Chudiyala to 33/11 kV Raipur S/s

1. *33/11 KV Raipur Sub Station is fed with three No. 33 KV lines with a total running load of approx. 62 MVA. One No. new 33/11 KV S/S has been constructed at Sikanderpur. This Sikanderpur Sub Station will share approx. 17 MVA load of Raipur Sub Station after energization from 132 KV Sub Station Chudiyala. The construction of 33 KV line is under progress. In addition to this a furnace of 6000 KVA has also applied for the new connection and it will be connected at Sikanderpur Sub Station. So, Sikanderpur Sub Station will be loaded with approx. 23 MVA load very soon.*
2. *Sikanderpur Sub Station will share following load of Raipur Sub Station*
   - *(a) 100 Amp. at 33 KV of Everest feeder*
   - *(b) 110 Amp. at 11 KV of Sikanderpur feeder*
   - *(c) 260 Amp. at 11 KV of Lakeshwari feeder*
   - *(d) 225 Amp. at 11 KV of Shiv Ganga feeder.*

   All above feeders are fed from Raipur Sub Station

Additional Queries on UPCL's application seeking approval for the investment on he construction of 33 line (underground & overhead lines) in Haridwar & US Nagar (provided on 14.11.2022).

1. *UPCL is required to Substantiate the rationale for the need for all the propose investments.*

   <u>33 KV Raipur Line</u>

   Bhagwanpur Industrial area which is under Jurisdiction of Electricity Distribution Division, Bhagwanpur is rapidly growing Industrial area. This Industrial belt has approx. 400 small & big industries which are mainly connected at 33 KV or 11 KV voltage level. Major 33/11 KV S/S, which feed electricity to these industries, is 33 KV Raipur. This 33/11 KV Raipur S/S is connected with 3 Nos. of 33 KV power line from 132/33 KV Bhagwanpur Sub Station. The capacity of 132 KV S/S Bhagwanpur is 120 MVA(3×40 MVA), which is fully exhausted.

   Executive Engineer, PTCUL has also requested UPCL to shift some of the load to newly constructed 132/33 KV Chudiayala S/S. Shifting of load is only possible after constructing a new 33 KV feeder from 132/33 KV S/S Chudiyala to 33/11 KV S/s Raipur. This feeder if constructed will not only share the load of 132 KV

Bhagwanpur but will also connect 33/11 KV Raipur S/S through another grid Sub Stations which will increase the availability of power at this particular substation. After construction of the proposed line, 33/11 KV Raipur S/S shall be connected in a ring main system which will be technically advantageous to the UPCL.

33 KV Mahukheraganj Line

Mahuakhedaganj Industrial hub under the jurisdiction of Electricity Distribution. Division, Kashipur is highly growing Industrial area. This Industrial belt having more than 115 small & big industries are mainly connected at 33 KV & 11 KV voltage level and power supply of these industries are from 33/11 KV substation Mahuakhedaganj-II. This 33/11 KV Substation Mahuakhedaganj-II is fed from 220/33 KV substation Mahuakhedaganj via 33 KV overhead line. This 33 KV over head line is double circuit which runs along with 33 KV Srishti Steel feeder and passes through the congested roads. Whenever any fault occurs at any of these 33 KV feeder, supply of another 33 KV feeder got disrupted as shutdown of other feeder will become essential due to safety norms. Due to this electrical supply of Industrial consumers is badly affected. These overhead lines also passes along nearby trees on the road and whenever there is storm branch/tree usually fall on these lines and electrical supply of Industrial consumers get affected badly.

So, it will be technically advantages to lay Double Circuit 33 KV underground Line for 33/11KV Substation Mahuakhedaganj-II, which will feed most of the industrial Consumers.

33 KV Bhatipur and Pathri Line

132 KV S/s Jwalapur and Laksar are running on almost full load. In order to give relief to above substations it is necessary to create an alternative source of power supply for the load in these areas and also to create a ring mains system so that in case of emergency, supply can be taken from any of the 132/33 KV S/s which will also work as a backup.

2. *Furnish pros and cons of trenchless technology and conventional underground.*

Pros and cons of trenchless technology

Pros-

- *In trenchless technology, time taking in laying underground cable is much lower than the trench or manual digging process.*
- *In trenchless technology, Minimum excavation work is required for laying the underground cable in comparison with other processes.*
- *After laying the cable, land can be used for other purposes like footpath, park etc. while in trench process it is not possible.*

Cons-

- *Process of laying underground cable by this technique is very costly.*
- *Chances of getting damage of other utilities like, water pipeline, gas pipeline, optical fiber cable.*

Pros and cons of conventional underground

Pros-

- *It required low cost of equipment.*
- *Minimum chances of getting damaged of other utilities.*

Cons-

- *More time is required.*
- *Large No of manpower required.*

3. *UPCL is required to recheck and confirm regarding the computation of I2R losses in the sheet namely monitoring value of loss saving for new 33 KV feeder Pathri & Bhattipur.*

   Calculation has been checked and Calculation sheet is being annexed as Annexure "B"

4. *UPCL is required to submit the reference document indicating the maximum current carrying capacity of DOG and Panther conductor at 20^0C & 40^0C temperature respectively along with the calculation of losses for proposed project at Pathri & Bhattipur at 20^0C & 40^0C temperature respectively*

   UPCL has taken all the calculations for 20°C temperature. The maximum current carrying capacity of DOG and Panther conductor at 20°C and calculation of losses is being annexed as Annexure "B" & "C"

5. *UPCL is required to produce the reference documents for current carrying capacity of underground 3x400 mm^2 XLPE cable and justify the use of Panther conductor in Pathri & Bhattipur project*

   Current carrying capacity of underground 3x400 mm2 XLPE cable has been taken from UPCL's GTP (copy attached as Annexure "D"). Panther Conductor will be used to minimize the losses in the proposed feeder.

6. *UPCL is required to explain the trenchless technology along with the detail of procedure for laying the underground cable along with the methodology to be taken up while attending the faults*

   Trenchless technology is a form of underground construction that requires the use of few or no trenches at surface or street level.

   Trenchless technology uses new techniques and equipment to install or replace underground infrastructure without causing disturbance to the ground above. Its goal is to avoid interfering with surface-level activities, including traffic, businesses, residential areas or people.

   The cable which are laid in the trench are taken out over the surface after particular distance, so in case of any fault the section can be opened and the fault can be repaired. The fault can be located with the help of fault locator.

7. *Estimates submitted by UPCL for the proposed projects are not uniform as the project wise cost are varying for standard item/services. Further, it is observed that certain vital elements have been missed out/not clearly mentioned while preparing estimate. In this regard, UPCL is required to clarify the aforesaid observations and submit the information in the following format*

In the proposed project the cable will be laid approx. 1.5 meter deep below the surface. Here in the proposed project complete supply of HDPE pipe with laying of pipe in the trench and laying of the cable through the pipe has been taken as a complete job. Individual work has not been divided so individual costing cannot be ascertained. Here in the estimate for per meter supply of HDPE pipe PE-100-PN6 with laying of this HDPE pipe 1.5 meter deep below the ground and laying of 33 KV 400 sq.mm cable has been estimated as Rs. 2450.00 per meter.

S. No.	***Project***	***Depth of laying in meter***	***Cost of drilling in Rs. Per meter***	***Cost of supply of HDPE pipe in Rs. per meter***	***Cost of laying of HDPE pipe in Rs. per meter***	***Cost of laying of XLPE cable in Rs. per meter***
1.	*33/11 kV S/s Raipur*	*1.5*	*2450 per meter*			
2.	*33/11 kV S/s Pathri*	*1.5*	*2450 per meter*			
3.	*33/11 kV S/s Bhattipur*	*1.5*	*2450 per meter*			
4.	*33/11 kV S/s Mahuakheraganj-II*	*1.5*	*2450 per meter*			

8. *UPCL as adopted different percentages for computation of centage charges/contingency charges/supervision chares in proposed projects. UPCL is required to clarify regarding the non-uniformity of such charges*

   For the projects Mahukheraganj Line and Raipur Line the above charges has been adopted as per Corporation Order No. 5423 dated 06-10-2021.

   Padartha line project (Pathri & Bhatipur 33 KV line) of EDD, Laksar got approved by UPCL headquarter in July, 2020, when the above charges was guided by corporation order no. 196 dated 30-01-2002 (Orders enclosed as Annexure-E)

9. *No provision of cable route marker has been provided in the estimate. Please clarify Further, clarify how drainage/sewage/other civic facilities would be tackled along with the roads/highway crossing incase of trenchless technology including laying of GI pipe for such vulnerable patches*

   Provision for the route marker has been made in all the projects.

   In Mahuwakheraganj line route there is farm road/local village road and no such road crossing.

   In Raipur, Pathri and Bhattipur lines route there is no sewage line laid along the proposed route. For the road crossing a trenchless horizontal shot shall be used for laying the cable along the road crossing thus the work shall be completed without affecting the roads.

10. *UPCL is required to clarify number of inspection holes proposed, its distances.*

    There is no provision of inspection holes in all the 3 projects.

11. *UPCL is required to clarify that how the fault shall be identified in the underground system and availability of necessary testing/inspection equipment for various activities pertaining to underground systems including cable fault locators*

- *Checking electric cable route for possible damage after excavation or road work.*
- *Insulation resistance testing to detect faults between conductors and ground connections.*
- *Pinpointing faulty areas using a sheath tester and cable fault locator.*
- *Repairing, re-testing and re-commissioning faulty electric cables.*
- *The majority of maintenance work for underground cable is done by external agency.*

12. *UPCL is required to clarify the procedure of fixing the joint of 400 mm² XLPE cable as proposed in trenchless technology*

Heat Shrinkable Cable Jointing kit shall be used for straight through joints and outdoor joints at the end of the cable length."

Commission's Observations, Views & Directions:-

12. On examination of the Petition and subsequent submissions made by Petitioner and discussions held during the presentation before the Commission, the observations, views and decision of the Commission are mentioned hereunder:-

(1) On examination of the SLD of the proposed works of Pathri S/s provided in submission dated 26.11.2022, it has been observed that the proposed 33 kV line from 132 kV S/s Padhartha to 33 kV S/s Pathri is shown as Dog conductor + XLPE cable. However, the Petitioner has itself claimed the same as Panther conductor + XLPE cable in its Petition and also confirmed during the Power Point Presentation. The Commission cautions the Petitioner to take extreme care while submitting information before the Commission as it creates unnecessary confusion in decision making.

The Petitioner should also ensure that the expected benefits from the proposed investments are passed on to the beneficiaries.

(2) The Commission has observed that CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 stipulates that:-

"(5) The maximum capacity of 33/11 kV or 33/22 kV or 22/11 kV sub-station shall be 60 MVA and 40 MVA respectively.

(6) *Each 33/11 kV or 33/22 kV or 22/11 kV sub-station shall normally have two or more transformers. Each 33/11 kV or 33/22 kV or 22/11 kV sub-station shall have at least two incoming feeders preferably from two different sources.*

(7) *In case both (the 33 kV or 22 kV) incoming feeders to the sub-station are from the same source (sub-station), each feeder shall supply independent sections of the 33/11 kV or 33/22 kV or 22/11 kV sub-station, the two sections being isolated from each other by bus sectionalizer or isolators."*

On the above provisions of the CEA Regulations, the Commission has observed that the loading of 33/11 kV S/s Raipur is already exceeding the maximum capacity of a 33/11 kV S/s of 60 MVA. In fact, for a 33/11 kV S/s ideally the Petitioner as per standard practice should have started planning for a new 33/11 kV S/s once the capacity of a 33/11 kV S/s exceeds 25 MVA. However, in the instant case of 33/11 kV S/s Raipur, the Petitioner is found to be operating in a fire fighting mode of providing an alternate supply line from 132 kV S/s Chudiyala for relieving the load from 132 kV S/s Bhagwanpur. The sole distribution licensee of the State is not expected to function in such a manner rather it should have proposed a new 33 kV substation for relieving/sharing the load of existing 33/11 kV S/s Raipur.

(3) The Commission at Chapter 3 'Distribution System Planning Code' of UERC (Distribution Code) Regulations, 2018 has categorically mentioned certain provisions for ensuring network expansion planning and system redundancy by the Distribution Licensee at Regulation 3.5 'Power System studies and Network Expansion Plan' and Regulation 3.6 'System Adequacy and Redundancy' which stipulates that:-

*"**3.5 Power System studies and Network Expansion Plan***

(1) *Based on the projected load, the Distribution Licensee shall carry out the power system studies (load flow analysis) before undertaking major distribution expansion plan on long-term time scale. The distribution licensee shall share its findings of the power system studies with the State Transmission Utility on regular basis for better coordinated power system planning.*

...

3.6 System Adequacy and Redundancy

(1) *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.

(2) *Sub-station design shall allow taking out any transformer for maintenance without affecting supply to any area even during peak hours. More than one transformer with smaller capacity to be employed rather than one transformer of large capacity to meet N-1 planning criteria. Alternative circuits shall be planned for important loads. So far as possible, redundancy should be in the system to meet the emergencies and system adequacies shall be taken care of at planning stage of new sub-station(s).*

(3) *There shall be at least two numbers of transformers of similar rating in every 33/11 kV Sub-Station.*

(4) *In every Sub-Station of capacity 10 MVA and above there shall be a provision for obtaining alternative 33 kV supply to the Sub-Station in case a failure in the incoming supply."*

From the above mentioned Regulation 3.5 (1), it is amply clear that the Distribution Licensee before taking up major distribution expansion plan has to carry out load flow studies and based on the said studies it is required to coordinate the power system planning with the State Transmission Utility. However, in the instant matter the Petitioner has practically failed in identifying its over stressed asset, i.e. 33/11 kV S/s Raipur loaded upto 62 MVA and is adopting a philosophy of fire fighting mode by resorting to short term planning for the area serving its subsidizing category of consumers i.e Industrial consumers. In fact, a typical phenomena has been observed in the area of Raipur/Bhagwanpur/Chudiyala of EDC, Roorkee where the 33/11 kV S/s Raipur is loaded much higher than 132 kV S/s Chudiyala in its close vicinity. This also indicates the lack of co-ordination between the distribution licensee and transmission licensee whereas, the aforesaid regulation provides that the distribution licensee should share its finding of load flow studies with transmission licensee for coordinated power system planning.

In this regard, the Commission opines that N-1 contingency provision for lines must be created as per provisions of Regulation 3.6 mentioned above for taking care of the contingency conditions of outages/planned maintenance. However, the Commission cautions the distribution licensee that the assets should be optimally utilized and any unnecessary duplicity of assets in the name of providing N-1 contingency should be strictly avoided.

(4) With regard to the creation of overhead and underground segments of 33 kV line from 132 kV S/s Padhartha to 33 kV S/s Bhattipur, the Commission is of the strong view that the distribution assets/resources and the public space should be optimally utilized in order to achieve maximum benefit by deploying optimal investment and resources.

(5) With regard to the creation of overhead and underground segments of 33 kV line from 132 kV S/s Padhartha to 33 kV S/s Pathri also, the Commission is of the view that the distribution assets/resources and the public space should be optimally utilized by adopting the shortest possible route which shall not only help in reducing the investment on the project but also would help in reducing the technical losses in the distribution network. Further, the Commission also cautions the Petitioner for avoiding the duplicity of assets as discussed at Para 12 (3) above.

(6) With regard to the work of construction of underground cabling of 33 kV line from 220/33 kV S/s Mahuakheraganj to 33/11 kV S/s Mahuakheraganj-II (double circuit) the Commission acknowledged the submission of the Petitioner that the existing double circuit 33 kV overhead lines serving the aforesaid circuit poses challenges and create constraint regarding safety issues during maintenance specifically the sections passing through dense tree areas and post construction of the double circuit underground line, it shall be directly feeding from the 33 kV bus of 220/132/33 kV S/s Mahuakheraganj to 33/11 kV S/s Mahuakheraganj-II with installed capacity of 2x10 MVA. Moreover, the existing double circuit 33 kV overhead line shall be utilized for catering to the load of 05 nos. 33 kV connections directly from the 33 kV bus of 220/132/33 kV S/s Mahuakheraganj.

In this regard, the Commission is of the view that the Petitioner has rightly envisaged a double circuit 3X400 sqmm. XLPE cable in its proposal serving 33 kV S/s of total capacity of 20 MVA with post construction scenario load of 14 MW which appear to be sufficient for catering to the criteria of N-1 line contingency as breakdown of any one circuit of underground line would not result in load shedding at 33/11 kV S/s Mahuakheraganj-II. However, considering the future load growth the arrangement of double circuit 3X400 sqmm. XLPE cable does not appear to be an effective proposition as the

underground arrangement limits the possibility of augmentation in conductor size unlike overhead system wherein conductor augmentation may be taken up as and when required. Therefore, the Petitioner in future would have to go either for another underground circuit for the said 33 kV S/s in case there is requirement of augmentation in transformation capacity/load on the S/s or have to plan for another new 33/11 kV S/s.

(7) With regard to the consumers being directly fed from 220/132/33 kV S/s Mahuakheraganj, the Commission cautions the distribution licensee to create robust metering system at transmission licensee end, T-point on 33 kV line and consumer locations which are being directly fed from the feeders emanating from the Substations under jurisdiction of transmission licensee as any laxity in this regard may result in hefty financial losses to the distribution licensee.

13. The Commission in general is of the view that the Petitioner being the sole distribution licensee in the State has a prime responsibility of envisaging the future load growth in its 'Area of Supply' and plan for new Substations and other infrastructure well in advance to provide quality and reliable power supply to its consumers. Accordingly, the Petitioner is directed to conduct regular power system studies/load requirement assessments in its each division followed by discussion with their counterparts in transmission licensee in this regard for identification of any bottleneck in transmission system. In fact, the distribution licensee should give atleast 5 to 10 years load projections to the transmission licensee so that the necessary and cost-effective action at their end can be taken up well in advance w.r.t. system planning, designing, procurement & execution of the works.

14. Therefore, based on the submissions made by the Petitioner above, the Commission hereby grants in-principle approval to the Petitioner for the proposed works pertaining to Construction of 33 kV line (Underground and Overhead Lines) in Haridwar and US Nagar District of Uttarakhand as follows subject to fulfillment of the terms and conditions mentioned at Para 15 below:-

Sl. No.	Name of the Project	District	Length of 33 kV Line (km.)	Estimated Cost (Rs. in Lakh)	Revised Estimated Cost (Rs. in Lakh) [as per submission dated 26.11.2022]
1	Construction of new 33 KV Line from 132/33 KV S/s Chudiyala to 33/11 S/s Raipur.	Haridwar	13.00	870.00	870.00
2	Construction of 6.7 Km 33 KV Line from 132 KV S/s Padhartha to 33/11 KV S/s Pathri (4.0 Km Underground and 2.7 Km overhead)		6.7	350.97	350.97
	Construction of 7.4 Km 33 KV Line from 132 KV S/s Padhartha to 33/11 KV S/s Bhattipur Haridwar (4.7 Km Underground and 2.7 Km overhead)		7.4	401.88	401.88
3	Construction of new 33 KV Line from 220/33 KV S/s Mahuakhedaganj to 33/11 KV S/s Mahuakhedaganj-II.	US Nagar	3.20	520.43	430.45
Total			**30.30**	**2143.29**	**2053.30**

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

(1) The Petitioner should go for the competitive bidding for obtaining the most economical prices from the bidders.

(2) The Commission may verify/check the proposed works to be executed by the Petitioner at any point of time during/post execution of the works from the perspective of Quality, Optimum utilization of resources, Benefits accrued from the proposed investments etc.

(3) The Petitioner should comply to the following CEA and UERC Regulations and amendments thereof while Construction and Operation & Maintenance of the lines and should ensure the compliance of relevant standards and the Project should be executed with due diligence so that minimal incidents of break downs/fault occurrences/ hindrances are faced during operation and maintenance of the underground electrical network:-

(a) Central Electricity Authority (Safety requirements for construction, operation and maintenance of electrical plants and electric lines) Regulations, 2011.

(b) Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010.

(c) Central Electricity Authority (Measures relating to Safety and Electricity Supply) Regulations, 2010.

(d) UERC (Distribution Code) Regulations, 2018.

(4) The Petitioner must submit the detailed sanctioned letter from the Financial Institution to the Commission as soon as they get approval from the Financial Institution.

(5) All the loan conditions as may be laid down by the funding agency i.e. IREDA in their detailed sanction letter should be strictly complied. However, the Petitioner is directed to explore the possibility of swapping the loan with cheaper debt option if any, available in the market etc.

(6) 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 said works.

(7) On completion of the project, the Petitioner shall submit the completed cost of each of the works alongwith copy of measurement book & as built drawings and financing of the project.

(8) The cost of the project and servicing on the same shall be allowed in the Annual Revenue Requirement of the Petitioner after the assets are capitalized and subject to prudence check of the cost incurred.

Ordered accordingly.

(M.K. Jain)
Member (Technical)

(D.P. Gairola)
Member (Law) /Chairman (I/c)