



पावर ट्रांसमिशन कारपोरेशन ऑफ उत्तराखण्ड लि०

(उत्तराखण्ड सरकार का उपक्रम)

निदेशक (परियोजना) कार्यालय

विद्युत भवन, नजदीक-आई०एस०बी०टी० क्रॉसिंग, सहारनपुर रोड़, माजरा, देहरादून-248002

दूरभाष नं० 0135-2645744 फैक्स नं० 0135-2645753 ई-मेल director_project@ptcul.org

No. 2925/Dir. (Projects)/PTCUL/ UERC

Date: 12/12/2018

The Secretary
Uttarakhand Electricity Regulatory Commission
"Vidyut Bhawan", P.O. Majra,
Near I.S.B.T. P.O.- Majra
Dehradun (Uttarakhand).

Sub:- Filing of Petition for approval of Business Plan for PTCUL for the MYT Control Period FY 2019-20 to FY 2021-22.

Sir,

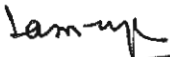
Kindly take reference of the Hon'ble Commission's Letter No. UERC/6/TF/499/Misc. App. No. 75 of 2018/1228 dated 06.12.2018 on the above-mentioned subject, vide which certain deficiencies/shortcomings have been observed by Hon'ble UERC and directed PTCUL to submit the point-wise replies duly quoting titles/sub-titles and Sl. No. identical with the deficiencies referred to in enclosed Annexure-A latest by 12.12.2018 in seven copies along with the soft copy of the reply accompanied with an affidavit.

In compliance of the same, PTCUL is submitting herewith the point-wise replies duly quoting titles/sub-titles and Sl. No. identical with the deficiencies in seven copies along with the soft copy of the reply accompanied with an affidavit.

Submitted for kind consideration of Hon'ble Commission.

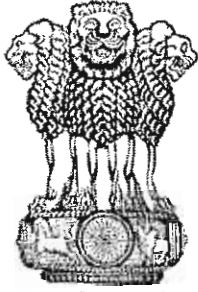
Thanking you,

Yours faithfully,


(Sanjaya Mittal) 12.XII.2018
Director (Projects)

Encls: As above.

Cc:- Managing Director, PTCUL, Dehradun for kind information.

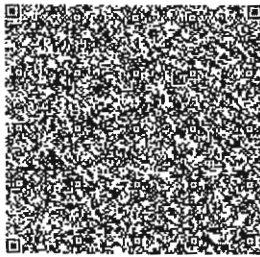


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INDIA NON JUDICIAL Government of Uttarakhand

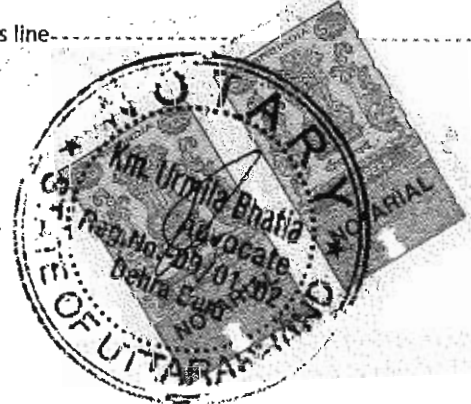
e-Stamp

Certificate No. : IN-UK93757152250640Q
Certificate Issued Date : 04-Dec-2018 11:46 AM
Account Reference : NONACC (SV)/ uk1204904/ DEHRADUN/ UK-DH
Unique Doc. Reference : SUBIN-UKUK120490489061565593945Q
Purchased by : PTCUL
Description of Document : Article 4 Affidavit
Property Description : NA
Consideration Price (Rs.) : 0
 (Zero)
First Party : PTCUL
Second Party : NA
Stamp Duty Paid By : PTCUL
Stamp Duty Amount(Rs.) : 10
 (Ten only)



ROHIT KUMAR
 Stamp Vendor
 Court Compound, Dehra Dun.

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Director (E-stamp)
 PTCUL Dehradun

12. XII. 2018

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Response to deficiencies/ shortcomings in Petition for Approval of Business Plan for PTCUL

Preliminary information required for admission of Petition

1. PTCUL is required to submit the prayers in its Petition for approval of Business Plan for the MYT Control Period from FY 2019-20 to FY 2021-22.

Response

The Petitioner respectfully prays the Hon'ble Commission to:

1. Admit this petition for approval of Business Plan for the Control period from FY 2019-20 to FY 2012-22;
 2. Grant an expeditious hearing of the Petition;
 3. Approve the capital expenditure and capitalization plan along with the physical targets and financing plan provided therein for the Control period, as proposed in the instant petition;
 4. Approve the Human Resources Plan for the Control period from FY 2019-20 to FY 20121-22, as proposed in the instant petition
 5. Condone any inadvertent omissions / errors / short comings and permit the applicant to add/change /modify / alter this Petition and make further submissions as may be required at later stages
 6. Pass such Orders as Hon'ble Commission may deem fit and proper and necessary in the facts and circumstances of the case, to grant relief to the Petitioner.
2. PTCUL, in Figures 7 & 8 of the Petition, submitted the peak load growth and increase in the quantum of energy catered as shown in the Table below.

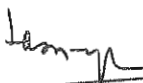
Year	Peak Load (MW)	Energy Catered (MU)
FY 2017-18 (Actual)	2338	16710
FY 2018-19 (Estimate)	2536	16035
FY 2019-20 (Projected)	2739	17639
FY 2020-21 (Projected)	2953	19403
FY 2021-22 (Projected)	3180	21343

From the above, it is observed that the projections of energy catered are not commensurate with the peak load growth. PTCUL is required to submit the justification for the projections of energy catered for FY 2018-19 and during the MYT Control Period correlating the same with the peak load growth.

Response

The Form-4 has been updated and provided as annexure along with petitioner's replies to the Commission's queries on MYT Petition of PTCUL. The revised figures for energy catered are provided in the table below:

Year	Peak Load (MW)	Energy Catered (MU)
FY 2017-18 (Actual)	2338	16710
FY 2018-19 (Estimate)	2536	17194
FY 2019-20 (Projected)	2739	18914
FY 2020-21 (Projected)	2953	20805
FY 2021-22 (Projected)	3180	22885


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3. PTCUL, in Tables 7 & 8 of the Petition, has proposed recruitment of 265 employees in FY 2018-19. In this regard, PTCUL is required to submit the actual recruitment of employees till November, 2018.

Response

The Petitioner has already recruited 52 employees till November 2018. This includes of 44 Assistant Engineer (E&M), 3 Assistant Engineer (IT) and 3 Assistant Engineer (Civil). Further, 01 post of Managing Director was filled by GoU and 01 post of Cooliee was filled against the decessa quota. Hence, of the of 265 recruitments proposed for the year, 52 has already been done and rest 213 recruitment is expected to be done in remaining period of FY 2018-19. Out of 213 post of Group 'C' employees, permission to recruit 24 post of Junior Engineer (Civil) and 07 posts of Junior Engineer (IT) has been granted by GoU for which the recruitment is under process.

4. PTCUL, in Table 9 of the Petition, has submitted the training plan for MYT Control Period. In this regard, PTCUL is required to submit the desired objective/ outcome for each of the training program.

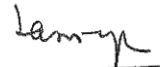
Response

To be provided by HR in the below format:

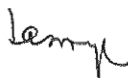
S.No.	Training Name	Duration	Employee Grade	Desired Objective / outcome
Induction Training				
1	For JE (3 Batch)	4 Weeks	C	The four week training aims at familiarizing the newly recruited employees with corporate culture as well as basic knowledge about the working of PTCUL, pertaining to our sub-station and other related matters
2	For TG-I/II (2 Batch)	4 Weeks	C	
3	For Asst. Accountant (1 Batch)	1 Week	C	
4	For Steno. (1 Batch)	1 Week	C	
Technical Training				
1	O&M Related Training for AE/JE (2 Batch)	2 Weeks	B & C	Training is provided to promoted employees along with other technical employees to augment their get technical skills
2	O&M Related Training for TG-I/II (2 Batch)	2 Weeks	C	
Specialized Technical Training				
1	Project Management for Power System Engineers	5 Days	A & B	Objective of providing these type of trainings includes development of skills in handling new/upcoming projects and enhance the technical skills of employees working in operation, maintenance, load despatch centre, Test & Commissioning and SCADA System. Also the employees would be made familiar with new techniques in the field of material management, e-procurement, GIS System and Smart Grid etc.
2	O&m of Transformers and Circuit Breakers	5 Days	A & B	
3	O&M of EHV S/s & Transmission Lines	5 Days	A & B	
4	Point of Connection Tariff Regulation & Tutorials	5 Days	A & B	
5	Advanced Power System Protection	5 Days	A & B	
6	Material Management, Procurement Procedures & e-Procurement	5 Days	A & B	
7	Overhead Power Transmission Line Survey	5 Days	A & B	

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S.No.	Training Name	Duration	Employee Grade	Desired Objective / outcome	
8	Project Planning Monitoring & Control System	5 Days	A & B		
9	Testing & Commissioning of Electrical Equipment in Power Utility	4 Days	A & B		
10	Disaster Management, Electrical Safety procedure and Accident prevention	4 Days	A & B		
11	400kV/220kV Sub Station-Design, Operation & Maintenance (Latest Procedures)	5 Days	A & B		
12	Development in Design & Construction of Transmission Lines	5 Days	A & B		
13	Open Access, a Role of LDCs and Power Markets	4 Days	A & B		
14	Reactive Power Management	4 Days	A & B		
15	Best Practices in O&M of EHV Switchgear	4 Days	A & B		
16	Power Business, Tariff and Regulations	3 Days	A & B		
17	IE Act, Rules and Deregulation	3 Days	A & B		
18	Smart Grid	4 Days	A & B		
19	Unified Load Dispatch & Communication	3 Days	A & B		
20	Electricity Regulation Governance, Policy and Commercial Issues	2 Days	A & B		
21	Safety in Power Transmission and Behavior Based Safety management	2 Days	A & B		
22	Managing People Side & Risks in Projects	2 Days	A & B		
23	Renewable Energy Grid Interface Technology & Regulatory Framework	4 Days	A & B		
24	Solar Photovoltaic System Design And Installation	4 Days	A & B		
25	Power System Communication SCADA & EMS	4 Days	A & B		
26	Switchyard & GIS	4 Days	A & B		
27	CSI Workshop on Cyber Security & Surveillance	1 Day	A & B		
Professional Training					
28	IT & Computer Training	15 Days	A & B & C		These type of training programmes are arranged for employees working in departments other than operation and maintenance department.
29	Decision Making & Problem Solving	5 Days	B & C		
30	Communication & Presentation Skills	4 Days	B & C		
31	MDP on Contract Management &	3 Days	A & B		


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S.No.	Training Name	Duration	Employee Grade	Desired Objective / outcome
	Arbitration			Training is provided to enhance the skills in non-technical areas such as Finance, HR, RTI, Legal and computer.
32	Accounts and Finance Training	3 Days	B & C	
	Presentation and Disclosures of Financial Statements- As per the revised schedule VI to the companies Act, 1956	2 Days	A & B & C	
33	Domestic & Departmental Enquiry	4 Days	A & B & C	
34	RTI Act - 2005	2 Days	A & B & C	
Managerial & Supervisory				
35	Interpersonal Effectiveness and Team Building	3 Days	A & B	<p>These type of training programmes are framed for all kind of employees of the corporation to provide them Managerial, Behavioral, Leadership and Administrative skills and other general commercial concepts including Taxation, E-tendering etc. Further, employees are required to be made familiar with working areas of corporation such as establishment matters, Disciplinary rules etc.</p> <p>Training in stress management and Yoga & Meditation is also to be provided to all kinds of employees for enhancing their behavioral and interpersonal skills. This is expected to help the employees manage stress and improve motivation levels.</p>
36	In-House Training Programme on Supervisory Skill Development of PTCUL Employees	3 Days	C	
37	Tax Deduction at Source and Cash & Accounts Management including Double Entry System of Book-keeping	3 Days	B & C	
38	Developing Efficiency and Effectiveness of Pas, PS, and Office Staff Including Multitasking Staff with Special Emphasis on Behavioural Skills and Use of Latest Information Technology.	3 Days	C	
39	Administrative Vigilance Dept. Proceeding and observing Norms & Guide of Apex Court for Protection of Women Employees against Sexual Harassment at Workplace	3 Days	A & B & C	
40	Establishment Matter GPF/EPF, Gratuity, Pension, Revised Pension, Family Pension, New Pension Scheme and Other Retirement benefits. Govt. Purchasing Procedure E-mail Tendering, Drafting of Contract, inspection Negotiation, delivery of Goods & Stores	3 Days	B & C	
41	Development of Skill in field of Noting & Drafting, Filing System, Record Management and improving efficiency and effectiveness and in soft skills.	3 Days	C	
42	Disciplinary Rules, Agencies and Procedure (Including CCA Rules & Constitutional Provisions)	3 Days	A & B & C	
43	Labour Laws	4 Days	A & B & C	
44	Interpersonal Skills at workplace	2 Days	B & C	
45	Works and Works Accounts Management	2 Days	A & B & C	


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S.No.	Training Name	Duration	Employee Grade	Desired Objective / outcome
	Executive of Civil/Electrical Work keeping of Accounts, Duties and Responsibilities of Executive Engineers, Asstt. Engineers & Divisional Accountant.			
46	Management of Change for Employee Engagement	3 Days	A & B & C	
47	Stress Management	3 Days	A & B & C	
48	Goods & Service Tax	4 Days	B & C	
49	Yoga & Meditation	3 Days	A & B & C	


5. As per Regulation 8(1)(b)(iii) of the UERC Tariff Regulations, 2018, the Business Plan of Transmission licensee shall inter-alia contain transmission loss reduction trajectory for each year of the MYT Control Period from FY 2019-20 to FY 2021-22, including details of the measures proposed to be taken for achieving the target loss level. PTCUL has proposed uniform transmission loss level of 1.4% for the MYT Control Period. PTCUL is required to submit the justification for not implementing any measures for reduction of transmission.

Response

The current loss level of PTCUL is already one of the lowest in the country. Hence, it would not be possible to further lower the losses, except some little variation in the range between 1.1% to 1.8% as per current trend.

6. PTCUL has submitted the list of projects with details of approved cost and proposed completion date. However, the Capital Investment Plan has not been submitted in accordance with UERC Tariff Regulations, 2018. PTCUL is required to submit the Capital Investment Plan and Capitalisation Plan in the format shown below.

S.NO	Particular	Capital Expenditure (Rs. Crore)					Capitalization (Rs. Crore)				
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20	FY 2020-21	FY 2021-22	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20	FY 2020-21	FY 2021-22
A	Projects for meeting the requirement of load growth (separately for each scheme)										
1											
2											
	Sub-total										
B	Projects for reduction in transmission loss (separately for each scheme)										
1											
2											
	Sub-total										
C	Projects for improvement in quality of supply, reliability, metering, reduction in congestion etc. (separately for each scheme)										
1											
2											
	Sub-total										


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Total (A+B+C)											
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Response

The information in the format is provided in Annexure I.

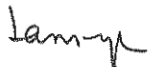
7. In accordance with Regulation 8(1)(b)(i), PTCUL is required to submit the cost benefit analysis of each of the proposed scheme in the Capital Investment Plan for the MYT Control Period from FY 2019-20 to FY 2021-22.

Response


S.No.	Project	Cost benefit analysis
1	LILO of 132 kV Khatima-Sitarganj line at proposed 132/33 kV substation Khatima-II	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
2	LILO of 220 kV Khodri-Jhajhra line at proposed 220 kV GIS S/s Selaqui (Dehradun)	Provided as Annexure II (A)
3	Construction of LILO of 220 kV Roorkee - Nara line at proposed 220 kV Substation Manglaur	Provided as Annexure II (B)
4	Construction of LILO of 132 kV Manglore-Asahi line & Manglore-Air Liquid line at proposed 220 kV S/s Manglaur	Provided as Annexure II (B)
5	Construction of 220kV LILO of 220kV Kashipur (400 kV S/S) - Pantnagar at Barheni to connect 220kV S/s Kamaluaganja on existing corridor of 132kV Bazpur--Kamaluaganja on Multi voltage/Multi Circuit Tower	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
6	220/33 kV GIS S/s Selaqui, Dehradun	Provided as Annexure II (A)
7	220/33 kV GIS S/s at Rudrapur (Brahamwari)	Provided as Annexure II (C)
8	220 /132/33 kV Mangalore substation	Provided as Annexure II (B)
9	220/33 kV GIS S/s Thal (Nachini)	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
10	Re-Conductring of 132kV Jhajhra-Majra TL with HTLS Conductor	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
11	Replacement of Conductor of 132 kV Bindal-Rishikesh With HTLS Conductor	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the

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 Director (Proj.)
 PTCUL Dehradun


S.No.	Project	Cost benefit analysis
		Commission, at the time of filing Petition for Investment Approval.
12	Replacement of old ACSR panther conductor with HTLS conductor in 132 kV S/C Rishikesh - Srinagar (400 kV S/s) line.	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
13	Strengthening of 132kV Haldwani-Bhowali line by replacement through HTLS conductor.	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
14	Strengthening of 132kV D/ckt. Amariya (UPPTCL's proposed 220kV S/s)-Khatima (UJVNL's S/s) line by replacing existing Wolf conductor to Panther equivalent HTLS conductor.	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
15	Increasing capacity of S/S by 1x80 MVA at 132 kV S/S Manglore	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
16	Increasing capacity of 132 kV S/S Ramnagar from 1x20+1x40MVA to 2x40MVA	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
17	Replacement of 1x3x5MVA Transformer bank - 1 with new 20MVA Transformer at 132kV S/s Bhowali .	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
18	Supply & Erection of 40MVA T/F & Supply & Erection of 132/33kV Bay at 132/33 kV Substation Virbhadrarishieksh.	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
19	Increasing Capacity of 132 kV S/s Purkul from 40+20 MVA to 2*40 +20 MVA	Provided as Annexure II (D)
20	Installation of 20MVA 132/66 kV Transformer alongwith construction of associated bays and extension of 132 kV bus and associated work at 132 kV Substation Simli	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the


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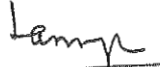
S.No.	Project	Cost benefit analysis
		Commission, at the time of filing Petition for Investment Approval.
21	Construction of 2 nos. 132 kV Bay at 132 kV Substation Satpuli	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
22	Increasing capacity from 2x40 MVA +1x20 MVA (132/33 kV) to 3x40 MVA (132/33 kV) at 132 kV S/S Roorkee	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
23	Increasing capacity of 132 kV S/S Bazpur from 1x80+1x40MVA to 1x80+2x40MVA	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
24	Provision of Hybrid module (due to space constraint) for construction of Transfer Bus at 132kV S/s, Pithoragarh	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
25	Replacement of Old 2X3x5 MVA Transformer with 2X20 MVA Transformer at 132 kV Substation, Ranikhet	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
26	Replacement of Old 2X3x5 MVA Transformer with 2X20 MVA Transformer at 132 kV Substation, Pithoragarh	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
27	Cold galvanising on rusted towers of 220 kVRishikesh-Chamba, 220 kVRishikesh-Dharasu line ckt. 1st and 220 kVRishikesh-Dharasu line ckt. 2nd	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
28	Replacement of 220 kVRoorkee-Puhana old Deer conductor by new AAAC/ HTLS conductor	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.


 Director (Project)
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S.No.	Project	Cost benefit analysis
29	Replacement of Conductor of 220 kVKhodri-Jhajhra line with HTLS Conductor	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
30	Cold galvanising on rusted towers of 132 kVRoorkee-Manglore line to increase life of towers	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
31	Additional bay for 50 MVAR reactor at 400 kV S/s Rishikesh	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
32	Extension of 220 kV transfer bus at 400 kV S/s Rishikesh	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
33	Installation of 1x10 MVAR Cap. Bank at 132 KV S/S Bhagwanpur	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
34	Strengthening of Tower Foundation of 132 kVBindal-Rishikesh D/C line	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
35	Construction of Boundary wall for flood protection at 132kV S/s, Bazpur	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
36	Increasing Capacity of capacitor bank from 2x5MVAR to 4x5MVAR at 220 kV S/s Jhajhra	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
37	Increasing capacity of existing 33kV Capacitor Bank from 2X5 MVAR TO 2X10 MVAR at 132kV Substation, Jaspur	The Detailed Project Report of the proposed scheme is under preparation, which shall include a


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S.No.	Project	Cost benefit analysis
		comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
38	Increasing capacity of existing 33kV Capacitor Bank from 2X5 MVAR to 3X5 MVAR at 132kV Substation, Almora	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
39	Supply and Commissioning of 2X5MVAR capacitor bank at 132 kV Substation, Kathgodam	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
40	Provision of additional 2X5 MVAR 33 kV Capacitor Bank at 132 kV Substation, Pithorgarh	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
41	Construction of Boundary wall for protection at 220kV S/s, Kamaluaganja	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
42	Installation of 1x10 MVAR Cap. Bank at 132 kV S/S Chudiyala	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
43	Increasing Capacity of 2x5MVAR to 4x5MVAR at 132 kV Bindal	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
44	Construction of 132 kV transfer bus and extension of switchyard at 132 kV S/S Bazpur	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
45	Increasing of existing 33kV Capacitor Bank from 2X5 MVAR TO 2X10 MVAR at 132kV Substation, Bazpur	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing


 Director (Project)
 PTCUL Dehradun

S.No.	Project	Cost benefit analysis
		Petition for Investment Approval.
46	Replacement of 1X3x5MVA Transformer bank- 2 with new 20MVA Transformer at 132 kV Substation, Bhowali	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.
47	Construction of 02 Nos. 220kV Bay at 220kV S/s, PGCIL, Sitarganj	The Detailed Project Report of the proposed scheme is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.

The Detailed Project Reports of the proposed schemes is under preparation, which shall include a comprehensive cost benefit analysis. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.

8. PTCUL is required to submit the preparedness to execute the Capital works proposed and Planned for monitoring the progress of execution of Capex Schemes during MYT Control Period from FY 2019-20 to FY 2021-22.

Response

As regard the details of preparedness to execute the Capital works proposed and planned for monitoring the progress of execution of Capex schemes, it is to inform that some manpower has been deployed in the execution of on-going project works. It is also planned to deploy additional manpower in due course of time. Further, manpower will be freed from the on-going projects which are scheduled for commissioning in near future and same will be deployed in new projects to be undertaken. Also, Project Monitoring Unit has been formed at Head-Quarter for effective monitoring of the projects.

9. As per Regulation PTCUL is required to submit the financing plan for each scheme proposed along With supporting documents.

Response

The Petitioner proposes to finance the projects in debt:equity ratio of 70:30. The debt shall be raised from institutions like REC, PFC or other financial institutions. Also, the Detailed Project Reports of the proposed schemes is under preparation, which shall include funding plan for the project. The same shall be submitted to the Commission, at the time of filing Petition for Investment Approval.

10. With regard to future Business Plan, PTCUI, in Table 17 has submitted the project wise approved cost and estimated date of completion, PTCUL is required to submit the year-wise capital expenditure and capitalisation for individual projects along with the funding pattern for the same.


Response

Year-wise capital expenditure for projects to be provided in below format by Projects

S.No.	Name of the Project	Estimated Cost (INRCrore)	Estimated Date of Completion	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
1.	132/33 kV S/s at Khatima-II	50.00	April 2022		15.00	20.00	15.00	

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 PTCUL Dehradun

S.No.	Name of the Project	Estimated Cost (INRCrore)	Estimated Date of Completion	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
2.	LILO of 220 kV Haldwani-Pantnagar line at proposed 220/33 kV GIS Phoolchaud (Haldwani) substation	7.00	March 2023			2.8	4.2	
3.	220/33 kV GIS S/s Phoolchaud (Haldwani)	114.00	March 2023		34.2	45.6	34.2	
4.	LILO of 132 kV Majra-Laltappar at 132 kV S/s Araghar line through laying of 132 kV cable	40.00	March 2023		12.00	16.00	12.00	
5.	132/33 kV GIS S/s at Araghar	71.36	March 2023		21.408	28.544	21.408	
6.	LILO of 400 kV Kashipur-Puhana line at Proposed 400/220/132 kV S/s Landhora	40.00	March 2024		12.00	12.00	8.00	8.00
7.	400/220/132 kV GIS S/s Landhora	400.00	March 2024		120.00	120.00	80.00	80.00
8.	LILO of 220 kV Roorkee-Manglore (Proposed) line at Proposed 400/220/132 kV S/s Landhora	40.00	March 2024		12.00	12.00	8.00	8.00
9.	LILO of 132 kV Laksar-Chandok line at Proposed 400/220/132 kV S/s Landhora	24.00	March 2024		7.2	7.2	4.8	4.8
10.	LILO of 132 kV Manglore-Shadipur line at Proposed 400/220/132 kV S/s Landhora	9.00	March 2024				5.00	4.00
11.	132 kV Simli-Gairsain line	60.00	March 2024		18.00	18.00	12.00	12.00
12.	132/33 kV GIS S/s Gairsain	50.00	March 2024		15.00	15.00	10.00	10.00
Total		905.36			266.808	297.144	218.608	122.8

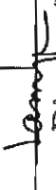

 Director (Project)
 PTCUL Dehradun

Year-wise capitalization for projects to be provided in below format by Projects

S.No.	Name of the Project	Estimated Cost (INRCrore)	Estimated Date of Completion	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
1.	132/33 kV S/s at Khatima-II	50.00	April 2022				50.00	
2.	LILO of 220 kV Haldwani-Pantnagar line at proposed 220/33 kV GIS Phoolchaud (Haldwani) substation	7.00	March 2023				7.00	
3.	220/33 kV GIS S/s Phoolchaud (Haldwani)	114.00	March 2023				114.00	
4.	LILO of 132 kV Majra-Laltappar at 132 kV S/s Araghar line through laying of 132 kV cable	40.00	March 2023				40.00	
5.	132/33 kV GIS S/s at Araghar	71.36	March 2023				71.36	
6.	LILO of 400 kV Kashipur-Puhana line at Proposed 400/220/132 kV S/s Landhora	40.00	March 2024					40.00
7.	400/220/132 kV GIS S/s Landhora	400.00	March 2024					400.00
8.	LILO of 220 kV Roorkee-Manglore (Proposed) line at Proposed 400/220/132 kV S/s Landhora	40.00	March 2024					40.00
9.	LILO of 132 kV Laksar - Chandok line at Proposed 400/220/132 kV S/s Landhora	24.00	March 2024					24.00
10.	LILO of 132 kV Manglore - Shadipur line at Proposed 400/220/132 kV S/s Landhora	9.00	March 2024					9.00
11.	132 kV Simli-Gairsain line	60.00	March 2024					60.00
12.	132/33 kV GIS S/s Gairsain	50.00	March 2024					50.00
Total		905.36					282.36	623.00

Lamya
 Director (Project)
 PTCUL Dehradun


S.NO	Particular	Capital Expenditure (Rs. Crore)			Capitalization (Rs. Crore)		
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22 (Actual)	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22 (Estimated)
A	Projects for meeting the requirement of load growth (separately for each scheme)						
1	Increasing Capacity of 132/33 kV S/s Jaspur from 2x40 MVA to 3x40 MVA including construction of associated 01 No. 132 kV bay and 01 No. 33 kV bay and bisection of 132 kV & 33 kV Bus		7.39			7.39	
2	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.		18.39			18.39	
3	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.		32.1			32.1	
4	Increasing capacity of 132 kV S/S Bazpur from 1x80+1x40MVA to 1x80+2x40MVA			4.6			4.6
5	Replacement of Old 2X3x5 MVA Transformer with 2X20 MVA Transformer at 132 kV Substation, Ranikhet				4.29		4.29
6	Replacement of Old 2X3x5 MVA Transformer with 2X20 MVA Transformer at 132 kV Substation, Pithorgarh				4.3		4.3
7	Replacement of 1X3x5 MVA Transformer bank- 2 with new 20MVA Transformer at 132 kV Substation, Bhowali			2.08			2.08
8	Construction of 132/33 kV S/s, Patanjali Padartha, Haridwar.					5.805	19.35
9	LLO of 132 kV Chilla-Nazibabad line at 132/33 kV S/s Patanjali Padartha Haridwar					1.923	6.41
10	220 /132/33 kV Mangalore substation					66.99	89.32
						66.99	223.29


 Director (Project)
 RICUL Dehradun

S.NO	Particular	Capital Expenditure (Rs. Crore)			Capitalization (Rs. Crore)		
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22
11	Construction of LILO of 220 kV Roorkee - Nara line at proposed 220 kV Substation Manglaur			7.04			7.04
12	Construction of LILO of 132 kV Manglore-Asahi line & Manglore-Air Liquid line at proposed 220 kV S/s Manglaur			4			4
13	LILO of 220 kV Khodri-Jhajhra line at proposed 220 kV GIS S/s Selaqui (Dehradun)		15.06	35.15			50.21
14	220/33 kV GIS S/s Selaqui, Dehradun		34.28	79.98			114.25
15	220/33 kV GIS S/s at Rudrapur (Brahamwari)		56.77	56.77	75.7		189.24
16	132kV D/C line from 132kV S/s SIDCUL, Sitarganj to 132kV Sitarganj Kichha line		2.05			2.05	
17	132 kV S/C Line on Panther Conductor on Double Circuit Towers from 220/132 kV S/s Pithoragarh (PGCIL) to 132/33 kV Sub-station Lohaghat (Champawat) of PTCUL		28.623			40.89	
18	Construction of 2x20 MVA 132 kV GIS S/s at Lohaghat		67.41			67.41	
19	Augmentation of Transformation capacity from 2x40 MVA (132/33 kV) to 3x40 MVA (132/33 kV) by Commissioning of 01 No. additional 132/33 kV 40 MVA T/F, HV & LV bay & oil pit for NIFPES & construction of 03 Nos. new 33 kV feeder Bays at 132 kV S/s Jashodharpur, Kotdwar (Pauri Garhwal).		2.85	2.85		5.7	
20	Procurement and Erection Commissioning of 01 No. 40 MVA, 132/33 kV T/F complete with 132 kV & 33 kV bay for increasing capacity of 132 kV S/s Laksar		2.405	2.405		4.81	
21	Increasing capacity of S/S by 1x80 MVA at 132 kV S/S Manglore		13			13	

Director (Project)

S.NO	Particular	Capital Expenditure (Rs. Crore)			Capitalization (Rs. Crore)		
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22
22	Increasing capacity from 2x40 MVA +1x20 MVA (132/33 kV) to 3x40 MVA (132/33 kV) at 132 kV S/S Roorkee			5			5
23	Supply & Erection of 40MVA T/F & Supply & Erection of 132/33kV Bay at 132/33 kV Substation Virbhadra Rishikesh		6				6
24	Increasing Capacity of 132 kV S/s Purkul from 40+20 MVA to 2*40 +20 MVA		5.91				5.91
25	Replacement of 1x3x5MVA Transformer bank - 1 with new 20MVA Transformer at 132 kV S/s Bhowali.		2.08				2.08
26	Increasing capacity of 132 kV S/S Ramnagar from 1x20+1x40MVA to 2x40MVA		4.16				4.16
27	Augmentation of 132/33 kV Transformer capacity at 220 kV S/s Haldwani from 2x40 MVA to 3x40 MVA including construction of associated 01 no. 132 kV bay and 01 no. 33 kV bay and extension & bisection of 132 kV & 33 kV bus		4.87				4.87
28	Augmentation of 132/33 kV Transformer capacity at 132 kV S/s Pithoragarh from 2x20 MVA+2x3x5 MVA to 1x20 MVA + 1x40 MVA+2x3x5 MVA		4.24				4.24
29	Supply, erection, testing and Commissioning of 01 no. 40 MVA 132/33 kV Power T/F at 132 kV S/s Kichha for augmentation of T/F capacity 2x40 MVA to 3 x40 MVA		3.87				3.87
30	Construction of 132 kV D/c line from 220 kV S/s Mahuakherganj to 132 kV S/s Jaspur		7.8	18.2			26


Director (Project)

PTCUL Dehradun

S.NO	Particular	Capital Expenditure (Rs. Crore)				Capitalization (Rs. Crore)					
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20	FY 2020-21	FY 2021-22	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20	FY 2020-21	FY 2021-22
31	Replacement of ACSR Wolf Conductor in D/c Of 132 kV Khatima-Pilibhit Line (44.54 Kms) by HTLS Conductor		19.73	46.05				65.78			
32	LILO of 132 kV Khatima-Sitarganj line at proposed 132/33 kV substation Khatima-II		8.4	8.4	11.2						28
33	Construction of 220kV LILO of 220kV Kashipur (400 kV S/S) -Pantnagar at Barheni to connect 220kV S/S Kamaluaganja on existing corridor of 132kV Bazpur--Kamaluaganja on Multi voltage/Multi Circuit Tower		19.8	19.8	26.4						66
34	Augmentation of 132 kV S/s Bindal from 2x40 MVA (132/33 kV) to 3x40 MVA (132/33 kV) by Procurement, Installation & Commissioning of 132/33kV, 40 MVA Transformer at 132 kV S/s Bindal, Dehradun		1.614	3.766				5.38			
	Sub-total	0	26.864	455.976	343.02	222.25	0	254.01	267.92	526.16	
B	Projects for reduction in transmission loss (separately for each scheme)										
1											
2											
	Sub-total	0	0	0	0	0	0	0	0	0	0
C	Projects for improvement in quality of supply, reliability, metering, reduction in congestion etc. (separately for each scheme)										
1	Construction of 02 nos 132kV bay at 132kV S/s Jaspur										
2	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							13.86		13.86	
3	Replacement of ACSR Zebra Conductor in 220 kV Mahuakheraganj (220 kV)-Kashipur (400 kV) 1 st Ckt.. line with high capacity ACCC conductor							23.89		23.89	


Jamun
 Director (Project)

PICUL Dehradun


S.NO	Particular	Capital Expenditure (Rs. Crore)			Capitalization (Rs. Crore)		
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22
4	Supply and Installation of 125 MVAR Reactor and its associated bay and related work at 400 kV S/s Kashipur		14.75			14.75	
5	Construction of Boundary wall for flood protection at 220kV S/s, Kamaluaganja		2			2	
6	Construction of Boundary wall for flood protection at 132kV S/s, Bazpur		2			2	
7	Increasing capacity of existing 33kV Capacitor Bank from 2X5 MVAR TO 2X10 MVAR at 132kV Substation, Jaspur		0.83			0.83	
8	Construction of 132 kV transfer bus and extension of switchyard at 132 kV S/S Bazpur		3.64			3.64	
9	Increasing of existing 33kV Capacitor Bank from 2X5 MVAR TO 2X10 MVAR at 132kV Substation, Bazpur		0.83			0.83	
10	Strengthening of 132kV Haldwani-Bhowali line by replacement through HTLS conductor.		4.37	4.37	5.82		14.56
11	Strengthening of 132kV D/ckt. Amariya (UPPTCL's proposed 220kV S/s)-Khatima (UJVNL's S/s) line by replacing existing Wolf conductor to Panther equivalent HTLS conductor.		14.4	14.4	19.2		48
12	Provision of additional 2X5 MVAR 33 kV Capacitor Bank at 132 kV Substation, Pithoragarh		0.58			0.58	
13	Construction of 2x25 (MVA), 220/33 kV S/s Baram (Jauljivi)		30.19	30.19		60.38	
14	Construction of LILO line of one Circuit 220 kV Dhauiganga-Pithoragarh (PGCIL) line at proposed 2x25 MVA Baram		7.86	7.86		15.72	
15	Re-Conductoring of 132kV Jhajhra-Majra TL with HTLS Conductor		19	19		19	

Director (Project)
 PICUL Dehradun


S.NO	Particular	Capital Expenditure (Rs. Crore)			Capitalization (Rs. Crore)			
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22	
16	Replacement of 220 kV Roorkee-Puhana old Deer conductor by new AAAC/ HTLS conductor			4.09	9.54			13.63
17	Cold galvanising on rusted towers of 132 kV Roorkee-Manglore line to increase life of towers			1			1	
18	Construction of 220 kV Piran Kaliyar (220 kV S/s) to Puhana (400 kV S/s) PGCIL S/c Line on D/c Towers.		3.34	7.78			11.12	
19	Stringing of 2nd Circuit of 220 kV Piran Kaliyar-Puhana (PGCIL) D/c line on D/c towers.			10.47			10.47	
20	Laying of 220 kV Cable at Puhana (PGCIL) S/s end.			0.4			0.4	
21	Installation of 1x10 MVAR Cap. Bank at 132 KV S/S Bhagwanpur			0.4			0.4	
22	Installation of 1x10 MVAR Cap. Bank at 132 KV S/S Chudiyala			0.4			0.4	
23	Replacement of old ACSR panther conductor with HTLS conductor in 132 kV S/C Rishikesh - Srinagar (400 kV S/s) line.			12	28			40
24	Installation of 20MVA 132/66 kV Transformer alongwith construction of associated bays and extension of 132 kV bus and associated work at 132 kV Substation Simli				5.81			5.81
25	Construction of 2 nos. 132 kV Bay at 132 kV Substation Satpuli				2.2			2.2
26	Cold galvanising on rusted towers of 220 kV Rishikesh-Chamba, 220 kV Rishikesh-Dharasu line ckt. 1st and 220 kV Rishikesh-Dharasu line ckt. 2nd			0.79			0.79	
27	Replacement of Conductor of 132 kV Bindal Rishikesh With HTLS Conductor			13.5	31.5			45
28	Strengthening of Tower Foundation of 132 kV Bindal-Rishikesh D/C line			3			3	


Director (Project)
 PTCUL Dehradun

S.NO	Particular	Capital Expenditure (Rs. Crore)			Capitalization (Rs. Crore)		
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22	Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20 FY 2020-21 FY 2021-22
29	Increasing Capacity of 2x5MVAR to 4x5MVAR at 132 kV Bindal		0.4			0.4	
30	Replacement of Conductor of 220 KV Khodri-Jhajhra line with HTLS Conductor		9	21		30	
31	Increasing Capacity of capacitor bank from 2x5MVAR to 4x5MVAR at 220 KV S/s Jhajhra		0.84			0.84	
32	Additional bay for 50 MVAR reactor at 400 KV S/s Rishikesh		1.24			1.24	
33	Extension of 220 KV transfer bus at 400 KV S/s Rishikesh		0.8			0.8	
34	Increasing capacity of existing 33KV Capacitor Bank from 2X5 MVAR to 3X5 MVAR at 132KV Substation, Almora		0.42			0.42	
35	Provision of Hybrid module (due to space constraint) for construction of Transfer Bus at 132KV S/s, Pithoragarh			1.65		1.65	
36	Supply and Commissioning of 2X5MVAR capacitor bank at 132 KV Substation, Kathgodam		0.47			0.47	
37	Installation of Intra-State ABT Metering Scheme for On-Lining of ABT Meters to be installed at Interface Points for Energy Accounting & Transmission Level Energy Auditing at PTCUL		19.47			19.47	
38	Replacement of ACSR Panther Conductor in single Ckt. Sitarganj (PGCIL) -SIDCUL Sitarganj Line (22 KM) with HTLS Conductor		20.93			20.93	
39	Replacement of ACSR Panther Conductor of 1st Ckt. of 132 KV Kichha-Sitarganj Line with HTLS Conductor		29.73			29.73	
40	Construction of 02 Nos. 220KV Bay at 220KV S/s, PGCIL, Sitarganj				5.2		5.2


 Director (Project) - 20-
 PTCUL Dehradun

S.NO	Particular	Capital Expenditure (Rs. Crore)				Capitalization (Rs. Crore)			
		Upto FY 2017-18 (Actual)	FY 2018-19 (Estimated)	FY 2019-20	FY 2020-21	FY 2018-19 (Estimated)	FY 2019-20	FY 2020-21	FY 2021-22
41	220/33 KV GIS S/s Thal (Nachini)		45	45	60				150
42	Construction of 220 KV D/C from Jaulgibi (PGCIL) to Thal Transmission Line on Single Zebra conductor		40.5	40.5	54				135
	Sub-total	0	41.39	355.96	208.44	144.22	0	254.49	142.76
	Total (A+B+C)	0	68.254	811.936	551.46	366.47	0	508.5	410.68
									878.92


 Director (Project)
 PGCIL Dehradun

Scheme Report		
Name of the Scheme	Construction of 2x50MVA, 220/33 kV GIS Substation Selaqui, Dehradun & its associated LILO of 220kV Khodri-Jhajra line at Proposed 220/33kV S/s Selaqui, Dehradun.	
Purpose of the Scheme	To cater the system strengthening for meeting the growing load demand of Selaqui & its nearby area as required by UPCL, it is proposed to construction of 2x50MVA, 220/33 kV GIS Substation Selaqui, Dehradun which will be energized by LILO of 220kV Khodri-Jhajra line at 220/33kV S/s Selaqui. It will also increase the reliability and quality of power supply to Selaqui area.	
Name of the Applicant	POWER TRANSMISSION CORPORATION UTTARAKHAND LIMITED	
Total cost of Scheme as per tentative BOQ		Amount (Rs in Cr)
	Project cost (excluding IDC)	149.63
	IDC	14.83
	Total Project cost	164.46
Source of fund	Proposed financing	
	Source of financing	Amount (Rs in Cr)
	Loan from FI(70% of project cost)	115.12
	Equity from GoU(30% of project cost)	49.34
	Total	164.46
	FIRR	7.416 (percentage)
	Time to repay of loan	15 Year
Scope of work	Construction of Proposed 2x50MVA, 220/33 kV GIS Substation Selaqui, Dehradun & its associated LILO of 220kV Khodri-Jhajra line at 220/33kV S/s Selaqui.	
Single Line Diagram, Geographical layout	Enclosed as per Exhibits	
Expected start date and commissioning date	Jan, 2019(Date of start) to Feb, 2021(Date of commissioning) (As per enclosed Bar Chart)	
Security offered against loan	Charge on Immovable assets	
BRIEF NOTE:		
For meeting the growing load demand of Selaqui and its nearby area and increasing the reliability and quality of power supply in Selaqui area, 2x50MVA 220/33 kV S/s Selaqui has been proposed which will be energized by LILO of 220kV Khodri-Jhajra line at proposed 220kV S/s Selaqui.		
Justification:		
Presently Selaqui and its nearby area load has been fed from 220/132/33 kV S/s Jhajra.		

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 (IECT)

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 EIS

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 Director (Project)
 PTCUL Dehradun

[Signature]
 Chief Engineer (Project)
 Power Trans. Corp. of Uttarakhand Ltd
 Vidya Swan, Majra, Dehradun

Selaqui area is having many industrial units which needs continuous and reliable power supply. So proposed 220/33kV GIS S/s Selaqui will provide reliable power supply to Selaqui and its nearby area by way of reducing the 33kV feeder line length and double source of supply to 33kV feeder of Selaqui substation from 220/132/33kV Jhajra in case of contingency. It is proposed to construct 2x50MVA, 220/33 kV GIS S/s Selaqui and its associated LILO of 220kV Khodri-Jhajra line at proposed 220/33 kV substation Selaqui. This Substation along with associated 220 KV transmission line will also provide reliable and better quality power supply to consumers. It will also meet out the future load demand of Selaqui and its nearby area.

Issues requiring Simultaneous Action:

	1. To issue Gazette notification for erection of new lines as per Indian Electricity Rules, 1969.
	2. To seek permission of all concerned agencies for carrying out work
Recommendation	It is recommended to sanction the construction of proposed 2x50MVA, 220/33 kV GIS Substation Selaqui, Dehradun & its associated LILO of 220kV Khodri-Jhajra line at 220/33kV S/s Selaqui.
Basis of Rates	The rates for proposed 220/33 kV GIS Substation Selaqui, Dehradun & its associated LILO of 220kV Khodri-Jhajra line at proposed GIS 220/33kV S/s Selaqui has been taken from the approved rate schedule of PTCUL (2016-17) and for the items, not mentioned in the approved rate schedule of PTCUL the budgetary offer has been considered.

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Chief Engineer (Project)
Power Trans. Corp. of Uttarakhand
Vidyut Bhawan, Majra, Dehradun

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Director (Project)
PTCUL Dehradun

Power Transmission Corporation of Uttarakhand Ltd, Dehra Dun

S. No.	Description of Lines and Substation	Line length/ Capacity
1	220 KV GIS Substation Selaqui ,(Dehradun)	2x50 MVA
2	LILO of 220 KV khodri jhajra Line at proposed 220 KV GIS S/S selaqui(Dehradun)	1.1 km
S. No.	Description Load at 2x50MVA, 220/33 KV Substation Selaqui(Dehradun)	Installed Capacity
1	Total Load	50 MW
	Total	50 MW

P. Singh
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~~Director (Project)~~
PTCUL Dehradun

Recovery of Transmission Charges on Pooled basis

Year	Financial Year	Sale Revenue (in Rs. Cr.)	Total Transmission Charges (in Rs. Cr.)	Average Capacity to Carry (in MW)	Rate in Rs/MW/Day (in Rs.)
1	FY-18	31.16	31.16	50	17,074.86
2	FY-19	30.43	30.43	50	16,676.30
3	FY-20	29.71	29.71	50	16,280.42
4	FY-21	28.99	28.99	50	15,887.34
5	FY-22	28.28	28.28	50	15,497.18
6	FY-23	27.58	27.58	50	15,110.06
7	FY-24	26.88	26.88	50	14,726.12
8	FY-25	26.18	26.18	50	14,345.49
9	FY-26	25.49	25.49	50	13,968.33
10	FY-27	24.81	24.81	50	13,594.78
11	FY-28	23.38	23.38	50	12,810.48
12	FY-29	22.71	22.71	50	12,444.63
13	FY-30	22.05	22.05	50	12,082.89
14	FY-31	21.40	21.40	50	11,725.44
15	FY-32	20.75	20.75	50	11,372.46
16	FY-33	20.12	20.12	50	11,024.15
17	FY-34	20.34	20.34	50	11,142.60
18	FY-35	20.56	20.56	50	11,266.14
19	FY-36	20.79	20.79	50	11,389.07
20	FY-37	13.12	13.12	50	7,186.87
21	FY-38	13.37	13.37	50	7,327.08
22	FY-39	13.64	13.64	50	7,473.35
23	FY-40	13.92	13.92	50	7,625.95
24	FY-41	14.21	14.21	50	7,785.15
25	FY-42	14.51	14.51	50	7,951.26
26	FY-43	14.83	14.83	50	8,124.58
27	FY-44	15.16	15.16	50	8,305.44
28	FY-45	15.50	15.50	50	8,494.16
29	FY-46	15.86	15.86	50	8,691.11
30	FY-47	16.24	16.24	50	8,896.66
Levelised Tariff for 30 years period					11,542.68

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Chief Engineer (Project)
Power Trans. Corp. of Uttarakhand Ltd
Vidyut Bhawan, Majra, Dehradun

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Director (Project)
PTCUL Dehradun

FINANCIAL ANALYSIS

PROJECT: 220 KV GIS Substation Selaqui(Dehradun)& LILO of 220 KV Jhajra- Khodri Line at proposed 220 KV GIS S/S Selaqui(Dehradun)

FIRR 7.416%

Year Ending 31st March	Additional energy available for sale	Additional energy to be handled	Transmission Cost			Total Transmission Cost	Sale Revenue	Net financial benefits
			Capital expenditure	O&M Cost	Interest			
			164.46	1.50% of Capital Cost	10.75 % on Loan Outstanding			
(GWh)	(GWh)	(Rs. Cr.)	(Rs. Cr.)	(Rs. Cr.)	(Rs. Cr.)	(Rs. Cr.)	(Rs. Cr.)	
Year 2018	0.00	0.00	49.34	0.00	0.00	49.34	0.00	-49.34
Year 2019	0.00	0.00	65.78	0.00	0.00	65.78	0.00	-65.78
Year 2020	0.00	0.00	49.34	0.00	0.00	49.34	0.00	-49.34
1	197.10	197.10	0.00	2.47	12.38	14.84	31.16	16.32
2	197.10	197.10	0.00	2.57	11.55	14.12	30.43	16.32
3	197.10	197.10	0.00	2.67	10.73	13.39	29.71	16.32
4	197.10	197.10	0.00	2.77	9.90	12.68	28.99	16.32
5	197.10	197.10	0.00	2.89	9.08	11.96	28.28	16.32
6	197.10	197.10	0.00	3.00	8.25	11.25	27.58	16.32
7	197.10	197.10	0.00	3.12	7.43	10.55	26.88	16.33
8	197.10	197.10	0.00	3.25	6.60	9.85	26.18	16.33
9	197.10	197.10	0.00	3.38	5.78	9.15	25.49	16.34
10	197.10	197.10	0.00	3.51	4.95	8.46	24.81	16.35
11	197.10	197.10	0.00	3.65	4.13	7.78	23.38	15.60
12	197.10	197.10	0.00	3.80	3.30	7.10	22.71	15.61
13	197.10	197.10	0.00	3.95	2.48	6.42	22.05	15.63
14	197.10	197.10	0.00	4.11	1.65	5.76	21.40	15.64
15	197.10	197.10	0.00	4.27	0.83	5.10	20.75	15.66
16	197.10	197.10	0.00	4.44	0.00	4.44	20.12	15.68
17	197.10	197.10	0.00	4.62	0.00	4.62	20.34	15.71
18	197.10	197.10	0.00	4.81	0.00	4.81	20.56	15.76
19	197.10	197.10	0.00	5.00	0.00	5.00	20.79	15.79
20	197.10	197.10	0.00	5.20	0.00	5.20	13.12	7.92
21	197.10	197.10	0.00	5.41	0.00	5.41	13.37	7.97
22	197.10	197.10	0.00	5.62	0.00	5.62	13.64	8.02
23	197.10	197.10	0.00	5.85	0.00	5.85	13.92	8.07
24	197.10	197.10	0.00	6.08	0.00	6.08	14.21	8.13
25	197.10	197.10	0.00	6.32	0.00	6.32	14.51	8.19
26	197.10	197.10	0.00	6.58	0.00	6.58	14.83	8.25
27	197.10	197.10	0.00	6.84	0.00	6.84	15.16	8.32
28	197.10	197.10	0.00	7.11	0.00	7.11	15.50	8.39
29	197.10	197.10	0.00	7.40	0.00	7.40	15.86	8.46
30	197.10	197.10	0.00	7.69	0.00	7.69	16.24	8.54

7.416%

Note:

1. Draw down of funds for 1st year is 30% & 2nd year is 40% & 3rd year is 30%.
2. Plant PLF is considered at 45%.

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 Director (Project)
 PTCUL Dehradun

SCHEME REPORT

Name of the Scheme	SCHEME REPORT FOR: <u>Construction of following:</u> (a) Construction of (2x160/2x40 MVA) 220/132/33 KV Substation Manglore. (b) Construction of LILO of 220 KV Roorkee - Nara line at proposed 220 KV Substation Manglore. (c) Construction of LILO of 132 KV Manglaur-Asahi line & Manglaur-Air Liquid line at 220 KV S/s Manglore	
Purpose of the Scheme	To cater the system strengthening for meeting the growing load demand of Manglore & nearby area as required by UPCL, it is proposed to construction of 2x160/2x40 MVA, 220/132/33 kV Substation Manglore(Roorkee) which will be energized by LILO of 220KV Roorkee-Nara line at 220KV Manglore substation It will also increase the reliability and quality of power supply to	
Name of the Applicant	PTCUL Transmission Corporation Of Uttarakhand Limited	
Total cost of Scheme as per tentative BOQ	Amount (Rs in Cr)	
	Project cost (excluding	212.33
	IDC	21.70
Total Project cost	234.04	
Source of Fund	The total cost of the project is proposed to be financed in the	
	Source of financing	
	Amount (Rs./Lacs)	
	Loan from FI (70% of project cost)	163.83
	Equity from GOU(30% of project cost)	70.21
	Total	234.04
FIRR	8.59%	
Time to repay of loan	15 Years	
Scope of work	(a) Construction of (2x160/2x40 MVA) 220/132/33 KV Substation Manglore. (b) Construction of LILO of 220 KV Roorkee - Nara line at proposed 220 KV Substation Manglore. (c) Construction of LILO of 132 KV Manglare-Asahi line & Manglore-Air Liquid line at 220 KV S/s Manglore.	
Single Line Diagram, Geographical layout	Enclosed as per Exhibits	
Expected start date and commissioning date	March, 2019(Start date) to Oct, 2021(Commissioning date) (As per enclosed Bar Chart)	
Security offered against	Charge on Immovable assets	

Director (Project)
PTCUL Dehradun

BRIEF NOTE: -

For meeting the growing load demand of Manglore and nearby area and increasing the reliability and quality of power supply in Roorkee area, 2x160/2x40 MVA 220/132/33 kV S/s Manglore(Roorkee) has been proposed which will be energized by LILO of 220kV Roorkee-Nara line at Manglore.

JUSTIFICATION:

Proposed 220/132/33 KV Substation Manglore(Roorkee) will be energized through LILO of 220KV Roorkee-Nara Transmission Line line which will improve the voltage, reliability and quality of power supply in Roorkee area transmission system while catering to future load growth.

Issues requiring Simultaneous Action:

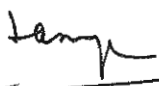
	1. To issue gazette notification for erection of new lines as per Indian Electricity Rules 1969.
Recommendation	It is recommended to sanction the construction of proposed 2x160/2x40MVA, 220/132/33 kV Substation Manglore(Roorkee), construction of LILO of 220kV Roorkee-Nara line at 220kV S/s Manglore and LILO of 132 KV Manglre-Asahi line & Manglore-Air Liquid line at 220 KV S/s Manglore.
Basis of Rates	The Rates of construction of 220/132/33 KV S/s has been taken from PTCUL approved rate schedule (2016-17) and for items not mentioned in the rate schedule the budgetary offer has been considered.

Director (Project)
PTCUL DehraDun

Power Transmission Corporation of Uttarakhand Ltd, Dehra Dun

S. No.	Description of Lines and Substation	Line length/ Capacity
1	220/132/33 KV AIS Substation Manglore	2x160/2x40 MVA
2	Construction of LILO of 132 KV Manglaur-Asahi line & Manglaur-Air Liquid line at 220 KV S/s Manglaur	1 KM
3	Construction of LILO of 220 KV Roorkee - Nara line at proposed 220 KV Substation Manglaur	1 KM

S. No.	Description Load at 220/132/33 KV Substation at Manglore	Installed Capacity
1	Total Load	160 MW
	Total	160 MW



Director (Project)
PTCUL Dehradun

FINANCIAL ANALYSIS

PROJECT: 220/132/33 KV Substation Manglore and its associated lines

FIRR 8.55%

Year Ending 31st March	Additional energy available for sale	Additional energy to be handled	Transmission Cost			Total Transmissi on Cost	Sale Revenue	Net financial benefits
			Capital expenditure	O&M Cost	Interest			
			234.04	1.50% of Capital Cost	12.25 % on Loan Outstanding			
	(GWh)	(GWh)	(Rs. Cr.)	(Rs. Cr.)	(Rs. Cr.)	(Rs. Cr.)	(Rs. Cr.)	
Year 2020	0.00	0.00	70.21	0.00	0.00	70.21	0.00	-70.21
Year 2021	0.00	0.00	93.61	0.00	0.00	93.61	0.00	-93.61
Year 2022	0.00	0.00	70.21	0.00	0.00	70.21	0.00	-70.21
1	630.72	630.72	0.00	3.51	20.07	23.58	48.84	25.26
2	630.72	630.72	0.00	3.65	18.73	22.38	47.59	25.21
3	630.72	630.72	0.00	3.80	17.39	21.19	46.34	25.15
4	630.72	630.72	0.00	3.95	16.05	20.00	45.10	25.10
5	630.72	630.72	0.00	4.11	14.72	18.82	43.87	25.05
6	630.72	630.72	0.00	4.27	13.38	17.65	42.65	25.00
7	630.72	630.72	0.00	4.44	12.04	16.48	41.43	24.95
8	630.72	630.72	0.00	4.62	10.70	15.32	40.23	24.91
9	630.72	630.72	0.00	4.80	9.37	14.17	39.03	24.86
10	630.72	630.72	0.00	5.00	8.03	13.02	37.85	24.83
11	630.72	630.72	0.00	5.20	6.69	11.89	36.67	24.79
12	630.72	630.72	0.00	5.40	5.35	10.76	35.51	24.75
13	630.72	630.72	0.00	5.62	4.01	9.63	34.36	24.72
14	630.72	630.72	0.00	5.85	2.68	8.52	33.22	24.69
15	630.72	630.72	0.00	6.08	1.34	7.42	32.09	24.67
16	630.72	630.72	0.00	6.32	0.00	6.32	30.97	24.65
17	630.72	630.72	0.00	6.58	0.00	6.58	31.30	24.72
18	630.72	630.72	0.00	6.84	0.00	6.84	31.63	24.80
19	630.72	630.72	0.00	7.11	0.00	7.11	50.05	42.94
20	630.72	630.72	0.00	7.40	0.00	7.40	20.69	13.29
21	630.72	630.72	0.00	7.69	0.00	7.69	21.07	13.38
22	630.72	630.72	0.00	8.00	0.00	8.00	21.48	13.48
23	630.72	630.72	0.00	8.32	0.00	8.32	21.89	13.58
24	630.72	630.72	0.00	8.65	0.00	8.65	22.33	13.68
25	630.72	630.72	0.00	9.00	0.00	9.00	22.79	13.79
26	630.72	630.72	0.00	9.36	0.00	9.36	23.26	13.91
27	630.72	630.72	0.00	9.73	0.00	9.73	23.76	14.03
28	630.72	630.72	0.00	10.12	0.00	10.12	24.28	14.16
29	630.72	630.72	0.00	10.53	0.00	10.53	24.82	14.30
30	630.72	630.72	0.00	10.95	0.00	10.95	25.39	14.44

8.55%

Note:

1. Draw down of funds for 1st year is 30% , 2nd year is 40% & 3rd year is 30%.
2. Plant PLF is considered at 45%.

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Director (Project)
PTCUL Dehradun

Recovery of Transmission Charges on Pooled basis

Annexure-

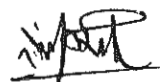
Year	Financial Year	Sale Revenue	Total Transmission Charges	Average Capacity to Carry	Rate in Rs/MW/Day
		(in Rs. Cr.)	(in Rs. Cr.)	(in MW)	(in Rs.)
1	FY-23	48.84	48.84	160	8,363.52
2	FY-24	47.59	47.59	160	8,148.76
3	FY-25	46.34	46.34	160	7,935.26
4	FY-26	45.10	45.10	160	7,723.08
5	FY-27	43.87	43.87	160	7,512.27
6	FY-28	42.65	42.65	160	7,302.90
7	FY-29	41.43	41.43	160	7,095.02
8	FY-30	40.23	40.23	160	6,888.70
9	FY-31	39.03	39.03	160	6,684.02
10	FY-32	37.85	37.85	160	6,481.03
11	FY-33	36.67	36.67	160	6,279.82
12	FY-34	35.51	35.51	160	6,080.46
13	FY-35	34.36	34.36	160	5,883.04
14	FY-36	33.22	33.22	160	5,687.64
15	FY-37	32.09	32.09	160	5,494.35
16	FY-38	30.97	30.97	160	5,303.26
17	FY-39	31.30	31.30	160	5,358.91
18	FY-40	31.63	31.63	160	5,416.95
19	FY-41	50.05	50.05	160	8,571.01
20	FY-42	20.69	20.69	160	3,542.64
21	FY-43	21.07	21.07	160	3,608.56
22	FY-44	21.48	21.48	160	3,677.34
23	FY-45	21.89	21.89	160	3,749.10
24	FY-46	22.33	22.33	160	3,823.99
25	FY-47	22.79	22.79	160	3,902.14
26	FY-48	23.26	23.26	160	3,983.70
27	FY-49	23.76	23.76	160	4,068.83
28	FY-50	24.28	24.28	160	4,157.67
29	FY-51	24.82	24.82	160	4,250.41
30	FY-52	25.39	25.39	160	4,347.22
Levelised Tariff for 30 years period					5,710.72

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Director (Project)
PTCUL Dehradun

Executive Summary		
Name of the Scheme	Construction of 10X6MVA, 220/33 kV GIS Substation Baramwari(Rudrapur) & 220 kV D/C line on Single Zebra Conductor from LILO point of Singoli Bhatwari HEPP (M/s L&T) to 220 kV proposed S/s Baramwari(Rudrapur).	
Purpose of the Scheme	To cater the system strengthening for meeting the growing load demand of Rudrapur & nearby area as required by UPCL and for power evacuation from the proposed SHPs of UJVN Ltd., it is proposed to construct 10x6MVA, 220/33 kV GIS Baramwari(Rudrapur) and its associated 220 kV D/C line from LILO point of Singoli Bhatwari HEPP (L&T) to proposed 220/33 kV substation Baramwari (Rudrapur). It will also increase the reability and quality of power supply to Kedarnath Dham, District Rudraprayag.	
Name of the Applicant	POWER TRANSMISSION CORPORATION UTTARAKHAND LIMITED	
Total cost of Scheme as per tentative BOQ	Amount (Rs in Cr)	
	Project cost (excluding IDC) 222.41	
	IDC 15.08	
	Total Project cost 237.48	
Source of fund	Proposed financing	
	Source of financing	Amount (Rs in Cr)
	Loan from FI(70% of project cost)	166.24
	Equity from GoU(30% of project cost)	71.24
	Total	237.48
	FIRR	7.66 (percentage)
	Time to repay of loan 15 Year	
Scope of work	Construction of 10X6MVA, 220/33 KV GIS Substation Baramwari(Rudrapur) & 220 KV D/C line on Single Zebra Conductor from LILO point of L&T (Singoli Bhatwari HPP) to 220 KV proposed Baramwari(Rudrapur) S/s .	
Single Line Diagram, Geographical layout	Enclosed as per Exhibits	
Expected start date and commissioning date	Oct, 2018(Start date) to Oct, 2020(Commissioning date) (As per enclosed Bar Chart)	
Security offered against loan	Charge on Immovable assets	
BRIEF NOTE:		
2x50MVA, 220/33 kV Baramwari Substation & its associated 220 kV line was proposed in UITP scheme for power evacuation of proposed 99 MW Singoli Bhatwari HEPP (M/s L&T) and 76 MW Phatabyung HEPP (M/s Lanco) which was approved by CEA vide their letter No. 12A/G/2006-SP&PA/39 dated 03/01/2007. Due to calamity in Uttarakhand during June, 2013,		






there were excessive damages to 76 MW Rambara HEPP & 76 MW Phatabyung HEPP and accordingly there was requirement of the change in the scope of work regarding 220/33 KV GIS Substation Bhramwari(Rudraprayag). Further, during the meeting held at CEA on 04/04/2018 it was advised to postpone the construction of 220/33 kV GIS Substation Baramwari (Rudrapur) and its associated 220 kV D/C line because of the uncertainty of 76 MW Phatabyung HEPP (M/s Lanco).

UPCL vide letter no. 5168/Director(O)/UPCL/T-38 dated 16/12/2017 informed that 33/11 kV substations i.e Rudraprayag (10MVA), Jakholi (5MVA), Ukhimath (5MVA), Sumoribhardhar (5MVA), Agustyamuni (3MVA), Guptkash(5MVA), Chopta (3MVA) Total 36MVA would be connected to proposed 220/33 kV S/s Baramwari(Rudrapur).

Also, UJVN Ltd vide their letter no. 406/UJVNL/01/PTCUL dated 16/04/2018informed that the proposed SHPs i.e, Kaliganga-I (4MW) COD Feb 19, Kaliganaga-II (4.5MW) COD Mar 19, and Madhyamaheshwar (15MW) COD Dec 19 to be connected at proposed 220 kV GIS Baramwari (Rudrapur).

Therefore as per load demand in Baramwari (Rudrapur) area and commissioning schedule of SHPs (UJVN Ltd.) 10x6MVA, 220/33 kV Baramwari (Rudrapur) substation and its associated 220kV D/C line from LILO point of Singoli Bhatwari HEPP (L&T) to proposed 220/33 kV substation Baramwari (Rudrapur) has been proposed which will be constructed under system strengthening.

Justification:

To cater the system strengthening for meeting the growing load demand of Rudrapur & nearby area as required by UPCL and for power evacuation from the proposed SHPs of UJVN Ltd., it is proposed to construct 10x6MVA, 220/33 kV GIS Baramwari(Rudrapur) and its associated 220 kV D/C line from LILO point of Singoli Bhatwari HEPP (L&T) to proposed 220/33 kV substation Baramwari (Rudrapur). This Substation along with associated 220 KV transmission line will also provide the relief to existing substation for reliable and better quality power supply to consumers. It will also meet out the future load demand Bharamwari(Rudrapur).

Issues requiring Simultaneous Action:

1. To issue Gazette notification for erection of new lines as per Indian Electricity Rules, 1969.
2. To seek permission of all concerned agencies for carrying out work

Recommendation
It is recommended to sanction the construction of proposed 10X6MVA, 220/33 kV GIS Substation Rudrapur(Bhramwari) & construction of 220 kV D/C line on Single Zebra Conductor from LILO point of L&T (Singoli Bhatwari HPP) to 220 kV proposed S/s Bhramwari(Rudrapur)

Basis of Rates
The rates for construction of 220 kV S/s Bhrambari(Rudrapur) has been taken from the PTCUL approved Schedule of Rate (2016-17) and for items not mentioned in approved rate schedule the budgetary offer has been considered..

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Director (Project)
PTCUL Dehradun

Power Transmission Corporation of Uttarakhand Ltd, Dehra Dun

S. No.	Description of Lines	Line length/ Capacity
1	Construction of 220/33 KV GIS Substation Bhrambari	6 x10 MVA
2	Construction of 220 KV D/C line on Single Zebra Conductor from LILO point of L&T (Singoli Bhatwari HPP) to 220 KV proposed Rudrapur (Bhramwari) S/s .	15.517 Km

S. No.	Description of HEP's pooling power	Installed Capacity
1	Total Load	30
	Total	30 MW

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Director (Project)
PTCUL Dehradun

Recovery of Transmission Charges on Pooled basis

Year	Financial Year	Sale Revenue (In Rs. Cr.)	Total Transmission Charges (In Rs. Cr.)	Average Capacity to Carry (in MW)	Rate in Rs/MW/Day (In Rs.)
1	FY-19	44.66	21.02	27	21,326.44
2	FY-20	43.64	20.00	27	20,290.24
3	FY-21	42.62	18.98	27	19,259.83
4	FY-22	41.62	17.97	27	18,235.43
5	FY-23	40.62	16.97	27	17,217.28
6	FY-24	39.62	15.97	27	16,205.64
7	FY-25	38.64	14.98	27	15,200.76
8	FY-26	37.66	14.00	27	14,202.92
9	FY-27	36.70	13.02	27	13,212.40
10	FY-28	35.74	12.05	27	12,229.49
11	FY-29	34.79	11.09	27	11,254.50
12	FY-30	33.86	10.14	27	10,287.73
13	FY-31	32.93	9.19	27	9,329.53
14	FY-32	32.02	8.26	27	8,380.23
15	FY-33	31.11	7.33	27	7,440.19
16	FY-34	30.22	6.42	27	6,509.78
17	FY-35	30.53	6.67	27	6,770.17
18	FY-36	30.86	6.94	27	7,040.98
19	FY-37	30.50	7.22	27	7,322.62
20	FY-38	20.03	7.51	27	7,615.53
21	FY-39	20.40	7.81	27	7,920.15
22	FY-40	20.79	8.12	27	8,236.95
23	FY-41	21.19	8.44	27	8,566.43
24	FY-42	21.61	8.78	27	8,909.09
25	FY-43	22.05	9.13	27	9,265.45
26	FY-44	22.50	9.50	27	9,636.07
27	FY-45	22.98	9.88	27	10,021.51
28	FY-46	23.48	10.27	27	10,422.37
29	FY-47	24.00	10.68	27	10,839.27
30	FY-48	24.54	11.11	27	11,272.84
Levelised Tariff for 30 years period					11,480.73

SA
VPEA. J. Singh
SE

Anupam

Lamp

Director (Project)
PTCUL Dehradun

FINANCIAL ANALYSIS

FIRR 7.66%

2018	0.00	0.00	71.24	0.00	0.00	71.24	0.00	-71.24
2019	0.00	0.00	94.99	0.00	0.00	94.99	0.00	-94.99
2020	0.00	0.00	71.24	0.00	0.00	71.24	0.00	-71.24
1	236.52	236.52	0.00	3.56	17.45	21.02	44.66	23.65
2	236.52	236.52	0.00	3.70	16.29	20.00	43.64	23.64
3	236.52	236.52	0.00	3.85	15.13	18.98	42.62	23.64
4	236.52	236.52	0.00	4.01	13.96	17.97	41.62	23.65
5	236.52	236.52	0.00	4.17	12.80	16.97	40.62	23.65
6	236.52	236.52	0.00	4.33	11.64	15.97	39.62	23.65
7	236.52	236.52	0.00	4.51	10.47	14.98	38.64	23.66
8	236.52	236.52	0.00	4.69	9.31	14.00	37.66	23.67
9	236.52	236.52	0.00	4.88	8.15	13.02	36.70	23.68
10	236.52	236.52	0.00	5.07	6.98	12.05	35.74	23.69
11	236.52	236.52	0.00	5.27	5.82	11.09	34.79	23.70
12	236.52	236.52	0.00	5.48	4.65	10.14	33.86	23.72
13	236.52	236.52	0.00	5.70	3.49	9.19	32.93	23.74
14	236.52	236.52	0.00	5.93	2.33	8.26	32.02	23.76
15	236.52	236.52	0.00	6.17	1.16	7.33	31.11	23.78
16	236.52	236.52	0.00	6.42	0.00	6.42	30.22	23.81
17	236.52	236.52	0.00	6.67	0.00	6.67	30.53	23.86
18	236.52	236.52	0.00	6.94	0.00	6.94	30.86	23.92
19	236.52	236.52	0.00	7.22	0.00	7.22	30.50	23.29
20	236.52	236.52	0.00	7.51	0.00	7.51	20.03	12.53
21	236.52	236.52	0.00	7.81	0.00	7.81	20.40	12.60
22	236.52	236.52	0.00	8.12	0.00	8.12	20.79	12.67
23	236.52	236.52	0.00	8.44	0.00	8.44	21.19	12.75
24	236.52	236.52	0.00	8.78	0.00	8.78	21.61	12.83
25	236.52	236.52	0.00	9.13	0.00	9.13	22.05	12.91
26	236.52	236.52	0.00	9.50	0.00	9.50	22.50	13.01
27	236.52	236.52	0.00	9.88	0.00	9.88	22.98	13.10
28	236.52	236.52	0.00	10.27	0.00	10.27	23.48	13.21
29	236.52	236.52	0.00	10.68	0.00	10.68	24.00	13.31
30	236.52	236.52	0.00	11.11	0.00	11.11	24.54	13.43

7.66%

Draw down of funds for 1st year is 40%, 2nd year is 60%.
Net PLF is considered at 45%.





Director (Project)
PPCUL Malodan
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Cost Benefit Analysis

Summary Sheet

Details of Energy Transaction from 132 KV S/S Purukul

S.no.	Calendar year	Duration calendar year	Total Energy transmitted from transformers in MWH
1	2017	1/1/2017-1/12/2017	289978
2	2016	1/1/2016-1/12/2017	279085
3	2015	1/1/2015-1/12/2015	268990

During the last three years, max. Energy transmitted in a year is i.e. 289.978 GWH (289978 MWH in the year 2017). On addition of another 40 MVA T/F, transmission utility will be able to transmit 483.296 GWH energy/year, considering load factor as 0.5 and average power factor as 0.95 as per following formula:-

Energy transmitted in a year after capacity enhancement to (1x20 MVA + 2x40 MVA = Total capacity of Transformers in MVA x P.F. x L.F. x hours in a year.

Hence


$$\begin{aligned} \text{Energy that can be transmitted after augmentation (in a year)} &= 100 \times 0.95 \times 0.5 \times 8760 \\ &= 416100 \text{ Mwh} \\ &= 416.100 \text{ Gwh} \end{aligned}$$

$$\begin{aligned} \text{Additional sale of Energy (Per year)} &= (\text{energy transmitted after capacity enhancement} - \text{Max. energy transferred in past}) \\ &= (416.100 - 289.978) \\ &= 126.122 \text{ Gwh} \end{aligned}$$

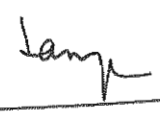
Therefore additional energy of **126.122 Gwh** GWH shall be available for sale with PTCUL at 132 KV S/s ,Purukul, which shall be utilized by UPCL considering its future load growth. On the basis of above, cost benefit analysis is hereby enclosed in Annexure attaché along with.

Considering transformer life as 30 year & loan repayment period of 15 years, as per prevailing PTCUL norms.

As per Breakeven point analysis, the cost of project shall be recovered in 10 years & 10 months (approx.).


Executive Engineer

220 KV O&M Ind. Div. Jhajhra


Director (Project)
PTCUL, Dabua