

NEPAL ELECTRICITY AUTHORITY

(An Undertaking of Government of Nepal)

Project Management Directorate



AMLEKHGUNJ 132 KV SUBSTATION CONSTRUCTION PROJECT

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

BIDDING DOCUMENT FOR

**Design, Supply, Installation, Testing and Commissioning of Amlekhgunj
132/66/11kV GIS Substation**

(Procurement of Plant)

**Single Stage, Two - Envelope
Bidding Procedure (OCB)**

Issued on:	11 October, 2022
Invitation for Bids No.:	PMD/PTDEEP/ASCP/2079/80-01
OCB No.:	PMD/PTDEEP/ASCP/2079/80-01
Employer:	Nepal Electricity Authority
Country:	Nepal

VOLUME:- III OF III

October 2022

**Amalekhgunj 132 kV Substation Construction Project
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Preface

This Bidding Document for Procurement of Plant – Design, Supply, and Installation, has been prepared by Nepal Electricity Authority and is based on the Standard Bidding Document for Procurement of Plant – Design, Supply, and Installation (SBD Plant) issued by the Asian Development Bank dated June 2018.

ADB's SBD Plant has the structure and the provisions of the Master Procurement Document entitled "Procurement of Plant – Design, Supply, and Installation", prepared by multilateral development banks and other public international financial institutions except where ADB-specific considerations have required a change.

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NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Amlekhgunj 132kV Substation Construction Project

ADB Loan No: 3542 - NEP: Power Transmission and Distribution Efficiency Enhancement Project

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

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

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)			Remarks
			Unit	Quantity	FC (USD)			
					Currency#	Unit Rate	Amount	
1	2	3	4	5	6	7	8 = (7) x (5)	
Part I: Amlekhgunj 132/66/11kV GIS Substation								
PART - A: OWNER ASSESSED QUANTITIES								
A1.1	POWER TRANSFORMER							
1	100 MVA, 132/66 kV Three Phase Power Transformer (without transformer Oil)		Nos.	2				
2	Insulating oil for the above Power Transformer		Lot	2				
B	Testing & Maintenance Equipments							
1	Oil Storage tank of 20KL		Nos.	1				
2	Transformer Oil Filtration plant (6KLPH)		No	1				
C	LT Transformer							
1	315KVA 11/0.400 kV		Nos.	2				
D	145kV Equipment							
D.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 132/66 kV 3-ph Transformer [Module description as per Technical Project specification]		Sets	2				
1.5	SF6 Gas Insulated Bus Duct (GIB) outside GIS hall including Bus Duct support structure and associated accessories							
1.5.1	145kV, 1600A, 31.5kA, 1sec three phase		Mtr.	200				
1.6	145kV, SF6/Air Bushing for Connecting GIS to AIS alongwith support structure							
1.6.1	1600A, 31.5kA, 1sec single phase		Set	12				
D.2	72.5 KV GIS Equipment							
2.1	72.5kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]		Sets	2				
2.2	72.5kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]		Set	1				
2.3	72.5kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]		Sets	6				
2.4	72.5kV, SF6 GIS ICT feeder bay Module for 132/66 kV 3-ph Transformer [Module description as per Technical Project specification]		Sets	2				
2.5	72.5kV, SF6 GIS ICT feeder bay Module for 66/11 kV 3-ph Transformer [Module description as per Technical Project specification]		Sets	2				
E.1	145kV EQUIPMENT (AIS)							
1.0	120 kV Surge Arrestors (1-Phase)		Nos.	18				
2.0	145 kV Bus Post Insulator		Nos.	30				

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1	2	3	4	5	6	7	8 = (7) x (5)	
E.2	72.5kV EQUIPMENT (AIS)							
1.0	60 kV Surge Arrestors (1-Phase)		Nos.	24				
2.0	72.5 kV Bus Post Insulator		Nos.	36				
F	11 KV EQUIPMENT							
1	9 kV Surge Arrester (1 ph.)		Nos	45				
2	12kV HDB Isolator		set	15				
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	8				
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 adustable height as per TS		Nos.	1				
6	Online monitoring Equipment of fault gases and moisture in 132/66 kV Power Transformer as per specification		Set	2				
7	Bushing online Monitoring equipment for 132/66 kV Power Transformer as per specification		Set	2				
8	EOT crane for 132 kV and 66 kV GIS Hall		Set	1				
I	RELAY PANELS (WITH AUTOMATION)							
1	132 kV							
1.1	Line Control and Protection Panel		Nos.	4				
1.2	Line Control Panel and relay panel with directional overcurrent and earth fault relay for spare bay		Nos.	2				
1.3	Transformer Control and Protection Panel (For both HV & MV side)		Nos.	2				
1.4	Bus Coupler Control and Protection Panel		Nos.	1				
1.5	Bus Bar Protection Panel		set	1				
2	66 kV							
2.1	Line Control and Protection Panel		Nos.	4				
2.2	Line Control Panel and relay panel with directional overcurrent and earth fault relay for spare bay		Nos.	2				
2.3	Transformer Control and Protection Panel (For both HV & MV side)		Nos.	2				
2.4	Bus Coupler Control and Protection Panel		Nos.	1				
2.5	Bus Bar Protection Panel		set	1				
3	Other/Common equipments Pertaining to C & R System							

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1	2	3	4	5	6	7	8 = (7) x (5)	
3.1	C/R Panel for Station Transformer		Nos	2				
3.2	Time Synchronisation Equipment		No.	1				
3.3	Relay Test kit		No.	1				
J	SUBSTATION AUTOMATION							
1	Substation Automation System as per Technical Specification:							
1.1	132kV System		Nos	9				
1.2	66 kV System		Nos	11				
1.3	11 kV System		LS	1				
1.3	BCU for auxiliary system		set	1				
K	Digital Protection Coupler & IP-PBAX							
1	Digital Protection Coupler		Nos	8				
2	IP- 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							
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				
O	Diesel Generator with control Panel							
a	125 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	3				

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			Unit	Quantity	FC (USD)			
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1	2	3	4	5	6	7	8 = (7) x (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 11 kV side of 66/11 kV Transformer alongwith accessories and termination equipments		KM	0.7				
4.0	Power Cables - (145kV grade)							
i	1Cx800 sqmm (XLPE) copper cable for transformer bay along with termination and jointing arrangement as per TS		KM	0.7				
ii	1Cx1200 sqmm (XLPE) copper cable for line bay along with termination and jointing arrangement as per TS		KM	0.25				
5.0	Power Cables - (72.5kV grade)							
i	1Cx800 sqmm (XLPE) copper cable for transformer bay along with termination and jointing arrangement as per TS		KM	1.3				
ii	1Cx800 sqmm (XLPE) copper cable for line bay along with termination and jointing arrangement as per TS		KM	1.3				
6.0	Power Cables - (1.1kV grade)							
6.1	3.5Cx300 sqmm (XLPE) cable for filter Machine along with 2 nos outdoor receptacles -250A		KM	0.25				
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)							
A.	LILO Towers (design on reliability level 2)							
A.1	Design, Fabrication, galvanising & supply of 132 kV DDE Type Special Tower & tower parts, tower/leg extensions (complete) including stubs, bolts and nuts, step bolts, hangers, D-shackles, pack plates, pack washers etc)		Nos	2				
A.2	Design, Fabrication, galvanising & supply of 66 kV DDE Type Special Tower & tower parts, tower/leg extensions (complete) including stubs, bolts and nuts, step bolts, hangers, D-shackles, pack plates, pack washers etc)		Nos	2				
B	Lattice/pipe Structure for beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)							
B.1	Lattice structure & foundation bolts		MT	25				
B.2	Pipe Structure including Foundation Bolts .		MT	2				
B.3	Fastners for towers,beams and equipment support strcutures		MT	2				
T	Communication Equipment (detail as per TS)							
2	Transmission Equipment							
	Telecommunication Equipments							
2.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)							

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(i)	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 (ii) & (iii) below, integration with existing SDH equipments at Kamane 132kV, Pathalaiya 132 kV, Hetauda 66kV, Simara 66kV Substations .		No.	1				
(ii)	Optical Interface Cards/SFP							
(a)	S4.1 SFP		Nos.	2				
(b)	L4.1 SFP		Nos.	2				
(c)	L4.2 SFP		Nos.	4				
(iii)	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	132 kV and 66 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 and 66 kV GIS Hall		Sq. M.	475				
(b)	AHU		Sq. M.	35				
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 Transformer , Junction box, earthwire, earthing material risers, buried cable trenches/pipe of equipment & lighting, all accessories etc. for the following:							
1	132 kV DM-type layout for GIS termination arrangement							
1.1	Line Bay		Set	4				
1.2	Transformer Bay		Set	2				
2	66 kV DM-type layout for GIS termination arrangement							
1.1	Line Bay		Set	4				
1.2	Transformer Bay		Set	2				
B	Air conditioning & ventilation System							
1	Ventilation & Airconditioning system (as per technical specification)							

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1	2	3	4	5	6	7	8 = (7) x (5)	
1.1	132 kV and 66 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 and 66 kV GIS Building		LS	1				
1.2	Security Room		LS	1				
1.3	Fire fighting Room		LS	1				
1.4	Outdoor and Street Lighting		LS	1				
1.5	Occupancy sensor		LS	1				
1.6	Township Area Lighting		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	100 MVA, 132/66 kV Three Phase Transformer		nos	2				
3.2	10 MVA, 66/11 kV Three phase transformer		nos	2				
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 necesaary 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				
H	Cable Termination Equipments							
1.0	Cable Sealing Ends, terminations suitable for termination at 132 kV end		Nos	12				

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1	2	3	4	5	6	7	8 = (7) x (5)	
2.0	Cable Sealing Ends, terminations suitable for termination at 66 kV end		Nos	12				
I	SUBSTATION AUTOMATION							
1.0	Integration of all 132/66 kV 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				
2.0	Integration of all 132/66 kV Bays under present scope with the SCADA at proposed Master Control Centre (MCC), Hetauda 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).							
1	Transformer(132/66 kV)							
1.1	Cooler Fan with motor		No.	1				
1.2	Local & Remote WTI with sensing device & contact (each type)		Set	1				
1.3	Buchholz relay complete with contacts (Main tank)		Set	1				
1.4	Magnetic oil level gauge		No.	1				
1.5	Starters, contactors, switches & relays for electrical control panels (one set of each type)		Set	1				
1.6	Remote tap position Indicator		No.	1				
1.7	Oil Flow indicator with flow switch		Set	1				
1.8	145 kV Bushing with metal parts and gaskets and lifting tools		Nos.	1				
1.9	72.5 kV Bushing with metal parts and gaskets and lifting tools		Nos.	1				
1.10	Spare insulating oil to be handed over to after commissioning for O&M requirement		KL	10				
2	GIS(132 KV & 66 KV)							
2.1	General							
2.1.1	SF6 gas Pressure Relief Devices, 1Nos. of each type		Set	1				
2.1.2	SF6 Pressure gauge cum switch OR Density monitors and pressure switch as applicable (1 no. of each type)		Set	1				
2.1.3	Coupling device for pressure gauge cum switch for connecting Gas handling plant		Set	1				
2.1.4	Rubber Gaskets, "O" Rings and Seals for SF6 gas of each type		Set	1				
2.1.5	Molecular filter for SF6 gas with filter bags(20% of total weight)		Set	1				
2.1.6	All types of Control Valves for SF6 gas of each type		Set	1				
2.1.7	SF6 gas (20 % of total gas quantity)		Set	1				

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1	2	3	4	5	6	7	8 = (7) x (5)	
2.1.8	All types of coupling for SF6 gas (1 no. of each type)		Set	1				
2.1.9	Pipe length (Copper or Steel as applicable) for SF6 Circuit of each type		Set	1				
2.1.10	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							
2.1.10.1	For 3 Phase Enclosure if applicable		No.	1				
2.1.10.2	For Single phase enclosure if applicable		No.	1				
2.1.11	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				
2.1.12	Bus Support insulator of each type for 3 phase/single phase enclosure.		No.	1				
2.1.13	SF6 to air bushing (132kV & 66kV - 1 No. of each type & rating) as applicable		Set	1				
2.2	145KV SF6 CIRCUIT BREAKER:							
2.2.1	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit enclosure and Marshalling Box with operating mechanism		No.	1				
2.2.2	Rubber gaskets, 'O' rings and seals for SF6 gas (1 No. of each type)		Set	1				
2.2.3	Trip coil assembly with resistor as applicable		Set	1				
2.2.4	Closing coil assembly with resistor as applicable.		Set	1				
2.2.5	Relays, Power contactors, push buttons, timers & MCBs etc (1 No. of each type & rating)		Set	1				
2.2.6	Closing coil assembly (including valve, if applicable)		Set	1				
2.2.7	Trip coil assembly (including valve, if applicable)		Set	1				
2.2.8	Auxiliary switch assembly of each type		Set	1				
2.3	72.5KV SF6 CIRCUIT BREAKER:							
2.3.1	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit enclosure and Marshalling Box with operating mechanism		No.	1				
2.3.2	Rubber gaskets, 'O' rings and seals for SF6 gas (1 No. of each type)		Set	1				
2.3.3	Trip coil assembly with resistor as applicable		Set	1				
2.3.4	Closing coil assembly with resistor as applicable .		Set	1				
2.3.5	Relays, Power contactors, push buttons, timers & MCBs etc (1 No. of each type & rating)		Set	1				
2.3.6	Closing coil assembly (including valve, if applicable)		Set	1				
2.3.7	Trip coil assembly (including valve, if applicable)		Set	1				
2.3.8	Auxiliary switch assembly of each type		Set	1				
2.4	145KV ISOLATORS :							

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1	2	3	4	5	6	7	8 = (7) x (5)	
2.4.1	Complete set of 3-phase dis-connector including main circuit, enclosure, driving mechanism		Set	1				
2.4.2	3-phase Earthing switch including main circuit, enclosure, driving mechanism.		Set	1				
2.4.3	Copper contact fingers for dis-connector male & female contact for one complete (3 phase) dis-connector of each type and rating		Set	1				
2.4.4	Copper contact fingers for earthing switch male & female contacts, for one complete (3 phase) earthing switch of each type and rating		Set	1				
2.4.5	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				
2.4.6	Push button switch - (1 No. of each type & rating) as applicable		Set	1				
2.4.7	Limit switch and Aux. Switches for complete 3 phase equipment							
2.4.7.1	For isolator		Set	1				
2.4.7.2	For earth switch		Set	1				
2.5	72.5KV ISOLATORS :							
2.5.1	Complete set of 3-phase dis-connector including main circuit, enclosure, driving mechanism		Set	1				
2.5.2	3-phase Earthing switch including main circuit, enclosure, driving mechanism.		Set	1				
2.5.3	Copper contact fingers for dis-connector male & female contact for one complete (3 phase) dis-connector of each type and rating		Set	1				
2.5.4	Copper contact fingers for earthing switch male & female contacts, for one complete (3 phase) earthing switch of each type and rating		Set	1				
2.5.5	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				
2.5.6	Push button switch - (1 No. of each type & rating) as applicable		Set	1				
2.5.7	Limit switch and Aux. Switches for complete 3 phase equipment							
2.5.7.1	For isolator		Set	1				
2.5.7.2	For earth switch		Set	1				
2.6	145 kV CURRENT TRANSFORMER							
2.6.1	Gas insulated complete CT of each type and rating with enclosure.		No.	1				
2.6.2	Secondary bushing of each type		Set	1				
2.7	72.5 kV CURRENT TRANSFORMER							
2.7.1	Gas insulated complete CT of each type and rating with enclosure.		No.	1				
2.7.2	Secondary bushing of each type		Set	1				

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

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)			Remarks
			Unit	Quantity	FC (USD)			
					Currency#	Unit Rate	Amount	
1	2	3	4	5	6	7	8 = (7) x (5)	
2.8	145 kV Voltage Transformer							
2.8.1	Gas insulated complete PT of each type and rating with enclosure.		No.	1				
2.9	72.5 kV Voltage Transformer							
2.9.1	Gas insulated complete PT of each type and rating with enclosure.		No.	1				
3	AIS Surge Arrestors							
3.1	120kV Surge Arrestor with insulating base, terminal connector , Surge counter & accessories (excluding support structure)		Set	1				
3.2	60kV Surge Arrestor with insulating base, terminal connector , Surge counter & accessories (excluding support structure)		Set	1				
4	DG Set							
4.1	Self starter assembly		No.	1				
4.2	AVR (Auto Voltage Regulator)/ AVR card		Set	1				
5	Battery Charger							
5.1	220V Battery Chargers							
5.1.1	Set of Control Cards		Set	1				
5.1.2	Set of relays		Set	1				
5.1.3	Rectifier transformer		No.	1				
5.1.4	Thyristor/ Diode		Set	1				
5.1.5	Fuses of Thyristor with indicators		Set	6				
5.2	48V Battery Chargers							
5.2.1	Set of Control Cards		Set	1				
5.2.2	Set of relays		Set	1				
5.2.3	Rectifier transformer		No.	1				
5.2.4	Thyristor/ Diode		Set	1				
5.2.5	Fuses of Thyristor with indicators		Set	6				
6	Relay & Protection							
6.1	Line Protection Panel							
6.1.1	Numerical distance/differential relay (1 no. of each type)		Set	1				
6.2	Transformer Protection Panel							
6.2.1	Transformer differential protection		No.	1				

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

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)			Remarks
			Unit	Quantity	FC (USD)			
					Currency#	Unit Rate	Amount	
1	2	3	4	5	6	7	8 = (7) x (5)	
6.2.2	Restricted earth fault protection relay with non-linear resistor		No.	1				
6.2.3	Directional over current & E/F Protection Relay		no	1				
6.3	COMMON SPARES							
6.3.1	Power supply module for Bus Bar protection.		No.	1				
6.3.2	Bay unit module		Set	1				
6.4	Breaker protection Relay							
6.4.1	Breaker failure relay		No.	1				
6.4.2	Trip circuit supervision relay		Nos.	2				
6.4.3	Self reset trip relay (relay of each type)		Set	1				
6.4.4	Hand reset trip relay(relay of each type)		Set	1				
6.4.5	Timer relay(relay of each type)		Set	1				
6.4.6	DC supervision relay(relay of each type)		Set	1				
6.4.7	Flag relays(relay of each type)		Set	1				
6.4.8	Auxiliary relays(relay of each type)		Set	1				
7	Digital protection Coupler		LS	1				
8	Testing Equipments							
8.1	Power Line Fault Analyzer as per specification		Set	1				
8.2	Leakage Detector for Insulator as per specification		Set	1				
9	Sub-Station Automation System							
9.1	Bay control unit (IED) of each type		Set	1				
9.2	Ethernet switch of each type		Set	1				
10	LT Transformer							
10.1	Bushings (Each type)		Set	1				
10.2	Diaphragm for pressure relief vent		No.	1				
10.3	Silica gel container		No.	1				
10.4	Set of Valves (Each Type)		Set	1				
10.5	Buchholz relay (if applicable)		No.	1				
11	Illumination System							
11.1	5% of each type of lighting fixture supplied		LS	1				
12	Erection Hardware							

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

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)			Remarks
			Unit	Quantity	FC (USD)			
					Currency#	Unit Rate	Amount	
1	2	3	4	5	6	7	8 = (7) x (5)	
12.1	5% spares of the actual quantities for Insulator strings & hardwares, clamps & connectors (including equipment connectors), spacers, corona bell and welding sleeves,		LS	1				
13	Telecommunication Equipments							
13.1	Transmission Equipment							
13.1.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)							
13.1.1.1	Common cards, Power supply cards, power cabling, other hardware & accessories (each)		Set	1				
13.2	Optical Interface/SFP for							
13.2.1	S4.1 SFP		No.	1				
13.2.2	L4.1 SFP		No.	1				
13.2.3	L4.2 SFP		No.	1				
13.3	Tributary Cards							
13.3.1	E1 Interface card (Min.8 interfaces per card)		No.	1				
13.3.2	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)		No.	1				
14	LT Indoor Switchgear							
14.1	Each type of MCB, MCCB, ELCB		LS	1				
15	MV Indoor Swtichgear							
	11 kV Switchgear							
15.1	11kV Vacuum Interrupter for Incomer and Outgoing		No.	3				
15.2	Tripping Coils		No.	3				
15.3	Closing Coils		Set	3				
15.4	Spring Charging Motor		Set	1				
15.5	Protection Relays							
15.5.1	3 phase Overcurrent Relay, for 11kV side one of each type		Nos.	1				
15.5.2	Ground Fault Relay, for 11kV side, one of each type		Nos.	1				
15.6	Ammeter, Nos one of each rating		Nos.	1				
15.7	Voltmeter, Nos		Nos.	1				
15.8	kVA Meter, each		Nos.	1				
15.9	CTs of each type		set	1				
15.10	Operating Handle		No.	1				
15.11	Indicating lamps and fuses (100% of used), Lot		LS	1				
16	Fire Fighting							

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

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)			Remarks
			Unit	Quantity	FC (USD)			
					Currency#	Unit Rate	Amount	
1	2	3	4	5	6	7	8 = (7) x (5)	
16.1	Recommended Spares		Set	1				
SUB-TOTAL-C								
Total for Schedule 1 (Total of column 8 to be carried forward to Schedule 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 scope of work defined in Employer's Requirements.

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)

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Amlekhgunj 132kV Substation Construction Project

ADB Loan No: 3542 - NEP: Power Transmission and Distribution Efficiency Enhancement Project

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS 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)	Remarks
				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 I: Amlekhgunj 132/66/11kV GIS Substation								
	Total for Schedule 2 (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 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

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

Date:

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Amlekhgunj 132kV Substation Construction Project

ADB Loan No: 3542 - NEP: Power Transmission and Distribution Efficiency Enhancement Project

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks	
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)			
						Unit Rate	Total Charges		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)		
PART I	132/66/11kV GIS Amlekhgunj Substation								
	PART - A: OWNER ASSESSED QUANTITIES								
A1.1	POWER TRANSFORMER								
1	100 MVA, 132/66 kV Three Phase Power Transformer (without transformer Oil)			Nos.	2				
2	Insulating oil for the above Power Transformer			Lot	2				
A1.2	POWER TRANSFORMER								
1	Transportation of 10 MVA, 66 /11 kV Three Phase Power Transformer from NEA Hetauda Grid to Amlekhgunj and installation & commissioning of above transformer			Nos.	2				
B	LT Transformer								
1	315 KVA 11/0.400 kV			Nos.	2				
C	145kV Equipment								
C.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 132/66 kV 3-ph Transformer [Module description as per Technical Project specification]			Sets	2				
1.5	SF6 Gas Insulated Bus Duct (GIB) outside GIS hall including Bus Duct support structure and associated accessories								
1.5.1	145kV, 1600A, 31.5kA, 1sec three phase			Mtr.	200				
1.6	145kV, SF6/Air Bushing for Connecting GIS to AIS alongwith support structure								
1.6.1	1600A, 31.5kA, 1sec single phase			Set	12				

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
D	72.5kV Equipment							
D.1	72.5 KV GIS Equipment							
1.1	72.5kV, SF6 GIS Bus Bars Module [Module description as per Technical Project specification]			Sets	2			
1.2	72.5kV, SF6 GIS Bus Coupler bay Module [Module description as per Technical Project specification]			Set	1			
1.3	72.5kV, SF6 GIS Line bay Module [Module description as per Technical Project specification]			Sets	6			
1.4	72.5kV, SF6 GIS ICT feeder bay Module for 132/66 kV 3-ph Transformer [Module description as per Technical Project specification]			Sets	2			
1.5	72.5kV, SF6 GIS ICT feeder bay Module for 66/11 kV 3-ph Transformer [Module description as per Technical Project specification]			Sets	2			
E.1	145kV EQUIPMENT (AIS)							
1.0	120 kV Surge Arrestors (1-Phase)			Nos.	18			
2.0	145 KV Bus Post Insulator			Nos.	30			
E.2	72.5kV EQUIPMENT (AIS)							
1.0	60 kV Surge Arrestors (1-Phase)			Nos.	24			
2.0	72.5 KV Bus Post Insulator			Nos.	36			
F	11 KV EQUIPMENT							
1	9 kV Surge Arrester (1 ph.)			Nos	45			
2	12kV HDB Isolator			set	15			
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	8			
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			

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
4	SF6 Gas Leak Detector			Set	1			
5	Portable Ladder with adjustable height as per TS			Nos.	1			
6	Online monitoring Equipment of fault gases and moisture in 132/66 kV Power Transformer as per specification			Set	2			
7	Bushing online Monitoring equipment for 132/66 kV Power Transformer as per specification			Set	2			
8	EOT crane for 132 kV and 66 kV GIS Hall			Set	1			
I	RELAY PANELS (WITH AUTOMATION)							
1	132 kV							
1.1	Line Control and Protection Panel			Nos.	4			
1.2	Line Control Panel and relay panel with directional overcurrent and earth fault relay for spare bay			Nos.	2			
1.3	Transformer Control and Protection Panel (For both HV & MV side)			Nos.	2			
1.4	Bus Coupler Control and Protection Panel			Nos.	1			
1.5	Bus Bar Protection Panel			set	1			
2	66 kV							
2.1	Line Control and Protection Panel			Nos.	4			
2.2	Line Control Panel and relay panel with directional overcurrent and earth fault relay for spare bay			Nos.	2			
2.3	Transformer Control and Protection Panel (For both HV & MV side)			Nos.	2			
2.4	Bus Coupler Control and Protection Panel			Nos.	1			
2.5	Bus Bar Protection Panel			set	1			
3	Other/Common equipments Pertaining to C & R System							
3.1	C/R Panel for Station Transformer			Nos	2			
3.2	Time Synchronisation Equipment			No.	1			
3.3	Relay Test kit			No.	1			
J	SUBSTATION AUTOMATION							
1	Substation Automation System as per Technical Specification:							
1.1	132kV System			Nos	9			
1.2	66 kV System			Nos	11			
1.3	11 kV System			LS	1			
1.4	BCU for auxiliary system			set	1			

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
K	Digital Protection Coupler & IP-PBAX							
1	Digital Protection Coupler			Nos	8			
2	IP- 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			Set	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			
O	Diesel Generator with control Panel							
a	125 kVA			Set	1			

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
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	3			
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 66/11 kV Transformer alongwith accessories and termination equipments			KM	0.7			
4.0	Power Cables - (145kV grade)							
i	1Cx800 sqmm (XLPE) copper cable for line bay along with termination and jointing arrangement as per TS			KM	0.7			
ii	1Cx1200 sqmm (XLPE) copper cable for Transformer bay along with termination and jointing arrangement as per TS			KM	0.25			
5.0	Power Cables - (72.5kV grade)							
i	1Cx800 sqmm (XLPE) copper cable for line bay along with termination and jointing arrangement as per TS			KM	1.3			
ii	1Cx800 sqmm (XLPE) copper cable for Transformer bay along with termination and jointing arrangement as per TS			KM	1.3			
5	Power Cables - (1.1kV grade)							
5.1	3.5Cx300 sqmm (XLPE) cable for filter Machine along with 2 nos outdoor receptacles -250A			KM	0.25			
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)							
A.	LILO Towers (design on reliability level 2)							

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
A.1	Erection of 132 kV DDE Type Special Tower & tower parts, tower/leg extensions (complete) including stubs, bolts and nuts, step bolts, hangers, D-shackles, pack plates, pack washers etc)			Nos	2			
A.2	Erection of 66 kV DDE Type Special Tower & tower parts, tower/leg extensions (complete) including stubs, bolts and nuts, step bolts, hangers, D-shackles, pack plates, pack washers etc)			Nos	2			
B	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)							
B.1	Lattice stucture & foundation bolts			MT	25			
B.2	Pipe Structure including Foundation Bolts .			MT	2			
B.3	Fastners for towers,beams and equipment support strcutures			MT	2			
T	Communication Equipment (detail as per TS)							
2	Transmission Equipment							
	Telecommunication Equipments							
2.1	SDH Equipment (STM-4 MADM upgradable to STM - 16 upto 4 MSP protected directions)							
i)	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 equipments at Kamane 132kV, Pathalaiya 132 kV, Hetauda 66kV, Simara 66kV Substations .			No.	1			
(ii)	Optical Interface Cards/SFP							
(a)	S4.1 SFP			Nos.	2			
(b)	L4.1 SFP			Nos.	2			
(c)	L4.2 SFP			Nos.	4			
(iii)	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							

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
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	132 kV DM-type layout for GIS termination arrangement							
1.1	Line Bay			Set	4			
1.2	Transformer Bay			Set	2			
2	66 kV DM-type layout for GIS termination arrangement							
1.1	Line Bay			Set	4			
1.2	Transformer Bay			Set	2			
B	Air conditioning & ventilation System							
1	Ventilation & Airconditioning system (as per technical specification)							
1.1	132 kV and 66 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 and 66kV GIS Building			LS	1			
1.2	Security Room			LS	1			
1.3	Fire fighting Room			LS	1			
1.4	Outdoor and Street Lighting			LS	1			
1.5	Occupancy sensor			LS	1			
1.6	Township Area Lighting			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 :							

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Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
3.1	100 MVA, 132/66 kV Three Phase Transformer			Nos	2			
3.2	10 MVA, 66/11 kV Three phase transformer			Nos	2			
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(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			
H	Cable Termination Equipments							
1	Cable Sealing Ends, terminations suitable for termination at 132 kV end			Nos	12			
2	Cable Sealing Ends, terminations suitable for termination at 66 kV end			Nos	12			
I	SUBSTATION AUTOMATION							
1	Integration of all 132/66/11 kV 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 132/66/11 kV Bays under present scope with the SCADA of proposed Master Control Centre, Hetauda including supply of Hardware, Software, accessories etc. as per TS Section Project.			LS	1			
	SUB TOTAL PART-B							
	PART-C: Civil Works							

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Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
1.0	Site Clearance Work as instructed by Engineer			LS	1			
2.0	Geotechnical Investigation as per TS			Loc	3			
3.0	Detail Survey, Contour Mapping and Soil Resistivity Test			LS	1			
4.0	Earthwork							
4.1	Earthwork in Excavation and backfilling of all types of soil and rock for all leads and lifts.			CuM	3500			
4.2	Earthwork in Filling with earth brought from outside with all leads and lifts including royalty,taxes etc			CuM	2500			
5.0	Sand Filling							
5.1	Filling with local sand brought from outside with all leads and lifts including royalty,taxes etc			CuM	1500			
6.0	PCC works							
6.1	Providing and laying of Plain Concrete Cement PCC (1:5:10)			CuM	110			
6.2	Providing and laying of Plain Concrete Cement PCC (1:4:8)			CuM	220			
6.3	Providing and laying of Plain Concrete Cement PCC (1:2:4)			CuM	220			
7.0	RCC Works							
7.1	Providing and Laying of Reinforced Cement Concrete Design Mix M20 including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement.			CuM	150			
7.2	Providing and Laying of Reinforced Cement Concrete Design Mix M25 including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement.			CuM	3900			
8.0	Providing and fixing in position Fe 500 steel reinforcement of various diameter confirming to relevant IS code in R.C.C. works including straightening, cutting, bending, binding with 20 SWG annealed wire for tying the reinforcement bars at each junctions (binding wire shall not be measured separately) including all waste and cut pieces, provision for adequate numbers of spacers, chairs, providing and placing cement mortar (1:1) cover blocks to keep the bars in intended position at all levels all complete as per drawings, specifications and instruction of the the engineer. (Lap length shall not be measured for the payment).			MT	585			
9.0	Structural Steel							

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
	Miscellaneous Structural steel used for gratings, gratings supports etc for transformer /reactor foundation,cable support stand earthing cleats ,chequered plates, embedments, edge protection angles for cable trenches, structural steel used for rails and plate for rail fixing for transformer/reactor but excluding the reinforcement steel and steel for lattice and pipe structures, which shall be paid seperately.			MT	20			
10.0	Stone filling (40mm) over grating of Transformer /reactor Foundation			CuM	100			
11.0	Stone Spreading including antiweed treatment in switchyard excluding PCC			SqM	500			
12.0	All Civil Works for following structures as per TS and approved Drawings including							
12.1	Firefighting pump house building			SqM	50			
12.2	Water Tank for Firefighting (100000 litres)			LS	1			
13.0	Buidlings (All civil works for following Buildings and structures including external & internal finishing, electrification, sanitary and plumbing works, Doors, windows, Painting, Furnitures and miscellaneous work etc. all complete as per technical specification and approved drawings but excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS :)							
13.1	Township (Staff Quarters) as per TS							
a)	B - Type (Two and half storey, plinth Area 197 Sq.m.) - 1 No.			SqM	500			
b)	Vehicle Parking shed (for 5 Nos. of 4 wheelers/cars) as per TS			LS	1			
13.2	Control Room Building							
a)	All Civil Works including finishing, internal cable trenches, door windows, flooring, wall, roof, Railing, paint etc all complete as per technical specifications and approved drawing but exluding excavation, PCC, RCC and Reinforcement steel which shall be measured and paid separately under respectively items of BPS; (Ground Floor + First Floor + Roof Cover)			SqM	525			
b)	Construction of underground Water tank (18000 ltr.) excluding excavation, PCC, RCC and reinforcement steel and fitting of overhead tanks with suction motor for water supply, auto cut off switch, required Upvc pipes and fittings for water supply point to tanks, building and waste pipe etc. and all complete accessories as per specifications & instruction of site engineer.			Lot	2			
c)	Vehicle Parking shed (for 5 Nos. of 4 wheelers/cars) as per TS			LS	1			
13.3	132 kV and 66 kV GIS Hall							

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Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
a)	All Civil Works related to Pre-Engineered 132 kV GIS and 66 kV GIS Hall along with AHU to be supplied as per Schedule 1 including foundation, internal cable trench, excavation, PCC, RCC and Reinforcement etc all complete to erect the building as per approved drawing and Technical Specification			SqM	510			
14.0	Septic tank and soak pit complete as per technical specification and approved drawing excluding concrete & reinforcement which shall be measured and paid seperately under respective items of BPS . (For 50 users)			LS	1			
15.0	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	350			
16.0	Main boundary wall Gate (Steel) including all works complete as per technical specification			LS	2			
17.0	Chain Link fencing as per Technical Specification and approved drawing excluding concrete			RM	200			
18.0	Switchyard Gate excluding Concrete			Nos.	2			
19.0	Supplying & laying hume pipe of grade (NP-3) excluding concrete and reinforcement							
19.1	250mm dia			RM	150			
19.2	300mm dia			RM	120			
19.3	450mm dia			RM	80			
19.4	600mm dia			RM	40			
19.5	900mm dia			RM	10			
20.0	Supplying and erecting dewatering pumps							
20.1	5 HP			Nos.	2			
20.2	0.5 HP			Nos.	2			
21.0	External water supply from borewell/main water supply point to Fire water Tank, control room building, township buildings							
21.1	80 mm Dia GI pipe			RM	100			
21.2	50 mm Dia GI pipe			RM	60			
21.3	40mm Dia GI pipe			RM	60			
21.4	25mm Dia GI pipe			RM	60			
22.0	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc.							

Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)		
						Unit Rate	Total Charges	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)	
22.1	250 mm Dia.			RM	60			
22.2	150 mm Dia.			RM	60			
23.0	Concrete Road (inside Substation) as per drawing except Reinforcement & Concrete			SqM	160			
24.0	Providing, Installation and Drilling of tubewell in all formation (6 inch) with vertical submersible pump and necessary pipes, fittings all complete.			LS	1			
25.0	Masonry Work							
25.1	Providing and laying first class Chimney Fired brick masonry in cement mortar 1:4 (1cement : 4 coarse sand) in foundation upto plinth, superstructure and other specified places in all heights and level including the cost of single or multi stage self standing scaffolding, soaking bricks, curing, raking joints, provision for recesses, openings, toothing etc., all complete as per drawing, specifications and instructions of the Engineer.			CuM	100			
25.2	Providing and laying 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			CuM	250			
26.0	Plastering Works:							
26.1	Plaster works over Masonry (1:4)			SqM	500			
26.2	Punning Works			SqM	500			
26.3	Pointing Works over Stone Masonry (1:3)			SqM	500			
27.0	Stone Soling Work below foundations wherever specified in approved drawing during Detailed Engineering			CuM	200			
28	Miscellaneous works as per technical specification							
28.1	Identification plate, danger notice etc. (MATERIAL PLUS LABOUR) in Control room cum administrative building, fire fighting, pump house, entrance & exit, switchyard, substation area and approach road			Lot	1			
28.2	Installation works of Lightning/Earth mast			Lot	1			
29	Dismantling of existing 132 kV and 66 kV Towers and transportation to NEA store			LS	1			

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Schedule No. 4: Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges						Remarks	
		Country of Origin	Type & Designation	Unit	Qty.	Portion in Nepalese Currency (in NPR)			
						Unit Rate	Total Charges		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(6)x(7)		
30	Transportation of ERS Tower from NEA store, Erection of ERS Towers for minimization of shutdown of 132 kV and 66 kV line, dismantling and transport back to NEA store			LS	1				
SUB-TOTAL-C									
Total for Schedule 4(Total of column 8 to be carried forward to Schedule 5: Summary)									

Specify currency in accordance with ITB Clause 12.1 and corresponding BDS

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Amlekhgunj 132kV Substation Construction Project

ADB Loan No: 3542 - NEP: Power Transmission and Distribution Efficiency Enhancement Project

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS 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		Remarks
						Currency (USD)	Total Training Charges	
1	2		3	4	5	6	7 = 4 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 4b (Total of column 7 to be carried forward to Schedule 5: Summary)								

REMARKS:

1. Training at Manufacturer's works: The Contractor shall include in the training charges payment of per Diem allowance to NEA trainees as per NEA regulations per day per trainee for the duration of training abroad. Furthermore, the contractor shall bear all costs 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:

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Amlekhgunj 132kV Substation Construction Project

ADB Loan No: 3542 - NEP: Power Transmission and Distribution Efficiency Enhancement Project
OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

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		Remarks
					Unit rate (USD)	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 supplied SINAUT 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 4c (Total of column 7 to be carried forward to Schedule 5: Summary)							

REMARKS:

1. 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

Amlekhgunj 132kV Substation Construction Project

ADB Loan No: 3542 - NEP: Power Transmission and Distribution Efficiency Enhancement Project

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS Substation

Schedule No. 5: Summary

Sl. No.	Description	Total		Remarks
		Total Price Foreign (USD)*	Total Price Local (NPR)*	
1	TOTAL SCHEDULE NO. 1	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 (Not Applicable)			
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			
	GRAND TOTAL of 5_ [1+2+3+4a+4b+4c]			
	GRAND TOTAL of 5_ [1+2+3+4a+4b+4c] in USD			
	GRAND TOTAL of 5_ [1+2+3+4a+4b+4c] in NPR			

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

Date:

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Amlekhgunj 132kV Substation Construction Project

ADB Loan No: 3542 - NEP: Power Transmission and Distribution Efficiency Enhancement Project

OCB No. : PMD/PTDEEP/ASCP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Amlekhgunj 132/66/11kV GIS 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: _____