

NEPAL ELECTRICITY AUTHORITY

(An Undertaking of Government of Nepal)
Project Management Directorate

LAPSIPHEDI & CHANGUNARAYAN SUBSTATION CONSTRUCTION PROJECT



(A Component of
Power Transmission and Distribution Efficiency Enhancement Project)

BIDDING DOCUMENT FOR

Procurement of Plant for Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation.

**Single-Stage, Two-Envelope
Bidding Procedure**

Issued on:	07 April 2020
Invitation for Bids No.:	PMD/PTDEEP/LCSCP-073/74 RE- 01
ICB No.:	PMD/ PTDEEP/LCSCP-073/74 RE- 01
Employer:	Nepal Electricity Authority
Country:	Nepal

VOLUME –III OF III

April 2020

**Lapsiphedi and Changunarayan Substation Construction Project
Project Management Directorate
NEA Training Centre Complex, Kharipati
Bhaktapur, Nepal**

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SECTION IV PRICE SCHEDULE

Note:

- 1) Bidder is required to quote prices in this Schedule for all the individual items/sub-items.
- 2) The Prices of equipment's are inclusive of type test charges.
- 3) BOQ given is indicative only based on the scope of work as given in Employer's Requirements. The quantities mentioned above may undergo change during detailed engineering to meet the functional requirement and scope of work defined in Employer's Requirements. **The Contractor shall prepare and submit the final BOQ within 90 days of signing of Contract.**
- 4) The bidders are required to quote their price including all taxes and duties applicable in their county / Country of origin, & all business taxes, income taxes (TDS etc) applicable in Nepal. The quoted price shall be exclusive of taxes and duties applicable in Nepal like Custom, VAT etc.



NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE

Lapsephedi & Changunarayan Substation Construction Project

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

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					Currency#	Unit Rate			Amount
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
PART 1	220/132/11kV GIS Lapsephedi Substation								
	PART - A: OWNER ASSESSED QUANTITIES								
A1.1	POWER TRANSFORMER								
1	53.33MVA, 220/√3 / 132/√3 kV Single Phase Power Transformer (without transformer Oil)		Nos.	4					
2	Insulating oil for the above Power Transformer		Lot	4					
3	33kV Current transformer (NCT) for autotransformer		No	1					
A1.2	POWER TRANSFORMER								
1	18/22.5 MVA, 132 /11 kV Three Phase Power Transformer (without transformer Oil)		Nos.	1					
2	Insulating oil for the above Power Transformer		Lot	1					
B	Testing & Maintenance Equipments								
1	Oil Storage tank of 20KL		Nos.	2					
2	Transformer Oil Filtration plant (6KLPH)		No	1					
C	LT Transformer								
1	630KVA 11/0.400 Kv		Nos.	2					
D	245 KV EQUIPMENTS								
D1	245KV GIS Equipment								
1.1	245kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]		Sets	2					
1.2	245kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]		Sets	1					
1.3	245kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]		Sets	2					
1.4	2145kV, SF6 GIS ICT bay Module including switching arrangement for 1-ph spare transformer [Module description as per Technical Project specification]		Sets	1					
1.5	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories								
1.5.1	2000A, 40kA for 1 sec. Single Phase		Mtr.	120					
1.5.2	2000A, 40kA, 1sec three phase		Mtr.	200					
1.6	245 kV Auxiliary Bus to connect spare unit of Transformer [Module description as per Technical specification and Section Project Specific Requirement]		Set	1					
1.7	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
1.7.1	2000A, 40kA for 1 sec. Single Phase		Nos.	13					
D.2	245KV Outdoor Equipment								
1.0	216 KV Surge Arrester (1-phase)		Nos.	13					
2.0	245kV Capacitive Voltage Transformer for line		Nos.	9					
3.0	245kV Bus Post Insulator (1-Phase) (Except for wave trap)		Nos.	15					
E	145kV Equipment								
E.1	145KV GIS Equipment								

Power Transmission and Distribution Efficiency Enhancement Project

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
1.1	145kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]		Sets	2					
1.2	145kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]		Set	1					
1.3	145kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]		Sets	2					
1.4	145kV, SF6 GIS ICT feeder bay Module for 220/132 kV Transformer including switching arrangement for 1-ph spare transformer [Module description as per Technical Project specification]		Sets	1					
1.5	145kV, SF6 GIS ICT feeder bay Module for 132/11 kV 3-ph Transformer [Module description as per Technical Project specification]		Sets	1					
1.6	SF6 Gas Insulated Bus Duct (GIB) outside GIS hall including Bus Duct support structure and associated accessories								
1.6.1	1250A, 31.5kA for 1 sec. Single Phase		Mtr.	120					
1.6.2	1250A, 31.5kA, 1sec three phase		Mtr.	200					
1.7	145 kV Auxiliary Bus to connect spare unit of Transformer [Module description as per Technical specification and Section Project Specific Requirement]		Set	1					
1.8	145kV, SF6/Air Bushing for Connecting GIS to AIS alongwith support structure								
1.8.1	1250A, 31.5kA, 1sec single phase		Set	16					
E.2	145kV EQUIPMENT (AIS)								
2.1	120 kV Surge Arrestors (1-Phase)		Nos.	16					
2.2	8800pF, 145 kV Capacitive Voltage Transformer (1-Phase)		Nos.	9					
2.3	145KV Bus Post Insulator		Nos.	9					
F	11 KV EQUIPMENT								
1.0	9 kV Surge Arrester (1 ph.)		Nos	6					
G	11kV, 25 kA (3 Phase) Indoor switch gear panel								
1.0	11 kV Indoor VCB Switchgear								
1.1	11kV 2500A Incomer		Nos	2					
1.2	11kV 1250A Outgoing		Nos	6					
1.3	11kV 2500A Buscoupler		Nos	1					
1.4	11kV 2500A Trunking		Nos	1					
H	Testing & Maintenance Equipment for GIS								
1	SF6 Gas processing Unit		Set	1					
2	Partial Discharge Monitoring System		Set	1					
3	Dew Point Meter		Set	1					
4	SF6 Gas Leak Detector		Set	1					
5	Portable Ladder with adjustable height as per TS		Nos.	1					
6	EOT crane for 220kV GIS Hall		Set	1					
7	EOT crane for 132kV GIS Hall		Set	1					
I	RELAY PANELS (WITH AUTOMATION)								
1	245kV								
1.1	Line Control and Protection Panel		Nos.	2					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
1.2	Transformer Control and Protection Panel (For both HV & MV side)		Nos.	1					
1.3	Bus Coupler Control and Protection Panel		Nos.	1					
1.4	Bus Bar Protection Panel		set	1					
2	145kV								
2.1	Line Control and Protection Panel		Nos.	2					
2.2	Transformer Control and Protection Panel (For both HV & MV side)		Nos.	1					
2.3	Bus Coupler Control and Protection Panel		Nos.	1					
2.4	Bus Bar Protection Panel		set	1					
3	Other/Common equipments Pertaining to C & R System								
3.1	Time Synchronisation Equipment		No.	1					
3.2	Relay Test kit		No.	1					
J	SUBSTATION AUTOMATION								
1	Substation Automation System as per Technical Specification:								
1.1	220kV System		Nos.	4					
1.2	132 kV System		Nos.	5					
1.3	BCU for auxiliary system		set	1					
1.4	11 kV HT Indoor Switchgear		Nos.	9					
K	Digital Protection Coupler & IP-PBAX								
1	Digital Protection Coupler		Nos	6					
2	IP-PBAX as per TS		Set	1					
L	LT Switchgear (As per Technical specification)								
1	400V Main switchboard		Set	1					
2	400V ACDB		Set	1					
3	400V MLDB		Set	1					
4	400V Emergency LDB		Set	1					
5	220V DCDB		Sets	1					
6	48V DCDB		Set	1					
M	Batteries								
1	220V								
i	600 AH		Nos	2					
2	48V								
i	600AH		Nos	2					
N	Float Cum Boost Battery Charger								
1	220V Float Cum Boost Battery Charger								
i	80A/80A		Nos	2					
2	48V Float Cum Boost Battery Charger								
i	80A/80A		Nos	2					

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O	Diesel Generator with control Panel								
1	250 kVA		Set	1					
P	Fire Protection System								
1	Portable /Trolley/Wheel mounted extinguishers								
1.1	9 litre water type		Nos	2					
1.2	50 litre foam type		Nos	2					
1.3	4.5 kg CO ₂ type		Nos	6					
1.4	4.5 kg Dry Chemical Power (DCP) type		Nos	2					
2.0	Smoke detection system		Set	1					
3.0	Fire detection and Alarm System		Set	1					
Q	Cables along with clamps, glands, lugs and straight joints etc.								
1.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV Line		KM	2					
2.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV LT Transformer		KM	0.25					
3.0	11kV HT Cable (1CX800 SQmm) Copper for 11k side of 132/11 kV Transformer alongwith accessories and termination equipments		KM	0.5					
4	Power Cables - (1.1kV grade)								
4.1	3.5Cx300 sqmm (XLPE) cable for filter Machine along with 2 nos outdoor receptacles -250A		KM	0.15					
R	Air conditioning								
1	High wall type split AC unit of 2 TR capacities for control room, relay room and battery room		Nos.	25					
S	STEEL STRUCTURES (Tower,Gantry structures& Equipment support structures)								
1.0	Lattice/pipe Structure for towers,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)								
1.1	Lattice structure & foundation bolts		MT	55					
1.2	Pipe Structure including Foundation Bolts .		MT	20					
1.3	Fastners for towers,beams and equipment support strctures		MT	3					
T	Communication Equipment (detail as per TS)								
1	Transmission Equipment								
	Telecommunication Equipments								
1.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)								
1.1.1	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks, patch cord, DDF etc fully equiped excluding (ii) & (iii) below, integration with existing SDH equipment at Barhabise 220 kV Substation.		No.	1					
(i)	Optical Interface Cards/SFP								
(a)	S4.1 SFP		Nos.	2					
(b)	L4.2 SFP		Nos.	4					

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(ii)	Tributary cards								
(a)	E1 Interface card (Min.8 interfaces per card)		Nos.	2					
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)		No.	2					
1.1.2	Equipment Cabinets		No	1					
1.1.3	VOIP telephone instrument with one common POE+ switch (min. 8 port)		set	2					
U	PRE-ENGINEERED BUILDINGS								
1	GIS Building and Panel Rooms including all supply materials from abroad except civil works and for civil works refer schedule 4(a)								
1.1	220 kV GIS Hall and Panel Rooms including all supply materials from abroad except civil works and for civil works refer schedule 4(a)								
(a)	220 kV GIS Hall		Sq. M.	450					
(b)	AHU		Sq. M.	127					
(c)	Panel Room		Sq. M.	38					
1.2	132 kV GIS Hall and Panel Rooms including all supply materials from abroad except civil works and for civil works refer schedule 4(a)								
(a)	132 kV GIS Hall		Sq. M.	400					
(b)	AHU		Sq. M.	98					
(c)	Panel Room		Sq. M.	37					
	SUB TOTAL PART-A								
	PART-B: VENDOR ASSESSED QUANTITIES								
A	Erection Hardware :-Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, clamps, spacers, connectors including connectors for Auto Transformer, Junction box, earthwire, earthing material risers, buried cable trenches/pipe of equipment & lighting, all accessories etc. for the following:								
1	220 kV DM-type layout for GIS termination arrangement								
1.1	Line Bay		Set	2					
1.2	Transformer Bay		Sets	1					
2	132 kV DM-type layout for GIS termination arrangement								
2.1	Line Bay		Sets	2					
2.2	Transformer Bay		Sets	2					
B	Bus post insulators, Spacers, equipment support structures, conductor(s), Al tube, clamp, connectors required for arrangement of Neutral formation for one transformer bank for making connection arrangement to connect spare unit in place of any other unit without physical shifting complete in all respect		Sets	1					
C	Air conditioning & ventilation System								
1	Ventilation & Airconditioning system (as per technical specification)								
1.1	220kV GIS Hall		LS	1					

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1.2	132 kV GIS Hall		LS	1					
D	illumination System								
1.1	Substation Lighting								
1.1.1	Control Room cum administrative building illumination		LS	1					
1.1.2	220kV GIS Building		LS	1					
1.1.3	132kV GIS Building		LS	1					
1.2	Security Room		LS	1					
1.3	Fire fighting Room		LS	1					
1.4	Outdoor Switchyard Lighting		LS	1					
1.5	Street Lighting		LS	1					
1.6	Occupancy sensor		LS	1					
1.7	Township Area Lighting		LS	1					
E	Fire Protection System per technical Specification)								
1	Pumping arrangement for HVW system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house		Set	1					
2	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.		Set	1					
3	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer :								
3.1	53.33 MVA, 220/132 kV Single Phase Auto Transformer		nos	4					
3.2	132/11 kV Three phase transformer		nos	1					
F	POWER & CONTROL CABLES								
1	1.1 kV LV Cables								
1.1	Power Cables(PVC)- (1.1kV grade)		LS	1					
1.2	Control Cable (PVC)- (1.1kV grade)		LS	1					
1.3	Cable glands, lugs & straight through joints for Power & Control cables		LS	1					
G	Visual Monitoring System for watch & ward as per technical specification		LS	1					
H	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect(but excluding LM structures for Lightning protection)								
1.0	Earth Conductor (copper)		LS	1					
2.0	Earth Rod (copper clad steel)		LS	1					
3.0	Equipment for lightning protection		LS	1					
I	SUBSTATION AUTOMATION								
1	Integration of all 220/132kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.		LS	1					

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2	Integration of all 220/132kV Bays under present scope with the SCADA at MCC Baneshwor including supply of Hardware, Software, accessories etc.		LS	1					
SUB TOTAL PART-B									
PART-C: MANDATORY SPARES (Break up of Lumpsum quantity shall be as per Annexure-I, Section Project of Technical Specification).									
1.	Transformer(220/132 kV)								
1.1	Oil cooler pump with motor		Set	1					
1.2	Cooler Fan with motor		No.	1					
1.3	Local & Remote WTI with sensing device & contact (each type)		Set	1					
1.4	Buchholz relay complete with contacts (Main tank)		Set	1					
1.5	Magnetic oil level gauge		No.	1					
1.6	Starters, contactors, switches & relays for electrical control panels (one set of each type)		Set	1					
1.7	Remote tap position Indicator		No.	1					
1.8	Oil Flow indicator with flow switch		Set	1					
1.9	245kV Bushing with metal parts and gaskets and lifting tools		Nos.	1					
1.10	145 kV Bushing with metal parts and gaskets and lifting tools		Nos.	1					
1.11	36kV Bushing with metal parts and gaskets and lifting tools		Nos.	1					
1.12	Spare insulating oil to be handed over to after commissioning for O&M requirement		KL	10					
2	Transformer(132/11 kV)								
2.1	Cooler Fan with motor		No.	1					
2.2	Local & Remote WTI with sensing device & contact (each type)		Set	1					
2.3	Buchholz relay complete with contacts (Main tank)		Set	1					
2.4	Magnetic oil level gauge		No.	1					
2.5	Starters, contactors, switches & relays for electrical control panels (one set of each type)		Set	1					
2.6	Remote tap position Indicator		No.	1					
2.7	Oil Flow indicator with flow switch		Set	1					
2.8	145kV Bushing with metal parts and gaskets and lifting tools		Nos.	1					
2.9	12 kV Bushing with metal parts and gaskets and lifting tools		Nos.	1					
2.10	Spare insulating oil to be handed over to Employer after commissioning for O&M requirement		KL	10					
3	GIS(220 KV & 132 KV)								
3.1	General								
3.1.1	SF6 gas Pressure Relief Devices, 1Nos. of each type		Set	1					
3.1.2	SF6 Pressure gauge cum switch OR Density monitors and pressure switch as applicable (1 no. of each type)		Set	1					
3.1.3	Coupling device for pressure gauge cum switch for connecting Gas handling plant		Set	1					

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3.1.4	Rubber Gaskets, "O" Rings and Seals for SF6 gas of each type		Set	1					
3.1.5	Molecular filter for SF6 gas with filter bags(20% of total weight)		Set	1					
3.1.6	All types of Control Valves for SF6 gas of each type		Set	1					
3.1.7	SF6 gas (20 % of total gas quantity)		Set	1					
3.1.8	All types of coupling for SF6 gas (1 no. of each type)		Set	1					
3.1.9	Pipe length (Copper or Steel as applicable) for SF6 Circuit of each type		Set	1					
3.1.10	Covers with all accessories necessary to close a compartment in case of dismantling of any part of the Enclosure to ensure the sealing of this compartment								
3.1.10.1	For 3 Phase Enclosure if applicable		No.	1					
3.1.10.2	For Single phase enclosure if applicable		No.	1					
3.1.11	Locking device to keep the Dis-connectors (Isolators) and Earthing switches in close or open position in case of removal of the driving Mechanism		Set	1					
3.1.12	Bus Support insulator of each type for 3 phase/single phase enclosure.		No.	1					
3.1.13	SF6 to air bushing (220kV & 132kV - 1 No. of each type & rating) as applicable		Set	1					
3.2	245KV SF6 CIRCUIT BREAKER:								
3.2.1	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit enclosure and Marshalling Box with operating mechanism		No.	1					
3.2.2	Rubber gaskets, 'O' rings and seals for SF6 gas (1 No. of each type)		Set	1					
3.2.3	Trip coil assembly with resistor as applicable		Set	1					
3.2.4	Closing coil assembly with resistor as applicable.		Set	1					
3.2.5	Relays, Power contactors, push buttons, timers & MCBs etc (1 No. of each type & rating)		Set	1					
3.2.6	Closing coil assembly (including valve, if applicable)		Set	1					
3.2.7	Trip coil assembly (including valve, if applicable)		Set	1					
3.2.8	Auxiliary switch assembly of each type		Set	1					
3.3	145KV SF6 CIRCUIT BREAKER:								
3.3.1	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit enclosure and Marshalling Box with operating mechanism		No.	1					
3.3.2	Rubber gaskets, 'O' rings and seals for SF6 gas (1 No. of each type)		Set	1					
3.3.3	Trip coil assembly with resistor as applicable		Set	1					
3.3.4	Closing coil assembly with resistor as applicable .		Set	1					
3.3.5	Relays, Power contactors, push buttons, timers & MCBs etc (1 No. of each type & rating)		Set	1					
3.3.6	Closing coil assembly (including valve, if applicable)		Set	1					
3.3.7	Trip coil assembly (including valve, if applicable)		Set	1					
3.3.8	Auxiliary switch assembly of each type		Set	1					
3.4	245KV ISOLATORS :								
3.4.1	Complete set of 3-phase dis-connector including main circuit, enclosure, driving mechanism		Set	1					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsipedi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

FC: Foreign Currency

Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

LC: Local Currency

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					Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
3.4.2	3-phase Earthing switch including main circuit, enclosure, driving mechanism.		Set	1					
3.4.3	Copper contact fingers for dis-connector male & female contact for one complete (3 phase) dis-connector of each type and rating		Set	1					
3.4.4	Copper contact fingers for earthing switch male & female contacts, for one complete (3 phase) earthing switch of each type and rating		Set	1					
3.4.5	Open / Close contactor assembly, timers, key interlock for one complete (3 phase) dis-connector and (3 phase) earthing switch of each rating (1 No. of each type and rating)		Set	1					
3.4.6	Push button switch - (1 No. of each type & rating) as applicable		Set	1					
3.4.7	Limit switch and Aux. Switches for complete 3 phase equipment								
3.4.7.1	For isolator		Set	1					
3.4.7.2	For earth switch		Set	1					
3.5	145KV ISOLATORS :								
3.5.1	Complete set of 3-phase dis-connector including main circuit, enclosure, driving mechanism		Set	1					
3.5.2	3-phase Earthing switch including main circuit, enclosure, driving mechanism.		Set	1					
3.5.3	Copper contact fingers for dis-connector male & female contact for one complete (3 phase) dis-connector of each type and rating		Set	1					
3.5.4	Copper contact fingers for earthing switch male & female contacts, for one complete (3 phase) earthing switch of each type and rating		Set	1					
3.5.5	Open / Close contactor assembly, timers, key interlock for one complete (3 phase) dis-connector and (3 phase) earthing switch of each rating (1 No. of each type and rating)		Set	1					
3.5.6	Push button switch - (1 No. of each type & rating) as applicable		Set	1					
3.5.7	Limit switch and Aux. Switches for complete 3 phase equipment								
3.5.7.1	For isolator		Set	1					
3.5.7.2	For earth switch		Set	1					
3.6	245KV CURRENT TRANSFORMER								
3.6.1	Gas insulated complete CT of each type and rating with enclosure.		No.	1					
3.6.2	Secondary bushing of each type		Set	1					
3.7	145KV CURRENT TRANSFORMER								
3.7.1	Gas insulated complete CT of each type and rating with enclosure.		No.	1					
3.7.2	Secondary bushing of each type		Set	1					
4	245kV Voltage Transformer								
4.1	Gas insulated complete PT of each type and rating with enclosure.		No.	1					
5	145 kV Voltage Transformer								
5.1	Gas insulated complete PT of each type and rating with enclosure.		No.	1					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
6	AIS Capacitive Voltage Transformer								
6.1	220kV,4400pF CVT (excluding support structure/ common JB)		No.	1					
6.2	132kV, 8800pF CVT (excluding support structure/ common JB)		No.	1					
7	AIS Surge Arrestors								
7.1	216kV Surge Arrestor with insulating base, terminal connector , Surge counter & accessories (excluding support structure)		Set	1					
7.2	120kV Surge Arrestor with insulating base, terminal connector , Surge counter & accessories (excluding support structure)		Set	1					
8	DG Set								
8.1	Self starter assembly		No.	1					
8.2	AVR (Auto Voltage Regulator)/ AVR card		Set	1					
9	Battery Charger								
9.1	220V Battery Chargers								
9.1.1	Set of Control Cards		Set	1					
9.1.2	Set of relays		Set	1					
9.1.3	Rectifier transformer		No.	1					
9.1.4	Thyristor/ Diode		Set	1					
9.1.5	Fuses of Thyristor with indicators		Set	6					
9.2	48V Battery Chargers								
9.2.1	Set of Control Cards		Set	1					
9.2.2	Set of relays		Set	1					
9.2.3	Rectifier transformer		No.	1					
9.2.4	Thyristor/ Diode		Set	1					
9.2.5	Fuses of Thyristor with indicators		Set	6					
10	Relay & Protection								
10.1	Line Protection Panel								
10.1.1	Numerical distance relay (1 no. of each type)		Set	1					
10.2	Transformer Protection Panel								
10.2.1	Transformer differential protection		No.	1					
10.2.2	Restricted earth fault protection relay with non-linear resistor		No.	1					
10.2.3	Directional over current & E/F Protection Relay		no	1					
10.3	COMMON SPARES								
103.1	Power supply module for Bus Bar protection.		No.	1					
103.2	Bay unit module		Set	1					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
10.4	Breaker protection Relay								
10.4.1	Breaker failure relay		No.	1					
10.4.2	Trip circuit supervision relay		Nos.	2					
10.4.3	Self reset trip relay (relay of each type)		Set	1					
10.4.4	Hand reset trip relay(relay of each type)		Set	1					
10.4.5	Timer relay(relay of each type)		Set	1					
10.4.6	DC supervision relay(relay of each type)		Set	1					
10.4.7	Flag relays(relay of each type)		Set	1					
10.4.8	Auxiliary relays(relay of each type)		Set	1					
11	Digital protection Coupler		LS	1					
12	Sub-Station Automation System								
12.1	Bay control unit (IED) of each type		Set	1					
12.2	Ethernet switch of each type		Set	1					
13	LT Transformer								
13.1	Bushings (Each type)		Set	1					
13.2	Diaphragm for pressure relief vent		No.	1					
13.3	Silica gel container		No.	1					
13.4	Set of Valves (Each Type)		Set	1					
13.5	Buchholz relay (if applicable)		No.	1					
14	Erection Hardware		LS	1					
14.1	5% spares of the actual quantities for Insulator strings & hardwares, clamps & connectors (including equipment connectors), spacers, corona bell and welding sleeves,								
15	Telecommunication Equipments								
15.1	Transmission Equipment								
15.1.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)								
15.1.1.1	Common cards, Power supply cards, power cabling, other hardware & accessories (each)		Set	1					
15.2	Optical Interface/SFP for								
15.2.1	S4.1 SFP		No.	1					
15.2.2	L4.1 SFP		No.	1					
15.2.3	L4.2 SFP		No.	1					
15.3	Tributary Cards								
15.3.1	E1 Interface card (Min.8 interfaces per card)		No.	1					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
15.3.2	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)		No.	1					
16	LT Indoor Switchgear		LS	1					
16.1	Each type of MCB, MCCB, ELCB								
17	MV Indoor Swtichgear								
	(11) kV Switchgear								
17.1	11kV Vacuum Interrupter for Incomer and Outgoing		No.	3					
17.2	Tripping Coils		No.	3					
17.3	Closing Coils		Set	3					
17.4	Spring Charging Motor		Set	1					
17.5	Protection Relays								
17.5.1	3 phase Overcurrent Relay, for 11kV side one of each type		Nos.	1					
17.5.2	Ground Fault Relay, for 11kV side, oe of each type		Nos.	1					
17.6	Ammeter, Nos one of each rating		Nos.	1					
17.7	Voltmeter, Nos		Nos.	1					
17.8	kVA Meter, each		Nos.	1					
17.9	CTs of each type		set	1					
17.10	Operating Handle		No.	1					
17.11	Indicating lamps and fuses (100% of used), Lot		LS	1					
18	Fire Fighting								
18.1	Recommended Spares		Set	1					
	SUB-TOTAL-C								
	Total For PART 1 Lapsephedi Substation [(Part-A+ Part-B+ Part C)]								
PART 2	132/11 kV Changunarayan S/S								
	PART -A: OWNER ASSESSED QUANTITIES								
A	POWER TRANSFORMER								
1	31.5/45 MVA, 132/11 kV Three Phase Power Transformer (without transformer Oil)		Nos.	1					
2	Insulating oil for the above Power Transformer		Lot	1					
3	Oil Storage tank of 20KL		Nos.	1					
B	LT Transformer								
1	630KVA 11/0.400 Kv		Nos.	2					
C	145kV Equipment								
	145KV GIS Equipment								
1.0	145kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]		Sets	2					
1.1	145kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]		Set	1					
1.2	145kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]		Sets	6					
1.3	145kV, SF6 GIS ICT feeder bay Module for Transformer [Module description as per Technical Project specification]		Sets	2					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
1.4	SF6 Gas Insulated Bus Duct (GIB) outside GIS hall including Bus Duct support structure and associated accessories								
1.4.1	1250A, 31.5kA for 1 sec. Single Phase		Mtr.	200					
1.4.2	1250A, 31.5kA, 1sec three phase		Mtr.	400					
1.5	145kV, SF6 to Air Bushing alongwith associated support structure								
1.5.1	1250A, 31.5kA, 1sec single phase		Set	27					
D	145kV EQUIPMENT (AIS)								
1.0	120 kV Surge Arrestors (1-Phase)		Nos.	27					
2.0	8800pF, 145 kV Capacitive Voltage Transformer (1-Phase)		Nos.	21					
3.0	145KV Bus Post Insulator		Nos.	21					
E	11 KV EQUIPMENT								
1.0	11 kV Isolator (3-phase)-HDB								
1.1.1	400A, 25kA for 3 sec, Isolator without E/s (Beam Mounted)		Set	8					
2.0	9 kV Surge Arrester (1 ph.)		Nos	12					
F	11 kV Indoor VCB Switchgear								
1.1	11kV 2500A Incomer		Nos	2					
1.2	11kV 1250A Outgoing		Nos	10					
1.3	11kV 2500A Buscoupler		nos	1					
1.4	11kV 2500A Trunking		no	1					
G	Testing & Maintenance Equipment for GIS								
1.1	SF6 Gas processing Unit		Set	1					
1.2	Partial Discharge Monitoring System for 145kV GIS System as per Technical Specification, GIS		Set	1					
1.3	Dew Point meter for 145kV GIS System		Set	1					
1.4	SF6 Gas Leak Detector for 145kV GIS System		Set	1					
1.5	EOT crane for 145kV GIS Hall		Nos.	1					
1.6	SF6 Gas Analyser		Set	1					
H	RELAY PANELS (WITH AUTOMATION)								
1	145kV								
1.1	Line Control and Protection Panel		Nos.	6					
1.2	Transformer Control and Protection Panel (For both HV & MV side)		Nos.	2					
1.3	Bus Coupler Control and Protection Panel		set	1					
2	Other/Common equipments Pertaining to C & R System								
2.1	Time Synchronisation Equipment		No.	1					
2.2	Relay Test kit		No.	1					
I	SUBSTATION AUTOMATION								
1	Substation Automation System as per Technical Specification:								

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
1.1	132 kV System		Nos.	9					
1.2	BCU for auxiliary system		set	1					
1.3	11 kV HT Indoor Switchgear		Nos	13					
J	Digital Protection Coupler & IP-PBAX								
1	Digital Protection Coupler		Nos	8					
2	PBAX as per TS		Set	1					
K	LT Switchgear (As per Technical specification)								
1	400V Main switchboard		Set	1					
2	400V ACDB		Set	1					
3	400V MLDB		Set	1					
4	400V Emergency LDB		Set	1					
5	220V DCDB		Sets	1					
6	48V DCDB		Set	1					
L	Batteries								
1	110V								
1.1	600 AH		Nos	1					
2	48V								
2.1	600AH		Nos	1					
M	Float Cum Boost Battery Charger								
1	220V Float Cum Boost Battery Charger								
1.1	80A/80A		Nos	2					
2	48V Float Cum Boost Battery Charger								
2.1	80A/80A		Nos	2					
N	Diesel Generator with control Panel								
1	100 kVA		Set	1					
O	Fire Protection System								
1	Portable /Trolley/Wheel mounted extinguishers								
1.1	9 litre water type		Nos	2					
1.2	50 litre foam type		Nos	2					
1.3	4.5 kg CO ₂ type		Nos	6					
1.4	4.5 kg Dry Chemical Power (DCP) type		Nos	2					
2.0	Smoke detection system		Set	1					
3.0	Fire detection and Alarm System		Set	1					
P	Cables along with clamps, glands, lugs and straight joints etc.								
1.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV Line		KM	2					
2.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV LT Transformer		KM	0.25					
3.0	11kV HT Cable (1CX800 SQmm) Copper for 11k kV side of 132/11 kV Transformer alongwith accessories and termination equipments		KM	1					
4	Power Cables - (1.1kV grade)								

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4.1	3.5Cx300 sqmm (XLPE) cable for filter Machine along with 2 nos outdoor receptacles -250A		KM	0.15					
Q	Air conditioning								
1	High wall type split AC unit of 2 TR capacities for control room, relay room and battery room		Nos.	20					
R	STEEL STRUCTURES (Tower,Gantry structures& Equipment support structures)								
1.0	Lattice/pipe Structure for towers,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)								
1.1	Lattice stucture & foundation bolts		MT	80					
1.2	Fastners for towers,beams and equipment support strctures		MT	5					
S	Communication Equipment (detail as per TS)								
1.0	Transmission Equipment								
	Telecommunication Equipments								
1.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)								
1.1.1	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks, patch cord, DDF etc fully equiped excluding (ii) & (iii) below, integration with existing SDH equipment at Chapali or Mulpani Substation.		No.	1					
(i)	Optical Interface Cards/SFP								
(a)	S4.1 SFP		Nos.	8					
(b)	L4.2 SFP		Nos.						
(ii)	Tributary cards								
(a)	E1 Interface card (Min.8 interfaces per card)		Nos.	2					
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)		No.	2					
1.1.2	Equipment Cabinets		No	1					
1.1.3	VOIP telephone instrument with one common POE+ switch (min. 8 port)		set	2					
T	PRE-ENGINEERED BUILDINGS								
1.0	GIS Building and Panel Rooms including all supply materials from abroad except civil works and for civil works refer schedule 4(a)								
1.1	132 kV GIS Hall and Panel Rooms including all supply materials from abroad except civil works and for civil works refer schedule 4(a)								
(a)	132 kV GIS Hall		Sq. M.	500					
(b)	AHU		Sq. M.	98					
(c)	Panel Room		Sq. M.	37					
	SUB TOTAL PART-A								
	PART-B: VENDOR ASSESSED QUANTITIES								

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A	Erection Hardware :-Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, clamps, spacers, connectors including connectors for Auto Transformer , Junction box, earthwire, earthing material risers, buried cable trenches/pipe of equipment & lighting, all accessories etc. for the following:		Sets	1					
1	132 kV DM-type layout for GIS termination arrangement								
1.1	Line Bay		Sets	6					
1.2	Transformer Bay		Sets	2					
B	Ventilation & heating System								
1	Ventilation & heating system (as per technical specification)								
1.1	132 kV GIS Hall		LS	1					
C	Illumination System								
1.1	Substation Lighting								
1.1.1	Control Room cum administrative building illumination		LS	1					
1.1.2	132kV GIS Building		LS	1					
1.2	Fire Fighting Room		LS	1					
1.3	Security Room		LS	1					
1.4	Outdoor Switchyard Lighting		LS	1					
1.5	Street Lighting		LS	1					
1.6	Occupancy sensor		LS	1					
D	Fire Protection System per technical Specification)								
1	Pumping arrangement for HVV system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house		set	1					
2	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.		set	1					
3	HVV spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer :								
3.1	132/11 kV Three Phase Transformer		nos	1					
E	POWER & CONTROL CABLES								
1	1.1 kV LV Cables								
1.1	Power Cables(PVC)- (1.1kV grade)		LS	1					
1.2	Control Cable (PVC)- (1.1kV grade)		LS	1					
1.3	Cable glands, lugs & straight through joints for Power & Control cables		LS	1					
F	Visual Monitoring System for watch & ward as per technical specification		LS	1					
G	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect								
1.0	Earth Conductor (copper)		LS	1					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
2.0	Earth Rod (copper clad steel)		LS	1					
3.0	Equipment for lightning protection		LS	1					
H	SUBSTATION AUTOMATION								
1	Integration of all 132/11kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.		LS	1					
2	Integration of all 132/11kV Bays under present scope with the SCADA of MCC at Baneshwor including supply of Hardware, Software, accessories etc. as per TS Section Project.		LS	1					
SUB TOTAL PART-B									
PART-C: MANDATORY SPARES (Break up of Lumpsum quantity shall be as per Annexure-I, Section Project of Technical Specification).									
I.	Transformer(132/11 kV) 45 MVA								
1.1	Oil cooler pump with motor		Set						
1.2	Cooler Fan with motor		No.	1					
1.3	Local & Remote WTI with sensing device & contact (each type)		Set	1					
1.4	Buchholz relay complete with contacts (Main tank)		Set	1					
1.5	Magnetic oil level gauge		No.	1					
1.6	Starters, contactors, switches & relays for electrical control panels (one set of each type)		Set	1					
1.7	Remote tap position Indicator		No.	1					
1.8	Oil Flow indicator with flow switch		Set	1					
1.9	Spare insulating oil to be handed over to Employer after commissioning for O&M requirement		KL	10					
II	GIS(132 KV)								
1	General								
1.1	Coupling device for pressure gauge cum switch for connecting Gas handling plant		Set	1					
1.2	Rubber Gaskets, "O" Rings and Seals for SF6 gas of each type		Set	1					
1.3	Molecular filter for SF6 gas with filter bags(20% of total weight)		Set	1					
1.4	SF6 gas (20 % of total gas quantity)		Set	1					
1.5	All types of coupling for SF6 gas (1 no. of each type)		Set	1					
1.6	Pipe length (Copper or Steel as applicable) for SF6 Circuit of each type		Set	1					
1.7	Covers with all accessories necessary to close a compartment in case of dismantling of any part of the Enclosure to ensure the sealing of this compartment								
1.7.1	For 3 Phase Enclosure if applicable		No.	1					
1.7.2	For Single phase enclosure if applicable		No.	1					
1.8	Locking device to keep the Dis-connectors (Isolators) and Earthing switches in close or open position in case of removal of the driving Mechanism		Set	1					
2	145KV SF6 CIRCUIT BREAKER:								

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Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

LC: Local Currency

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					Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
2.1	Trip coil assembly with resistor as applicable		Set	1					
2.2	Closing coil assembly with resistor as applicable .		Set	1					
2.3	Relays, Power contactors, push buttons, timers & MCBs etc (1 No. of each type & rating)		Set	1					
2.4	Closing coil assembly (including valve, if applicable)		Set	1					
2.5	Trip coil assembly (including valve, if applicable)		Set	1					
2.6	Auxiliary switch assembly of each type		Set	1					
3	145KV ISOLATORS :								
3.1	Open / Close contactor assembly, timers, key interlock for one complete (3 phase) dis-connector and (3 phase) earthing switch of each rating (1 No. of each type and rating)		Set	1					
3.2	Push button switch - (1 No. of each type & rating) as applicable		Set	1					
3.3	Limit switch and Aux. Switches for complete 3 phase equipment								
3.3.1	For isolator		Set	1					
3.3.2	For earth switch		Set	1					
4	145KV CURRENT TRANSFORMER								
4.1	Gas insulated complete CT of each type and rating with enclosure.		No.	1					
4.2	Secondary bushing of each type		Set	1					
5	145 kV Voltage Transformer								
I	132kV CVT								
1	132kV, 8800pF CVT (excluding support structure/ common JB)		No.	1					
II	120kV LA								
1	120kV Surge Arrester with insulating base, terminal connector , Surge counter & accessories (excluding support structure)		Set	1					
III	DG Set								
1	Self starter assembly		No.	1					
2	AVR (Auto Voltage Regulator)/ AVR card		Set	1					
IV	Battery Charger								
1	Thyristor/ Diode		Set	1					
2	Fuses of Thyristor with indicators		Set	6					
3	Thyristor/ Diode		Set	1					

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							8 = (7) x (5)	9=8	10
4	Fuses of Thyristor with indicators		Set	6					
5	COMMON SPARES								
5.1	Self reset trip relay (relay of each type)		Set	1					
5.2	Hand reset trip relay(relay of each type)		Set	1					
5.3	Timer relay(relay of each type)		Set	1					
V	Digital protection Coupler		LS	1					
VI	Sub-Station Automation System								
1	Bay control unit (IED) of each type		Set	1					
2	Ethernet switch of each type		Set	1					
VII	LT Transformer								
1	Bushings (Each type)		Set	1					
2	Diaphragm for pressure relief vent		No.	1					
3	Silica gel container		No.	1					
4	Set of Valves (Each Type)		Set	1					
5	Buchholz relay (if applicable)		No.	1					
IX	Erection Hardware		LS	1					
1	5% spares of the actual quantities for Insulator strings &hardwares, clamps & connectors (including equipment connectors), spacers, corona bell and welding sleeves,								
X	LT Indoor Switchgear		LS	1					
1	Each type of MCB, MCCB, ELCB								
XI	Fire Fighting		LS	1					
1	Recommended Spares		Set	1					
6	MV Indoor Swtichgear								
1	11 kV Switchgear								
1.1	Tripping Coils		No.	3					
1.2	Closing Coils		Set	3					
1.3	Spring Charging Motor		Set	1					
1.4	Protection Relays								

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		3	4	5	6	7	8 = (7) x (5)	9=8	10
1.4.1	3 phase Overcurrent Relay, for 11kV side one of each type		Nos.	1					
1.4.2	Ground Fault Relay, for 11kV side, oe of each type		Nos.	1					
1.5	CTs of each type		set	1					
1.6	Operating Handle		No.	1					
1.7	Indicating lamps and fuses (100% of used), Lot		LS	1					
	SUB-TOTAL-C								
	Total for PART 2 132/22(11)kV Changunarayan Substation (III) (Part-A+ Part-B+ Part C)								
PART 3	132/11 kV Teku Substation upgrade (132V GIS & Indoor)								
	Part-A : EMPLOYER ASSESSED QUANTITIES								
A1	POWER TRANSFORMER								
A1.1	POWER TRANSFORMER								
a)	51.5/63 MVA , 132/66 KV, 3-phase Outdoor Transformer (Excluding insulating oil)		Nos.	1					
b)	31.5/45 MVA , 132/11 KV, 3-phase Outdoor Transformer (Excluding insulating oil)		Nos.	2					
c)	Insulating oil for 63 MVA , 132/66 KV, 3-phase Transformer (* 1Lot = Oil for 1 Transformers)		Lot*	1					
d)	Insulating oil for 45 MVA , 132/11 KV, 3-phase Transformer (* 1Lot = Oil for 1 Transformers)		Lot*	2					
A1.2	Testing & Maintenance Equipments								
a)	Oil Storage Tank		No.	1					
B	145 kV equipment								
B1	145KV GIS Equipment								
1.01	145kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]		Set	2					
1.02	145kV, SF6 GIS ICT bay Module [Module description as per Technical Project specification]		Set	3					
1.03	145kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]		Set	4					
1.04	145kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]		Set	1					
1.05	145kV, 1250A, 31.5kA SF6/Air Bushing for Connecting GIS to AIS alongwith support structure		Nos	12					
1.06	145kV, 1250A, 31.50kA SF6/Air Bushing for Connecting GIS to Transformer alongwith support arrangement		Nos	9					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
B2	72KV GIS Equipment								
1.01	72kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]		Set	2					
1.02	72kV, SF6 GIS ICT bay Module [Module description as per Technical Project specification]		Set	2					
1.03	145kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]		Set	4					
1.04	72kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]		Set	1					
1.05	145kV, 1250A, 31.5kA SF6/Air Bushing for Connecting GIS to AIS alongwith support structure		Nos	6					
1.06	72kV, 1250A, 31.50kA SF6/Air Bushing for Connecting GIS to Transformer alongwith support arrangement		Nos	6					
1.08	Testing & Maintenance Equipment for GIS								
(i)	Partial Discharge Monitoring System for 145kV GIS System as per Technical Specification, GIS		Set	1					
(ii)	Dew Point meter for 145kV GIS System		Set	1					
(iii)	SF6 Gas Leak Detector for 145kV GIS System		Set	1					
(iv)	EOT crane for 145kV GIS Hall		Set	1					
(v)	SF6 Gas Analyser		Set	1					
B2	145KV Outdoor Equipment								
1.0	145 kV Surge Arrestors								
a	120 kV Surge Arrestors (1- Phase)		Nos	6					
2.0	145 kV Post insulators, as required		Nos	6					
B3	11kV, 25 kA (3 Phase) Indoor switch gear panel								
1.0	11 kV Indoor VCB Switchgear								
1.1	11kV 2500A Incomer		Nos	2					
1.2	11kV 2500A Trunking		Nos	2					
C	CONTROL RELAY PANELS (WITH AUTOMATION)								
1.0	132 kV and 66 kV								
a	132 kV Line Control & Protection Panel with distance relay / Differential relay		Set	4					
b	66 kV Line Control & Protection Panel with distance relay / Differential relay		Set	2					
c	Current Differential Relay for other end of line		Nos	4					
d	Transformer Control & Protection Panel (For 132/11kV)		Set	2					
e	Transformer Control & Protection Panel (For 132/66kV)		Set	1					
f	Buscoupler Control & Protection Panel		Set	1					
g	Bus Bar Protection Panel		Set	1					
D	COMMON EQUIPMENTS								

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	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
1.0	Relay Test tool kit		Set	1					
2.0	Time synchronisation equipment		No.	1					
E	SUBSTATION AUTOMATION								
E.1	Complete Substation Automation System (SAS) for substation including hardware and software for the substation & remote control stations alongwith associated equipments for the following bays as per Technical Specification (including main and backup relays, auxillary relays, switches and other accessories for existing bays, where required)								
a	Main bays to be automated								
i	132 kV system		Bay	8					
ii	66 kV system		Bay	6					
iii	11 kV system		Bay	14					
iii	BCU for controlling & monitoring of Auxilary System		Set	1					
F	Digital Protection Coupler								
1	Digital Protection Coupler		Nos	6					
G	LT Switchgear (As per Technical specification)								
a	415V Main switchboard		Set	1					
b	415V ACDB		Set	1					
c	415V MLDB		Set	1					
d	415V Emergency LDB		Set	1					
e	110V DCDB		Sets	1					
f	48V DCDB		Sets	1					
H	Batteries								
a	110V								
i	600 AH		Nos	1					
I	Float Cum Boost Battery Charger								
a	110V Float Cum Boost Battery Charger								
i	80A/80A		Nos	1					
J	Fire Protection System								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type		Nos	3					
ii	50 litre foam type		Nos	1					
iii	4.5 kg CO ₂ type		Nos	5					
iv	4.5 kg Dry Chemical Power (DCP) type		Nos	3					
b	Smoke detection system		Set	1					
c	Fire detection and Alarm System		Set	1					

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	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
K	Cables along with clamps, glands, lugs and straight joints etc.								
(a)	Power Cables - (1.1kV grade)								
(b)	Power Cables - (12kV grade)								
i	1Cx800 sqmm (XLPE) copper cable for Incomer with termination arrangement as per TS		KM	2					
(c)	Power Cables - (145kV grade)								
i	1Cx500 sqmm (XLPE) copper cable for line bay along with termination arrangement as per TS		KM	1					
ii	1Cx240 sqmm (XLPE) copper cable for Transformer along with termination arrangement as per TS		KM	0.5					
(c)	Power Cables - (72kV grade)								
i	1Cx500 sqmm (XLPE) copper cable for line bay along with termination arrangement as per TS		KM	1					
L	Air conditioning System for Control Building								
a	High wall type split AC unit of 2 TR capacity		Nos	10					
M	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.								
(a)	Lattice Structure including Foundation Bolts		MT	10					
(b)	Pipe Structure including Foundation Bolts .		MT	1					
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)		MT	2					
N	BOQ for Auxiliary Power Supply Equipments								
(i)	SMPS based 48V DC Power Supply (DCPS) system		Nos.	1					
(ii)	VRLA type Battery bank for above DCPS system		Nos.	1					
O	Communication Equipment								
I	Transmission Equipment								
	Telecommunication Equipments for Teku and K3								
1.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)								
1.1.1	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks, patch cord, DDF etc fully equiped excluding (i) & (ii) below, integration with existing SDH equipment at LDC		No.	2					
(i)	Optical Interface Cards/SFP								
(a)	S4.1 SFP		Nos.	6					
(ii)	Tributary cards								
(a)	E1 Interface card (Min.8 interfaces per card)		Nos.	4					
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)		No.	4					

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1.1.2	Equipment Cabinets		No.	2					
1.1.3	VOIP telephone instrument with one common POE+ switch (min. 8 port)		set	4					
P	PRE-ENGINEERED BUILDINGS								
1.0	132 kV GIS Hall and Panel Rooms including all supply materials from abroad except civil works and for civil works refer schedule 4(a)								
(a)	132 kV GIS Hall		Sq. M.	120					
(b)	AHU		Sq. M.	25					
(c)	Panel Room		Sq. M.	45					
	Sub-Total Part-A								
	Part-B: CONTRACTOR ASSESSED QUANTITIES								
A	Erection Hardware								
	Insulator strings, Disc Insulators, Hardware, conductor, Al tube, bus-bar materials, cable trays, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:								
a	GIS Termination Arrangement:								
i	Line Bay		LS	1					
ii	Transformer Bay		LS	1					
iii	Buscoupler and busbar module		LS	1					
b	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect(but excluding LM structures for Lightning protection)								
i	Earth Conductor (copper)		LS	1					
ii	Earth Rod (copper clad steel)		LS	1					
iii	Equipment for lightning protection		LS	1					
B	Fire Protection System								
a	Fire Protection system with complete U/G & O/G piping, Tanks, building and accessories etc. as required, complete for outdoor Transformer and GIS Hall:								
a.1	Transformer		Set	3					
i	132 KV, 3-phase Transformer								
C	Illumination System								
a	132kV GIS Hall		LS	1					
b	Switchyard lighting Outdoor		LS	1					

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D	Air conditioning & ventilation System								
D.1	Air conditioning								
(i)	Panel room in 145kV GIS Hall		LS	1					
D.2	Ventilation system								
(i)	145KV GIS hall		LS	1					
E	POWER & CONTROL CABLES								
a	Power Cables(PVC)- (1.1kV grade)		LS	1					
b	Control Cable (PVC)- (1.1kV grade)		LS	1					
c	Cable glands, lugs & straight through joints for Power & Control cables		LS	1					
F.a	Adaptation works and extension of existing RTU at the Control Room (cards, including cable, connectors, other hardware and software required for data transmission to LDC and remote operation)		LS	1					
b	Integration of all Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.		LS	1					
c	Integration of all Bays with the MCC at Baneshwor Substation including supply of Hardware, Software, accessories etc. to complete scope of work.		LS	1					
Sub-Total Part-B									
Part-C: Mandatory Spares									
(I)	Mandatory Spare List for Transformer								
	For 132/11 KV and 132/66kV, 3-phase Transformer								
a)	Bushing of each rating with metal parts & gaskets and lifting tools		Set	1					
b)	Cooler fan with Motor		No.	1					
c)	Buchholz Relay(Main Tank) complete with floats and contacts		Set	1					
d)	Local and Remote WTI with sensing device and contact(each)		Set	1					
e)	Magnetic oil level gauge		No.	1					
f)	Strarters, contactors,switches & Relays for Electrical control panels(One ste of each type)		Set	1					
g)	Remote Tap postion Indiator		No.	1					
h)	Spare insulating oil to be handed over to Owner after commisioning for O&M requirement		KL	10					
(II)	SPARES FOR 145kV GIS								
A)	General								
a.	SF6 gas Pressure Relief Devices, 1Nos. of each type		Set	1					
b.	SF6 Pressure gauge cum switch OR Density monitors and pressure switch as applicable (1 no. of each type)		Set	1					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
c.	Coupling device for pressure gauge cum switch for connecting Gas handling plant		Set	1					
d.	Rubber Gaskets, "O" Rings and Seals for SF6 gas of each type		Set	1					
e.	Molecular filter for SF6 gas with filter bags(20% of total weight)		Set	1					
f.	All types of Control Valves for SF6 gas of each type		Set	1					
g.	SF6 gas (20 % of total gas quantity)		Set	1					
h.	All types of coupling for SF6 gas (1 no. of each type)		Set	1					
i.	Pipe length (Copper or Steel as applicable) for SF6 Circuit of each type		Set	1					
j.	Covers with all accessories necessary to close a compartment in case of dismantling of any part of the Enclosure to ensure the sealing of this compartment								
j.1	For 3 Phase Enclosure if applicable		Nos.	1					
j.2	For Single phase enclosure if applicable		Nos.	1					
k	Locking device to keep the Dis-connectors (Isolators) and Earthing switches in close or open position in case of removal of the driving Mechanism		Sets	1					
l	Bus Support insulator of each type for 3 phase/single phase enclosure.		Nos.	1					
m	SF6 to air bushing (145kV) as applicable		Sets	1					
B)	145 KV SF6 CIRCUIT BREAKER:								
a.	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit enclosure and Marshalling Box with operating mechanism		Nos.	1					
b.	Rubber gaskets, `O' rings and seals for SF6 gas (1 No. of each type)		Sets	1					
c.	Trip coil assembly with resistor as applicable		Sets	1					
d.	Closing coil assembly with resistor as applicable .		Sets	1					
e.	Relays, Power contactors, push buttons, timers & MCBs etc (1 No. of each type & rating)		Sets	1					
f.	Closing coil assembly (including valve, if applicable)		Sets	1					
g.	Trip coil assembly (including valve, if applicable)		Sets	1					
h.	Auxiliary switch assembly of each type		Sets	1					
C)	145 KV ISOLATORS :								
a.	Complete set of 3-phase dis-connector including main circuit, enclosure, driving mechanism (one no of each type)		Sets	1					
b.	Single Phase/ 3-phase Earthing switch including main circuit, enclosure, driving mechanism.		Sets	1					
c.	Copper contact fingers for dis-connector male & female contact for one complete (3-phase) dis-connector of each type and rating		Sets	1					
d.	Copper contact fingers for earthing switch male & female contacts, for one complete(3-phase) earthing switch of each type and rating		Sets	1					
e.	Open / Close contactor assembly, timers, key interlock for one complete (3 phase) dis-connector and (3 phase) earthing switch (1 No. of each type and rating)		Sets	1					
f.	Push button switch - (1 No. of each type & rating) as applicable		Sets	1					
g.	Limit switch and Aux. Switches for complete 3 phase equipment								

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Item No.	Item description	Country of origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
			Unit	Quantity	FC			FC	LC
					Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
g.1	For isolator		Sets	1					
g.2	For earth switch		Sets	1					
D)	145 KV CURRENT TRANSFORMER								
a.	Gas insulated complete CT of each type and rating with enclosure.		Lot	1					
b.	Secondary bushing of each type		Sets	1					
E)	145 kV VOLTAGE TRANSFORMER								
a.	Gas insulated complete PT of each type and rating with enclosure.		Nos.	1					
(F)	120kV SA								
i)	Complete LA		No.	1					
ii)	Surge counter/monitor		Nos.	2					
(III)	C&R PANELS								
i)	Transformer protection panel :								
a)	Transformer differential protection		No.	1					
b)	REF protection relay with non-linear resistor		No.	1					
c)	Directional over current & E/F Protection Relay		No.	1					
ii)	Line protection panel :								
a)	Distance Protection relay or Current differential Protection relay		No.	1					
iii)	Breaker Relay panel: Part of CRP								
a)	Breaker failure relay		No.	1					
b)	Trip circuit supervision relay		Nos.	2					
c)	Self reset trip relay (relay of each type)		Set	1					
d)	Hand reset trip relay(relay of each type)		Set	1					
e)	Timer relay(relay of each type)		Set	1					
f)	DC supervision relay(relay of each type)		Set	1					
g)	Flag relays(relay of each type)		Set	1					
h)	Auxiliary relays(relay of each type)		Set	1					
(V)	SAS								
i)	Bay Control Unit (IED) of each type		Set	1					
ii)	Ethernet Switch of each type		Set	1					
(VI)	BATTERY CHARGER(220V & 48V)								
i)	Set of control cards		Set	1					
ii)	Set of relays		Set	1					
iii)	Rectifier transformer		No.	1					
iv)	Thyristor/diode		Set	1					
v)	Fuses of Thyristor with indicators		Set	6					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsipedi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

FC: Foreign Currency

Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

LC: Local Currency

Item No.	Item description	Country of origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
			Unit	Quantity	FC			FC	LC
					Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
	Sub-Total Part-C								
	Total For PART 3 Teku Substation [(Part-A+ Part-B+ Part C)]								
PART 4	Suichatar Substation Extension (132V AIS Outdoor)								
	Part-A : EMPLOYER ASSESSED QUANTITIES								
A	145 kV equipment								
1.0	145 kV Circuit Breaker (3-Phase) with support structure								
a	1250A, 31.5 kA		Nos	2					
2.0	145kV Isolator (3-phase)-HDB								
a	1250A, 31.5 KA, Isolator with one E/S		Nos	2					
b	1250 A, 31.5KA, Isolator without E/S		Nos	2					
3.0	145 kV Instrument Transformer (1- Phase)								
a	Current Transformer		Nos	6					
b	Capacitive Voltage Transformer		Nos	6					
4.0	145 kV Surge Arrestors								
a	120 kV Surge Arrestors (1- Phase)		Nos	6					
b	60 kV Surge Arrestors (1- Phase)		Nos	6					
5.0	145 kV Bus post insulators		Set	6					
6.0	66 kV Bus post insulators		Set	6					
B	Cables along with clamps, glands, lugs, termination and straight joints etc.								
(a)	Power Cables - (72kV grade)								
i	1Cx500 sqmm (XLPE) copper cable for bypassing 66kV line along with termination and jointing arrangement as per TS		KM	0.5					
b	Power Cables - (145kV grade)								
ii	1Cx500 sqmm (XLPE) copper cable for line bay along with termination and jointing arrangement as per TS		KM	1.2					
C	CONRL & RELAY PANELS (WITH AUTOMATION)								
1.0	132 kV								
a	Line Control & Protection Panel with distance relay		Set	2					
b	Digital Protection coupler		Nos	2					
C	Air conditioning System for Control Building								
a	High wall type split AC unit of 2 TR capacity		Nos	6					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsipedi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

FC: Foreign Currency

Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

LC: Local Currency

Item No.	Item description	Country of origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
			Unit	Quantity	FC			FC	LC
					Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
D	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.								
(a)	Lattice Structure including Foundation Bolts		MT	10					
(b)	Fastners and step bolts.(Nuts,Bolts & Washers)		MT	2					
E	Communication equipments								
1.0	Optical Fibre (OPFW) 48 fibre with all accessories like jointing box, FODP, Pit, hardware set, cable fittings etc		Km	4.5					
2	Transmission Equipment								
	Telecommunication Equipments								
2.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 5 MSP protected directions)								
2.1.1	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks, patch cord, DDF etc fully equiped excluding (i) & (ii) below, integration with existing SDH equipment at LDC		No.	1					
(i)	Optical Interface Cards/SFP								
(a)	S4.1 SFP		Nos.	4					
(ii)	Tributary cards								
(a)	E1 Interface card (Min.8 interfaces per card)		Nos.	2					
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)		No.	2					
2.2	Equipment Cabinets			1					
2.3	VOIP telephone instrument with one common POE+ switch (min. 8 port)		set	2					
	Sub-Total Part-A								
	Part-B: CONTRACTOR ASSESSED QUANTITIES								
A	Erection Hardware								
	Insulator strings, Disc Insulators, Hardware, conductor, Al tube, bus-bar materials, cable trays, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:								
a	145kV GIS Termination Arrangement:								
i	Line Bay		Set	2					
b	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect(but excluding LM structures for Lightning protection)								
i	Earth Conductor (copper)		LS	1					
ii	Earth Rod (copper clad steel)		LS	1					
iii	Equipment for lightning protection		LS	1					

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FC: Foreign Currency

Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

LC: Local Currency

Item No.	Item description	Country of origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
			Unit	Quantity	FC			FC	LC
					Currency#	Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
B	ILLUMINATION SYSTEM								
A	Switchyard lighting Outdoor		LS	1					
C	POWER & CONTROL CABLES								
a	Power Cables(PVC)- (1.1kV grade)			↑ 1					
b	Control Cable (PVC)- (1.1kV grade)			↑ 1					
c	Cable glands, lugs & straight through joints for Power & Control cables		LS	1					
D	Communication equipments								
(a)	Adaptation works and extension of existing RTU at the Control Room (cards, including cable, connectors, other hardware and software required for data transmission to LDC and remote operation)		LS	1					
(b)	Adaptation works and extension of existing SAS at the Control Room including all accessories, hardware and software required for data transmission to MCC at Baneshwor, where applicable		LS	1					
(c)	Integration of all Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.		LS	1					
Sub-Total Part-B									
Part-C: Mandatory Spares									
a)	C&R PANELS								
i)	Line protection panel :								
a)	Distance Protection relay- Main-1		No.	1					
ii)	Breaker Relay panel:								
a)	Breaker failure relay		No.	1					
b)	Trip circuit supervision relay		Nos.	2					
c)	Self reset trip relay (relay of each type)		Set	1					
d)	Hand reset trip relay(relay of each type)		Set	1					
e)	Timer relay(relay of each type)		Set	1					
f)	DC supervision relay(relay of each type)		Set	1					
g)	Flag relays(relay of each type)		Set	1					
h)	Auxiliary relays(relay of each type)		Set	1					
Sub-Total Part-C									
Total For PART 4 Suichatar Substation [(Part-A+ Part-B+ Part C)]									
Total for Schedule 1 (Total of column 9 to be carried forward to Schdule 5: Grand Summary)									

Note : 1) Bidder is required to quote prices in this Schedule for all the individual items/sub-items.

2.) The Prices of equipments are inclusive of type test charges

3.) BOQ given above is indicative only based on the scope of work as given in Employer's Requirements. The quantities mentioned above may undergo change during detailed engineering to meet the functional requirement and

Power Transmission and Distribution Efficiency Enhancement Project

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FC: Foreign Currency

Schedule No.1: Plant and Equipment including Mandatory Spares to be supplied from abroad

LC: Local Currency

Item No.	Item description	Country of origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
			Unit	Quantity	FC			FC	LC
		3	4	5	Currency#	Unit Rate	Amount	8 = (7) x (5)	9=8
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10

Specify currency in accordance with BDS ITB Clause 32.1, Part-I of the Bidding Documents.

* Strike-out whichever is not applicable.

Name of Bidder:
Signature of Bidder:
 (Printed Name)
 (Designation)
 (Common Seal)

Date:

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Lapsephedi & Changunarayan Substation Construction Project

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01: Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No.2: Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal

LC: Local Currency (ALL Price in Local Currency)

Item No.	Item description	Unit	Quantity	Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	VAT and other taxes
				Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
PART 1	220/132/11 kV GIS Lapsiphedi Substation								
	Total for 220/132/11kV Lapsephedi Substation (I) (Part-A+ Part-B+ Part C)								
PART 2	132/11 kV GIS Changunarayan Substation								
	Total for PART 2: 132/11kV Changunarayan Substation (II) (Part-A+ Part-B+ Part C)								
PART 3	132/66/11 kV Teku Substation Upgradation (GIS & Indoor)								
	Total for PART 3: 132 kV Teku Substation (III) (Part-A+ Part-B+ Part C)								
PART 4	132 kV Suichatar Substation Upgradation (AIS Outdoor)								
	Total for PART 4: 132 kV Suichatar Substation (IV) (Part-A+ Part-B+ Part C)								
	Total for Schedule 2 (Total of column 9 to be carried forward to Schedule 5: Grand Summary)								

Note : 1) Bidder is required to quote prices in this Schedule for all the items in Schedule 1 which they wish to supply from within Nepal.

2.) The Prices of equipments are inclusive of type test charges

Specify currency in accordance with BDS ITB Clause 32.1, Part-I of the Bidding Documents.

* Strike-out whichever is not applicable.

^a Specify currency in accordance with ITB 19.1 of the BDS.

^b Column 5 Price shall include all customs duties and sales and other taxes already paid or payable on the components and raw materials used in the manufacture or assembly of the item or the customs duties and sales and other taxes already paid on previously imported items.

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

Date:

(Common Seal)

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Lapsephedi & Changunarayan Substation Construction Project

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Schedule A-3: Design Services

Item No.	Item Description	Estimated		Unit Prices		Total Prices	
				Local Currency Portion	Foreign Currency Portion	Local Currency Portion	Foreign Currency Portion
		Quantity	Unit	NRs	Currency	LC	FC
1	2	3	4	5	6	7=3x5	8=3x6
	NOT APPLICABLE						
	Total for Schedule 3 (Total of column 7 & 8 to be carried forward to Schdule 5: Grand Summary)						

NOTE: The design cost is included in schedule 1.

Name of Bidder:
Signature of Bidder:
 (Printed Name)
 (Designation)
 (Common Seal)

Date:

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Lapsephedi & Changunarayan Substation Construction Project

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
PART 1	220/132/11kV GIS Lapsephedi Substation									
	PART - A: OWNER ASSESSED QUANTITIES									
A1.1	POWER TRANSFORMER									
1	53.33MVA, 220/√3 / 132/√3 kV Single Phase Power Transformer (without transformer Oil)			Nos.	4					
2	Insulating oil for the above Power Transformer			Lot	4					
3.0	33kV Current transformer (NCT) for autotrasnformer			No	1					
A1.2	POWER TRANSFORMER									
1	18/22.5 MVA, 132 /11 kV Three Phase Power Transformer (without transformer Oil)			Nos.	1					
2	Insulating oil for the above Power Transformer			Lot	1					
C)	LT Transformer									
1	615KVA 11/0.400 Kv			Nos.	2					
D	245 KV EQUIPMENTS									
D.1	245KV GIS Equipment									
1.1	245kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]			Sets	2					
1.2	245kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]			Sets	1					
1.3	245kV, SF6 GIS Line bay Module [Module description as per Technical Projeet specification]			Sets	2					
1.4	245kV, SF6 GIS spare Line feeder bay Module as per section project			Sets	1					
1.5	2145kV, SF6 GIS ICT bay Module including switching arrangement for 1-ph spare transformer [Module description as per Technical Project specification]			Sets	1					

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.6	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories									
1.6.1	2000A, 40kA for 1 sec. Single Phase			Mtr.	120					
1.6.2	2000A, 40kA, 1sec three phase			Mtr.	200					
1.7	245 kV Auxiliary Bus to connect spare unit of Transformer [Module description as per Technical specification and Section Project Specific Requirement]			Set	1					
1.7	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
1.7.1	2000A, 40kA for 1 sec. Single Phase			Nos.	13					
D.2	245KV Outdoor Equipment									
1.1	216 KV Surge Arrester (1-phase)			Nos.	13					
1.2	245kV Capactive Voltage Transfromer			Nos.	9					
1.3	245kV Bus Post Insulator (1-Phase) (Except for wave trap)			Nos.	15					
E	145kV Equipment									
E.1	145KV GIS Equipment									
1.1	145kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]			Sets	2					
1.2	145kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]			Set	1					
1.3	145kV, SF6 GIS Line bay Module [Module description as per Technical Projct specification]			Sets	2					
1.4	145kV, SF6 GIS ICT feeder bay Module for 220/132 kV Transformer including switching arrangement for 1-ph spare transformer [Module description as per Technical Project specification]			Sets	1					
1.5	145kV, SF6 GIS ICT feeder bay Module for 132/11 kV 3-ph Transformer [Module description as per Technical Project specification]			Sets	1					
1.6	SF6 Gas Insulated Bus Duct (GIB) outside GIS hall including Bus Duct support structure and associated accessories									
1.6.1	2000A, 40kA for 1 sec. Single Phase			Mtr	120					
1.6.2	2000A, 40kA, 1sec three phase			Mtr	200					

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.7	245 kV Auxiliary Bus to connect spare unit of Transformer [Module description as per Technical specification and Section Project Specific Requirement]			Set	1					
1.8	145kV, SF6/Air Bushing for Connecting GIS to AIS alongwith support structure									
1.8.1	1250A, 31.5kA, 1sec single phase			Set	16					
E.2	145kV EQUIPMENT (AIS)									
1.0	120 kV Surge Arrestors (1-Phase)			Nos.	16					
2.0	8800pF, 145 kV Capacitive Voltage Transformer (1-Phase)			Nos.	9					
3.0	145KV Bus Post Insulator			Nos.	9					
F	11 KV EQUIPMENT									
1.0	9 kV Surge Arrester (1 ph.)			Nos	6					
G	11kV, 25 kA (3 Phase) Indoor switch gear panel									
1.0	11 kV Indoor VCB Switchgear									
1.1	11kV 2500A Incomer			Nos	2					
1.2	11kV 1250A Outgoing			Nos	6					
1.3	11kV 2500A Buscoupler			Nos	1					
1.4	11kV 2500A Trunking			Nos	1					
H	Testing & Maintenance Equipment for GIS									
1.1	SF6 Gas processing Unit			Set	1					
1.2	Partial Discharge Monitoring System			Set	1					
1.3	EOT crane for 220kV GIS Hall			Set	1					
1.4	EOT crane for 132kV GIS Hall			Set	1					
I	RELAY PANELS (WITH AUTOMATION)									
1	245kV									
1.2	Line Control and Protection Panel			Nos.	2					
1.3	Transformer Control and Protection Panel (For both HV & MV side)			Nos.	1					
1.4	Bus Coupler Control and Protection Panel			set	1					
2	145kV									

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
2.2	Line Control and Protection Panel			Nos.	2					
2.3	Transformer Control and Protection Panel (For both HV & MV side)			Nos.	1					
2.4	Bus Coupler Control and Protection Panel			set	1					
3	Other/Common equipments Pertaining to C & R System									
3.1	Time Synchronisation Equipment			No.	1					
3.2	Relay Test kit			No.	1					
J	SUBSTATION AUTOMATION									
1	Substation Automation System as per Technical Specification:									
1.1	220kV System			Nos.	5					
1.2	132 kV System			Nos.	6					
1.3	BCU for auxiliary system			set	1					
1.4	11 kV HT Indoor Switchgear			Nos.	7					
K	Digital Protection Coupler & PBAX									
1	Digital Protection Coupler			Nos	6					
2	IP-PBAX as per TS			Set	1					
L	LT Switchgear (As per Technical specification)									
1	400V Main switchboard			Set	1					
2	400V ACDB			Set	1					
3	400V MLDB			Set	1					
4	400V Emergency LDB			Set	1					
5	220V DCDB			Sets	1					
6.0	48V DCDB			Set	1					
M	Batteries									
1	220V									
1.1	600 AH			Nos	2					
2	48V									

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
2.1	600AH			Nos	2					
N	Float Cum Boost Battery Charger									
1	220V Float Cum Boost Battery Charger									
1.1	80A/80A			Nos	2					
2	48V Float Cum Boost Battery Charger									
2.1	80A/80A			Nos	2					
O	Diesel Generator with control Panel									
1	250 kVA			Set	1					
P	Fire Protection System									
1	Portable /Trolley/Wheel mounted extinguishers									
1.1	9 litre water type			Nos	2					
1.2	50 litre foam type			Nos	2					
1.3	4.5 kg CO ₂ type			Nos	6					
1.4	4.5 kg Dry Chemical Power (DCP) type			Nos	2					
2.0	Smoke detection system			Set	1					
3.0	Fire detection and Alarm System			Set	1					
Q	Cables along with clamps, glands, lugs and straight joints etc.									
1.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV Line			KM	2					
2.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV LT Transformer			KM	0.25					
3.0	11kV HT Cable (1CX800 SQmm) Copper for 11k kV side of 132/11 kV Transformer alongwith accessories and termination equipments			KM	0.5					
4	Power Cables - (1.1kV grade)									
4.1	3.5Cx300 sqmm (XLPE) cable for filter Machine along with 2 nos outdoor receptacles -250A			KM	0.15					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
R	Air conditioning									
1	High wall type split AC unit of 2 TR capacities for control room, relay room and battery room			Nos.	25					
S	STEEL STRUCTURES (Tower,Gantry structures& Equipment support structures)									
1.0	Lattice/pipe Structure for towers,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)									
1.1	Lattice stucture & foundation bolts			MT	55					
1.2	Pipe Structure including Foundation Bolts .			Mt	20					
1.3	Fastners for towers,beams and equipment support strctures			MT	3					
T	Communication Equipment (detail as per TS)									
1	Telecommunication Equipments									
1.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)									
1.1.1	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks, patch cord, DDF etc fully equiped excluding (i) & (ii) below, integration with existing SDH equipment at Barhbise 220 kV Substation.			No.	1					
(i)	Optical Interface Cards/SFP									
(a)	S4.1 SFP			Nos.	2					
(b)	L4.1 SFP			Nos.						
(c)	L4.2 SFP			Nos.	4					
(ii)	Tributary cards									
(a)	E1 Interface card (Min.8 interfaces per card)			Nos.	2					
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)			No.	2					
1.1.2	Equipment Cabinets			No	1					
1.1.3	VOIP telephone instrument with one common POE+ switch (min. 8 port)			Set	2					
	SUB TOTAL PART-A									

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
PART-B: VENDOR ASSESSED QUANTITIES										
A	Erection Hardware :-Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, clamps, spacers, connectors including connectors for Auto Transformer , Junction box, earthwire, earthing material risers, buried cable trenches/pipe of equipment & lighting, all accessories etc. for the following:									
1	220 kV DM-type layout for GIS termination arrangement									
1.1	Line Bay			Set	2					
1.2	Transformer Bay			Sets	1					
2	132 kV DM-type layout for GIS termination arrangement									
2.1	Line Bay			Sets	2					
2.2	Transformer Bay			Sets	2					
B	Bus post insulators, Spacers, equipment support structures, conductor(s), Al tube, clamp, connectors required for arrangement of Neutral formation for one transformer bank for making connection arrangement to connect spare unit in place of any other unit without physical shifting complete in all respect			Sets	1					
C	Air conditioning & ventilation System									
1	Ventilation & Airconditioning system (as per technical specification)									
1.1	220kV GIS Hall			LS	1					
1.2	132 kV GIS Hall			LS	1					
D	Illumination System									
1.1	Substation Lighting									
1.1.1	Control Room cum administrative building illumination			LS	1					

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						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.1.2	220kV GIS Building			LS	1					
1.1.3	132kV GIS Building			LS	1					
1.2	Security Room			LS	1					
1.3	fire Fighting Room			LS	1					
1.4	Outdoor Switchyard Lighting			LS	1					
1.5	Street Lighting			LS	1					
1.6	Occupancy sensor			LS	1					
1.7	Township Area Lighting			LS	1					
E	Fire Protection System per technical Specification)									
1	Pumping arrangement for HVW system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house			set	1					
2	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.			set	1					
3	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer :									
3.1	53.33 MVA, 220/132 kV Single Phase Auto Transformer			nos	4					
3.2	5 MVA,132/11 kV Three phase transformer			nos	1					
F	POWER & CONTROL CABLES									
1	1.1 kV LV Cables									
1.1	Power Cables(PVC)- (1.1kV grade)			LS	1					
1.2	Control Cable (PVC)- (1.1kV grade)			LS	1					
1.3	Cable glands, lugs & straight through joints for Power & Control cables			LS	1					
G	Visual Monitoring System for watch & ward as per technical specification			LS	1					
H	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect(but excluding LM structures for Lightning protection)									

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

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						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.0	Earth Conductor (copper)			LS	1					
2.0	Earth Rod (copper clad steel)			LS	1					
3.0	Equipment for lightning protection			LS	1					
I	SUBSTATION AUTOMATION									
1	Integration of all 220/132kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.			LS	1					
2	Integration of all 220/132kV Bays under present scope with the SCADA at MCC Baneshwor including supply of Hardware, Software, accessories etc.			LS	1					
	SUB TOTAL PART-B									
	PART-C: Civil Works									
1.0	Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts			Cu.M	40,000					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			Cu.M	1350					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			Cu.M	490					
4.0	Providing and laying of Reinforced Cement Concrete Design Mix M25 including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement			Cu.M	4900					
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			Cu.M	600					
6.0	Steel Reinforcement (Fe 500)			MT	375					
7.0	Stone filling (40 mm size) over grating of transformer/ reactor foundation			Cu.M	40					
8.0	Misc. Structural steel including rails, embedments, edge protection angles, gratings etc. but excluding the reinforcement steel and steel for lattice and pipe structures.			MT	72					
9.0	Stone spreading including antiweed treatment in switchyard excluding PCC			Sq. M.	5000					

Power Transmission and Distribution Efficiency Enhancement Project

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
10.0	All civil works for following structures as per technical specification and approved drawings including internal and external finishing. However excavation, PCC, RCC and reinforcement steel (Fe-500), shall be measured and paid seperately under respective items of BPS :									
10.1	Fire fighting pump house building			Sq. M.	98					
10.2	Water Tank			LS	1					
10.3	Township (Quarters)									
10.3.1	B Type			Sq. M.	500					
10.3.2	C Type			Sq. M.	600					
10.3.3	D Type			Sq. M.	210					
10.4	Security Room			Sq. M.	20					
10.5	Parking Shed (for 5 Cars)			LS	1					
11.0	BUILDINGS									
11.1	CONTROL ROOM BULIDING									
	All Civil works including finishing, internal cable trench, etc. complete as per technical specification and approved drawings, excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS. (Including 11kV switchgear room)			Sq. M.	750					
11.2	PRE ENGINEERED BUILDING									
11.2.1	220 KV GIS HALL									
	All civil works related to pre-engineered 220 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinforcement etc. complete to erect the building as per approved drawings and technical specification									
a.	220 KV GIS HALL			Sq. M.	450					
b.	AHU Room			Sq. M.	127					
c.	Panel Room			Sq. M.	38					
11.2.2	132 KV GIS HALL									
	All civil works related to pre-engineered 132 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinforcement etc. complete to erect the building as per approved drawings and technical specification									

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
a.	132 KV GIS HALL			Sq. M.	400					
b.	AHU Room			Sq. M.	98					
c.	Panel Room			Sq. M.	37					
12.0	Concrete road as per drawing except reinforcement & concrete									
	(a) Road 3.75m wide			Sq.M.	3000					
13.0	Construction of rail cum road as per drawing including all items such as excavation, compaction, rolling, watering, WBM etc but excluding concrete, reinforcement and structural steel.									
	a) Section having four rails			Sq.M.	280					
14.0	Chain link fencing as per technical specification and approved drawing excluding concrete			RM	450					
15.0	Switchyard Gate excluding Concrete			Nos.	2					
16.0	Septic tank and soak pit complete as per technical specification and approved drawing excluding concrete & reinforcement which shall be measured and paid separately under respective items of BPS .									
	For 10 users			LS	2					
	For 50 users			LS	1					
17.0	Supplying & laying hume pipe of grade (NP-3) excluding concrete and reinforcement									
17.1	250mm dia			RM	150					
17.2	300mm dia			RM	120					
17.3	450mm dia			RM	80					
17.4	600mm dia			RM	40					
17.5	900mm dia			RM	10					
18.0	Supplying and erecting dewatering pumps									
18.1	5 HP			Nos.	2					
18.2	0.5 HP			Nos.	2					
19.0	Drains Excluding Concrete									
19.1	Section A-A (300 mm wide X depth up to 600mm)			RM	500					
19.2	Section B-B (450 mm wideX depth from 600 mm to 900 mm)			RM	200					
19.3	Section C-C (600 mm wide X depth from 900 mm to 1200 mm)			RM	100					
19.4	Section D-D (750 mm wide X depth from 1200 mm to 1500mm)			RM	100					
20.0	External water supply from borewell/main water supply point to Fire water Tank, control room building, township buildings									
20.1	80 mm Dia GI pipe			RM	100					
20.2	50 mm Dia GI pipe			RM	80					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
20.3	40mm Dia GI pipe			RM	60					
20.4	25mm Dia GI pipe			RM	40					
21.0	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc.									
21.1	250 mm Dia.			RM	50					
21.2	150 mm Dia.			RM	50					
22.0	All civil works for Boundary wall including excavation, concrete, reinforcement steel ,structural steel, plaster, painting, barbed wire and concertina coil etc all complete as per technical specification (2.5 m high brick masonry wall and 0.5 m high angle support on top).			RM	1500					
23.0	Main boundary wall Gate (Steel) including all works complete as per technical specification			LS	1					
24.0	Site levelling									
24.1	Earth work in excavation and filling in all types of soils including soft/disintegrated rock with all leads and lifts within sub station boundary			Cu. M	30000					
24.2	Earth work in filling with borrowed earth with all leads and lifts including royalty,taxes etc			Cu. M	5000					
25.0	Construction of retaining wall with random rubble masonry in cement sand mortar (1:6) including levelling up with cement concrete (1:6:12), providing weep holes of PVC pipes (150 mm dia) with necessary filter material at the mouth of weep holes, 50 mm thick cement concrete (1:2:4) copping on the top of wall, 100 mm thick PCC (1:4:8) below RR masonry work, excavation of foundation for all lifts up to 3m above lower level. Item of excavation, PCC (1:2:4 & 1:4:8) shall be measured and paid seperately under respective items of BPS			Cu. M	6000					
26	Soil Investigation as per TS			LS	1					
27	Detail Survey, Contour Mapping			LS	1					
28	Approach Road (outside boundary) - Construction of black top (Bituminous/asphalt) road with 5.5 m wideblack top pavement									
28.1	Water Bound Macadam of thickness 100 mm and wearing course of asphalt concrete mixture of 40mm			Sq. m.	20000					
28.2	Additional WBM required for laying below pavement			Cu.M	7000					
28.3	Stone Masonry Drains in cement mortar 1:4 in foundation complete excluding PCC as per Drawing and Technical Specifications			Cu.M	5000					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
29	Supplying -Providing stone work packed in steel wire crats as per design and drawing to be developed by the contractor for all leads and lifts along the boundary wall and other places as required			Cu.M	10000					
30	Local sand filling around and under DG set foundation and other foundations as applicable			Cu.M	300					
31	Stone soling below foundations wherever specified in aproved drawings during detailed Engineering			Cu.M	200					
SUB-TOTAL-C										
Total for 220 /132/11kV Lapsephedi Substation (I) (Part-A+ Part-B+ Part C)										
PART 2	132/11 kV Changunarayan S/S									
PART -A: OWNER ASSESSED QUANTITIES										
A	POWER TRANSFORMER									
1.1	31.5/45 MVA, 132/11 kV Three Phase Power Transformer (without transformer Oil)			Nos.	1					
1.2	Insulating oil for the above Power Transformer			Lot	1					
B	LT Transformer									
1.1	615 KVA 11/0.400 kV			Nos.	2					
E	145kV Equipment									
E.1	145KV GIS Equipment									
1.1	145kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]			Sets	2					
1.2	145kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]			Set	1					
1.3	145kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]			Sets	6					
1.4	145kV, SF6 GIS ICT feeder bay Module for Transformer [Module description as per Technical Project specification]			Sets	2					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.5	SF6 Gas Insulated Bus Duct (GIB) outside GIS hall including Bus Duct support structure and associated accessories									
1.5.1	2000A, 40kA for 1 sec. Single Phase			Mtr	200					
1.5.2	2000A, 40kA, 1sec three phase			Mtr	400					
1.6	145kV, SF6 to Air Bushing alongwith associated support structure									
a)	1250A, 31.5kA, 1sec single phase			Set	27					
E.2	145kV EQUIPMENT(AIS)									
1.0	120 kV Surge Arrestors (1-Phase)			Nos.	27					
2.0	8800pF, 145 kV Capacitive Voltage Transformer (1-Phase)			Nos.	21					
3.0	145KV Bus Post Insulator			Nos.	21					
F	11 KV EQUIPMENT									
1.0	11 kV Isolator (3-phase)-HDB									
1.1	400A, 25kA for 3 sec, Isolator without E/s (Beam Mounted)			Set	8					
2.0	9 kV Surge Arrester (1 ph.)			Nos	12					
G	(11) kV Indoor VCB Switchgear									
1.0	11kV 2500A Incomer			Nos	2					
2.0	11kV 1250A Outgoing			Nos	10					
3.0	11kV 2500A Buscoupler			nos	1					
4.0	11kV 2500A Trunking			no	1					
H	Testing & Maintenance Equipment for GIS									
1.1	SF6 Gas processing Unit			Set	1					
1.2	Partial Discharge Monitoring System for 145kV GIS System as per Technical Specification, GIS			Set	1					
1.3	EOT crane for 145kV GIS Hall			Nos.	1					
I	RELAY PANELS (WITH AUTOMATION)									
1	145kV									
1.2	Line Control and Protection Panel			Nos.	6					
1.3	Transformer Control and Protection Panel (For both HV & MV side)			Nos.	2					
1.4	Bus Coupler Control and Protection Panel			set	1					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.5	Other/Common equipments Pertaining to C & R System									
1.5.1	Time Synchronisation Equipment			No.	1					
1.5.2	Relay Test kit			No.	1					
J	SUBSTATION AUTOMATION									
1	Substation Automation System as per Technical Specification:									
1.1	132 kV System			Nos.	9					
1.2	BCU for auxiliary system			set	1					
1.3	11 kV HT Indoor Switchgear			Nos	13					
K	Digital Protection Coupler & PBAX									
1.1	Digital Protection Coupler			Nos	8					
1.2	PBAX with per TS			Set	1					
L	LT Switchgear (As per Technical specification)									
1	400V Main switchboard			Set	1					
2	400V ACDB			Set	1					
3	400V MLDB			Set	1					
4	400V Emergency LDB			Set	1					
5	220V DCDB			Sets	1					
6.0	48V DCDB			Set	1					
M	Batteries									
1	220V									
1.1	600 AH			Nos	2					
2	48V									
2.1	600AH			Nos	2					
N	Float Cum Boost Battery Charger									
1	220V Float Cum Boost Battery Charger									
1.1	80A/80A			Nos	2					
2	48V Float Cum Boost Battery Charger									

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
2.1	80A/80A			Nos	2					
O	Diesel Generator with control Panel									
1	100 kVA			Set	1					
P	Fire Protection System									
1	Portable /Trolley/Wheel mounted extinguishers									
1.1	9 litre water type			Nos	2					
1.2	50 litre foam type			Nos	2					
1.3	4.5 kg CO ₂ type			Nos	6					
1.4	4.5 kg Dry Chemical Power (DCP) type			Nos	2					
2.0	Smoke detection system			Set	1					
3.0	Fire detection and Alarm System			Set	1					
Q	Cables along with clamps, glands, lugs and straight joints etc.									
1.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV Line			KM	1.5					
2.0	11kV HT 3C, 400 Sq.mm Aluminum Cable alongwith accessories and termination equipments for termination of 11 kV LT Transformer			KM	0.25					
3.0	11kV HT Cable (1CX800 SQmm) Copper for 11k kV side of 132/11 kV Transformer alongwith accessories and termination equipments			KM	1					
4	Power Cables - (1.1kV grade)									
4.1	3.5Cx300 sqmm (XLPE) cable for filter Machine along with 2 nos outdoor receptacles -250A			KM	0.15					
R	Air conditioning									
1	High wall type split AC unit of 2 TR capacities for control room, relay room and battery room			Nos.	20					
S	STEEL STRUCTURES (Tower,Gantry structures& Equipment support structures)									

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.0	Lattice/pipe Structure for towers,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)									
1.1	Lattice stucture & foundation bolts			MT	80					
1.2	Fastners for towers,beams and equipment support strcutures			MT	5					
SUB TOTAL PART-A										
PART-B: VENDOR ASSESSED QUANTITIES										
A	Erection Hardware :-Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, clamps, spacers, connectors including conectors for Auto Transformer , Junction box, earthwire, earthing material risers, buried cable trenches/pipe of equipment & lighting, all accessories etc. for the following:			LS	1					
1	132 kV DM-type layout for GIS termination arrangement									
1.1	Line Bay			Sets	6					
1.3	Transformer Bay			Sets	2					
B	Ventilation & heating System									
1	Ventilation & heating system (as per technical specification)									
1.1	132 kV GIS Hall			LS	1					
C	Illumination System									
1	Substation Lighting									
1.1	Control Room cum administrative building illumination			LS	1					
1.2	132kV GIS Building			LS	1					
2	Fire Fighting Room			LS	1					
3	Security Room			LS	1					
4	Outdoor Switchyard Lighting			LS	1					
5	Street Lighting			LS	1					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
6	Occupancy sensor			LS	1					
D	Fire Protection System per technical Specification)									
1	Pumping arrangement for HVW system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house			set	1					
2	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.			set	1					
3	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer :									
3.1	132/11 kV Three Phase Transformer			nos	1					
E	POWER & CONTROL CABLES									
1	1.1 kV LV Cables									
1.1	Power Cables(PVC)- (1.1kV grade)			LS	1					
1.2	Control Cable (PVC)- (1.1kV grade)			LS	1					
1.3	Cable glands, lugs & straight through joints for Power & Control cables			LS	1					
F	Visual Monitoring System for watch & ward as per technical specification			LS	1					
G	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect									
1.0	Earth Conductor (copper)			LS	1					
2.0	Earth Rod (copper clad steel)			LS	1					
3.0	Equipment for lightning protection			LS	1					
H	SUBSTATION AUTOMATION									
1	Integration of all 132/11kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.			LS	1					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
2	Integration of all 132/11kV Bays under present scope with the SCADA of MCC at Baneshwor including supply of Hardware, Software, accessories etc. as per TS Section Project.			LS	1					
	SUB TOTAL PART-B									
	PART-C: Civil Works									
1.0	Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts			Cu.M	11,000					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			Cu.M	700					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			Cu.M	260					
4.0	Providing and laying of Reinforced Cement Concrete Design Mix M25 including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement			Cu.M	2700					
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			Cu.M	375					
6.0	Steel Reinforcement (Fe 500)			MT	520					
7.0	Stone filling (40 mm size) over grating of transformer/ reactor foundation			Cu.M	30					
8.0	Misc. Structural steel including rails, embedments, edge protection angles, gratings etc. but excluding the reinforcement steel and steel for lattice and pipe structures.			MT	28					
9.0	Stone spreading including antiweed treatment in switchyard excluding PCC			Sq. M.	8000					
10.0	All civil works for following structures as per technical specification and approved drawings including internal and external finishing. However excavation, PCC, RCC and reinforcement steel (Fe-500), shall be measured and paid seperately under respective items of BPS :									
10.1	Fire fighting pump house building			Sq. M.	98					
10.2	Water Tank			LS	1					
10.3	Security room			Sq. M.	20					
11.0	BUILDINGS									
11.1	CONTROL ROOM BULIDING									

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
	All Civil works including finishing, internal cable trench, etc. complete as per technical specification and approved drawings, excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid separately under respective items of BPS.			Sq.m	750					
11.2	PRE ENGINEERED BUILDING									
	All civil works related to pre-engineered 132 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinforcement etc. complete to erect the building as per approved drawings and technical specification									
a.	132 KV GIS HALL			Sq.m	500					
b.	AHU Room			Sq.m	98					
c.	Panel Room			Sq.m	37					
12.0	Concrete road as per drawing except reinforcement & concrete									
	(a) Road 3.75m wide			Sq.m	1500					
13.0	Construction of rail cum road as per drawing including all items such as excavation, compaction, rolling, watering, WBM etc but excluding concrete, reinforcement and structural steel.									
	a) Section having four rails			Sq.m	125					
14.0	Chain link fencing as per technical specification and approved drawing excluding concrete			RM	350					
15.0	Switchyard Gate excluding Concrete			Nos.	2					
16.0	Septic tank and soak pit (10 User) complete as per technical specification and approved drawing excluding concrete & reinforcement which shall be measured and paid separately under respective items of BPS .			LS	2					
17.0	Supplying & laying hume pipe of grade (NP-3) excluding concrete and reinforcement									
17.1	250mm dia			RM	150					
17.2	300mm dia			RM	120					
17.3	450mm dia			RM	80					
17.4	600mm dia			RM	40					
17.5	900mm dia			RM	10					
18.0	Supplying and erecting dewatering pumps									
18.1	5 HP			Nos.	2					
18.2	0.5 HP			Nos.	2					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
19.0	Drains Excluding Concrete									
19.1	Section A-A (300 mm wide X depth up to 600mm)			RM	500					
19.2	Section B-B (450 mm wideX depth from 600 mm to 900 mm)			RM	200					
19.3	Section C-C (600 mm wide X depth from 900 mm to 1200 mm)			RM	100					
19.4	Section D-D (750 mm wide X depth from 1200 mm to 1500mm)			RM	100					
20.0	External water supply from borewell/main water supply point to Fire water Tank, control room building, township buildings									
	(i) 80 mm Dia GI pipe			RM	100					
	(ii) 50 mm Dia GI pipe			RM	80					
	(iii) 40mm Dia GI pipe			RM	60					
	(iii) 25mm Dia GI pipe			RM	40					
21.0	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc.									
	(i) 250 mm Dia.			RM	50					
	(i) 150 mm Dia.			RM	50					
22.0	All civil works for Boundary wall including excavation, concrete, reinforcement steel ,structural steel, plaster, painting, barbed wire and concertina coil etc all complete as per technical specification (2.5 m high brick masonry wall and 0.5 m high angle support on top).			RM	1100					
23.0	Main boundary wall Gate (Steel) including all works complete as per technical specification			LS	1					
24.0	Site levelling									
24.1	Earth work in excavation and filling in all types of soils including soft/disintegrated rock with all leads and lifts within sub station boundary			Cu. M	5000					
24.2	Earth work in filling with borrowed earth with all leads and lifts including royalty,taxes etc			Cu. M	2000					
25.0	Construction of retaining wall with random rubble masonry in cement sand mortar (1:6) including levelling up with cement concrete (1:6:12), providing weep holes of PVC pipes (150 mm dia) with necessary filter material at the mouth of weep holes, 50 mm thick cement concrete (1:2:4) copping on the top of wall, 100 mm thick PCC (1:4:8) below RR masonry work, excavation of foundation for all lifts up to 3m above lower level. Item of excavation, PCC (1:2:4 & 1:4:8) shall be measured and paid seperately under respective items of BPS			Cu. M	2000					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
26	Soil Investigation as per TS			LS	1					
27	Detail Survey, Contour mapping			LS	1					
28	Approach Road (outside boundary) - Construction of black top (Bituminous/asphalt) road with 5.5 m wideblack top pavement									
28.1	Water Bound Macadam of thickness 100 mm and wearing course of asphalt concrete mixture of 40mm			Sq. m.	6000					
28.2	Additional WBM required for laying below pavement			Cu.M	2500					
28.3	Stone Masonry Drains in cement mortar 1:4 in foundation complete excluding PCC as per Drawing and Technical Specifications			Cu.M	2500					
29	Supplying -Providing stone work packed in steel wire crats as per design and drawing to be developed by the contractor for all leads and lifts along the boundary wall and other places as required			Cu.M	2000					
30	Local sand filling around and under DG set foundation and other foundations as applicable			Cu.M	300					
31	Stone soling below foundations wherever specified in aproved drawings during detailed Engineering			Cu.M	200					
32	PileFoundation									
32.1	Boring, providing and installation of bored cast-in-situ RCC vertical piles of specified diameter and of any length below the pile cap with M25 grade of cement concrete, excluding placing the reinforcement steel but including the cost of boring including temporary guide casing (supplying and providing M.S Liner), Betonite solution and the length of pile to be embedded in the pile cap(Length of pile for payment shall be measured from bottom of pile cap), all necessary labour , materials, plants, tools and tackles etc. complete as necessary for proper execution of the job.									
	a. 500mm diameter RCC vertical bored pile			meter	3500					
	b. 750 mm diameter RCC vertical bored pile			meter	3000					
32.2	Conducting integrity test on pile using electronic control unit, hand held hammer, accelerometer, computer with required software to assess as-installed pile characterestics including mobilisation of necessary manpower, equipments,materials etc. required for successful completion of the job			No.	416					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
32.3	Initial Load Test			Lot	1					
32.4	Routine Test			Lot	1					
	SUB-TOTAL-C									
	Total for 132/11kV CHANGUNARAYAN Substation (II) (Part-A+ Part-B+ Part C)									
PART 3	132/11 kV Teku Substation upgrade (132V GIS & Indoor)									
	Part-A : EMPLOYER ASSESSED QUANTITIES									
A1	POWER TRANSFORMER									
A1.1	POWER TRANSFORMER									
a)	51.5/63 MVA , 132/66 KV, 3-phase Outdoor Transformer (Excluding insulating oil)			Nos.	1					
b)	31.5/45 MVA , 132/11 KV, 3-phase Outdoor Transformer (Excluding insulating oil)			Nos.	2					
c)	Insulating oil for 63 MVA , 132/66 KV, 3-phase Transformer (* 1Lot = Oil for 1 Transformers)			Lot*	1					
d)	Insulating oil for 45 MVA , 132/11 KV, 3-phase Transformer (* 1Lot = Oil for 1 Transformers)			Lot*	2					
B	145 kV equipment									
B1	145KV GIS Equipment									
1.01	145kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]			Set	2					
1.02	145kV, SF6 GIS ICT bay Module [Module description as per Technical Project specification]			Set	3					
1.03	145kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]			Set	4					
1.04	145kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]			Set	1					
1.05	145kV, 1250A, 31.5kA SF6/Air Bushing for Connecting GIS to AIS alongwith support structure (Single Phase)			Nos	12					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.06	145kV, 1250A, 31.50kA SF6/Air Bushing for Connecting GIS to Transformer alongwith support arrangement (Single Phase)			Nos	9					
B2	72KV GIS Equipment									
1.01	72kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]			Set	2					
1.02	72kV, SF6 GIS ICT bay Module [Module description as per Technical Project specification]			Set	2					
1.03	72kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]			Set	4					
1.04	72kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]			Set	1					
1.05	72kV, 1250A, 31.5kA SF6/Air Bushing for Connecting GIS to AIS alongwith support structure (Single Phase)			Nos	6					
1.06	72kV, 1250A, 31.50kA SF6/Air Bushing for Connecting GIS to Transformer alongwith support arrangement (Single Phase)			Nos	6					
1.08	Testing & Maintenance Equipment for GIS									
(i)	Partial Discharge Monitoring System for 145kV GIS System as per Technical Specification, GIS			Set	1					
(ii)	EOT crane for 145kV GIS Hall			Set	1					
B3	145KV Outdoor Equipment									
1.0	145 kV Surge Arrestors									
a	120 kV Surge Arrestors (1- Phase)			Nos	6					
b	145 kV Post insulators, as required			Nos	6					
C	11kV, 25 kA (3 Phase) Indoor switch gear panel									
1.0	11 kV Indoor VCB Switchgear									
1.1	11kV 2500A Incomer			Nos	2					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.2	11kV 2500A Trunking			Nos	2					
C	CONTROL RELAY PANELS (WITH AUTOMATION)									
1.0	132 kV & 66 kV									
a	Line Control & Protection Panel with distance relay / Differential relay			Set	4					
b	Line Control & Protection Panel with distance relay / Differential relay			Set	2					
c	Current Differential Relay for other end of line			Nos	4					
d	Transformer Control & Protection Panel (For 132/11kV)			Set	2					
e	Transformer Control & Protection Panel (For 132/66kV)			Set	1					
f	Buscoupler Control and Relay Panel			Set	1					
g	Bus Bar Protection Panel			Set	1					
D	COMMON EQUIPMENTS									
1.0	Time synchronisation equipment			No	1					
E	SUBSTATION AUTOMATION									
E.1	Complete Substation Automation System (SAS) for substation including hardware and software for the substation & remote control stations alongwith associated equipments for the following bays as per Technical Specification (including main and backup relays, auxillary relays, switches and other accessories for existing bays, where required)									
a	Main bays to be automated									
i	132 kV system			Bay Nos	8					
ii	66 kV system			Bay Nos	6					
iii	11 kV system			Bay Nos	14					
iv	BCU for controlling & monitoring of Auxillary System			Set	1					
F	Digital Protection Coupler									
1	Digital Protection Coupler			Nos	6					
G	LT Switchgear (As per Technical specification)									
a	415V Main switchboard			Set	1					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
b	415V ACDB			Set	1					
c	415V MLDB			Set	1					
d	415V Emergency LDB			Set	1					
e	110V DCDB			Sets	1					
f	48V DCDB			Sets	1					
H	Batteries									
a	110V									
i	600 AH			Nos	1					
I	Float Cum Boost Battery Charger									
a	110V Float Cum Boost Battery Charger									
i	80A/80A			Nos	1					
J	Fire Protection System									
a	Portable /Trolley/Wheel mounted extinguishers									
i	9 litre water type			Nos	3					
ii	50 litre foam type			Nos	1					
iii	4.5 kg CO ₂ type			Nos	5					
iv	4.5 kg Dry Chemical Power (DCP) type			Nos	3					
b	Smoke detection system			Set	1					
c	Fire detection and Alarm System			Set	1					
K	Cables along with clamps, glands, lugs and straight joints etc.									
(a)	Power Cables - (25kV grade)									
i	1Cx800 sqmm (XLPE) copper cable for Incomer with termination arrangement as per TS			KM	2					
(b)	Power Cables - (145kV grade)									
i	1Cx500 sqmm (XLPE) copper cable for line bay along with termination arrangement as per TS			KM	1					
ii	1Cx240 sqmm (XLPE) copper cable for Transformer along with termination arrangement as per TS			KM	0.5					
(c)	Power Cables - (72kV grade)									

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	i 1Cx500 sqmm (XLPE) copper cable for line bay along with termination arrangement as per TS			KM	1					
L	Air conditioning System for Control building									
a	High wall type split AC unit of 2 TR capacity			Nos	10					
M	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.									
(a)	Lattice Structure including Foundation Bolts			MT	10					
(b)	Pipe Structure including Foundation Bolts .			MT	1					
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)			MT	2					
N	BOQ for Auxiliary Power Supply Equipments									
(i)	SMPS based 48V DC Power Supply (DCPS) system			Nos.	1					
(ii)	VRLA type Battery bank for above DCPS system			Nos.	1					
O	Communication Equipment									
	Transmission Equipment									
I	Telecommunication Equipments									
1.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)									
1.1.1	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks, patch cord, DDF etc fully equipped excluding (i) & (ii) below, integration with existing SDH equipment at LDC			No.	2					
(i)	Optical Interface Cards/SFP									
(a)	S4.1 SFP			Nos.	6					
(ii)	Tributary cards									
(a)	E1 Interface card (Min.8 interfaces per card)			No.	4					
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)			Set	4					

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(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
1.1.2	Equipment Cabinets			No.	2					
1.1.3	VOIP telephone instrument with one common POE+ switch (min. 8 port)			Set	4					
	Sub-Total Part-A									
	Part-B: CONTRACTOR ASSESSED QUANTITIES									
A	Erection Hardware									
	Insulator strings, Disc Insulators, Hardware, conductor, Al tube, bus-bar materials, cable trays, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:									
a	GIS Termination Arrangement:									
i	Line Bay			LS	1					
ii	Transformer Bay			LS	1					
iii	Buscoupler and busbar module			LS	1					
b	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect(but excluding LM structures for Lightning protection)									
i	Earth Conductor (copper)			LS	1					
ii	Earth Rod (copper clad steel)			LS	1					
iii	Equipment for lightning protection			LS	1					
B	Fire Protection System									
a	Fire Protection system with complete U/G & O/G piping, Tanks, building and accessories etc. as required, complete for outdoor Transformer and GIS Hall:									
c.1	Transformer			Set	3					
i	132 KV, 3-phase Transformer									
C	Illumination System									
a	132kV GIS Hall			LS	1					
b	Switchyard lighting Outdoor			LS	1					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
D	Air conditioning & ventilation System									
D.1	Air conditioning system									
(i)	Panel room in 145kV GIS Hall			LS	1					
D.2	Ventilation system									
(i)	145KV GIS hall			LS	1					
E	POWER & CONTROL CABLES									
a	Power Cables(PVC)- (1.1kV grade)			LS	1					
b	Control Cable (PVC)- (1.1kV grade)			LS	1					
c	Cable glands, lugs & straight through joints for Power & Control cables			LS	1					
F.a	Adaptation works and extension of existing RTU at the Control Room (cards, including cable, connectors, other hardware and software required for data transmission to LDC and remote operation)			LS	1					
b	Integration of all Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.			LS	1					
c	Integration of all Bays with the MCC at Baneshwor Substation including supply of Hardware, Software, accessories etc. to complete scope of work.			LS	1					
	Sub-Total Part-B									
	PART-C: Civil Works (As per technical specification)									
1.0	Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts			Cu.Mtr.	500					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			Cu.Mtr.	60					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			Cu.Mtr.	30					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
4.0	Providing and laying of Reinforced Cement Concrete Design Mix (M25) including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement.			Cu.Mtr.	500					
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			Cu.Mtr.	30					
6.0	Steel Reinforcement (Fe 500)			MT	20					
7.0	Miscellaneous Structural steel used for rails , plates for rail fixing, gratings, gratings supports etc for transformer /reactor foundation,cable supportstand earthing cleats ,chequered plates, embeddings, edge protection angles for cable trenches but excluding the reinforcement steel and steel for lattice and pipe structures which shall be paid seperately.			MT	5					
8.0	Stone filling (40mm) over grating of Transformer /reactor Foundation			Cu.Mtr.	300					
9.0	Stone spreading including antiweed treatment in switchyard but excluding PCC.			Sq. Mtr.	100					
10.0	Supplying & laying hume pipe with collars of grade (NP-3) but excluding concrete of bed/support/encasing of hume pipes which shall be paid seperatelyunder respective items of BPS									
i)	250mm dia			RM	20					
ii)	450mm dia			RM	20					
11.0	Concrete road as per technical specification and approved drawing but excluding reinforcement & concrete which shall be paid seperately under respective items of BPS									
a.	Concrete Road 4m wide			Sq. m.	50					
12.0	Construction of rail-cum-raod as per technical specification and approved drawing including all items such as excavation, compaction, rolling, watering, WBM, etc but excluding concrete, reinforcement and structural steel which shall be paid seperately under respective items of BPS									
a.	Section having two rails			Sq. m.	25					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
13.0	Local Sand filling around and under Foundation as applicable.			Cu.Mtr.	100					
14.0	Stone soling below foundations wherever specified in approved drawings during detailed engineering			Cu.Mtr.	100					
15.0	132 KV GIS HALL									
	All civil works related to pre-engineered 132 kV GIS Hall to be supplied as per schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and reinforcement, finishing etc. complete to erect the building as per approved drawings and technical specification									
a.	132 KV GIS HALL			Sq. m.	120					
b.	AHU Room			Sq. m.	25					
c.	Panel Room			Sq. m.	45					
16	Geotechnical /Soil Investigation as per technical specification			LS	1					
17	Site levelling									
a)	Earth work in cutting & Filling in all types of soils including soft/disintegrated rock			Cu.Mtr.	200					
b)	Earth work in Filling with borrowed earth			Cu.Mtr.	100					
18	Construction of retaining wall with random Rubble masonry in cement sand mortar (1:6) including levelling up with cement concrete (1:6:12),providing weep holes of PVC pipes (150 mm dia) with necessary filter material at the mouth of weep holes,50 mm thick cement concrete (1:2:4) copping on the top of wall, 100 mm thick PCC (1:4:8) below RR masonry work,excavation of foundation for all lifts up to 3m above lower level . Item of excavation, PCC (1:2:4 & 1:4:8) shall be measured and paid seperately under respective items of BPS			Cu.Mtr.	20					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
19.0	Dismantling and disposal of existing building, deducting the salvation cost for reusable materials			LS	1					
31.0	Modification of existing incoming structure to accommodate 132kV line, dismantling and removal of existing equipment, etc			LS	1					
	Sub-Total Part-C									
	Total For PART 3 Teku Substation [(Part-A+ Part-B+ Part C)]									
PART 4	Suichatar Substation Extension (132V AIS Outdoor)									
	Part-A : EMPLOYER ASSESSED QUANTITIES									
A	145 kV equipment									
1.0	145 kV Circuit Breaker (3-Phase) with support structure									
a	1250A, 31.5 kA			Nos	2					
2.0	145kV Isolator (3-phase)-HDB									
a	1250A, 31.5 KA, Isolator with one E/S			Nos	2					
b	1250 A, 31.5KA, Isolator without E/S			Nos	2					
3.0	145 kV Instrument Transformer (1- Phase)									
a	Current Transformer ,			Nos	6					
b	Capacitive Voltage Transformer			Nos	6					
4.0	145 kV Surge Arrestors									
a	120 kV Surge Arrestors (1- Phase)			Nos	6					
b	60 kV Surge Arrestors (1- Phase)			Nos	6					
5.0	145 kV Bus post insulators			Set	6					
6.0	66 kV Bus post insulators			Set	6					
B	Cables along with clamps, glands, lugs, termination and straight joints etc.									
(a)	Power Cables - (72kV grade)									
i	1Cx500 sqmm (XLPE) copper cable for bypassing 66kV line along with termination and jointing arrangement as per TS			KM	0.5					

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
	Power Cables - (145kV grade)									
ii	1Cx500 sqmm (XLPE) copper cable for line bay along with termination and jointing arrangement as per TS			KM	1.2					
C	CONRL & RELAY PANELS (WITH AUTOMATION)									
1.0	132 kV									
a	Line Control & Protection Panel with distance relay			Set	1					
b	Bus Bar Protection Panel			Set	1					
D	Air conditioning System for Control Building									
a	High wall type split AC unit of 2 TR capacity			Nos	6					
E	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.									
(a)	Lattice Structure including Foundation Bolts			MT	6					
(b)	Pipe Structure including Foundation Bolts .			MT	4					
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)			MT	2					
F	Communication equipments									
1.0	Optical Fibre (OPFW) with all accessories like joining box, FODP, Pit, etc			Km	4.5					
2	Telecommunication Equipments									
2.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 5 MSP protected directions)									
2..1.1	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks, patch cord, DDF etc fully equipped excluding (i) & (ii) below, integration with existing SDH equipment at LDC			No.	1					
(i)	Optical Interface Cards/SFP									
(a)	S4.1 SFP			Nos.	4					
(ii)	Tributary cards									
(a)	E1 Interface card (Min.8 interfaces per card)			Nos.	2					
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)			No.	2					
2.2	Equipment Cabinets				1					

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
2.3	VOIP telephone instrument with one common POE+ switch (min. 8 port)			set	2					
Sub-Total Part-A										
Part-B: CONTRACTOR ASSESSED QUANTITIES										
A	Erection Hardware									
	Insulator strings, Disc Insulators, Hardware, conductor, Al tube, bus-bar materials, cable trays, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:									
a	145kV GIS Termination Arrangement:									
i	Line Bay			Set	1					
b	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect(but excluding LM structures for Lightning protection)									
i	Earth Conductor (copper)			LS	1					
ii	Earth Rod (copper clad steel)			LS	1					
iii	Equipment for lightning protection			LS	1					
B	Illumination System									
a	Switchyard lighting Outdoor			LS	1					
C	POWER & CONTROL CABLES									
a	Power Cables(PVC)- (1.1kV grade)			LS	1					
b	Control Cable (PVC)- (1.1kV grade)			LS	1					
c	Cable glands, lugs & straight through joints for Power & Control cables			LS	1					
D	Communication equipments									
(a)	Adaptation works and extension of existing RTU at the Control Room (cards, including cable, connectors, other hardware and software required for data transmission to LDC and remote operation)			LS	↑ 1					

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedhi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
(b)	Adaptation works and extension of existing SAS at the Control Room including all accessories, hardware and software required for data transmission to MCC at Baneshwor, where applicable			LS	↑ 1					
c	Integration of all Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.			LS	1					
Sub-Total Part-B										
PART-C: Civil Works (As per technical specification)										
1.0	Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts			Cu.Mtr.	1000					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			Cu.Mtr.	50					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			Cu.Mtr.	20					
4.0	Providing and laying of Reinforced Cement Concrete Design Mix (M25) including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement.			Cu.Mtr.	400					
5.0	Steel Reinforcement (Fe 500)			MT	20					
6.0	Miscellaneous Structural steel used for rails , plates for rail fixing , gratings, gratings supports etc for transformer /reactor foundation,cable supportstand earthing cleats ,chequered plates, embeddings, edge protection angles for cable trenches but excluding the reinforcement steel and steel for lattice and pipe structures which shall be paid seperately.			MT	2					

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Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
7.0	Stone spreading including antiweed treatment in switchyard but excluding PCC.			Sq. Mtr.	1200					
8.0	Supplying & laying hume pipe with collars of grade (NP-3) but excluding concrete of bed/support/encasing of hume pipes which shall be paid seperately under respective items of BPS									
i)	250mm dia			RM	100					
9.0	Chain link Switchyard fencing as per technical specification and approved drawing but excluding concrete which shall be paid seperately under respective items of BPS			RM	100					
10.0	Switch yard Gate excluding concrete which shall be paid seperately under respective items of BPS			Nos.	1					
11.0	All civil works for construction of drains as per technical specification and approved drawing excluding concrete which shall be paid seperately under respective items of BPS									
a	Type BB (450 wide x Depth From 600 to 900mm)			RM	100					
12.0	Local Sand filling around and under Foundation as applicable.			Cu.Mtr.	50					
13.0	Stone soling below foundations wherever specified in approved drawings during detailed engineering			Cu.Mtr.	50					
14	Site levelling									
a)	Earth work in cutting & Filling in all types of soils including soft/ disintegrated rock			Cu.Mtr.	500					
b)	Earth work in Filling with borrowed earth			Cu.Mtr.	2700					

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PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 (a): Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Quantity	Portion in Foreign Currency			Portion in Nepalese Currency (in NPR)	
						Currency #	Unit Rate	Total Charges	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	7	8	9=8x6	10	11=10x6
15	Construction of retaining wall with random Rubble masonry in cement sand mortar (1:6) including levelling up with cement concrete (1:6:12),providing weep holes of PVC pipes (150 mm dia) with necessary filter material at the mouth of weep holes,50 mm thick cement concrete (1:2:4) copping on the top of wall, 100 mm thick PCC (1:4:8) below RR masonry work,excavation of foundation for all lifts up to 3m above lower level . Item of excavation, PCC (1:2:4 & 1:4:8) shall be measured and paid seperately under respective items of BPS			Cu. M	200					
16	Geotechnical /Soil Investigation as per technical specification			LS	1					
Sub-Total Part-C										
Total For PART 4 Suichatar Substation [(Part-A+ Part-B+ Part C)]										
Total for Schedule 4(Total of column 9 and 11 to be carried forward to Schedule 5: Grand Summary)										

Specify currency in accordance with ITB Clause 12.1 and corresponding BDS clauses, Vol.I of the Bidding Documents.

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Lapsephedi & Changunarayan Substation Construction Project

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 : Installation and Other Services (Common for all)**(b): Training Charges for training to be imparted abroad**

Sl. No.	Description	Item for which training is to be imparted.	Country where training is to be imparted	Nos. of Trainee	Training duration in days	Total Training Charges	
						Currency	Total Training Charges
1	2		3	4	5	6	7 = 4x5 x 6
A	Training to Owners personnel on Design , testing and Maintenance aspect as per Section Project, Technical Specification at manufacturer's works	i) Control & Protection and Substation Automation System		3	5 days		
		ii) GIS		3	5 days		
		iii) Telecommunication Equipment (SDH ,MUX & NMS (Craft Terminal))		3	5 days		
		iv)Transformer		3	5 days		
	Total for Training Charges						
	Total for Schedule 4 (Total of column 7 to be carried forward to Schedule 5: Grand Summary)						

REMARKS:

1. Training at Manufacturer's works: The Contractor shall include in the training charges payment of per Diem allowance to NEA trainees @ USD 100 per day per trainee for the duration of training abroad towards accommodation, meals and other incidental expenses and to and fro economy class air ticket from Nepal to place of training. The duration of training shall be excluding travelling period.

Name of Bidder:
Signature of Bidder:
(Printed Name)
(Designation)
(Common Seal)

Date:

Total for Schedule 4(Total of column 9 and 11 to be carried forward to Schedule 5: Grand Summary)

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Lapsephedi & Changunarayan Substation Construction Project

Power Transmission and Distribution Efficiency Enhancement Project

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Schedule No. 4 : Installation and Other Services (Common for all)

(c):Training Charges for training to be imparted to Employer's Personnel by Bidder's Instructor in Nepal

Sl. No.	Description of the Test	Item for which training is to be imparted.	Training duration in days	Currency	Training Charges for Contractors Trainers	
					Unit rate	Total Training Charges
1	2	3	4	5	6	7 = 4x 6
a)	On Job training on operation, maintenance and testing & commissioning aspect at one Location in Nepal as per section Project, Technical Specification	i) Control & Protection	5			
		ii) Substation Automation System including integration aspect of existing SCADA (of Siemens suppliedSINAUT Spectrum Software) at Load Dispatch Center	5			
		iii. GIS	5			
		iv) Telecommunication Equipment (SDH ,MUX & NMS (Craft Terminal))	5			
		v. TRANSFORMERS	5			
Total for Training Charges						
Total for Schedule 4 (Total of column 7 to be carried forward to Schedule 5: Grand Summary)						

REMARKS:

2. On Job Training in Nepal: The traveling and living expenses of Owner's personnel for the training programme conducted in Nepal shall be borne by the Owner.

Name of Bidder:

Date:

Signature of Bidder:
(Printed Name)
(Designation)
(Common Seal)

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Lapsephedi & Changunarayan Substation Construction Project

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01: Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 4 : Installation and Other Services *(Common for all)*

(d): Maintenance Charges

SI No	Description	Unit	Qty.	Total Maintenance Charges	
				Currency	Total Maintenance Charges
	1	2	3	4	5
1	Maintenance Charges for Communication Equipments including SDH & MUX. for One (1) year during Warranty period	Year	1		
2	Maintenance Charges for Communication Equipments including SDH & MUX. for Six (6) years after Warranty period	Year	6		
	Total Maintenance Charges for Communication Equipment Package (Total Schedule 4c)				
Total for Schedule 4 (Total of column 5 to be carried forward to Schedule 5: Grand Summary)					

Name of Bidder:
Signature of Bidder:
(Printed Name)
(Designation)
(Common Seal)

Date:

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Lapsephedi & Changunarayan Substation Construction Project

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01:Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsipedi Substation,132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 5: Grand Summary

Sl. No.	Description	Part 1: Lapsephedi Substation		Part 2: Changunarayan Substation		Part 3: Teku Substation		Part 4: Suichatar Substation		Total	
		Total Price Foreign ()*	Total Price Local ()*	Total Price Foreign ()*	Total Price Local ()*	Total Price Foreign ()*	Total Price Local ()*	Total Price Foreign ()*	Total Price Local ()*	Total Price Foreign ()*	Total Price Local ()*
1	TOTAL SCHEDULE NO. 1	1	2	3	4	3	4	3	4	5	6
	Plant and Equipment including Mandatory Spares to be supplied from abroad, including Type Test Charges for Type Tests to be conducted abroad.										
2	TOTAL SCHEDULE NO. 2										
	Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal including Type Test Charges										
3	TOTAL SCHEDULE NO. 3										
	Design Services										
4	TOTAL SCHEDULE NO. 4										
	a. Installation Charges										
	b. Training Charges for Training to be imparted abroad										
	c. Training Charges for Training to be imparted in Nepal										
	d. Maintenance charges										
	e. Type test charges to be conducted abroad										
	GRAND TOTAL [1+2+3+4(a)+4(b)+4 (c) +4 (d) + 4(e)]										

Date:
Place:

Signature:
Printed Name:
Designation:

Common Seal:

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Lapsephedi & Changunarayan Substation Construction Project

Power Transmission and Distribution Efficiency Enhancement Project

PMD/PTDEEP/LCSCP-073/74 RE -01: Design, Supply, Installation and Commissioning of Gas insulated 220kV Lapsiphedi Substation, 132kV Changunarayan Substation and Upgradation of Teku Substation and Suichatar Substation

Schedule No. 6: Recommended Availability/Optional Spares Parts and recommended Test Equipment in line with technical Specifications

Item No.	Name & Description of Parts	Name of Original Manufacturer	Part No.	Number of Units in each set	Total No. of Sets to be provided	Unit Price	Total Price	Remarks

Date:

Signature:
Printed Name:
Designation:
Common Seal: