



Security details,
H. P. Power Transmission Corporation Limited
(State Govt. Undertaking)

Barowalia House, Khalini, Shimla-171002. Telefax: 0177-2626284

No./HPPTCL/Loan/CORR/10 - 4275

Dated: 13-10-10

To

Zonal Manager-North
REC,
Padam Dev Commercial Complex,
Phase-II, The Ridge,
Shimla

Subject: -

Construction of Transmission Projects by H.P. Power Transmission Corporation Limited (STU) in Distt. Kullu & Chamba. Estimated Cost and proposed Loan 90 Crores (70% of Total Amount).

Sir:

H.P. Power Transmission Corporation Limited (**State Transmission Utility**) has taken up for implementation of Transmission Projects in Kullu and Chamba Districts for evacuation of Small HEPs (up to 25 MW) coming up in Beas and Ravi basins respectively. It is proposed to raise funds from commercial bank for implementation of these transmission projects which envisage construction of 2 Nos. 220/33 kV Pooling Stations along with connecting line each at Palchan (Manali) and Karian (Chamba). Detailed Project Reports of these works are enclosed. In view of the fact that entire generation is not coming up immediately, loan repayment has been considered as 15 years with 5 years moratorium. You are requested to consider the schemes for funding and send your offer to the Corporation within 15 days of the date of issue. The offer should explicitly include validity of the offer (not less than 6 months) and Rate of Interest (fixed as well as floating).

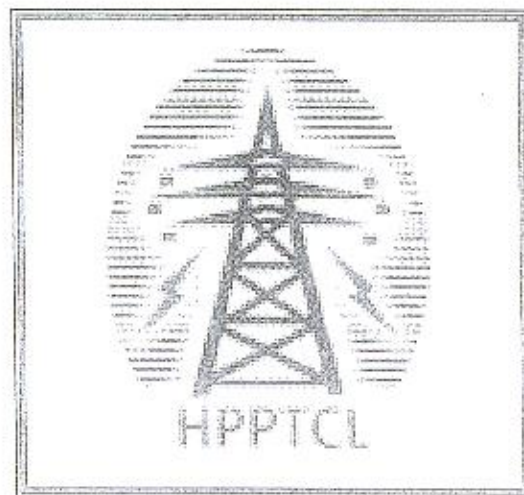
Yours Faithfully,

Director (Planning & Contract)

आर.ई.सी. डी. पी.ओ.
परिचयना क.वे.लय शिमला
दिनांक 15/10/10

आर.ई.सी. / REC
पी.ओ. पंचकुला / PO Panchkula
डायरी नं. 1658
दिनांक 18/10/2010
Date

DETAILED PROJECT REPORT FOR CONSTRUCTION OF 33/220 KV POOLING STATIONS AT PALCHAN & KARIAN



Prepared For
Arranging Loan from Commercial Bank

H.P Power Transmission Corporation Ltd

October, 2010

H.P. POWER TRANSMISSION CORPORATION LIMITED

INTRODUCTION

The State of Himachal Pradesh has been bestowed with enormous Hydel potential packed in various tributaries /khads of 5 major rivers namely Satluj, Yamuna, Beas, Ravi and Chenab which drain their catchments through steep falls due to typical geographical features of the state. The total estimated potential is of the order of 23000 MW out of which about 6100 MW has been harnessed. Out of total potential of 23000 MW, Small Hydel potential (up to 25 MW) is estimated to be of the order of 2100 MW. A substantial part of the power generated in the state shall need to be evacuated to Northern grid outside the state for which Transmission system including transmission lines and sub stations of suitable capacities have to be built matching with commissioning of upcoming projects. While CTU is mandated to undertake construction of Interstate Transmission system, the STU has to build Intrastate transmission system which largely comprises of Transmission system for evacuation of power from Small HEPs (up to 25 MW). As the Small HEPs has small gestation period (about 2 years) compared to 5-6 years for Large HEP, development of evacuation system for Small HEPs has become critical and in some areas like Kullu and Chamba, the situation has assumed alarming proportions. Taking note of huge gap between the fast approaching commissioning schedule of the projects and the matching Intrastate Transmission system for evacuation of power, GoHP vide notification dated 3.12.2008 has constituted H.P. Power Transmission Corporation Limited (HPPTCL), which has been entrusted with planning and construction of all the new EHV transmission works above 66 kV level. The H.P. Power Transmission Corporation (HPPTCL) has also been conferred the status of STU (State Transmission Utility).

As per Hydro Power Policy, 2007 of Govt. of HP as well as HPERC Regulations, 2007, IPPs executing small Hydro Electric projects (up to 25 MW) shall be allowed to interface their projects with nearest feasible Grid sub station of for the purpose of evacuation of power from their projects where the metering of energy shall also be done for the purpose of billing. Transmission line associated with the evacuation of power from the project bus bars to the interfacing sub station including interfacing

H.P. POWER TRANSMISSION CORPORATION LIMITED

facilities shall be established by the IPP at his own cost and shall form the integral part of the detailed project report.

Following are the provisions contained in the HPERC Regulations, 2007 read with subsequent amendments which lay down the duties/responsibilities of the IPP (generator) and State Transmission Utility/ Distribution Licensee so far as the transmission system for evacuation of power from the power house bus bars to the interconnection point and beyond up to the ultimate absorption point is concerned.

(1) Any generator irrespective of installed capacity, shall have open access to any licensee's transmission system and/or distribution system or grid, as the case may be under the HPERC (Terms and Conditions of Open Access) Regulations, 2005. On an application from such person, the licensee shall provide appropriate inter-connection facilities, and such facilities will be consistent with the grid connectivity standards as may be specified by the Authority or as specified in the grid code;

Provided that the generator shall bear the expenditure incurred for connectivity up to inter-connection point.

(2) The licensees shall provide interconnection of the project line(s) at its nearest control sub-station:

Provided that where it is not feasible for the licensee to provide inter-connection at the nearest control sub-station, it shall propose to the generator, other feasible interconnection sub-station(s) and the said proposal, along with the reasons for not allowing interconnection at the nearest sub-station, shall be submitted by the licensee for approval of the Commission;

(3) Where there are right of way problems or there are space limitations at the sub-stations of the licensee or where the generator opts on his own, the generator may, with the approval of the Commission, enter into a suitable arrangement for joint project lines for two or more projects and inject power into the grid through the joint evacuation system.

(4) For evacuation of power from renewable sources and co-generation beyond the interconnection point, the licensee

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shall, in consultation with the HIMURJA or any other person whom it may deem fit to consult prepare for the Eleventh Five Year Plan a comprehensive plan for augmenting and establishing the transmission/sub-transmission system corresponding to the commissioning of the projects indicating therein, the year-wise time lines to match the commissioning of the project with the establishment of the related evacuation system and the plan for the projects expected to be commissioned during the subsequent Five Year Plan period shall be prepared by the licensee at least one year in advance of the corresponding Five Year Plan.

Provided that where the time lines laid down in the plan approved under this sub-regulation are not adhered to, the defaulting licensee or the generator, as the case may be, shall be liable to pay such penalty as the Commission may, after affording opportunity, impose.

(5) The plan prepared under sub-regulation (4) shall be submitted by the licensee for the approval of the Commission and any expenditure on account of such plan shall be a pass through to the licensee.

(6) The generators may, in consultation with the licensee and with the prior approval of the Commission, augment or establish, on behalf of the licensee, the transmission system beyond, interconnection point, on build and transfer basis, and the expenditure so incurred by the generators shall be repaid by the licensee along with interest in five equal instalments, spread over a period of 5 years commencing from one year after the date of commissioning of the project, and such expenditure shall be allowed as a pass through to the licensee.

SCOPE

The scope of works mainly includes addition of EHV Transmission lines, creation of new sub stations, additional transformers at existing sub stations, augmentation of existing transformers and lines. The scope also includes the costs involved in procurement of land, site development, re-

H.P. POWER TRANSMISSION CORPORATION LIMITED
alignment of existing structures etc. at the existing as well as proposed new sub stations.

Since, projects are not uniformly located across the entire terrain of the state and similarly the extent of availability of transmission system is varying significantly in different pocket areas of the state, the entire state has been classified in to separate distinct areas or zones. These zones are not only distinct in view of physical locations but can be termed as weak or strong zones in terms of additional system requirements. In case of Gharola zone, existing system is barely capable of evacuating 10% of the generation from small HEPs under implementation in these zones where as on the other hand Sirmour Zone is capable of evacuating 80-90 % of the generation from the small HEPs with the existing system..

Transmission network has been classified in to following zones:-

1. Andhra- Nogli Zone
2. Kotla- Bhoktoo Zone
3. Sirmour Zone
4. Gharola Zone
5. Chamba Zone
6. Kurthala/ Tissa Zone
7. Palampur Zone
8. Kullu Zone

Plates for existing/ proposed network for critical zones i.e. Kullu and Chamba are enclosed as Plate-A and Plate-B.

FUNDING

The critical zones in terms of immediate requirement of Transmission infrastructure for evacuation of power have been identified as Kullu and Chamba. The Transmission Projects in these zones are proposed to be funded through ADB Loan which shall not be available before later part of the year 2011. Following Transmission projects have already been taken up for Implementation with target dates for commissioning during the year 2012. Accordingly, these works shall not be qualified for ADB funding and therefore It is proposed to execute these transmission projects through loans from commercial banks. Scope of these transmission projects is as under:-

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Sr. N	Name of Transmission Project	Zone	Target COD	Estimated Project Cost (Rs in Crore)	Status
1	a) Construction of 33/220 kV, 25/31.5 MVA GIS Pooling Station at Palchan	Kullu	October, 2011	55.35	Tender opened & under process. Work to be awarded by Oct, 10
	b) Construction of 220 kV S/C Line on D/C Towers between 33/220 kV Palchan P.S and 220 kV yard of AD Hydro at Prini		May, 2011	21.09	Work awarded.
2	a) 33/220 kV, 50/63 MVA GIS Pooling Station at Karian	Chamba	June, 2012	47.97	Tender opened & under process. Work to be awarded by November, 10
	b) 220 kV D/C line from 33/220 kV Karian P.S. to 220/400 kV Chamera Pooling Station of PGCIL		March, 2012	4.09	Tender to be invited by Oct, 2010.
	TOTAL			128.5 *	

* Details as per Appendix-I & II. Rs 93 Crore (70% of the total amount) is proposed to be raised through loan.

Mode of Execution:

The works are proposed to be carried out on turn key basis.

PROJECT ECONOMICS

List of projects which shall evacuate their generated power through these Transmission Projects with commissioning schedule are as per Annexure-A and Annexure-B. Financial evaluation for the transmission projects is as per Annexure-C and Annexure-D. As per GoHP policy, minimum number of evacuation lines, preferably one, are to be built in a valley to avoid damage to the environment and forest cover. Accordingly, high capacity line suitable for evacuation of entire potential in a valley has to be built although the entire potential shall not be exploited in the initial years of operation of the line with the implications that the line shall remain unutilized during this period. In view of liabilities in terms of loan repayment along with interest and less generation during the initial years

H.P. POWER TRANSMISSION CORPORATION LIMITED
of operation, tariff rate works out on higher side compared to tariff rates
in later years of operation when full generation is available.

Year wise Injection and tariff for Palchan and Karian Pooling stations is
depicted as under :-

33/220 KV P.S AT PALCHAN+220 KV CONNECTING LINE

YEARWISE INJECTION (MW)						
YEAR	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
MW Injection	9.00	0	9	0	0	31
Cumulative Injection	9	9	18	18	18	49
*Tariff (Rs per kWh)	-	-	1.81	1.82	1.82	0.93

33/220 KV P.S AT KARIAN+220 KV CONNECTING LINE

YEARWISE INJECTION (MW)						
YEAR	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
MW Injection	13.50	8	21	0	9	0
Cumulative Injection	13.5	21.5	42.5	42.5	51	51
*Tariff (Rs per kWh)	-	-	0.53	0.44	0.6	0.59

* Tariff has been worked out by considering 15 years Loan repayment with 5 years moratorium.

Recovery of Investment

The capital expenditure on the Transmission Projects shall be included in the ARR to be filed before HPERC who shall fix applicable tariff payable by IPPs/Discom.

APPENDIX-I

Sr No	Description	Amount- Rs Crore	Page No.
1	220/33 KV GIS Sub-Station at PALCHAN	55.35	9
2	220KV Connecting Line from Palchan to AD Hydro Switch Yard	21.09	20
	TOTAL	76.44	

① Mat. Supply
Mat. Erection
T/F 25/31.5 MVA
Land Cost.

ABSTRACT

Sr. No.	DESCR	AMOUNT
	COST OF EQUIPMENT	
1	COST OF 220/33KV GIS EQUIPMENT (ANNEXURE - A)	237705027
2	COST OF TRANSFORMER (ANNEXURE - 2) 25/31.5 MVA 33/220 KVA	27000000
3	SWITCHYARD EQUIPMENTS (ANNEXURE 3)	1350698
4	AUTOMATION SYSTEM, CONTROL AND RELAY PANEL (ANNEXURE - A4)	21820800
5	L.T SWITCHGEAR, BATTERIES, BATTERY CHARGER SYSTEM, EARTH MAT STEEL STRUCTURE, DG SET (ANNEXURE - A5)	16119429
6	MANDATORY SPARES (ANNEXURE - A6)	5691575
7	ALLIED WORKS SUCH AS AC VENTILLATION, FIRE PROTECTION, ILLUMINATION CONTROL CABLE ETC. (ANNEXURE - A7)	24294092
8	Sub-Total (1-7)	333981621
9	COST OF ERECTION CHARGES AND SUPERVISION CHARGES @ 23% (ON ITEM NO 8)	76,815,773
10	Sub-Total (8-9)	410797394
11	COST OF LAND AND SITE DEVELOPMENT FOR SUB- STATION (ANNEXURE-A8)	126800000
12	SUB-TOTAL	537,397,394
13	ADD 3% CONTINGENCY CHARGES ON (ITEM NO 12)	16121922
	GRAND TOTAL (12+13)	553,519,316
	SAY RS. 55.35	

1012

T.S.No:- HPPTCL-GM/2/2010

Sanctioned amount:- 55.35 Crores

Chto:- 110-02 (Scheme)

DGM (Projects)

GM (Projects)

DETAIL OF GIS EQUIPMENT

S. No.	Description	Unit	Rate	Qty	Amount
A	245kv GIS EQUIPMENTS				
1	245kV, 1600A, SF6 gas insulated TRANSFORMER bay module each comprising of SF6 gas insulated circuit breaker, current transformer, two bus-bar disconnectors with grounding switch, Surge arrestors (198) kV, SF6 gas monitoring system for complete bay, LCC, Three 1- phase SF6 ducts and SF6/Oil bushing to connect to 220/33 kV, 25/31.5 MVA Transformer and accessories with GIS etc. to complete Transformer Bay Module.	Set	4426307	1	44263071
2	245kV, 2000A, 50 KA SF6 gas insulated Feeder Bay Module each comprising of SF6 gas insulated circuit breaker, current transformer, two bus-bar disconnectors with grounding switch, Line disconnector with safety grounding switch, High Speed fault making grounding switch, SF6 gas monitoring system for complete bay LCC, GIS Ducts and SF6/oil bushing termination enclosures accessories with GIS etc. to complete feeder bay modules.	Set	42300940	1	42300940
3	245kV, 4000A, 50 KA SF6 gas insulated Bus Coupler Bay Module comprising of SF6 gas insulated circuit breaker, current transformers, two disconnectors switches, safety grounding switches SF6 gas monitoring system for the complete bay LCC etc.	Set	25409337	1	25409337
4	245kV, 4000A 50 KA, 3 single phase (isolated), SF6 gas insulated, metal enclosed bus bars each unit, enclosed in bus enclosures running along the length of the switchgear to each of the circuit breaker bay module. Each bus bar set shall be complete with voltage transformer, complete with safety grounding switch, local control cubicle, SF6 gas monitoring system for the complete bus etc.	Set	28409090	2	56818180

Assistant Engineer (E),
H.P. Power Transmission Corp. Ltd.
Barowalla House, Khasim, Solan

Chief Engineer (E) Project
H.P. Power Transmission Corp. Ltd.
Barowalla House, Khasim, Solan

36kV GIS EQUIPMENTS					
1	36kV, 1600A, SF6 gas insulated Transformer bay module each comprising of SF6 gas insulated circuit breaker, current transformer, two No. bus-bar disconnectors with common grounding switch, safety grounding switches, Surge arrestors, local control cubicle, SF6 gas monitoring system for complete bay, gas insulated terminal connection for connecting ICT (XLPE cable/SF6) through XLPE cable with cable end box and accessories with GIS etc. to complete Transformer Bay Module.	Set	3312450	1	3312450
2	33 kV XLP 300 sq mm cable for above interconnection.	LS	1325000	1	1325000
3	36kV, 1600A, SF6 gas insulated feeder bay module each comprising of SF6 gas insulated circuit breaker, current transformer, two bus-bar disconnectors with grounding switch, line disconnector with safety grounding switch, SF6 gas monitoring system for complete bay, gas insulated terminal connection for connecting Overhead line (Air/SF6) with GIS through gas insulated interconnection bus (2000A rating) etc. to complete Feeder Bay Module.	Set	3838165	3	11508495
4	36kV, 2000A, 40 KA for 3 seconds, SF6 gas insulated, metal encased bus bars each enclosed in three individual bus enclosures running along the length of the switchgear to interconnect each of circuit breaker bay module. Each bus bar set shall be complete with voltage transformer, disconnectors with grounding switch, local control cubicle, SF6 gas monitoring system for the complete bus etc.	Set	3265390	2	6530780
5	36kV, 2000A, SF6 gas insulated bus coupler bay panel each comprising of SF6 gas insulated circuit breaker, current transformer two no Disconnector, SF6 gas monitoring system for complete panel.	set	3277678	1	3277678
6	36kV, 830A, SF6 gas insulated 250 kVA, L.T. Transformer Panel, each comprising of SF6 Gas Insulated Circuit Breaker, Current Transformer Two Nos. of Bus Bar disconnector with grounding switch, local control cubicle, SF6 gas monitoring system for the complete panel.	set	2848372	1	2848372
Sub-Total					197,555,813
C	Testing and maintenance Equipment for GIS				
i	SF6 Gas processing Unit	Set	5036530	1	5036530
ii	Partial Discharge Monitoring System	Set	3862930	1	3862930
D	Mandatory Spares for 220 & 33kV GIS	LS	31409654	1	31409654
G/Total: -					237,705,027

Assistant Engineer (E),
H.P. Power Transmission Corpn., Ltd.
Barowalla House, Khairati, Srinagar

Senior Manager (Projects)
H.P. Power Transmission Corpn., Ltd.
Barowalla House, Khairati, Srinagar

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station PALCHAN

DETAIL OF TRANSFORMERS

S. No.	Description	Unit	Rate	Qty	Amount
1	25/31.5 MVA, 220/33 KV Three Phase Power Transformer with complete accessories	No.	27,000,000	-	27,000,000
			Total: -		27,000,000

Assistant Engineer (E),
H.P. Power Transmission Division,
Barowalla House, Khatol, Shimla-2

Senior Manager (Projects),
H.P. Power Transmission Corp. Ltd.,
Barowalla House, Khatol, Shimla-2

NAME OF WORK : Construction of 83/220 KV GIS Sub-Station PALCHAN

DETAIL OF SWITCHYARD EQUIPMENT

S. No.	Description	Unit	Rate	Qty	Amount
i	245KV Equipments				
i	198kv/216 kV Surge Arrestor	No.	83,087	6	498,522
ii	4400pF Capacitive Voltage Transformer	No.	428,088	2	852,176
			Total: -		1,350,698

Assistant Engineer (C),
H.P. Power Transmission Corp. Ltd.
Barowalla House, Khalindi, Shimla-2

3-4/8/2018
3-4/8/2018
H.P. Power Transmission Corp. Ltd.
Barowalla House, Khalindi, Shimla-2

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station PALCHAN

DETAIL OF AUTOMATION EQUIPMENT AND CONTROL & RELAY PANELS

S. No.	Description	Unit	Rate	Qty	Amount
A)	Complete Sub-station Automation System including hardware and software for the Sub-Station and remote control station along with associated equipment.		9,801,800	1	9,801,800
B)	220KV Control and Relay Panels (Feeder, T/F's & Bus Coupler) (Ckt Control Panel=3 No.+Feeder Panel=1No.+Bus Bar Panel=1No.+T/F panel=1No.)	Set	1,053,000	3	3,159,000
C)	33KV C & R PANEL (Feeder Panel= 3 Nos , T/F's Panels 1+1=2 Nos., Ckt. Breaker Panel=3+3=6 Nos. Bus Bar =4No.) 12Nos.	Set	260,000	12	3,120,000
D)	PLCC Equipment (Coupling Device, HF Cable, Carrier Equipment and EPBAX.	Set	2,781,000	1	2,781,000
			Total:-		21,820,600

315029

3007158

2781098

Assistant Engineer (E),
H.P. Power Transmission Dept.
Barowalla House, Kathali, Siliguri

Sd/-
Sd/-

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station PALCHAN

DETAIL OF LT SWITCHGEAR, BATTERIES, BATTERY CHARGERS, EARTH MAT & STEEL STRUCTURE					
S. No.	Description	Unit	Rate	Qty	Amount
A	LT Switchgear				
1	415 V AC main Switchboard	Set	3311527	1	3311527 ✓
2	415 V AC Distribution Board	Set	1524832	1	1524832 ✓
2	220 V DC Distribution Board	Set	583809	2	1187618 ✓
3	48 V DCDB	Set	378759	2	757518 ✓
B	Batteries & Battery Charger				
1	Batteries 220 KV, 400AH	Set	661910	2	1363820 ✓
2	Battery Charger system 220V	Set	512624	2	1025248 ✓
3	48 V 400 AH	Set	148781	2	297562 ✓
4	Battery Charger system 48V	Set	381488	2	762976 ✓
5	Earth mat	LS	2261570	1	2261570
6	Switchyard Steel Structure	LS	1639842	1	1639842 ✓
7	DG Set along with Control Panel 100 KVA 440 V.	Set	1988916	1	1988916 ✓
			Total: -		16,119,429

Assistant Engineer (E)
H.P. Power Transmission Corp.
Bardwala House, Khalloli, G.

2. The Engineer (E) (E) (E)
H.P. Power Transmission Corp.
Bardwala House, Khalloli, G.

A. K. S.

NAME OF WORK : Construction of 33/220 kV GIS Sub-Station PALCHAN

DETAIL OF SPARES

S. No.	Description	Unit	Rate	Qty	Amount
	MANDATORY SPARES				
a)	220KV CVT	No.	426,088	1	426,088
b)	198/216KV Surge Arrestor	No.	83,087	1	83,087
c)	Batteries	No.	415,350	1	415,350
d)	Battery Charger	No.	347,050	1	347,050
e)	Relay & Protection	No.	2,270,000	1	2,270,000
f)	Sub station automation system	No.	1,500,000	1	1,500,000
g)	PLOC	No.	650,000	1	650,000
			Total: -		5,691,575

Assistant Engineer (E),

M.P. Power Transmission Corp. Ltd.
Sarowalia House, Khalani, GSI

 Engineer (Protection)
 M.P. Power Transmission Corp. Ltd.
 Sarowalia House, Khalani, GSI-2

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station PALCHAN

DETAIL OF ALLIED WORKS SUCH AS AC & VENTILATION, FIRE PROTECTION, ILLUMINATION ETC

S. No.	Description	Unit	Rate	Qty	Amount
A	AC & Ventilation System	Set	2481822	1	2,481,822
B	Fire Protection System	Set	1,381,000	1	1,381,000
C	Illumination System	Set	4,014,000	1	4,014,000
D	CONTROL CABLE	LS	2,454,000	1	2,454,000
E	Miscellaneous items, earthing materials and erection hardware such as bus post insulators, insulator string, disc insulators, Hardware, spacers, conductor(s), cable trays, hardwares, clamps, connector including junction box, earthwire, lightning protection, buried cable trenches / pipes for equipment and lighting, all accessories etc for completion of scope.	LS	10,133,270	1	10,133,270
F	EOT Crane (3.5 T/2.5 T) for GIS Building/Movable Ladder of suitable capacity.	No's	730,000	2	1,460,000
G	Mandatory Spares for:-				
a	Fire fighting system	LS	300,000	1	300,000
b	AC & Ventilation system	Ls	70,000	1	70,000
c	illumination	LS	300,000	1	300,000
H	Distribution Transformer (250 kVA, 33/0.44kV along with HT Switchgear)	No	1,700,000	1	1,700,000
			Total:-		24,294,092

Assistant Engineer (E),
H.P. Power Transmission Corp.,
Barowalia House, Khelini, S.H.

Assistant Engineer (E),
H.P. Power Transmission Corp.,
Barowalia House, Khelini, S.H.

NAME OF WORK : Construction of 33/220 kV GIS Sub-Station PALCHAN
CIVIL WORKS

ANNEXURE -AS

S. No.	Description	Unit	Rate	Qty	Amount
1	Cost of land for Sub-Station				101600000
2	Site development of Sub-Station such as approach road retaining walls/breast walls	LS	LS	LS	12000000
3	Sub-Station control room buildings	LS	LS	LS	5000000
4	220/33 kV GIS control room Building	LS	LS	LS	8000000
			Total		126600000

Assistant Engineer (S),
H.P. Power Transmission Corpn.,
Barowalla House, (Khalin), Sikkim

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowalla House, (Khalin), Sikkim-2

Cost of Land
for Palchan
1266

Detail of Estimate Sanctioned (Palchan Line)

Sr. No.	Name of Work	Sanctioned Amount (Crores)
1.	Estimate for purchase/acquiring of private land for 24 Nos Towers falling in route of 220 kV S/C Transmission line on D/C towers from Palchan to Allian Dhungan (Prini). HPPTCL-GM/01/2010	1.69
2.	Estimate for construction of 220 kV S/C Transmission line on D/C towers from Palchan to Prini (A.D. Hydro Power Project). HPPTCL-GM/04/2010	10.95
3.	Estimate for the diversion of the forest land, cost of trees in Pvt. Land and Govt. Land and dwarf /herbal plantation along with the right of way of 220 kV S/C transmission line on Double circuit Towers from Palchan to Prini (AD Hydro Power Project) HPPTCL-GM/05/2010	5.30
4.	Estimate for providing terminal equipment in A.D Hydro 220 kV Switchyard at Prini. HPPTCL-DGM/02/2010	3.15
Total		21.09


 General Manager (Projects)

HIMACHAL PRADESH POWER TRANSMISSION CORPORATION LIMITED

Name of Work: - Estimate for Purchase/Acquiring of Private land for 24 Nos. Towers falling in the route of 220kV S/C transmission line on D/C towers from Palchan to Allian Dhungan (Prini).

ABSTRACT OF COST

Sr.No.	Description	Qty. (in centares)	Rate/Unit	Amount (Rs.)
1.	Cost of private land required for 24 Nos. of towers.	5361	2024.9051	1,08,55,516.00
2.	Add 30% Compulsory acquisition charges (on item no-1)			32,56,655.00
3.	Add 7% Stamp duty & Registration charges (on item no-1)			7,59,886.00
4.	Add 5% Contingency charges (on item no-1)			3,25,666.00
5.	Sub-Total (1-4)			1,51,97,723.00
6.	Add 11% Departmental charges (on item no-5)			16,71,750.00
7.	Grand-Total (5+6)			1,68,69,473.00

(Rs. One Crore, Sixty Eight Lac. Sixty Nine Thousand, Four Hundred & Seventy

Cost of private
24 nos towers
route of 220kV


Dy. Manager
HPPTCL Khalini, Shimla-2


Sr. Manager
HPPTCL Khalini, Shimla-2


Dy. General Manager
HPPTCL Khalini, Shimla-2

OP-2
Sr. No. 1

T.S. NO. - HPPTCL DGM-1/2010
SANCTIONED Amount: - 1,68,69,473.00
Name of Scheme/CH To 11001 (Scheme Check)

GM (PROJECTS)

Extend at P-2.

Name of Work: Estimate for Construction of 220 kV S/C Trans. Line on D/C towers from Palchan to Prini (AD Hydro Power Project)

ABSTRACT OF COST

Sr. No	Description	Amount (in lac)
1	Cost of Detailed survey and check Survey as per (Annex.- A)	2.28
2	Cost of Tower Marterial and accessories as per (Annex. B)	632.35
3	Cost of Erection and Commissioning charges as per (Annex.C)	313.54
4	Sub Total (1 to 3)	948.17
5	Add 3% contingency charges on (Item No- 4)	28.45
6	Sub Total (4+5)	976.62
7	Add 11% Departmental charges on (Item No-6)	107.43
8	Add service Tax on @ 10.30% on (Item No-7)	11.07
9	Grand Total (6 to 8)	1095.12
	Say Rs 10.95 Crore	

{Rs. Ten Crores and Ninety Five Lac Only}

T.S.No:- HPPTCL-GM/4/2010

Sanctioned Amount:- 10.95 Crores

Chto:- 1100/(Scheme)

Dy.General Manager(Projects)

General Manager(Projects)

Name of Work

Estimate for the construction of 220 kV Single circuit transmission line on double circuit towers from Palchan to Allain Dhuangain HEP, prinl.

Chargable to:

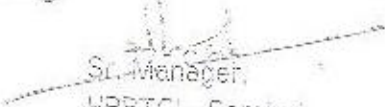
Scheme for the construction of 220 kV S/C Transmission Line on D/C Towers from Palchan to Allain Dhuangain HEP along with construction of 33/220 kV, 50/ 63.5 MVA Sub Station at Palchan and 220 kV (Double Bus) Feeder Bay at Allain Dhuangain HEP.

Detail of the Survey work

S.No	Description	Unit	Qty.	Rate	Amount
1	Detailed survey including pegging of the tower centers, Route marking, Profile plotting and tower spotting etc.	Km	10.384	₹ 15,702.56	₹ 1,63,055.38
2	Check survey including pegging of the tower centers, Route marking, Profile plotting and tower spotting etc.	Km	10.384	₹ 6,281.42	₹ 65,226.27
Total					₹ 2,28,281.65

Say ₹ 2.28 Lacs


Dy. Manager,
HPPTCL, Sarabai,
Bhuner, Distt. Kullu.


Sr. Manager,
HPPTCL, Sarabai,
Bhuner, Distt. Kullu.

Name of Work Estimate for the construction of 220 kV Single circuit transmission line on double circuit towers from Palchan to Allian Dhuangain HEP. print.

Chargeable to:

Scheme for the construction of 220 kV S/C Transmission Line on D/C Towers from Palchan to Allain Dhuangain HEP along with construction of 33/220 kV, 50/ 63.5 MVA Sub Station at Palchan and 220 kV (Double Bus) Feeder Bay at Allian Dhuangain HEP.

Erection and commissioning Charges

S.No	Description	Unit	Qty.	Rate	Amount
	FOUNDATION WORK				
	Stub setting including form work				
1	a. X type tower	No	18	₹ 4,710.57	₹ 84,790.26
	b. Y type tower	No	12	₹ 5,495.51	₹ 65,946.12
	c. Z type tower	No	11	₹ 6,281.42	₹ 69,095.62
	X type tower, +3 m, +6 m Body Extn.				
	a. Normal dry type soil				
	i. No of towers	No	8		
	ii. Excavation	Cu.m	766.456	₹ 126.1	₹ 96,650.1
	iii. Concreting M 10	Cu.m	15.368	₹ 6,576.62	₹ 1,01,069.5
	iv. Concreting M 15	Cu.m	0	₹ 7,665.56	₹
	v. Concreting M 20	Cu.m	10.568	₹ 8,259.88	₹ 87,290.41
	vi. Reinforcement	MT	10.568	₹ 54,958.96	₹ 5,80,806.29
	b. Non Cohesive type soil				
	i. No of towers	No	10		
	ii. Excavation	Cu.m	1835.62	₹ 157.38	₹ 2,89,362.02
	iii. Concreting M 10	Cu.m	30.13	₹ 6,576.62	₹ 1,98,153.56
	iv. Concreting M 15	Cu.m	0	₹ 7,665.56	₹
	v. Concreting M 20	Cu.m	193.32	₹ 8,259.88	₹ 15,96,800.
	vi. Reinforcement	MT	22.54	₹ 54,958.96	₹ 12,38,774.96
	Y type tower, +3 m, +6 m Body Extn.				
	a. Normal dry type soil				
	i. No of towers	No	5		
	ii. Excavation	Cu.m	535.615	₹ 126.1	₹ 67,541.05
	iii. Concreting M 10	Cu.m	10.625	₹ 6,576.62	₹ 69,876.59
	iv. Concreting M 15	Cu.m	0	₹ 7,665.56	₹
	v. Concreting M 20	Cu.m	74.29	₹ 8,259.88	₹ 6,13,626.49
	vi. Reinforcement	MT	8.026	₹ 54,958.96	₹ 4,41,045.65
	b. Non Cohesive type soil				
	i. No of towers	No	7		
	ii. Excavation	Cu.m	1509.214	₹ 157.38	₹ 2,37,520.1
	iii. Concreting M 10	Cu.m	24.717	₹ 6,576.62	₹ 1,62,554.32
	iv. Concreting M 15	Cu.m	0	₹ 7,665.56	₹
	v. Concreting M 20	Cu.m	163.177	₹ 8,259.88	₹ 13,47,822.44
	vi. Reinforcement	MT	17.689	₹ 54,958.96	₹ 9,72,169.04
	Z type tower, +3 m, +6 m Body Extn.				
	a. Normal dry type soil				

S.No	Description	Unit	Qty.	Rate	Amount
4	i. No of towers	No	4		
	ii. Excavation	Cu.m	494.96	₹ 126.1	₹ 62,414.46
	iii. Concreting M 10	Cu.m	10.028	₹ 6,576.62	₹ 65,950.35
	iv. Concreting M 15	Cu.m	0	₹ 7,665.56	₹
	v. Concreting M 20	Cu.m	73.232	₹ 8,259.88	₹ 6,04,887.53
	vi. Reinforcement	MT	7.3	₹ 54,958.96	₹ 4,01,200.41
	b. Non Cohesive type soil				
	i. No of towers	No	7		
	ii. Excavation	Cu.m	1732.444	₹ 157.38	₹ 2,72,652.04
	iii. Concreting M 10	Cu.m	25.399	₹ 6,576.62	₹ 1,66,769.43
	iv. Concreting M 15	Cu.m	0	₹ 7,665.56	₹
	v. Concreting M 20	Cu.m	208.817	₹ 8,259.88	₹ 1,724,803.36
	vi. Reinforcement	MT	20.699	₹ 54,958.96	₹ 1,137,595.51
5	Erection of all type of towers along with body extension, leg extensions and fixing of Danger Plate, Number Plate, circuit plate phase plate, bird guard and ant Climbing Devices etc. complete in all respects	MT	569.69	₹ 7,301.93	₹ 41,59,836.5
6	Mounting of the insulator strings for three number ACSR Zebra conductor including laying, jointing, tensioning, stringing, sagging, clamping of the conductor, fixing of the vibration dampers and arching horns etc. complete in all respects.	Km	10.384	₹ 62,810.24	₹ 6,52,221.53
7	Stringing of the one no OPGW including laying, jointing, tensioning, sagging, clamping, fixing of vibration dampers and earthing etc. complete in all respects,	Km	11.15	₹ 39,256.4	₹ 4,37,708.86
8	Earthing of towers				
	i. Pipe type earthing including excavation and backfilling work	Sets	35	₹ 1,569.87	₹ 54,945.45
	ii. 15 m counter poise earthing complete with excavation and backfilling	sets	4	₹ 1,569.87	₹ 6,279.48
	iii. 30 m counter poise earthing complete with excavation and backfilling	sets	2	₹ 3,140.71	₹ 6,281.42

S.No	Description	Unit	Qty.	Rate	Amount
9	Benching of tower footing in all kind of soils	cu.m	25,300	₹ 196.45	₹ 49,70,944.
	Rivetments				
	Retaining walls/ breast walls with 1.5 m height and 10 m length				
	Number of Retaining/ Breast walls	Nos	35		
	ii. Excavation	Cu.m	164.5	₹ 235.58	₹ 38,752.91
	iii. M 15 concreting	Cu.m	94.5	₹ 5,938.31	₹ 5,61,170.3
	iv. Random Rubble masonry with CM 1:5	Cu.m	485.625	₹ 1,955.	₹ 9,49,396.88
10	v. Excavation and transportation of soil from suitable places and back filling, levelling of the volume enclosed by the revetments walls	cu.m	666.75	₹ 313.78	₹ 2,09,212.52
	vi. Stone filling behind the retaining walls(as per SSR 2009)	Cu.m	210	₹ 797.35	₹ 1,67,443.5
	vii. providing PVC pipe for the deep holes(Market rates)	Rm	220.5	₹ 200.	₹ 44,100.
	Retaining walls/ breast walls with 3.05 m height and 10 m length				
	Number of Retaining/ Breast walls	Nos	24		
	ii. Excavation	Cu.m	331.2	₹ 235.58	₹ 78,024.1
	iii. M 15 concreting	Cu.m	121.776	₹ 5,938.31	₹ 7,23,143.64
	iv. Random Rubble masonry with CM 1:5	Cu.m	852.768	₹ 1,955.	₹ 16,67,161.44
11	v. Excavation and transportation of soil from suitable places and back filling, levelling of the volume enclosed by the revetments walls	cu.m	457.2	₹ 313.78	₹ 1,43,460.22
	vi. Stone filling behind the retaining walls(as per SSR 2009)	Cu.m	266.4	₹ 797.35	₹ 2,12,414.04
	vii. providing PVC pipe for the deep holes(Market rates)	Rm	768	₹ 200.	₹ 1,53,600.

S.No	Description	Unit	Qty.	Rate	Amount
12	Retaining walls/ breast walls with 4.27 m height and 10 m length				
	I. Number of Retaining/ Breast walls	Nos	14		
	II. Excavation	Cu.m	321.3	₹ 235.58	₹ 75,691.85
	III. M 1:5 concreting	Cu.m	111.3	₹ 5,938.31	₹ 6,60,933.9
	IV. Random Rubble masonry with CM 1:5	Cu.m	851.9	₹ 1,955.	₹ 16,65,464.5
	V. Excavation and transportation of soil from suitable places and back filling, levelling of the volume enclosed by the revetments walls	Cu.m	266.7	₹ 313.78	₹ 83,685.13
	VI. Stone filling behind the retaining walls(as per SSR 2009)	Cu.m	232.68	₹ 797.35	₹ 1,85,527.4
13	providing PVC pipe for the beed holes(Market rates)	Rm	574	₹ 200.	₹ 1,14,200
	Painting of the towers having height more than 45 m or wherever required with orange and white strips	Towers	35	₹ 1,559.87	₹ 54,595.45
14	Providing and fixing of the coloured globules on OPGW of 50 cm diameter.	No	39	₹ 8,636.21	₹ 3,36,812.19
15	Testing and commissioning Charges	Km	10.364	₹ 15,702.56	₹ 1,63,055.38
Total				₹ 3,13,53,830.47	

Say

₹313.54 Lacs


Dy. Manager,
HPPTCL, Sarabai,
Bhunter, Distt. Kullu.


Sr. Manager,
HPPTCL, Sarabai,
Bhunter, Distt. Kullu.

Name of Work Estimate for the construction of 220 kV Single circuit transmission line on double circuit towers from Palchan to Allian

Chargable to: Scheme for the construction of 220 kV S/C Transmission Line on D/C Towers from Palchan to Allain Dhuangain

Cost of Material

S.No	Description	Unit	Qty.	Ex works Price		Freight & Insurance	
				Rate	Total	Rate	Total
A.	Tower and Accessories						
1	Design, fabrication and supply of all type of 220 kV D/C Galvanised steel towers including all type of extensions, stubs and stub setting templates.	MT	569.69	63185.6	35996204.46	5131.88	2923580.72
2	Design, fabrication and supply special structures / towers	MT	0.00	63186.6	0.00	5132.88	0.00
3	Nut, Bolts and washers for the item No 1 above	MT	35.158	82141.28	2887923.12	4104.5	144308.01
4	Nut, Bolts and washers for the item No 2 above	MT	0.926	82141.28	76062.83	4104.5	3800.77
5	Tower testing charges						
	i. Tower Type X	Set	1	1457452.5	1457452.50	34896.75	34896.75
	ii. Tower Type Y	Set	1	1642200	1642200.00	41055	41055.00
	iii. Tower Type Z	Set	1	2011695	2011695.00	53371.5	53371.50
6	Number plates with Bolts, Nuts and washers	Set	41	228.74	9378.34	20.53	841.73
7	Danger Plates with Bolts, Nuts and washers	Set	41	228.74	9378.34	20.53	841.73
8	Phase plates with Bolts, Nuts and washers	Set	41	172.04	7053.64	20.53	841.73
9	Circuit Plates with Bolts Nuts and washers	Set	41	343.1	14067.10	20.53	841.73
10	ACD complete in all respects	Set	41	2518.04	103239.64	205.28	8416.48
11	Bird Gaurds	Set	41	1030.29	42241.89	154.45	6332.45
12	Earthing material for towers						
	i. Pipe type, complete in all respects	Set	35	1831.84	64114.40	102.64	3592.40
	ii. Counter poise earthing set: 15 m	Set	4	2289.31	9157.24	154.45	617.80
	iii. Counter poise earthing set: 30 m	Set	2	4578.61	9157.22	154.45	308.90
Sub Total A						47562971.42	
B	Conductor, Hardware fittings and Accessories						
1	ACSR Zebra Conductor	Km	34.2672	200541.95	6872011.11	4105.5	140683.9896
2	Single tension Hardware fitting for ACSR Zebra	Nos	222	2700.83	599584.26	61.58	13670.76
3	Double tension Hardware fittings for ACSR Zebra	Nos	30	5041.95	151258.5	123.17	3695.1

4	Mid span Compression Joint	Nos	96	756.59	72632.64	15.61	1501.44
5	Repair Sleeve	Nos	96	305.96	29372.16	4.89	469.44
6	Vibration Dampers	Nos	492	670.57	329920.44	20.53	10100.76
7	Preformed Armour rod	set	28	1454.52	40726.56	25.42	711.76
Sub Total B				8266338.92			
C	OPGW, Hardware fittings and accessories						
1	Single Mode 12c Fibre Optical Ground wire along	Km	11.15	255826.41	2852464.47	2025.75	22587.1125
2	Jointing Box	Nos	4	7510.13	30040.52	174	696
3	Vibration Dampers	Nos	93	804.48	74816.64	18.57	1727.01
4	Tension Hardware fittings for OPGW	set	86	6779.94	583074.84	157.38	13534.68
5	Flexible copper Bond	Nos	43	232.65	10003.95	5.87	252.41
Sub Total C				3589197.63			
D	Disc Insulators						
1	90 kN Disc Insulators	Nos	360	493.64	177710.40	36.17	13021.2
2	160 kN Disc Insulators	Nos	4512	746.81	3369606.72	56.7	255830.4
Sub Total D				3816168.72			

TOTAL (A+B+C+D)

63234676.69

Say 632.35 Lacs

sdi/
Dy. Manager,
HPPTCL, Sarabai,
Bhunter, Distt. Kullu.

sdi/-
Sr. Manager,
HPPTCL, Sarabai,
Bhunter, Distt. Kullu.

Name of Work:

Estimate for the Diversion of forest land, cost of trees in Pvt and Govt Land and Dwarf/ herbal plantation along the Right of way of 220 kV S/C transmission line on double circuit towers from Palchan to Allian Dhuangain HEP Pn.

Chargeable to:

Scheme for the construction of 220 kV S/C Transmission Line on D/C Towers from Palchan to Allian Dhuangain HEP along with construction of 33/220 kV, 50/ 63.5 MVA Sub Station at Palchan and 220 kV (Double Bus) Feeder Bay at Allian Dhuangain HEP

Abstract of Cost

S No	Description	Amount
1	Net Present Value (Annexure-A)	₹ 1,43,09,482
2	Cost of Compensatory Afforestation (Annexure-B)	₹ 29,70,400
3	Cost of Trees Annexure-C	₹ 2,86,56,478.03
4	Cost of Herbal/ Dwarf plantation in ROW (plantation is possible only in 50 % of the ROW i.e. 7.755 ha. under forest land @ ₹54000 per 4inac)	₹ 4,18,770
Total		₹ 4,63,55,130.03
Add 3 % contingency Charges		₹ 4,77,45,783.93
Add 11 % Departmental Charges		₹ 5,29,97,820.16

Sd/-

₹ 530 Lacs only


D. Manager,
HPPTCL, Sarabai,
Bhuner, Distt. Kullu.


Sr. Manager,
HPPTCL, Sarabai,
Bhuner, Distt. Kullu.

TS No:- HPPTCL-GM/5/2010
Sanctioned Amount - 5.30 Crores
Ch.to - 1100 (Scheme)


Dy. General Manager (Proposed)
H.P. Power Transmission Board, Ltd.
Barnala, Hissar, Haryana, India


Dy. General Manager
H.P. Power Transmission Board, Ltd.
Barnala, Hissar, Haryana, India

Name of Work:

Estimate for the Diversion of forest land, cost of trees in Pvt and Govt. land and Dwarf/ neobol plantation along the right of way of 220 KV S/C transmission line on double circuit towers from Palchan to Arian Duangain HEP, P.H.D.

Chargeable to:

Scheme for the construction of 220 KV S/C Transmission Line on D/C towers from Palchan to Arian Duangain HEP, along with construction of 33/220 KV and 63.5 MVA Sub Station at Palchan and 220 KV Double Busbar Feeder Unit at Arian Duangain HEP.

BILL OF NET PRESENT VALUE

In respect of diversion of forest land 15.95-28 hectares for the construction 220 KV Single Circuit Transmission line on Double Circuit towers from Palchan to Arian Duangain Hydro Electric Project at P.H.D. along with 33/220 KV, 63.5 MVA Sub Station at Palchan, Mahan Forest Range Kullu Forest Division & District Kullu H.P.

Area to be Diverted (in Hec.)	Rate of net present value Proposed for Diversion Per Hec.	Amount (in Rs.)
15.95-28 hectares	89,670.00	1,43,39,482.00
Total Rs.		1,43,39,482.00

(Rs. One Crore forty three lac nine thousand four hundred and eighty two only)

- Note: (1) The above bill is liable to be corrected as per instructions/ guidelines issued by the Government of H.P. from time to time.
- (2) Any correction/ mistake/ grammatical error is to be corrected before the bill is corrected.


Range Forest Officer
Forest Range Mahan
H.P.H.C. Saradar,
Shunter, Dist. Kullu.


Divisional Forest Officer,
Forest Division Kullu H.P.

H.P.H.C. Saradar,
Shunter, Dist. Kullu.

Name of Work:

Estimate for the Diversion of forest land (down of trees in Pvt and Govt. Land) and Dearth
 re-forest plantation along the Right of way of 220 KV V/C Transmission line on double circuit
 towers from Palchan to Adan-Dhungan HEP, Prini.

CHECK LIST SERIAL NUMBER -27

SCHEME FOR COMPENSATORY AFFORESTATION

Details of Compensatory Afforestation to be carried out in lieu of 15-95-26 hectares (15-95-26 X 2 = 31-90-52 Or say 32-00-00 hectares) of forest area to be diverted for the Construction of 220 KV Single circuit Transmission line on Double circuit Towers from Palchan to Adan-Dhungan Electric Project at Prini, alongwith 33/220 KV sub station Palchan in Kullu District.

Details of degraded forest land/non-forest land:-

District: Kullu Village: 2112 Mathiban C-1
 Tehsil: Manali
 Name of Forest Division: Kullu Range: Manali
 Sub-Compartment/Survey No.: C-1 Area to be afforested: 32-00-00 hectares

Description of Area:-

- Whether the site selected for Compensatory Afforestation is a land bank or not? Yes
 If the CA site is other than the land bank, reasons be given.
- a) If a piece of non-forest area identified for CA, then what is the distance of CA site from the adjoining forest boundary? _____
- b) Soil type: Clayey loam
- c) Topography: i) Flat/Undulating/Hilly Hilly
 ii) Slope: Steep/Medium/Gentle Medium
- d) Whether the area is bearing any root stock of vegetation? Yes

Plantation Model:-

Copy of the approved Compensatory Afforestation Scheme/Model showing component wise physical and financial break up to be enclosed -- Enclosed

2. Schedule plantation programmer:-

Details of year wise break-up of requirement of funds is as under:-

Year	Area	Rate/ha	Total Amount
0 th year	32.00-00 hect	54,000-00 per hect	1,728,000-00
1 st year	32.00-00 hect	54,000-00 per hect	1,728,000-00
2 nd year	32.00-00 hect	54,000-00 per hect	1,728,000-00
3 rd year	32.00-00 hect	54,000-00 per hect	1,728,000-00
4 th year	32.00-00 hect	54,000-00 per hect	1,728,000-00
5 th year	32.00-00 hect	54,000-00 per hect	1,728,000-00
Total			10,368,000-00
Excess on charge		@ 17.50%	1,814,400-00
Grand Total			12,182,400-00
Or Say Rs.			12,182,400-00

3. Technical details:-

Technical details of Compensatory Afforestation Scheme are as follows:-

32.00-00 hectares area will be tackled in 2/2 Matchan C. II forest. Identical 1430 plants per hectares will be planted.

(a) General Details:-

(a) Spacing:-	Broad leave	Coniferous
	1430 x 45 x 45 Mtr	1430 x 30 x 30 Mtr
(b) Species:-	Broad leaved & Coniferous	

(c) Plantation Method:-

Contour Planting

(d) Soil and Moisture Conservation Works

M.R.I. included in the C.A. Scheme

(e) Protection (Fencing, watch Man, People's Participation etc.)

(f) Proposed Monitoring Mechanism:-

Department

(g) Any other information:-

Range Forest Officer,
Forest Range Manali

Divisional Forest Officer,
Kullu Forest Division

For the
Range Forest Officer,
Forest Range Manali

Name of

Work: Estimate for the Diversion of forest land, cost of trees in Pvt and Govt land and Dwarf/ herbal plantation along the Right of way of 220 kV S/C transmission line on double circuit towers from Palchan to Allian Dhuangain HPPTCL.

Cost of trees

Total length of transmission line in passing through Govt/ Forest land = 4.431 Km

Cost of the trees in the Govt. Land as per annexure C1 ₹ 35,86,806.

Therefore cost of trees per Km= ₹ 30,66,306.93 Per Km

Less 10 % return on the value of wood after deducting tree felling and stacking charges etc. ₹ 27,59,676.24 Per Km

S. No	Description	Unit	Qty.	Rate	Amount
1	Cost of trees in the forest Land	Km	4.431	₹ 27,59,676.24	₹ 1,22,28,125.4
2	Cost of trees in the Non forest Land	Km	5.953	₹ 27,59,676.24	₹ 1,64,28,352.63
Total:					₹ 2,86,56,478.03


Dy. Manager,
HPPTCL, Sarabai,
Bhunter, Kullu.


Sr. Manager,
HPPTCL, Sarabai,
Bhunter, Kullu.

S. No.	Local name	Scientific name	Class	No.	Volume	Rate	Amount
	(Species)				(cum)	(Rs. cum)	
1.	Deo	Cedrus deodara	V	231	23.10 cum		
			IV	35	14.00 cum		
			III	23	23.00 cum		
			IIA	19	38.10 cum		
			IB	9	27.00 cum		
			IA	2	7.80 cum		
			IB	1	5.10 cum		
			IO	1	8.80 cum		
	Total =			321	144.90 cum	44031-00 per cum	63,50,092-00
2.	Kali	Pinus wallichiana	V	86	8.60 cum		
			IV	45	18.00 cum		
			III	8	9.00 cum		
			IB	2	6.00 cum		
			IA	1	3.90 cum		
			IB	2	10.20 cum		
	Total =			145	55.70 cum	38044-00 per cum	21,19,051-00
3.	Rai	Picea smithiana	V	13	0.78 cum		
			IV	2	0.28 cum		
	Total =			15	1.06 cum	17271-00 per cum	18,307-00
4.	Poplar	Populus ciliata	V	61	1.708 cum		
			IV	6	1.80 cum		
			III	3	2.10 cum		
			IIA	1	1.40 cum		
	Total =			71	7.008 cum	8907-00 per cum	52,420-00
5.	Monaru	Quercus dilatata	V	9	0.252 cum		
			IV	4	1.20 cum		
			III	14	14.00 cum		
			IIA	13	23.40 cum		
			IB	4	12.00 cum		
			IA	3	13.80 cum		
			IB	1	3.40 cum		
	Total =			48	71.052 cum	18000-00 per cum	12,78,936-00
6.	Robinia	Robinia pseudacacia	V	3	0.084 cum		
			IV	1	0.30 cum		
	Total =			4	0.384 cum	3443-00 per cum	1,322-00
7.	Kosh	Ainus nitida	V	14	0.392 cum		
			IV	7	2.10 cum		
			III	2	1.60 cum		
			IIA	2	3.00 cum		
	Total =			25	7.092 cum	3443-00 per cum	24,418-00
8.	Willow	Salix elegans	V	7	0.198 cum		
			IV	4	1.60 cum		
	Total =			11	1.798 cum	3443-00 per cum	6,194-00
9.	Walnut	Juglans regia	V	1	0.028 cum		
	Total =			1	0.028 cum	21683-00 per cum	607-00
10.	Khanor	Aesculus indica	IC	1	7.10 cum		
	Total =			1	7.10 cum	3443-00 per cum	24,445-00
	G. Total =			842	296.12 cum		89,15,782-00
11.	Sapling						
	Deo	Cedrus deodara		248	24.80 cum	44031-00 per cum	10,91,989-00
	Kali	Pinus wallichiana		150	15.00 cum	38044-00 per cum	5,70,660-00
	Rai	Picea smithiana		3	0.18 cum	17271-00 per cum	3,106-00
	Poplar	Populus ciliata		648	23.636 cum	8907-00 per cum	2,10,989-00
	Monaru	Quercus dilatata		15	0.42 cum	18000-00 per cum	7,560-00
	Kosh	Ainus nitida		62	1.736 cum	3443-00 per cum	5,977-00

67

Willow	Salix elegans		8	0.252 cum	3443-00 per cum	868-00
Total =			1333	66.076 cum		18,81,132-00
G. Total =			1375	362.498 cum		1,18,06,914-00
VAT 12.50%						14,75,864-00
Income tax 2.575% on price						3,04,026-00
G. Total =						1,35,86,806-00
(Rs. One crore thirty five lakh eighty six thousand eight hundred and six only)						

- Note: - 1. The above scheme is liable to be corrected as per instruction /Guidelines issued by the Government from time to time.
2. Any bonafide mistake grammatical or otherwise shall be liable to be corrected.

Qm
Range Forest Officer,
Forest Range Mahanadi
Koraput (H.P.)

h
Divisional Forest Officer,
Forest Division Kuliu H.P.

h
Sr. Manager
MPPVCL, Sarabali (Bhanuwar)
Dist. Koraput (H.P.)

h
Sr. Manager
MPPVCL, Sarabali (Bhanuwar)
Dist. Koraput (H.P.)

Name of Work: Estimate for providing Terminal Equipment in A.D. Hydro 220 kV Switchyard at Prini

ABSTRACT OF COST

Sr. No	Description	Amount in lacs
1	Cost of Terminal Equipment as per(Annex- A)	155.98
2	Cost of PLCC equipment as per (Annex. B)	61.43
3	Cost of Civil Works as per(Annex.C)	55
4	Sub Total(1 to 3)	272.41
5	Add 3% contingency charges on (Item No-4)	8.17
6	Sub -Total	280.58
7	Add 11% Departmental charges (Item No-6)	30.86
8	Add service Tax on @ 10.3% on (Item No-7)	3.18
9	Grand Total(6 to 8)	314.62

Say Rs. 3.15 Crores

(Rs. Three Crore and Fifteen Lac only)

T.S.No.-HPPICL-DGM/2/2010
 Scheme Amount - 3.15 Crores
 Chto - 11002 (Scheme)

Sr. Manager (Projects)

Dy. General Manager (Projects)

Name of Work Estimate for the Extension of Allain Dhuangain HEP 220 kV Switchyard at Prini.

Chargable to:

Scheme for the construction of 220 kV S/C Transmission Line on D/C Towers from Palchan to Allain Dhuangain HEP along with construction of 33/220 kV , 50/ 63.5 MVA Sub Station at Palchan and 220 kV (Double Bus) Feeder Bay at Allain Dhuangain HEP.

Cost of Equipments

Sr. No	Description	Unit	220 kV ADDITIONAL BAY (DOUBLE		
			Qty	Rate (Rs Lacs)	Amount (Rs Lacs)
1	Circuit Breaker	No.	1	20.29	20.29
2	Control and Relay Panel	No.	1	11.62	11.62
3	Isolator without Earth blade	No.	2	5.36	10.72
4	Isolator with Earth Blade	No.	1	4.15	4.15
5	Multi Core Multi Ratio Current Transformers	No.	3	4.27	12.81
6	Lightening Arrestor	No.	3	0.45	1.35
7	Augmentation of Battery, Battery Charger, Distribution Board etc.	LS	1	2.5	2.50
8	Sub Station Structures	MT	55	0.76	41.80
	Sub Total - 1				105.24
9	Equipment Structures including Bus Bar, Earthing, Hardware Fitting etc. @ 10 % (on Sub Total 1)				10.52
10	Power and Control Cables, Earthmat , E. I. Etc. @ 13 % (on Sub Total 1)				13.68
11	Spares @ 3%, (on Item 1 to 6)				1.83
12	CST @ 4 %, Transportation @ 5 % & Insurance @ 1 % (Total 10 % on Sub Total 1 above)				10.52
	Sub Total-II				141.80
14	Erection Charges @ 10 %				14.18
	TOTAL				155.98

Dy. Manager,
HPPTCL, sarabai

Sr. Manager,
HPPTCL, sarabai

Name of Work Estimate for the Extension of Allain Dhuangain HEP
220 kV Switchyard at Prini.

Chargable to: Scheme for the construction of 220 kV S/C
Transmission Line on D/C Towers from Palchan to
Allain Dhuangain HEP along with construction of
33/220 kV , 50/ 63.5 MVA Sub Station at Palchan and
220 kV (Double Bus) Feeder Bay at Allain Dhuangain
HEP.

Cost of PLCC equipments

Sr. No.	DESCRIPTION	Qty.	Rate (Rs. Lacs)	UNIT	AMOUNT (Rs. Lacs)
1	220 KV, 0.5MH, 630Amp. Wave Trap complete in all respect.	2	2.70	Set	5.40
2	Coupling device	1	1.07	Set	1.07
3	High frequency co - axial cable .	0.5	1.62	Km	0.81
4	1x4KHZ SSB single channel PLCC Terminal	1	3.20	Set	3.20
5	EPAX (20/10 lines).	1	3.16	Set	3.16
6	Telephone Protection equipment.	1	2.06	Set	2.06
7	220 KV C.V.T with allied accessories	2	3.96	No	7.92
8	48 V Battery 400 AH	1	1.25	No	1.25
9	Battery Charger	2	1.58	No.	3.16
10	48 V Distribution Board	1	1.12	No.	1.12
11	Fibre optic termination equipments	1	11.00	set	11.00
SUB TOTAL(1 to 11)					40.15
12	Spores @ 3%				12.05
SUB TOTAL (Item 1 to 12)					52.20
13	Transportation @ 5%, Insurance @ 1% CST @ 4%, (Total 10%)				5.22
SUB TOTAL					57.41
15	Erection ,commissioning & testing @ 10 % (Item 1 to 11).				4.02
Grand total					61.43

Dy. Manager,
HPPTCL , sarabai

Sr. Manager,
HPPTCL , sarabai

Name of Work Estimate for the Extension of Allain Dhuangain HEP 220 kV Switchyard at Prini.

Chargable to:

Scheme for the construction of 220 kV S/C Transmission Line on D/C Towers from Palchan to Allain Dhuangain HEP along with construction of 33/220 kV , 50/ 63.5 MVA Sub Station at Palchan and 220 kV (Double Bus) Feeder Bay at Allain Dhuangain HEP.

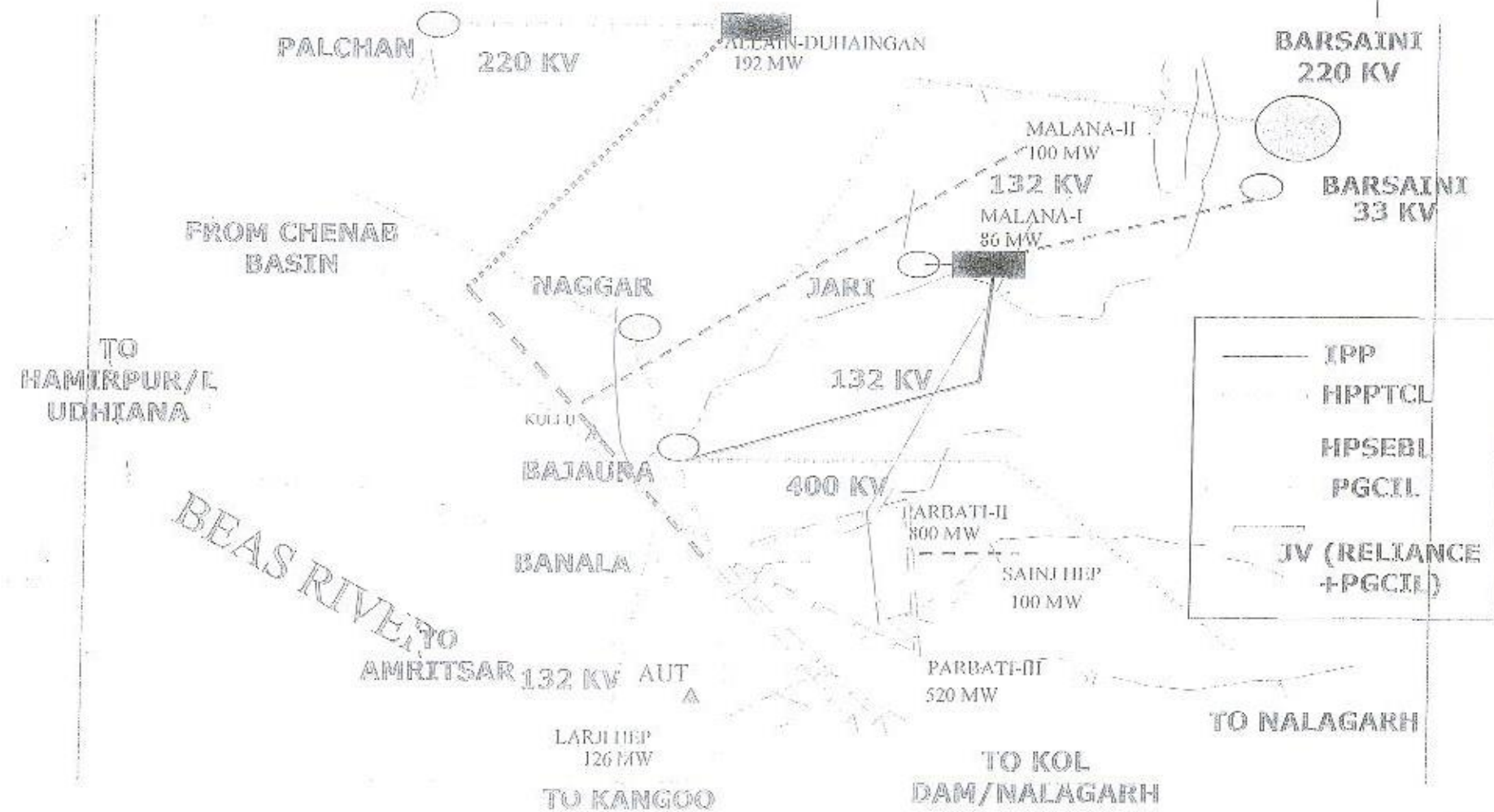
Detail of Civil Works

Sr. No	Description	Unit	220 kV ADDITION AL BAY (DOUBLE BUS BAR)	Rate (Rs Lacs)	Amount (Rs Lacs)
			Qty		
A	Site Development and Preliminary works	LS	1	10	10
B	FOUNDATIONS				
	i) Circuit Breaker	No.	1	1.64	1.64
	ii) Isolator with out Earth Blade	No.	2	0.78	1.56
	iii) Isolator with Earth Blade	No.	1	0.78	0.78
	iv) Multi Core Multi ratio Current Transformers	Set	1	0.53	0.53
	v) Lightning Arrester	Set	1	0.39	0.39
C	Columns Foundation				
	For Double Bus arrangement	No.	6	2.63	15.76
D	Reorientation of Fencing	Job	1	1.34	1.34
E	Cable Trenches	Job	1	9.19	9.19
F	Spreading of Shingles	Job	1	0.68	0.68
G	Addition & Alteration in existing Control Room Building	Job	1	13.13	13.13
	Total				55.00

Dy. Manager,
HPPTCL, sarabai

Sr. Manager,
HPPTCL, sarabai

PLATE A



Sr. No.	NAME OF INTERFACING SUBSTATION	NAME OF PROJECTS	VOLTAGE KV	ALLOTTED YES / NO	CAPACITY	TARGETTED COD	
1	33 / 11 KV SUBSTATION AT PLCHAN	MARHI	33	YES	5.00	Commissioned	
		BEAS	33	YES	2.25	2010-11	
		SOLANG	33	YES	2.00	Commissioned	
		TOTAL - 1			9.25		
		NOTE	THESE PROJECTS ARE BEING EVACUATED THROUGH EXISTING N33 KV NETWORK OF HPSEBL				
2	220 / 33 KV PROPOSED SUB SUB STATION AT PALCHAN	PALCHAN	33	YES	1.50	2015-16	
		BEAS KUND	33	YES	9.00	2010-11	
		PALCHAN BHANG	33	YES	9.00	2015-18	
		BHANG	33	YES	9.00	2012-13	
		BAGGI NALLAH	33	YES	1.50	2015-16	
		Halindi	33	YES	1.80	2015-16	
		Malgir	33		3.00	2015-18	
		Sesai	33		2.00	2015-18	
		Snang	33		1.00	2015-16	
		Shang Top	33		1.00	2015-16	
		Beaskund-II	33		4.90	2015-16	
		Kahnora	33		2.00	2015-16	
		Khanor Syander	33		2.00	2015-16	
		Rallah	33		1.50	2015-16	
		TOTAL - 2			49.00		

YEARWISE INJECTION (MW)

YEAR	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
MW	9.00	0	9	0	0	31
Cumulative	9	9	18	18	18	49

ANNEXURE-C

CALCULATION OF TARIFF FOR USAGE OF 33/220 KV PALCHIAN SUB STATION AND CONNECTING 220 KV LINE UP TO AD HYDRO YARD

ESTIMATED PROJECT COST	76.44 CRORES	PLF	45	CAPACITY INJECTION (MW)	CUMULATIVE CAPACITY INJECTION (MW)	COMPUTATION OF IDC								INVESTMENT DURING THE YEAR	INTEREST DURING THE YEAR
						YEAR	YEARWISE PHASING OF CAPITAL COST	ANNUAL ESC @10%	ESCALATED COST	INVESTMENT AT THE BEGINNING OF					
CAPITAL COST INCLUDING IDC AND ESCALATION	81.4 CRORES					2010-11	26.4	0	26.4	0				26.4	1.0
LOAN	56.15 CRORES	LLF	0.252	9	9	2011-12	50	0	50	26.4				50	4.0
EQUITY	25.23 CRORES			9	18	2012-13									
REPAYMENT PERIOD	15 YEARS			0	18	2013-14									
1/C 3 year moratorium				0	18	2014-15									
Interest on W.C.	11 %			31	49	2015-16									
ANNUAL INTEREST	11 %				49	TOTAL	76.4	0	76.4					76.4	4.97
CAPITAL COST EXCLUDING COST OF LAND (LAND COST @5%)	77.31														

Moratorium			5 Years					working capital				Interest on working capital @ 11.5%	Total annual charges (4+5+6+7+12)	Units Injected (Mus) (CoL 17*11.13*(5+5+60)*8.76)	Units Lost in the STU System (Transformer loss 0.5%, Line Loss)	Units considered for Tariff determination (14-15)	Tariff (Rs/Kwh)	Capacity Injected (MW)
Year of Operation	Loan outstanding at the beginning of the year	Loan repayment	Depreciation (excluding cost of land)	Interest @12% on outstanding loan	ROE @14 % i/c corporate tax	O&M @1.5% with annual escalation @4%	O&M charges for 1 month	Maint. Spares @ 1% of capital cost with 4% escalation	2 months receivable	working capital								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
2011-12	56.15		0.90	6.18	3.98	1.27	0.10	0.81	0.00	0.92	0.10	12.38	0.00	0.00	0.00	0.00	0.00	0.00
2012-13	56.15		0.90	6.18	3.98	1.27	0.11	0.85	1.10	2.05	0.23	12.55	69.80	0.37	69.43	1.81	18.00	
13-14	56.15		0.90	6.18	3.98	1.32	0.11	0.88	1.10	2.09	0.23	12.60	69.80	0.37	69.43	1.82	18.00	
14-15	56.15		0.90	6.18	3.98	1.37	0.11	0.92	1.10	2.15	0.23	12.66	69.80	0.37	69.43	1.82	18.00	
15-16	56.15	5.61	5.61	6.18	3.98	1.43	0.12	0.95	2.99	4.06	0.45	17.63	190.01	1.07	188.94	0.83	49.00	
16-17	50.53	5.61	5.61	5.59	3.98	1.49	0.12	0.99	2.99	4.11	0.45	17.09	190.01	1.07	188.94	0.83	49.00	
17-18	44.92	5.61	5.61	4.94	3.98	1.54	0.13	1.03	2.99	4.15	0.46	16.54	190.01	1.07	188.94	0.83	49.00	
18-19	39.30	5.61	5.61	4.32	3.98	1.61	0.13	1.07	2.99	4.20	0.46	15.99	190.01	1.07	188.94	0.83	49.00	
19-20	33.69	5.61	5.61	3.71	3.98	1.67	0.14	1.11	2.99	4.24	0.47	15.44	190.01	1.07	188.94	0.82	49.00	

20-21	28.07	5.61	5.61	3.09	3.98	1.74	0.14	1.16	2.99	4.29	0.47	14.90	190.01	1.07	188.94	0.79	49.00
21-22	22.46	5.61	5.61	2.47	3.98	1.81	0.15	1.20	2.99	4.35	0.43	14.35	190.01	1.07	188.94	0.76	49.00
22-23	16.84	5.61	5.61	1.85	3.98	1.88	0.16	1.25	2.99	4.40	0.43	13.81	190.01	1.07	188.94	0.73	49.00
13	11.23	5.61	5.61	1.24	3.98	1.95	0.16	1.30	2.99	4.46	0.49	13.28	190.01	1.07	188.94	0.70	49.00
14	5.61	5.61	5.61		3.98	2.03	0.17	1.35	2.99	4.52	0.50	12.13	190.01	1.07	188.94	0.64	49.00
15			0.90		3.98	2.11	0.18	1.41	2.99	4.58	0.50	7.49	190.01	1.07	188.94	0.40	49.00
16			0.90		3.98	2.20	0.18	1.47	2.99	4.64	0.51	7.59	190.01	1.07	188.94	0.41	49.00
17			0.90		3.98	2.29	0.19	1.52	2.99	4.71	0.52	7.68	190.01	1.07	188.94	0.41	49.00
18			0.90		3.98	2.38	0.20	1.59	2.99	4.77	0.53	7.78	190.01	1.07	188.94	0.41	49.00
19			0.90		3.98	2.47	0.21	1.65	2.99	4.85	0.53	7.88	190.01	1.07	188.94	0.42	49.00
20			0.90		3.98	2.57	0.21	1.71	2.99	4.92	0.54	7.99	190.01	1.07	188.94	0.42	49.00
21			0.90		3.98	2.67	0.22	1.78	2.99	5.00	0.55	8.10	190.01	1.07	188.94	0.43	49.00
22			0.90		3.98	2.78	0.23	1.85	2.99	5.08	0.55	8.22	190.01	1.07	188.94	0.43	49.00
23			0.90		3.98	2.89	0.24	1.93	2.99	5.16	0.57	8.34	190.01	1.07	188.94	0.44	49.00
24			0.90		3.98	3.01	0.25	2.01	2.99	5.25	0.58	8.46	190.01	1.07	188.94	0.45	49.00
25			0.90		3.98	3.13	0.26	2.09	2.99	5.34	0.59	8.59	190.01	1.07	188.94	0.45	49.00
												AVERAGE				0.72	

APPENDIX-II

Sr No	Description	Amount- Rs Crore	Page No
1	220/33 KV GIS Sub-Station at KARIAN	47.97	41
2	220KV connecting Line from Karian to Rejera i.e 400/220 KV PGCIL Switch Yard	4.09	52
	TOTAL	52.06	

COST ESTIMATE OF 33/220 KV , 50/63 MVA.

ATION AT KARIAN

ABSTRACT OF COST

Sr. No.	DESCRIPTION	AMOUNT
	COST OF EQUIPMENT	
1	COST OF 220/33KV GIS EQUIPMENT (ANNEXURE -A 1)	249819842
2	COST OF TRANSFORMER (ANNEXURE - 2) 50/63 MVA 33/220 KVA	40300000
3	SWITCHYARD EQUIPMENTS (ANNEXTURE 3)	1350698
4	AUTOMATION SYSTEM, CONTROL AND RELAY PANEL (ANNEXURE - A4)	17361800
5	LIT SWITCHGEAR, BATTERIES, BATTERY CHARGER SYSTEM, EARTH MAT (ANNEXURE - A5)	21533017
6	MANDATORY SPARES (ANNEXURE - A6)	5691575
7	ALLIED WORKS SUCH AS AC VENTILLATION, FIRE PROTECTION, ILLUMINATION CONTROL CABLE ETC. (ANNEXURE - A7)	17393822
8	Sub-Total (1-7)	353450754
9	COST OF ERECTION AND SUPERVISION CHARGES @ 23 % (ON ITEM NO 1-7)	81,293,673
10	Sub-Total (8-9)	434,744,427
11	SITE DEVELOPMENT OF SUB-STATION (ANNEXURE-A8)	31,000,000
12	Sub-Total (10-11)	465,744,427
13	ADD 3% CONTIGENCY CHARGES (ON ITEM NO-12)	13972333
	GRAND TOTAL	479,716,760
	Say 47.97 Crore	

T.S.No. - HPPTCL/GM-3/2010
Sanctioned Amount - 47.97 Crores
Chgo: - 34001 (Scheme)

DGM (Projects)

Gm (Projects)

DETAIL OF GIS EQUIPMENT

S. No.	Description	Unit	Rate	Qty	Amount
A	245kv GIS EQUIPMENTS				
1	245kV, 1600A, SF6 gas insulated TRANSFORMER bay module each comprising of SF6 gas insulated circuit breaker, current transformer, two bus-bar disconnectors with grounding switch, Surge arrestors (195 kV), SF6 gas monitoring system for complete bay, LCC, Three 1- phase SF6 ducts and SF6/Oil bushing to connect to 220/33 kV, 25/31.5 MVA Transformer and accessories with GIS etc. to complete Transformer Bay Module.	Set	44263071	1	44263071
2	245kV, 2000A, 50 KA SF6 gas insulated Feeder Bay Module each comprising of SF6 gas insulated circuit breaker, current transformer, two bus-bar disconnectors with grounding switch, Line disconnector with safety grounding switch, high Speed fault making grounding switch,, SF6 gas monitoring system for complete bay LCC, GIS Ducts and SF6/oil bushing termination enclosures accessories with GIS etc. to complete feeder bay modules.	Set	42300940	1	42300940
3	245kV, 4000A, 50 KA SF6 gas insulated Bus Coupler Bay Module comprising of SF6 gas insulated circuit breaker, current transformers two disconnectors switches, safety grounding switches, SF6 gas monitoring system for the complete bay LCC etc.	Set	25409337	1	25409337
4	245kV, 4000A 50 KA, 3 single phase (isolated), SF6 gas insulated, metal enclosed bus bars each unit, enclosed in bus enclosures running along the length of the switchgear to each of the circuit breaker bay module. Each bus bar set shall be complete with voltage transformer, complete with safety grounding switch, local control cubicle, SF6 gas monitoring system for the complete bus etc.	Set	28409090	2	56818180

Assistant Engineer (E),
H.P. Power Transmission Corpn. Ltd.,
Zarowalia House, Khalini, Shimla-2.

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Zarowalia House, Khalini, Shimla-2

B 33KV GIS EQUIPMENTS					
1	33kV, 1600A, SF6 gas insulated Transformer bay module each comprising of SF6 gas insulated circuit breaker, current transformer, two No bus-bar disconnectors with common grounding switch, safety grounding switches, Surge arrestors, local control cubicle, SF6 gas monitoring system for complete bay, gas insulated terminal connection for connecting ICT (XLPE cable/SF6) through XLPE cable with cable end box and accessories with GIS etc. to complete Transformer Bay Module.	Set	3312460	1	3312460
2	33 kV XLP 300 sq mm cable for above interconnection.	LS	1931320	1	1931320
3	36kV, 1600A, SF6 gas insulated feeder bay module each comprising of SF6 gas insulated circuit breaker, current transformer, two bus-bar disconnectors with grounding switch, line disconnector with safety grounding switch, SF6 gas monitoring system for complete bay, gas insulated terminal connection for connecting Overhead line (Air/SF6) with GIS through gas insulated interconnection bus (2000A rating) etc. to complete Feeder Bay Module.	Set	3835165	6	23016990
4	36kV, 2000A, 40 KA for 3 seconds, SF6 gas insulated metal enclosed bus bars each enclosed in three individual bus enclosures running along the length of the switchgear to interconnect each of circuit breaker bay module. Each bus bar set shall be complete with voltage transformer, disconnectors with grounding switch, local control cubicle, SF6 gas monitoring system for the complete bus etc.	Set	3255630	2	6511380
5	36kV, 2000A, SF6 gas insulated, bus coupler bay panel each comprising of SF6 gas insulated circuit breaker, current transformer two no Disconnector, SF6 gas monitoring system for complete panel.	set	3277678	1	3277678
6	36kV, 630A, SF6 gas insulated 250 kVA L.T. Transformer Panel, each comprising of SF6 Gas Insulated Circuit Breaker, Current Transformer, Two Nos. of Bus Bar disconnector with grounding switch, local control cubicle, SF6 gas monitoring system for the complete panel.	set	2849372	1	2849372
Sub-Total					209,710,728
C	Testing and maintenance Equipment for GIS				
i	SF6 Gas processing Unit	Set	5038530	1	5038530
ii	Partial Discharge Monitoring System	Set	3662930	1	3662930
D	Mandatory Spares for 220 & 33kV GIS	LS	31409654	1	31409654
G/Total: -					249,813,842

Assistant Engineer (E),
K.P. Power Transmission Corpn. Ltd.,
Barowalia House, Khalin, Shimla-2

Senior Engineer (Protection) - E.T.
K.P. Power Transmission Corpn. Ltd.,
Barowalia House, Khalin, Shimla-2

Annexure- A2

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station at KARIAN (Chamba)

DETAIL OF TRANSFORMERS

S. No.	Description	Unit	Rate	Qty	Amount
1	50/63 MVA, 33/220 KV Three Phase Transformer with complete accessories.	No.	40,300,000	1	40,300,000
			Total: -		40,300,000

Assistant Engineer (3),
H.P. Power Transmission Corpn. Ltd.
Barowala House, Khasini, Shimla-1

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowala House, Khasini, Shimla-1

Annexure- A3

NAME OF WORK : Construction of 33/220 kV GIS Sub-Station KARIAN (Chamba)

DETAIL OF SWITCHYARD EQUIPMENT

S. No.	Description	Unit	Rate	Qty	Amount
1	245KV Equipments				
i	198kv/216 kV surge arrester	No.	83,087	6	498,522
ii	4400pF Capacitive Voltage Transformer	No.	426,088	2	852,176
ii					
			Total: -		1,350,698

Assistant Engineer (S),
H.P. Power Transmission Corp. Ltd.
Barowalia House, Khatini, Shimla-2

Asst. Engineer (Projects),
H.P. Power Transmission Corp. Ltd.
Barowalia House, Khatini, Shimla-2

NAME OF WORK : Construction of 33/220 kV GIS Sub-Station KARIAN (Chamba)

DETAIL OF AUTOMATION EQUIPMENT AND CONTROL & RELAY PANELS

S. No.	Description	Unit	Rate	Qty	Amount
A)	Complete Sub-station Automation System including hardware and software for the Sub-Station and remote control station along with associated equipment.		9,801,800	1	9,801,800
B)	220KV Control and Relay Panels (Feeder, T/F's & Bus Coupler) 3 Nos.	Set	1,053,000	3	3,159,000
C)	33KV C & R PANEL (Feeder Panel, & T/F's) 7 Nos.	Set	260,000	7	1,820,000
D)	PLCC Equipment (Coupling Device, HF Cable, Carrier Equipment and EPBAX).	Set	2,781,000	1	2,781,000
			Total: -		17,561,800

Assistant Engineer (E),
H.P. Power Transmission Corpn. Ltd.
Barowalla House, Khaloli, Shimla.

Assistant Engineer (E) (P) (C) & S
H.P. Power Transmission Corpn. Ltd.
Barowalla House, Khaloli, Shimla.

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station KARIAN

DETAIL OF LT SWITCHGEAR, BATTERIES, BATTERY CHARGERS, EARTH MAT & STEEL STRUCTURE					
S. No.	Description	Unit	Rate	Qty	Amount
A	LT Switchgear				
1	415 V AC main Switchboard	Set	3311527	1	3311527
2	415 V AC Distribution Board	Set	1524832	1	1524832
2	220 V DC Distribution Board	Set	593809	2	1187618
3	48 V DCDB	Set	378759	2	757518
B	Batteries & Battery Charger				
1	Batteries 220 kv, 400AH	Set	681910	2	1363820
2	Battery Charger system 220V	Set	512624	2	1025248
3	48 V 400 AH	Set	148761	2	297562
4	Battery Charger system 48V	Set	381488	2	762976
5	Earth mat	Set	4800000	1	4800000
6	Switchyard Steel Structure	Set	4515000	1	4515000
7	DG Set along with Control Panel 100 KVA 440 V.	Set	1986916	1	1986916
			Total: -		21,533,017

Assistant Engineer (E),
H.P. Power Transmission Corp. Ltd.
Barowalla House, Khaliali, Shikhar

3rd Manager (Project)
H.P. Power Transmission Corp. Ltd.
Barowalla House, Khaliali, Shikhar

Annexure- A6

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station KARIAN (Chamba)

DETAIL OF SPARES

S. No.	Description	Unit	Rate	Qty	Amount
	MANDATORY SPARES				
a)	220KV CVT	No.	426,088	1	426,088
b)	198/216kV Surge Arrestor	No.	83,087	1	83,087
c)	Batteries	No.	415,350	1	415,350
d)	Battery Charger	No.	347,050	1	347,050
e)	Relay & Protection	No.	2,270,000	1	2,270,000
f)	Sub station automation system	No.	1,500,000	1	1,500,000
g)	PLCC	No.	650,000	1	650,000
			Total: -		5,691,575

Assistant Engineer (E),
H.P. Power Transmission Corpn. Ltd.,
Barowalia House, Khalin, Shimla-2

Senior Engineer (Project) of
H.P. Power Transmission Corpn. Ltd.,
Barowalia House, Khalin, Shimla-2

Annexure- A7

NAME OF WORK : Construction of 33/220 KV GIS Sub-Station KARIAN (Chamba)

DETAIL OF ALLIED WORKS SUCH AS AC & VENTILATION, FIRE PROTECTION, ILLUMINATION ETC

S. No.	Description	Unit	Rate	Qty	Amount
A	AC & Ventilation System	Set	2481822	1	2,481,822
B	Fire Protection System	Set	1,381,000	1	1,381,000
C	Illumination System	Set	4,014,000	1	4,014,000
D	CONTROL CABLE	LS	2,454,000	1	2,454,000
E	Miscellaneous items, earthing materials and erection hardware such as bus post insulators, insulator string, disc insulators, Hardware, spacers, conductor(s), cable trays, hardware, clamps, connector including junction box, earthwire, lightning protection, buried cable trenches / pipes for equipment and lighting, all accessories etc for completion of scope	LS	3,493,000	1	3,493,000
F	EOT Crane for GIS Building	No's	600,000	2	1,200,000
G	Mandatory Spares for:-				
a	Fire fighting system	LS	300,000	1	300,000
b	AC & Ventilation system	Ls	70,000	1	70,000
c	illumination	LS	300,000	1	300,000
H	L T Transformers (250 kVA, 33/0.44kV along with HT Switchgear)	No.	1,700,000	1	1,700,000
			Total: -		17,383,822

Architect Engineer (E),
H.P. Power Transmission Corpn. Ltd.,
Barowalia House, Khalini, Shimla-5

S. Singh (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowalia House, Khalini, Shimla-5

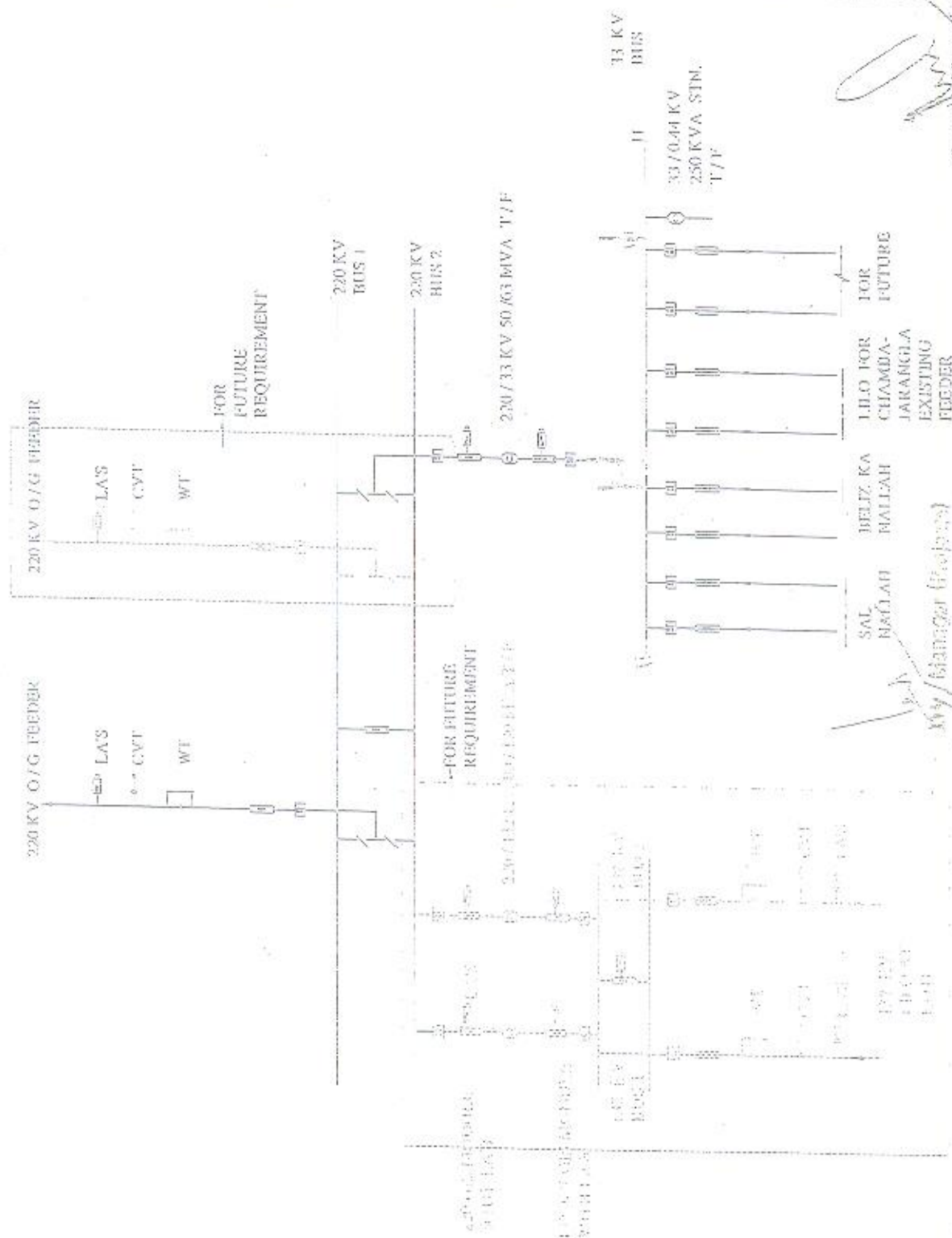
NAME OF WORK : Construction of 33/220 kV GIS Sub-Station KARIAN (Chamba)
CIVIL WORKS

S. No.	Description	Unit	Rate	Qty	Amount
1	Site development of Sub-Station such as approach road retaining walls/breast walls	LS	LS	LS	18000000
2	Sub-Station control room buildings	LS	LS	LS	5000000
3	220/33 kV GIS control room Building	LS	LS	LS	8000000
			Total		31000000

Assistant Engineer (G),
M.P. Power Transmission Corporation Ltd.
Barowalia House, Khatoli, Shimla

Chief Engineer (Protection)
M.P. Power Transmission Corporation Ltd.
Barowalia House, Khatoli, Shimla

SINGLE LINE DIAGRAM FOR 220/132/33 KV GIS S/S IN AT KARIAN (CHAMBA)



144. Peter Frenkelstein (Sage, Ind.,
Electrodeless Fluores. Lamps, Bureau of

ANNEXURE - B

ABSTRACT OF COST

Name of Work:- Construction of 220 KV D/C line from Karian to Rajera. (SNOW ZONE)

Sr.No.	Description	QTY	Rate (Rs/Lacs)	Unit	Amount (Rs. Lacs)
1	i) Preliminary Works (Annexure- B 1)	1.00	0.20	Job	0.20
	ii) Preliminary Survey (Annexure - B2)	3.50	0.26	KM	0.89
	iii) Detailed Surveying (Annexure- B 3)	3.50	0.71	KM	2.50
2	Compensation for land Trees, Crops, Tree cutting and afforestation (Annexure- B4)	3.50	1.65	KM	5.75
3	Transmission Line (Annex. B5)	3.50	89.24	KM	242.33
4	NVP Charges (Hect= Length of line in Mts.X35X 85% / 10000)	10.41	8.50	Hect	88.51
5	Workshop machinery (Annexure- B6)	1.00	17.81	Job	17.81
	TOTAL (Item 1 to 6)				357.81
6	Contingencies @ 3%				10.73
	TOTAL (Item 1 to 7)				368.54
7	Establishment, Design charges, A&A, MTC during Const., Losses on Stock, Design & -O Prorate expenses (Total 11%)				40.54
	GRAND TOTAL				409.08

Say 4.09 Crores.


 Asst. Executive Engineer (Elect.)
 H.P. Power Transmission Corpn. Ltd.
 Barowalia House, Khetini, Shimla-2


 Senior Manager (Projects)
 H.P. Power Transmission Corpn. Ltd.
 Barowalia House, Khetini, Shimla-2

COST FOR TEMPORARY SHEDS AT EACH CAMPING SITE

Annexure-B 1

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
1	Temporary Sheds of CGI Sheets on sides and top with wooden ballies posts and Wooden Rafters	100	850	Sq.Mtr	85000.00
2	One Swiss Engineer Cottage Engineer tent (3.65 x 3.65)	1	9000	No	9000.00
3	1 Labour tent for Chowkidars Double Ply	1	8000	Nos	8000.00
4	Area Fencing with Angle iron/ wooden Posts and barbed wire etc.	1	35000	LS	35000.00
5	Miscellaneous Tools for setting up Camp	1	20000	LS	20000.00
6	Total Cost of Each Camp				157000.00
7	One temporary shed for workshop and store	50	850	Sq.Mtr	42500.00
8	TOTAL COST PER 10 KMS				199500.00

Say Rs 2.00 Lacs only


Asstt. Executive Engineer (Elect.)
H.P. Power Transmission Co-pn. Ltd.
Barwala House, Khatini, Shimla-2


Senior Manager (Projects)
H.P. Power Transmission Co-pn. Ltd.
Barwala House, Khatini, Shimla-2

COST FOR RECONNAISSANCE AND PRELIMINARY SURVEY OF 220 KV LINE

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
	RECONNAISSANCE AND PRELIMINARY SURVEY OF 1KM. LINE				
A	<u>SURVEYING PARTY</u>				
(i)	Surveyor (Regular)	1	13750	No	13750
(ii)	Beldar (Daily Wages)	6	8125	Nos	48750
(iii)	Chowkdar (Daily Wages)	2	8125	Nos	16250
			Total		78750
	Therefore labour for Reconnaissance and Primary survey for 1 km. Line Assuming 8 days for 1 km and 25 working days in a month				25200
B	Wooden pegs	16	20	Nos	320
	Sub-Total				25520
	Therefore cost of conducting Preliminary survey per Km. Length				25520

Say Rs

0.25

Lacs only

Asstt. Executive Engineer (Elect.)
H.P. Power Transmission Corpn. Ltd.
Barowalia House, Khatim, Shimla-2

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowalia House, Khatim, Shimla-2

COST OF DETAILED SURVEYING OF 220 KV LINE

Annexure-B3

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
A	<u>SURVEYING PARTY</u>				
	(Assuming 8 days for conducting of survey of 1 km of line)				
(i)	Surveyor (Regular)--25% increase on A/C of Tribal area	1	13750	No	13750
(ii)	Beldar (Daily Wages)	6	8125	Nos	48750
(iii)	Chowkidar (Daily Wages)	2	8125	Nos	16250
			Total		78750
(iv)	Labour for 8 days (Assuming 25 working days in a month)				25200
(v)	Wooden pegs	16	20	Nos	320
	Sub-Total:				25520
B	<u>Stacking (Unit 1 Km of line)</u>				
(i)	Surveyor (Regular)	1	13750	Nos	13750
(ii)	Beldar (Daily Wages)	12	8125	Nos	97500
(iii)	Chowkidar (Daily Wages)	2	8125	Nos	16250
	Sub Total(B)				127500
(iv)	Labour for 8 days (Assuming 25 working days in a month)				40800
(v)	Stone Marking Pillars	12	250	Nos	3000
	Total (B(iv)+B(v))				43800
C	<u>Transportation</u>				
	Camp Shifting Etc.				2000
	Total (A+B+C)				71320

Say Rs

0.713

Lacs only

Asstt. Executive Engineer (Elect.)
M.P. Power Transmission Corp. Ltd.
Banswalia House, Khelna, Shimla-2.

Junior Manager (Projects)
M.P. Power Transmission Corp. Ltd.
Banswalia House, Khelna, Shimla-2.

Annexure-B 4

COST OF COMPENSATION FOR LAND, TREES, CROPS, TREE CUTTING AND AFFORESTATION FOR 220KV D/C LINE

Sr. No	Description	Qty	Rate (Rs. In Lacs)	Unit	Amount Rs (In Lacs)
1	Compensation for tree cutting and afforestation	1	0.25	Kms	0.25
2	Compensation for land falling under the towers and rent for camping site	1	0.6	Kms	0.6
3	Compensation to damage to crops under the line	1	0.25	Kms	0.25
4	Re-engineering of HT/LT lines	1	0.3	Kms	0.3
5	Re-engineering of Telecom lines	1	0.25	Kms	0.25
			Total	Rs.	1.65


 Asstt. Executive Engineer (Elect)
 H.P. Power Transmission Co. Ltd.
 Barowalia House, Kharini, Smt. Id-2


 Senior Manager (Projects)
 H.P. Power Transmission Co. Ltd.
 Barowalia House, Kharini, Smt. Id-2

BREAK UP ESTIMATE FOR 1 KM OF 220 KV D/C LINE (SNOW ZONE)

Appendure-B5

Conductor size= (ACSR 54/7/3.19mm)
Earth Wire Size= 7/3.15 mm GSS 110 Kg
Normal Span= 350 mts.

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
1	Steel for Towers (Prefabricated galvanised/ Painted) (Annex. B5(a))	33.63	75500	MT	2539171
2	Nuts and bolts (Annex.E-12 a)	1,735	92900	MT	160393
3	Tower Accessories (Annex. B5(a))				35844
4	Conductor (Allowing 1.5% for Sag and wastage)	6.09	195568	Km	1209279
5	Conductor Accessories (Annex. B5(c))				22312
6	Ground Wire Allowing 1.5% for Sag and Wastage	1,015	22131	Km	22463
7	Ground Wire Accessories (Annex B5(c))				6831
8	INSULATORS (Annex. B5(e))				
	i) Suspension	13.5	367	Nos	4955
	ii) Tension	259.2	367	Nos	95126
	iii) For Jumpers	30	367	Set	11010
9	INSULATOR HARDWARE				
	i) Suspension (Suspension Towers*3*2)/10	0.9	2706	Set	2435
	ii) Tension (Tension Towers*3*2*2)/10	26	2706	Set	70356
	iii) For Jumpers (Tension Towers*3)/10	2	2706	Set	5412
	Sub Total(1 to 8)				4186360
10	Transportation @ 3%, Insurance @ 1% and CST @ 4%, (Total 10% on Item 1 to 10)				418599
	Sub Total(1 to 10)				4604959
11	Add Storage @ 3%				138138
12	Erection Charges (As per Ann. B5(f))				1568562
13	Average cost of R/WaIs/B/WaIs @ 75% of Towers	2.25	272157.00	Cu. Mt.	612353.25
	GRAND TOTAL				6923842

Bay Rs 69.24 Lacs only

Asstt. Executive Engineer (Elect.)
H.P. Power Transmission Co. p. Ltd.
Barowalia House, Khalin, Shimla-2

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowalia House, Khalin, Shimla-2

DETAILED ANALYSIS FOR TOWER WEIGHT, CONCRETE FOR FOUNDATION AND EXCAVATION FOR 220 KV DC TOWERS

1	Length of Span=	350	Mtr.		
2	No. of Towers per 10 Km				
	Type of Tower	Normal Tower	Tower with 3 mtr extrn.	Tower with 6 mtr extrn.	Total
	A (0-2)	3			3
	B (2-15)	3	1	1	5
	C (15-30)	10	1	1	12
	D (30-60)	8	1		10
	Total	24	2	2	30

3	No. of Tower Foundation / 10 Kms Normal Soil	A-Type	B-Type	C-Type	D-Type
		3	5	12	10

4 WEIGHT FOR TOWERS/ STUB/ STUB SETTING TEMPLATES IN MT

Type of Tower	Wt. Of Normal Tower	Wt. Of 3 mtr. Extrn.	Wt. Of 6 mtr. Extrn.	Wt. Of SST (1/2 No. for Each type)	Wt of Stubs
A (0-2)	4.235	0.000	0.000	0.216	0.549
B (2-15)	43.435	1.200	2.025	0.275	1.52
C (15-30)	121.764	1.350	2.475	0.286	4.296
D (30-60)	132.750	1.485	2.723	0.336	5.39
Total	312.18	4.035	7.223	1.117	11.755

5 WEIGHTS OF NUTS AND BOLTS FOR TOWERS, STUB SETTING TEMPLATES AND STUBS IN MT

Type of Tower	Normal Tower	3 Mtr. Extrn.	6 Mtr. Extrn.	SSTs	Stubs
A	1.018	0.000	0.000	0.010	0.009
B	2.379	0.036	0.066	0.011	0.025
C	6.734	0.036	0.071	0.012	0.060
D	6.678	0.070	0.000	0.015	0.100
Total	16.809	0.142	0.137	0.048	0.194

6 VOLUME OF CONCRETE AND EXCAVATION FOR TOWER FOUNDATION

Type of Tower	No. of Tower Foundations / 10 kms	Volume of Excavation (Cu. Mtr.) Normal Soil	Volume of Concrete (M ³)
A	3	106	10.5
B	5	334	39
C	12	1393	208
D	10	1817	362
Total	30	3650	619.5

Asstt. Executive Engineer (Elect.)
H.P. Power Transmission Corpn. Ltd.
Barowalia House, Khalin, Shimla-2

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowalia House, Khalin, Shimla-2

7	Weight of Steel for Towers per 10 Kms	323.44	MT
8	Weight of Steel for Towers per Kms	32.34	MT
9	Weight of Nuts and Bolts for 10 Kms	17.08	MT
10	Weight of Nuts and Bolts per Kms	1.71	MT
11	Weight of Steel for Stubs and SSTs for 10 Kms	12.872	MT
12	Weight of Steel for Stubs and SSTs for 1 Kms	1.287	MT
13	Weight of Nuts and Bolts for Stubs and SSTs for 10 kms	0.242	MT
14	Weight of Nuts and Bolts for Stubs and SSTs for 1 kms	0.0242	MT
15	Total Weight of steel for Towers Per km (8+12)	33.63	MT
16	Total Weight of nuts and Bolts for Towers and SSTs (10+14)	17.33	MT
17	Volume of Concrete for 10 Kms	619.5	Cu- Mt.
18	Volume of Concrete for 1 Kms	61.95	Cu- Mt.
19	Volume of Excavation and backfill per 10 Kms a) Normal Soil	3650	Cu- Mt.
20	Volume of Excavation and backfill per 1 Kms a) Normal Soil	365.00	Cu- Mt.


Asstt. Executive Engineer (Elect.)
H.P. Power Transmission Corpn. Ltd.
Bhawalia House, Khalini, Shimla-2


S. Mor Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Bhawalia House, Khalini, Shimla-2

DETAIL OF TOWER FIXTURE FOR 220 KV D/C LINE

Annexure-B5(b)

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
1	Earthing Material (Piles Type)	20	2075	Nos	82250
2	Counterpoise type	5	4281	Nos	21405
3	Danger Plates	30	402	Nos	12060
4	Number Plates	30	441	Nos	13230
5	Bird Guard for towers Towers	3	255	Sets	777
6	Phase Plates	60	220	Sets	13200
7	Anti Climbing Devices (No barbed wire)	30	7754	Nos	235520
	Total Cost per 10 Kms				358442
	Cost per Km				35844.2

Say Rs. 35844

Annexure-B5(c)

DETAIL OF CONDUCTOR ACCESSORIES FOR 220 KV D/C LINE

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
1	Preformed Anchor rods sets complete with Nuts for Suspension Towers (3 x3)	18	1038	Nos	18684
2	Stock Bridge vibration Damers (50x2x3 (2x3))	350	351	Nos	122850
3	Mid Span Compression Joints (Assuming drum length 170 Mtrs.)	50	435	Nos	21750
4	Repair Sleeves	50	208	Nos	10400
5	Other Mat. like PG clamps binding wire etc.	15			21915
	Total Cost per 10 Kms				223119
	Cost of conductor Accessories per Km				22311.9

Say Rs. 22312

Asstt. Executive Engineer (Elect.)
H.P. Power Transmission Corpn. Ltd.
Barowalla House, Khatoli, Shimla-2

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowalla House, Khatoli, Shimla-2

EARTHWIRE ACCESSORIES

ANNEXURE - B5(d)

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
1	Mid Span Compression Joint Assembly (Assuming average drum length as 1450Mtrs.)	7	182	Nos	1274
2	Suspension Assembly for GSS Wire 7/3.15 mm (Suspension Towers x 1)	3	253	Nos	759
3	Compression Type Tension Assembly for GSS Wire 7/3.15 mm with Terminal Jumpers (Tension Towers x 2)	54	102	Nos	5508
4	Flexible grounding Leads for Earthing GSS Wire	54	405	Nos	21870
5	Binding Pieces for one for Suspension Towers & 2 for Tension Towers (3+ 32*2)	67	354	Nos	23718
6	Stock Bridge vibration Dampers (Towers x 2)	60	253	Nos	15180
	Total Cost for 10 Kms				68308
	Cost for 1 Km				6831


 Asst. Executive Engineer (Elect.)
 H.P. Power Transmission Corpn. Ltd.
 Barowalia House, Khatola, Shimla-2

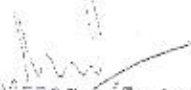

 Senior Manager (Projects)
 H.P. Power Transmission Corpn. Ltd.
 Barowalia House, Khatola, Shimla-2

Annexure-B5(e)

Quantities of insulators and hardware for 220 KV D/C Transmission Line

A	1 No. of Suspension towers per 10 Kms.	3	Nos
	2 No. of disc insulators for each suspension strings.	18	Nos
	3 No. of suspension strings per 10 Kms. (Suspension Towers*3no Hardware for each Tower)*Circuits	18	Nos
	4 No. of suspension hardware per 10 Kms. (Suspension Towers*3no Hardware for each Tower)*Circuits	18	Nos
	5 No. of suspension hardware per Km.	1.8	No
	6 No. of suspension disc insulators per Km. (10no Insulators for each String*No of Suspension Strings per Km)*Circuits	27	Nos
B	1 No. of tension towers per 10 Kms.	27	Nos
	2 No. of tension disc insulators per string	18	Nos
	3 No. of tension string per 10 Kms. (Tension Towers*6no Strings for each Tower)*Circuits	324	Nos
	4 No. of tension hardware per 10 Kms. (Suspension Towers*6no Hardware for each Tower)*Circuits	324	Nos
	5 No. of tension hardware per Km.	32.4	Nos
	6 No. of tension disc insulators per 10 Km. (15no Insulators for each String*No of Tension Strings per Km)*Circuits	8164	Nos
	7 No. of tension disc insulators per Km.	816.4	Nos
	8 No. of strings for taking out jumpers in 10 Km line (D type Tension Towers*2no Strings for each Tower)*Circuits	40	Nos
	9 No. of strings for taking out jumpers per Km.	4	Nos
10	No. of insulators for taking out jumpers per Km. (No of Strings x15 Insulators)	60	Nos
11	No. of hardware for taking out jumpers per Km.	4	Nos


Asstt. Executive Engineer (Elect.)
M.P. Power Transmission Corpn. Ltd.
Barowalla House, Khairi, Shimla-2


Senior Manager (Projects)
M.P. Power Transmission Corpn. Ltd.
Barowalla House, Khairi, Shimla-2

Annexure- B5 (f)

SCHEDULE OF COST ANALYSIS FOR ERECTION CHARGES FOR 220 KV LINE

Sr. No	Description	Qty	Rate	Unit	Amount in Rs
1	Excavation & backfill per Km.				
	Normal Soil	385	272	Cu Ml	98260.00
2	Concreting i/o Dewatering etc.	61.95	6733	Cu Ml	417295.20
3	Cost of Stub setting	1.287	7483	MT	9632.12
4	Erection of Towers	33.63	16466	each	553774.63
5	Stringing of Conductor	1	434091	Km	434091.00
6	Stringing of Earth Wire	1	37422	Km.	37422.00
7	Fixing of Tower accessories	3.0	1199	Nos	3594.00
8	Earthing of Towers	3.0	4491	Nos	13473.00
	TOTAL				1568661.95

Cost per Km

Rs. 1568662


 Asst. Executive Engineer (Isct.)
 H.P. Power Transmission Corpn. Ltd.
 Sardar's House, Khalini, Shimla-2


 Senior Manager (Projects)
 H.P. Power Transmission Corpn. Ltd.
 Sardar's House, Khalini, Shimla-2

VEHICAL AND WORKSHOP AND MACHINERY

Sr. No	Description	Qty	Rate	Unit	Amount in Lacs
1	7.5 Tons Truck	1	10.00	Nos	10.00
2	Maintenance Van	1	5.00	Nos	5.00
3	Pedestal/ Pillar Type Drilling Machine	1	0.50	Nos	0.50
4	Electrical Arch Welding Machine	1	0.5	Nos	0.5
5	Power Hacksaw with accessories	1	0.50	Nos	0.50
6	Small T&P like Electrical Blower, Anvil Hammers, Screw Drivers, Pliers, Wrenches	LS			0.60
	SUB TOTAL				17.10
7	Add. Storage @ 3%				0.513
	TOTAL				17.61

Asstt. Executive Engineer (Elect.)
H.P. Power Transmission Corpn. Ltd.
Barowalla House, Khalini, Shimla-2

Senior Manager (Projects)
H.P. Power Transmission Corpn. Ltd.
Barowalla House, Khalini, Shimla-2

65



Sr. No.	NAME OF INTERFACING SUBSTATION	NAME OF PROJECTS	VOLTAGE KV	ALLOTTED YES / NO	CAPACITY	TARGETTED COMISSIONING DATE
1	33/220 kv SUBSTATION AT KARIAN	BALIJ KA NALAH-II	33	YES	3.50	2010-11
		GEHRA	33	YES	2.00	2011-12
		BELIJ	33	YES	5.00	2010-11
		BALIJ KA NALAH - II	33	YES	3.00	2011-12
		BALENI KA NALLAH	33	YES	2.00	2011-12
		CHANNI	33	YES	3.00	2014-15
		SAMWARA	33	YES	2.50	2014-15
		Dunali	33	YES	5.00	2010-11
		TOTAL - 1			26.00	
2	33 / 11 kv SUBSTATION AT JARANGLA (2 X 3.15 MVA)	DURGHED	33	YES	1.10	2012-13
		TOTAL - 2			1.10	
3	33 kv PROPOSED SWITCHING STATION AT MAREDI	SAL - II (SAHU)	33	YES	3.00	2012-13
		KIRI	33	YES	1.00	2011-12
		SAL - I	33	YES	6.50	2012-13
		HUL	33	YES	4.50	2012-13
		DIKLERI (SAHO)	33	YES	2.00	2012-13
		HUL - II	33	YES	3.40	2012-13
		Kurtha	33	YES	3.00	2014-15
		Sahu *	33	YES	5.00	commissioned
		TOTAL - 6			23.40	
				* Sahu is already evacuating through existing network of HPSEBL, hence not considered		
TOTAL					51	MW

YEARWISE INJECTION (MW)					
YEAR	2010-11	2011-12	2012-13	2013-14	2014-15
MW	13.50	8	21	0	9
Cumulative	14	22	42	42	51

ANNEXURE-D

CALCULATION OF TARIFF FOR USAGE OF 33/220 KV KARIAN SUB STATION AND CONNECTING 220 KV LINE UP TO 220/400 KV CHAMERA P.S.

ESTIMATED PROJECT COST (2009-10 PRICE LEVEL)			COMPUTATION OF IDC									
CAPITAL COST INCLUDING IDC AND ESCALATION	52.1 CRORES	PLF	45	CAPACITY INJECTION (MW)	CUMULATIVE CAPACITY INJECTION (MW)	YEAR	YEARWISE PHASING OF CAPITAL COST	ANNUAL ESC @10%	ESCALATED COST	INVESTMENT AT THE BEGINNING OF THE YEAR	INVESTMENT DURING THE YEAR	INTEREST DURING THE YEAR PER ANNUM
LOAN	37.75 CRORES	LLF	0.252	13.5	13.5	2010-11	12.0		12.0	0.0	12.0	0.5
EQUITY	17.18 CRORES			8	21.5	2011-12	30.0		30.0	12.0	30.0	2.1
REPAYMENT PERIOD	15 YEARS			21	42.5	2012-13	10.0		10.0	0.0	10.0	0.4
				0	42.5	2013-14						
				9	51.5	2014-15						
ANNUAL INTEREST	11 %			51.5	TOTAL		52.0	0.0	52.0		52.0	2.9
CAPITAL COST EXCLUDING COST OF LAND (LAND COST @5%)	52.18			11.5	%							

Moratorium			5 Years					working capital				Interest on working capital @ 11.5%	Total annual charges (4+5+6+7+12)	Units Injected (Mus) (CoL 17*PLF*(51.5+63) *8.76)	Units Lost in the STU System (Transfor mer loss 0.5%, Line Loss)	Units consider ed for Tariff determina tion (14- 15)	Tariff (Rs/ Kwh)	Capacity Injected (MW)
Year of Operat ion	Loan outstanding at the beginning of the year	Loan repaymen t	Depreciat ion (excluding cost of land)	Interest @12.25% on outstanding loan	ROE @14% i/c corpo rate tax	O&M @1.5% with annual escalation @4%	O&M charges for 1 month	Maint. Spares @ 1% of capital cost with 4% escalation	2 months receivab le	working capital								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
2012-13	37.75		0.61	4.15	2.71	0.82	0.07	0.55	2.60	3.21	0.37	8.67	164.80	0.85	163.96	0.53	42.50	
2013-14	37.75		0.61	4.15	2.71	0.86	0.07	0.57	3.15	3.79	0.44	8.77	199.70	1.03	198.67	0.44	42.50	
14-15	37.75		0.61	4.15	2.71	0.89	0.07	0.59	3.15	3.81	0.44	8.81	199.70	1.03	198.67	0.44	51.50	
15-16	37.75	3.77	3.77	4.15	2.71	0.93	0.08	0.62	3.15	3.84	0.44	12.01	199.70	1.03	198.67	0.60	51.50	
16-17	33.97	3.77	3.77	3.74	2.71	0.96	0.08	0.64	3.15	3.87	0.44	11.63	199.70	1.03	198.67	0.59	51.50	
17-18	30.20	3.77	3.77	3.32	2.71	1.00	0.08	0.67	3.15	3.90	0.45	11.26	199.70	1.03	198.67	0.57	51.50	
18-19	26.42	3.77	3.77	2.91	2.71	1.04	0.09	0.69	3.15	3.93	0.45	10.89	199.70	1.03	198.67	0.55	51.50	
19-20	22.65	3.77	3.77	2.49	2.71	1.08	0.09	0.72	3.15	3.96	0.46	10.52	199.70	1.03	198.67	0.53	51.50	
20-21	18.87	3.77	3.77	2.08	2.71	1.13	0.09	0.75	3.15	3.99	0.46	10.15	199.70	1.03	198.67	0.51	51.50	
21-22	15.10	3.77	3.77	1.66	2.71	1.17	0.10	0.78	3.15	4.02	0.46	9.78	199.70	1.03	198.67	0.49	51.50	
22-23	11.32	3.77	3.77	1.25	2.71	1.22	0.10	0.81	3.15	4.06	0.47	9.42	199.70	1.03	198.67	0.47	51.50	
13	7.55	3.77	3.77	0.83	2.71	1.27	0.11	0.85	3.15	4.10	0.47	9.06	199.70	1.03	198.67	0.46	51.50	
14	3.77	3.77	3.77	0.42	2.71	1.32	0.11	0.88	3.15	4.13	0.48	8.70	199.70	1.03	198.67	0.44	51.50	
15			0.61		2.71	1.37	0.11	0.91	3.15	4.17	0.48	5.18	199.70	1.03	198.67	0.26	51.50	
16			0.61		2.71	1.43	0.12	0.95	3.15	4.22	0.48	5.24	199.70	1.03	198.67	0.26	51.50	

17		0.61	2.71	1.48	0.12	0.99	3.15	4.76	0.49	5.30	199.70	1.03	198.67	0.27	51.50
18		0.61	2.71	1.54	0.13	1.03	3.15	4.30	0.49	5.36	199.70	1.03	198.67	0.27	51.50
19		0.61	2.71	1.60	0.13	1.07	3.15	4.35	0.50	5.43	199.70	1.03	198.67	0.27	51.50
20		0.61	2.71	1.67	0.14	1.11	3.15	4.40	0.51	5.50	199.70	1.03	198.67	0.28	51.50
21		0.61	2.71	1.74	0.14	1.16	3.15	4.45	0.51	5.57	199.70	1.03	198.67	0.28	51.50
22		0.61	2.71	1.81	0.15	1.20	3.15	4.50	0.52	5.65	199.70	1.03	198.67	0.29	51.50
23		0.61	2.71	1.88	0.16	1.25	3.15	4.55	0.52	5.73	199.70	1.03	198.67	0.29	51.50
24		0.61	2.71	1.95	0.16	1.30	3.15	4.61	0.53	5.81	199.70	1.03	198.67	0.30	51.50
25		0.61	2.71	2.03	0.17	1.35	3.15	4.67	0.54	5.89	199.70	1.03	198.67	0.30	51.50
		0.61	2.71	2.11	0.18	1.41	3.15	4.73	0.54	5.98	199.70	1.03	198.67	0.30	51.50
AVERAGE														0.40	51.50



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रुरल इलेक्ट्रीफिकेशन कारपोरेशन लिमिटेड RURAL ELECTRIFICATION CORPORATION LTD.

अंचलिक कार्यालय : बे नं. 7-8, सेक्टर-2, पंचकुला-134112 (हरियाणा)
Zonal Office : Bay No. 7-8, Sector-2, Panchkula-134112 (Haryana).
दूरभाष / Phone : 2563864, 2563863, 2563822, फैक्स / Fax : 2567692
ई-मेल / E-mail : popanchkula@recindia.nic.in, वेबसाइट / Website : recindia.nic.in

No. REC/PO/HP-TD-TRM-295-2010-3781/2011-12/1734

Dated: 27-10-2011

The Director (Planning & Contracts),
HPPTC Ltd,
Barowallas House, Khalini,
Shimla (HP)-171002

Sanction Letter

Subject : Financial assistance of ₹11549.42 lakhs to HPPTC Limited for construction of 220/33 KV GIS Pooling Substations at Palchan and Karian in Kulu and Chamba districts of Himachal Pradesh under P: SI (Transmission) category. (Scheme Code No. HP-TD-TRM-295-2010-3781)

Reference : 1) REC's C.O. letter no. REC/T&D/SC/SAN/2011-12/413/15625 dated 19.10.11
2) HPPTCL's Director (P&C) letter No. HPPTCL/Loan/CORN/10-4275 dated 13.10.2010, letter No. HPPTCL/Loan/CORN/10-4760 dated 27.11.2010, FAX dated 10.1.2011, and letter No. HPPTCL/Loan/CORN/2011/3421-22 dated 29.08.2011.

Dear Sir,

Please refer to Loan Application submitted by HPPTC Ltd for financial assistance from Rural Electrification Corporation Ltd to part finance the proposed works at Total Project cost of ₹12832.69 lakhs for construction of 220/33 KV GIS Pooling Substations at Palchan and Karian in Kulu and Chamba districts of Himachal Pradesh under P: SI (Transmission) category.

The proposal has been considered and REC is agreeable to grant you Rupee Term Loan Assistance (the "RTL assistance") to the extent of ₹11549.42 lakhs (Rupee One hundred Fifteen Crore Forty Nine Lakhs and Forty Two Thousand only). Details of the scheme are as follows.

Name of the scheme	Construction of 220/33 KV GIS Pooling Substations at Palchan and Karian in Kulu and Chamba districts of Himachal Pradesh under P: SI (Transmission) category.
District / Region	Kulu and Chamba Districts
Scheme code no	HP-TD-TRM-295-2010-3781
Cost of the project	₹12832.69 lakhs
Promoter's contribution (Equity component %)	10%
Loan amount sanctioned	₹11549.42 lakhs
Extent of financing (% of Loan to Cost of the Project)	90%

(जो. एच. भाटी / J.S. BHATI)
अंचलिक प्रबन्धक / Zonal Manager
रुरल इलेक्ट्रीफिकेशन कारपोरेशन लिमिटेड / RECL
बे नं. 7-8, सेक्टर-2, पंचकुला

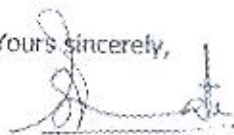
Cont...

1. The aforesaid term loan is subject to the general terms and conditions set out in Annexure- 1. Details of project sanction are enclosed at Annexure A, B and C. The loan would be further subject to the conditions as set out in the Rupee Term Loan Agreement to be executed between the borrower and REC.
2. The sanction letter is sent to you in duplicate and in case the above terms and conditions are acceptable to you, it is requested to return one copy of the same duly signed as token of acceptance of the terms and conditions of sanction within a period of thirty days from the date of receipt of this letter.
3. Borrower shall communicate to REC within **30** days from the date of receipt of this letter that the terms and conditions setout herein are acceptable to it. Unless the loan agreement and other documents relating to the above assistance are executed by HPPTC Limited in such form as may be required by REC within three months from the date of this letter, or within such further time as may be allowed by REC in its absolute discretion, this communication should not be any way be construed as giving rise to any binding obligation on the part of REC.
4. All the Annexures are deemed to be part of this letter.

You are requested to acknowledge the receipt of this letter.

Enclosed : a/a

Yours sincerely,



(G S BHATI)^{21/10/11}
Zonal Manager (NZ)

Copy to for information please: -

1. The Secretary, Dept. of Power, Govt. of Himachal Pradesh, Shimla
2. The Director (Finance), HPPTC Limited, Shimla,
3. The Executive Director (Finance), REC Ltd, New Delhi,
4. The General Manager (T&D), REC Limited, New Delhi,
5. Finance Cell, REC, Project Office, Shimla,
6. Documentation copy
- 7. Scheme file,
8. Office Copy
9. Master File.

H.P. POWER TRANSMISSION CORPORATION LIMIT



(A State Government Undertaking)

BAROWALIA HOUSE, KHALINI, SHIMLA-2

Ph:-0177-2626283, FAX:-2626284

HPPTCL/PRJ/REC/Phojal/SSU/2013- **7173**

Dated **8/8/14**

To

The Chief Project Manager,
Rural Electrical Corporation Ltd.
Project Office, The Ridge Shimla.

Sub-: Construction of 220/33 KV GIS Pooling sub-stations at Palchan and Karian in Kullu and Chamba Districts of Himachal Pradesh under P:SI(Transmission) category.

Scheme Code No. 3781(Deviation thereof).

Sir,

The above subject cited scheme was sanctioned to HPPTCL by REC for loan assistance of 115.49Crore. But before execution of the scheme, the site of 220 KV Palchan Substation which was originally envisaged in the sanctioned scheme the site was changed to Fozal due to flashflood which washed away the original site at Palchan. the new site named Fozal is approximately 8 Km (Aerial distance) away from the Palchan site. With the change of Substation Site the line route for 220 KV too has been changed and now the length of this Double Circuit line is 6Km(12 Km Circuit Kms) only. The contracts were awarded after finalizing the final site and works are in advanced stage of execution. Now in order to get the loan claims reimbursed from REC against the executed works, the deviated works are yet to be got approved from REC and as such we are enclosing herewith deviation statement (Annexure-I) with the request to accord the approval to the deviation.

General Manager (Project)

1384
06/08/14

HIMACHAL PRADESH POWER TRANSMISSION CORPORATION LIMITED

Annexure-1

Name of scheme:-

Construction of 220/33 KV GIS Pooling sub-stations at Palchan and Kanan in Kullu and Chamba districts of Himachal Pradesh under P-St(Transmission) category. Scheme Code No. 3781

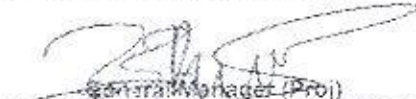
DEVIATION STATEMENT.

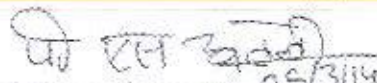
Rs. in Lacs

Sr. No.	Description	Provision as per scheme provision				As per actual.			REMARKS IF ANY
		Unit	Qty.	Rate	Amount	Unit	Qty.	Amount of Contract Awarded so far	
1	2	3	4	5	6	7	8	9	10
1	Construction of 220/33 KV GIS Pooling S/Stn Palchan	No	1	5535.19	5535.19	-	-	-	
1(a)	Construction of 220/33 KV GIS Pooling S/Stn Fozal/Phosal	-	-	-	-	No	1.00	4189.73	Fozal is about 3Km (airial distance) from Palchan.
2	Construction of 220/33 KV GIS Pooling S/Stn Kanan	No	1	4797.17	4797.17	No	1.00	2829.48	
3	Construction of 220 Kv S/C line on D/C towers from Palchan to Allan Dhungan (Prini AD Hydro Switch Yard)	Km	10.384	203.843	2108.40	-	-	-	
3(a)	Construction of 220 Kv S/C line on D/C towers from Fozal to Allan Dhungan (Prini AD Hydro Switch Yard)	-	-	-	-	Km	6.00	691.48	
						Ckt Km	12		
4	Construction of 220 Kv D/C line from Kanan to Rajera (PGCIL Switch Yard)	Km	3.500	111.95	391.83	Km	3.50	555.08	
Total					12632.69			8265.78	

loan amount will be $8265.78 \times 0.9 = \text{Rs } 7439.20 \text{ lacs}$

Recommended for approval please.


General Manager (Proj)
HPPCL SHIMLA


06/3/14

Project Manager
HPPCL SHIMLA



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RURAL ELECTRIFICATION CORPORATION LTD

भारत सरकार का उद्यम / A Government of India Enterprise

Project Office: Shimla, Pt. Padam Dev Complex, Ph-2, The Ridge, Shimla-1(HP)

Phone 2653411, FAX- 0177-2804077 Gram RECTRIC

E-mail: poshimla@reci.nic.in Website: www.recindia.com, www.recindia.nic.in

Ref. No. REC/SML/ HPPTCL/3781/ 2013-14/ 1356

Dated: 06.03.2014

Er. Valli Natrajan
Addl. General Manager (T&D)
Rural Electrification Corporation Limited,
Core-4, Scope Complex,
New Delhi-110003.

Subject:- Construction of 220/33 KV GIS Pooling sub stations at Palchan and Karian in Kullu and Chamba districts of Himachal Pradesh under P:SI (Trans) category. Scheme Code No. 3781 – **Deviation thereof.**

Reference:- HPPTCL/PRJ/REC/Phojal /SS/ 2013-7173 dated 06.03.2014.

Madam,

A scheme for Construction of 220/33 KV GIS Pooling sub stations at Palchan and Karian in Kullu and Chamba districts of Himachal Pradesh under P:SI (Transmission) category having Code No. 3781 was sanctioned by REC for loan assistance of Rs.11549.42 lac (scheme cost Rs.12832.69 lac) to HPPTCL on 27.10.2011 and documented on 10.01.2013. The sanctioned scheme basically envisages C/O 2 Nos 220/33 KV GIS Pooling S/Stns at Palchan in Kullu district and Karian in Chamba district of Himachal Pradesh along with the associated 220 KV lines. HPPTCL vide its letter under reference has intimated that before awarding the works, the land at Palchan washed away due to flashflood and hence location of proposed Palchan S/Stn was shifted to Fozal. Accordingly, the line route and distance also changed from 10.384 Km to 6.000 Km. The new site is about 8 Km (arial distance) away from the original site. The contract for the works were awarded on finalization of sites and are in their advance stage of execution. The utility has further requested that to enable them to get the loan claims reimbursed, the deviation involved is to be approved by REC and has supplied a deviation statement with the request for its approval. Further, the total value of contracts awarded is Rs.8265.78 lacs against the sanctioned cost of Rs. 128,32.69 lacs. Thus the loan amount will be revised from 11549.42 lac to 7439.20 lacs.

Keeping in view the facts explained above, it is requested that the deviation submitted by HPPTCL may kindly be considered for approval and same may be conveyed to this office at the earliest so that claim worth 40.14 crore is processed. The deviation Statement a/w the copy of request received from HPPTCL is also enclosed please.

Encl:- As Above

Yours faithfully,

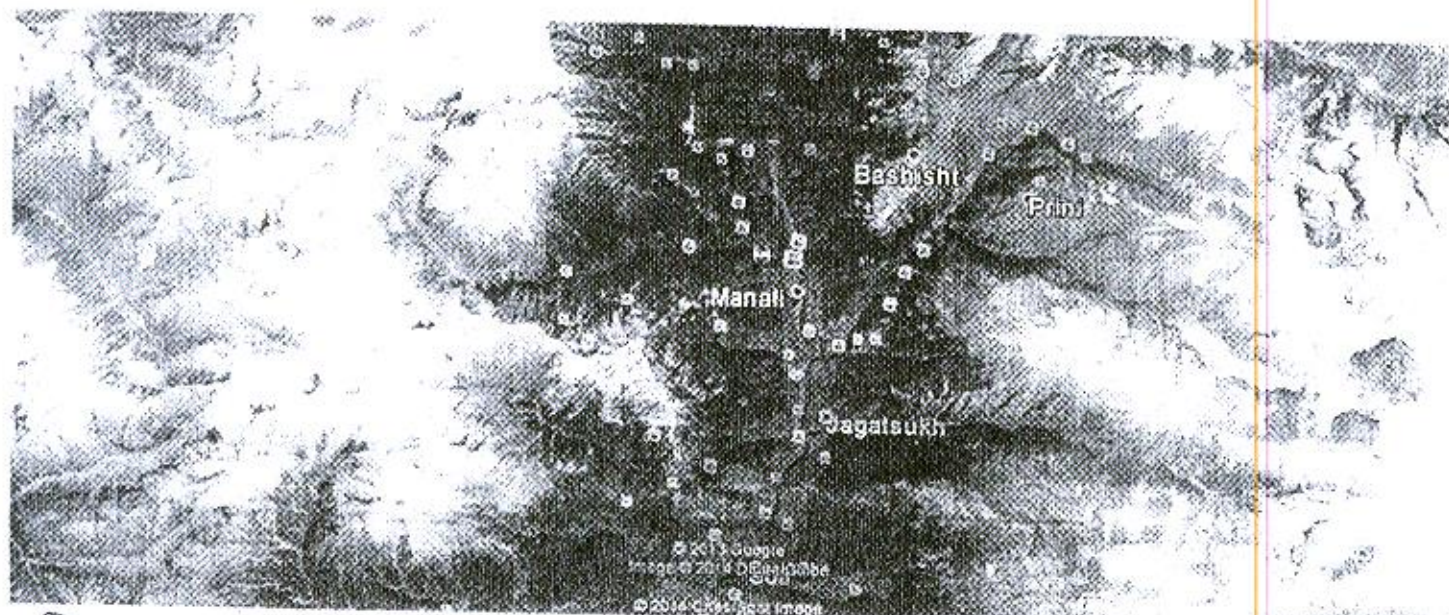
को.का.

P.S.Atthi

Chief Project Manager

Copy to the General Manager (Proj), HPPTCL Shimla for information please.

शहिल



Phozal/Fozal

PALCHAN

FOZAL



आरईसी
REC

असीमित ऊर्जा, अनंत संभावनाएं
Endless energy, infinite possibilities.

रूरल इलेक्ट्रीफिकेशन कारपोरेशन लिमिटेड

RURAL ELECTRIFICATION CORPORATION LTD

भारत सरकार का उद्यम / A Government of India Enterprise

Project Office: Shimla, Pt. Padam Dev Complex, Ph-2, The Ridge, Shimla-1 (HP)

Phone 0177 - 2653411, FAX- 0177-2804077 Gram RECTRIC

E-mail: pos@rcclia@reci.nic.in Website: www.rcclia.com, www.recindia.nic.in

सं.आरईसी/एसएमएल/एच.पी.पी.टी.सी.एल/3781/2013-14/1356-57

दिनांक:-06.03.2014

सुश्री वल्ली नटराजन

अपर महाप्रबन्धक (टी.एच.डी)

आरईसी कारपोरेट कार्यालय

नई दिल्ली

विषय:- Construction of 220/33 KV GIS Pooling Sub - Stations at Palchan and Karian in Kullu and Chamba districts of Himachal Pradesh under P-SI (Trans) category. Scheme Code No.3781 - Deviation thereof.

संदर्भ:- HPPTCL/PRJ/REC/Phojal/SSI/2013-7173 dated 06.03.2014.

महोदया,

उपरोक्त विषय पर एक स्कीम एच.पी.पी.टी.सी.एल. को आरईसी द्वारा 11549.42 लाख की ऋण सहायता के लिए स्वीकृत की थी। एच.पी.पी.टी.सी.एल. ने हमें सूचित किया है कि स्वीकृत स्कीम के कार्यों में कुछ परिवर्तन आया है तथा उन्होंने एक Deviation statement स्वीकृती के लिए भेजा है जोकि आपको अगली उचित कार्यवाई के लिए प्रेषित है। विस्तृत जानकारी के लिए संलग्न पत्र देखें।

भवदीय,

(पी.एस.अतली) 06/3/14
मुख्य परियोजना प्रबन्धक

संलग्न: यथापरोक्त

का का

प्रतिलिपि:-

1. महाप्रबन्धक (प्रोजेक्ट), एच.पी.पी.टी.सी.एल. शिमला के सूचनार्थ हेतु ।

साहिल



FAX/SPEED POST

REC/T&D/HPPTCL/13-14/645/1136

Dated: 11.03.14

Chief Project Manager,
Rural Electrification Corporation Ltd.
Project Office: Shimla

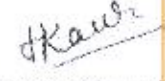
Sub: Deviation proposal in respect of 1 no. P:SI (Transmission) scheme of HPPTCL bearing scheme code no: HP-TD-TRM-295-2010-3781.

Sir,

This has reference to your letter no. REC/SML/HPPTCL/3781/2013-14/1356 dated 06.03.14 on the above-cited subject. It is to convey that, Competent Authority has approved the deviation proposal of HPPTCL in respect of 1 no. P:SI (Transmission) scheme bearing scheme code no: HP-TD-TRM-295-2010-3781 as follows:

S.No	Particulars	Unit	As per original sanction			Proposed deviation approved		
			Qty	Rate (in Rs. lakhs)	Amt. (in Rs. lakhs)	Qty	Rate as per award (in Rs. lakhs)	Amt. (in Rs. lakhs)
1	Construction of 220/33 KV GIS Pooling Substation Palchan	No.	1	5535.19	5535.19	-	-	-
1(a)	Construction of 220/33 KV GIS Pooling Substation Fozal	No.	-	-	-	1	4189.73	4189.73
2	Construction of 220/33 KV GIS Pooling Substation Karian	No.	1	4797.17	4797.17	1	2829.48	2829.48
3	Construction of 220 KV S/C Line on D/C towers from Palchan to Allian Dhungan (Prini, AD Hydro Switchyard)	Km	10.384	203.043	2108.40	-	-	-
3(a)	Construction of 220 KV S/C Line on D/C towers from Fozal to Allian Dhungan (Prini, AD Hydro Switchyard)	Km	-	-	-	6.000	115.248	691.49
4	Construction of 220 KV D/C Line from Karian to Rajera (PGCIL Switchyard)	Km	3.50	111.98	391.93	3.500	158.59	555.06
	Total Project Cost				12832.69			8285.78
	Loan amount sought (90% of Project Cost)				11549.42			7439.20

Yours faithfully,


 (H.K. Chani)
 DGM (T&D)

1453
 18/08/14