

NEPAL ELECTRICITY AUTHORITY

(An Undertaking of Government of Nepal)

PROJECT MANAGEMENT DIRECTORATE



SASEC Power System Expansion Project MARSYANGDI-KATHMANDU 220kV T/L PROJECT

BIDDING DOCUMENT FOR

**Procurement of Plant for 220 kV Air Insulated Substation (AIS) in Matatirtha,
Kathmandu and 220kV Gas Insulated Substation (GIS) in Markichowk,
Marsyangdi
(Design, Supply and Installation and Commissioning)**

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

Issued on:
Invitation for Bids No.:	ICB-PMD-MKTLP-076/77 - 02
ICB No.:	ICB-PMD-MKTLP-076/77 - 02
Employer:	Nepal Electricity Authority
Country:	Nepal

VOLUME –III OF III

June 2020

**Marsyangdi-Kathmandu 220kV Transmission Line Project
Project Management Directorate
Matatirtha Substation, Chandragiri Municipality, Kathmandu, Nepal**

Telephone: +977-1-5164112
Fax: +977-1-5164112

Letter of Price Bid

[Bidder's Letterhead]

Date:

ICB No.:

Invitation for Bid No.:

To:

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Document, including Addenda issued in accordance with Instructions to Bidders (ITB) 8;
- (b) We offer to design, manufacture, test, deliver, install, precommission and commission in conformity with the Bidding Document the following Plant and Services:
.. ;
- (c) The total price of our Bid, excluding any discount offered in item (d) below is:or, when left blank, is the Bid Price indicated in the Summary of Bill of Quantities
- (d) Our bid shall be valid for a period of days from the date fixed for the submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- (e) If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Document;
- (f) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract: **

Name of Recipient	Address	Reason	Amount
.....
.....

- (g) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- (h) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

- (i) We agree to permit ADB or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by ADB.

Note: The Failure to specify the total price of the bid in (c) above or the Bid Price in the Summary of Bill of Quantities shall be ground for declaring the bid nonresponsive.

Name

In the capacity of

Signed

Duly authorized to sign the Bid for and on behalf of

Date

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FC: Foreign Currency

LC: Local Currency

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

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)		Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
			Unit	Quantity		Currency#	FC		
		Unit Rate			Amount		FC	LC	
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
I-A	Extension of 220/132/33kV Matatirtha Substation								
	Part-A : EMPLOYER ASSESSED QUANTITIES								
A1	POWER TRANSFORMER								
A1.1	Testing & Maintenance Equipments								
a)	Transformer Oil Filtration plant (10KLPH)		No	1					
B	245 kV equipment								
1.0	216 kV Surge Arrestors (1-phase)		Nos.	31					
2.0	245 kV Bust Post Insulator (Except auxiliary buses of transformer)		Nos	70					
C	145 kV equipment								
1.0	145 kV Surge Arrestors								
a	120 kV Surge Arrestors (1- Phase)		Nos	7					
2.0	145kV Bus post insulators (Except auxiliary buses of transformer)		Set	15					
D1	72.5kV EQUIPMENT								
1.1	72.5 kV BPI (1-phase)		Nos.	15					
D.2	33kV Equipments								
1.1	30 kV Surge Arrestors (1-phase)		Nos.	3					
1.2	36 kV HG Fuse along with support insulator (1-phase)		Nos.	3					
E	RELAY PANELS (WITH AUTOMATION)								
1.0	220 kV								
a	Circuit Breaker Relay Panel								
i	With Auto Reclose		Set	5					
ii	With out Auto Reclose		Set	3					
b	Line Protection Panel (Matatirtha -Marsyangdi)		Set	2					
c	Line Protection Panel (Matatirtha –Trishuli)		Set	2					
d	Current Differential Relay for other end of line (Upper Trishuli 3A Line)		Nos	2					
e	Transformer Protection Panel (For both HV & MV side) including Remote Tap Changing Control Panel with AVR		Set	2					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
f	Bus Bar Protection Panel		Set	1					
F	COMMON EQUIPMENTS								
1.0	Relay Testing Tool kit(3 phase type)		Set	1					
2.0	Time synchronisation equipment		No.	1					
G	SUBSTATION AUTOMATION								
G.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								
a	Main bays to be automated								
i	220 kV system		Bay Nos	10					
ii	Bays to be automated of existing 132 kV substation		Bay Nos	10					
iii	Bays to be automated of existing 33 kV substation		Bay Nos	8					
iv)	Bays to be automated of existing 11 kV substation		Bay Nos	11					
v)	BCU for controlling & monitoring of Auxilary System		Set	1					
H	Teleprotection & communication Equipments								
a(i)	Digital Protection Coupler		Nos	4					
a(ii)	Digital Protection Coupler(for other end)		Nos	2					
b	PABX with following configuration as per TS		Set	1					
i)	2 wire subscriber interface card with capacity 32 local subscribers (along with 32 nos. Instruments)								
ii)	4 wire E & M interface card with capacity 8 nos. trunks (For PLCC)								
iii)	E-1 interface with 2 trunks G-703								
iv)	2 wire interface with 1 trunk (For PSTN)								
c	Testing & Maintenance equipment (print test kit only)		Set	1					
d	4 wire telephone equipment		No	1					
I	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	220V DCDB		Sets	2					

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J	Batteries								
a	220V								
i	600 AH		Nos	2					
K	Float Cum Boost Battery Charger								
a	220V Float Cum Boost Battery Charger								
i	80A/80A		Nos	2					
L	Diesel Generator with control Panel								
a	100 KVA		Set	1					
M	Fire Protection System								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type		Nos	5					
ii	50 litre foam type		Nos	2					
iii	4.5 kg CO ₂ type		Nos	13					
iv	4.5 kg Dry Chemical Power (DCP) type		Nos	5					
b	Smoke detection system		Set	1					
c	Fire detection and Alarm System		Set	1					
N	Cables along with clamps, glands, lugs and straight joints etc.								
a	Power Cables - (1.1kV grade)								
i	3.5Cx300 sqmm (XLPE) cable for filter Machine along with termination arrangement as per TS		KM	1					
O	Air conditioning System for Control room cum administrative building								
a	High wall type/Ceiling type split AC unit of 2 TR capacity		Nos	20					
p	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	426					
(b)	Pipe Structure including Foundation Bolts .		MT	150					
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)		MT	18					
Q	Communication equipments for Matatirtha Substation								
1	Transmission Equipment								
(i)	SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)								

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(a)	Base Equipment (Common cards, Cross-connect/control cards, Optical base cards, Power supply cards, power cabling, other hardware & accessories including sub-racks, patch cords, DDF etc. fully equipped excluding (ii) and (iii) below)		No.	2					
(ii)	Optical Interface/SFP# for								
a)	L4.2		Nos.	4					
b)	L4.1		Nos.	6					
c)	S4.1		Nos.	2					
(iii)	Tributary Cards								
i	E1 Interface card (Minimum 16 interfaces per card)		Nos.	2					
ii	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)		No.	4					
3	Equipment Cabinets								
a)	For SDH Equipment		No.	2					
4	TMN – Craft Terminal for SDH & PDH Equipments								
(a)	Hardware		Set*	1					
(b)	Software		Set*	1					
5	Main Distribution Frame(100 pairs)		No.	1					
6	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					
	Note# :Optical interface/SFP can be provided with Optical base card or Control card with the condition that control card shall not be equipped with more than one Optical interface/SFP and optical card with not more than two Optical interface/SFP. However main and protection channel shall be terminated on separate cards								
	Note*: Set shall include all required hardware/software for complete TMN –Craft Terminal system as specified in technical specifications.								

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
	Note** : Consider for existing equipment installed at Matatitha (Existing) and Optical Interface Card(s)/SFP shall be suitable to integrate with equipment installed Matatirtha (Existing).								
	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, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:								
a	220 kV Layout (DMT Layout)								
i	Line Bay		Set	4					
ii	Transformer Bay		Set	2					
iii	TBC Bay		Set	1					
iv	BC bay		Set	1					
v	Bus work (Three Bays)		Set	3					
b	For spare unit of 220/132/36 kV auto transformer connection through auxiliary buses, Neutral formation and delta formation (for two banks): Required 245 kV BPI for HV auxiliary bus, 132 kV BPI for 132 kV Auxilary bus, 72.5 kV BPI for tertiary auxilary bus & delta formation, 36 kV BPI for Neutral formation & Neutral auxilary bus including Al tube, bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures , Earthing of spare unit as per technical specification.		Set	1					
c	Erection Hardware etc for 72.5kV equipments & LT Transformer connection		Set	1					
d	Erection Hardware etc for 36 kV Transformer & LT Transformer connection		Set	1					
A1	Connection of 132 kV side of Transformer on exiting 132kV Bays								
i	132 kV cable (with Copper conductor) of suitable current rating along with cable termination kit (both end i.e.Transformer 132 kV end and 132 bay end) for 132 kV side of Transformer connection on existing 132kV Bays connection as per specification including one spare cable connection arrangement		Set	2					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
A2	Earthing and lightning protection including necesaary 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	Pumping arrangement for HVW system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house								
i	220/132kV (New) Substation		Set	1					
b	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.								
i	220/132kV (New) Substation		Set	1					
c	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer :								
c.1	Transformer								
i	53.33MVA , 220/132/33 KV, 1-phase Autotransformer		Sets	7					
C	Illumination System								
a	Fire fighting building illumination		LS	1					
b	Illumination System for switchyard panel room								
i	220KV		Sets	4					
c	Control room cum administrative building illumination		LS	1					
d	Switchyard lighting		LS	1					
e	Street lighting		LS	1					
f	Township quarter (B-Type, 4 nos) for 2 nos. of quarter buildings		LS	1					
g	Township quarter (C-Type, 4 nos) for 1 no. of quarter buildings		LS	1					
h	Security room		LS	1					
i	Car parkings		LS	1					
D	Air conditioning System								
a	Air conditioning for S/Y panel room								
i	220KV		Sets	4					
E	POWER & CONTROL CABLES								
a	Power Cables(PVC)- (1.1kV grade)		LS	1					

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1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
b	Control Cable (PVC)- (1.1kV grade)		LS	1					
c	Cable glands, lugs & straight through joints for Power & Control cables		LS	1					
F	Integration with LDC and MCC								
F.1	Integration of all 220/132/33kV 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					
F.2	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)	72.5kV PT.(1-phase)		No.	1					
(II)	216 SA								
i)	Complete LA		No.	1					
ii)	Surge counter/monitor		Nos.	5					
(III)	120kV SA								
i)	Complete LA		No.	1					
ii)	Surge counter/monitor		Nos.	5					
(IV)	30kV SA								
i)	Complete LA		No.	1					
ii)	Surge counter/monitor		Nos.	5					
(V)	C&R PANELS								
i)	Transformer protection panel :								
a)	Transformer differential protection		No.	1					
b)	REF protection relay with non-linear resistor		No.	1					

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1	2	3	4	5	6	Unit Rate	Amount	9=8	10
c)	Directional over current & E/F Protection Relay		No.	1					
ii)	Line protection panel :								
a)	Distance Protection relay- Main-1		Set	1					
b)	Current differential Protection relay- Main-2		Set	1					
iii)	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					
(VI)	Teleprotection Equipments								
i)	Set of prints for protection coupler (digital)		Set	1					
(VII)	SAS								
i)	Bay Control Unit (IED) of each type		Set	1					
ii)	Ethernet Switch of each type		Set	1					
(VIII)	BATTERY CHARGER(220kV)								
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					
(IX)	COMMON SPARES								
i)	Bay unit Module		No.	1					
ii)	2 wire local subscriber interface card for PABX		No.	1					
iii)	E1 Interface card for PABX		No.	1					

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(X)	Mandatory Spares of Communication Equipments								
1	Transmission Equipment								
A	SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)								
(i)	Common cards, Power supply cards, power cabling, other hardware & accessories (each)		Set ^{\$\$}	1					
(ii)	Optical Interface/SFP for								
a)	L4.2		No.	2					
b)	L4.1		No.	3					
c)	S4.1		No.	1					
(iii)	Tributary Cards								
(a)	E1 Interface card (Minimum 16 interfaces per card)		No.	1					
(b)	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)		No.	1					
3	Pre Connectorized Optical Fiber Patch Cords (10 Mtrs) – Pack of Six Patch Cords		Set	1					
4	Mandatory Spares for DCPS								
a)	MCCB/MCB-2P/ Contactor/ Timer/ Relay of each type & rating (as applicable)		Set	1					
b)	Single Pole MCBs (for outgoing DC Feeders)		Nos.	5					
c)	Electronic Printed Circuit Board / Card of each type (all cards/module including SMPS Module, DC Power Supply Controller, various interface cards etc.)		Set	1					
	Note ^{\$\$} : One Set means one of each type of module/unit card etc								
	Sub-Total Part-C								
	Total for Extension of 220/132/33kV Matatirtha Substation(220 kV AIS) [(I-A)- (Part-A+ Part-B+ Part C)]								

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I-B	Extension of 220/132/33kV Marsyangdi Substation (220 kV GIS & 132 kV AIS)								
	Part-A : EMPLOYER ASSESSED QUANTITIES								
A1	POWER TRANSFORMER								
A1.1	POWER TRANSFORMER								
a)	53.33MVA , 220/132/33 KV, 1-phase Autotransformer (Excluding insulating oil)		Nos.	3					
b)	Insulating oil for 53.33MVA , 220/132/33 KV, 1-phase Autotransformer (* 1Lot = Oil for 1Autotransformers)		Lot*	3					
c)	33kV Current transformer (NCT) for autotrasnformer		No	1					
(d)	Online insulating oil drying System		Nos.	3					
(e)	Online dissolved Gas (Multi-gas) and Moisture Analyser		Nos.	3					
A1.2	Testing & Maintenance Equipments								
a)	Transformer Oil Filtration plant (10KLPH)		No	1					
A2	LT TRANSFORMER								
1.0	630 kVA,33/0.400kV		Nos	1					
B	245 kV equipment								
1.10	Testing & Maintenance Equipment for GIS								
i)	EOT crane for 245kV GIS Hall		Set	1					
B2	245KV Outdoor Equipment								
1.1	216 KV Surge Arrester (1-phase)		Nos.	31					
1.2	245kV BPI		Nos.	14					
C	145 kV equipment								

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SASEC Power System Expansion Project

Marsyangdi-Kathmandu 220 kV Transmission LineProject

ICB-PMD-MKTLP-076/77-02: Design, Supply, Installation and Commissioning of 220 kV AIS Substation at Matatirtha, Kathmandu & 220 kV GIS Substation at Markichowk, Marsyangdi

FC: Foreign Currency

LC: Local Currency

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

Item No.	Item description	Country of origin	Estimated		Currency#	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
						Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
1.0	145 kV Circuit Breaker (3-Phase) with support structure								
a	1250A, 31.5 kA		Nos	1					
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	3					
3.0	145 kV Current Transformer (1- Phase)								
a	800A, 31.5 kA with 120% extended rating		Nos	3					
4.0	145 kV Surge Arrestors								
a	120 kV Surge Arrestors (1- Phase)		Nos	7					
5.0	145 kV Bus post insulators (Except for auxiliary buses of transformer)		Set	85					
6.0	72.5kV EQUIPMENT								
1.1	72.5 kV BPI (1-phase)		Nos.	3					
7	33kV Equipments								
1.1	33 kV, 630A Isolators with out earth switch (3-phase, DBR type)		No.	1					
1.2	30 kV Surge Arrestors (1-phase)		Nos.	3					
1.3	36 kV BPI		Nos.	3					
1.4	36 kV HG Fuse along with support insulator (1-phase)		Nos.	3					
E	RELAY PANELS (WITH AUTOMATION)								
1.0	220 kV								
a	Circuit Breaker Relay Panel								
i	With Auto Reclose		Set	8					
ii	With out Auto Reclose		Set	3					

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FC: Foreign Currency

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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)	Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes					
			Unit	Quantity					Currency#	FC		FC	LC
										Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10				
b	Line Protection Panel		Set	6									
c	Current Differential Relay for other end of line		Nos	4									
d	Transformer Protection Panel (For both HV & MV side) including Remote Tap Changing Control Panel with AVR		Set	2									
e	Bus Bar Protection Panel		Set	1									
2.0	132 kV												
a	Circuit Breaker Relay Panel												
ii	With out Auto Reclose		Set	2									
b	Bus Bar Protection Panel (augmentation for 2 ICT bays)		Set	2									
F	COMMON EQUIPMENTS												
1.0	Relay Test tool kit(3 phase type)		Set	1									
2.0	Time synchronisation equipment		No.	1									
G	SUBSTATION AUTOMATION												
G.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												
a	Main bays to be automated												
i	220 kV system		Bay Nos	11									
ii	132 kV system (Transformer bay under present scope)		Bay Nos	2									
iii	Bays to be automated of existing 132 kV substation		Bay Nos	6									
iv)	Bays to be automated of existing 33 kV substation		Bay Nos	3									
v)	BCU for controlling & monitoring of Auxilary System		Set	1									
H	Teleprotection & communication Equipments												
h(i)	Digital Protection Coupler		Nos	6									
h(ii)	Digital Protection Coupler(for other end)		Nos	4									
a	PBAX with following configuration as per TS		Set	1									

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FC: Foreign Currency

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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)		Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes
			Unit	Quantity		Currency#	FC		
							Unit Rate	Amount	FC
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
i)	2 wire subscriber interface card with capacity 32 local subscribers (along with 32 nos. Instruments)								
ii)	4 wire E & M interface card with capacity 8 nos. trunks (For PLCC)								
iii)	E-1 interface with 2 trunks G-703								
iv)	2 wire interface with 1 trunk (For PSTN)								
b	Testing & Maintenance equipment (print test kit only)		Set	1					
c	4 wire telephone equipment		No	1					
I	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	220V DCDB		Sets	2					
J	Batteries								
a	220V								
i	600 AH		Nos	2					
K	Float Cum Boost Battery Charger								
a	220V Float Cum Boost Battery Charger								
i	80A/80A		Nos	2					
L	Diesel Generator with control Panel								
a	100 kVA		Set	1					
M	Fire Protection System								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type		Nos	5					
ii	50 litre foam type		Nos	2					
iii	4.5 kg CO ₂ type		Nos	13					
iv	4.5 kg Dry Chemical Power (DCP) type		Nos	5					

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Marsyangdi-Kathmandu 220 kV Transmission Line Project

ICB-PMD-MKTLP-076/77-02: Design, Supply, Installation and Commissioning of 220 kV AIS Substation at Matatirtha, Kathmandu & 220 kV GIS Substation at Markichowk, Marsyangdi

FC: Foreign Currency
LC: Local Currency

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)	Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes		
				Unit					Quantity	Currency#
		1	2	3	4	5	6	Unit Rate	Amount	8 = (7) x (5)
b	Smoke detection system		Set	1						
c	Fire detection and Alarm System		Set	1						
N	Cables along with clamps, glands, lugs and straight joints etc.									
(a)	Power Cables - (1.1kV grade)									
i	3.5Cx300 sqmm (XLPE) cable for filter Machine along with termination arrangement as per TS		KM	1						
O	Air conditioning System for Control room cum administrative building									
a	High wall type/Ceiling type split AC unit of 2 TR capacity		Nos	25						
P1	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	163						
(b)	Pipe Structure including Foundation Bolts .		MT	45						
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)		MT	8						
P2	PRE-ENGINEERED BUILDING									
1)	220kV GIS Hall & Control Room Building including all supply materials from abroad except civil works and for civil works refer Schedule 4(a)									
a)	220kV GIS Hall		Sq.M	510						
b)	AHU/Panel Room		Sq.M	200						
c)	220kV two storeyed Control Room Building		Sq.M	775						
Q	Communication equipments for Marsyangdi Substation									
1	Transmission equipments									
(i)	SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)									
(a)	Base Equipment (Common cards, Cross-connect/control cards, Optical base cards, Power supply cards, power cabling, other hardware & accessories including sub-racks, patch cords, DDF etc. fully equipped excluding (ii) and (iii) below)		No.	2						

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FC: Foreign Currency

LC: Local Currency

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

Item No.	Item description	Country of origin	Estimated		Currency#	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
						Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10
(ii)	Optical Interface/SFP [#] for								
(a)	L4.2		Nos.	6					
(b)	L4.1		Nos.	6					
(iii)	Tributary Cards								
i	E1 Interface card (Minimum 16 interfaces per card)		Nos.	2					
ii	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)		No.	4					
3	Equipment Cabinets								
(a)	For SDH Equipment		No.	2					
4	Main Distribution Frame(100 pairs)		No.	1					
5	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					
	At Kathmandu LDC								
A1	SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)								
(a)	Base Equipment (Common cards, Cross-connect/control cards, Optical base cards, Power supply cards, power cabling, other hardware & accessories including sub-racks, patch cords, DDF etc. fully equipped excluding (ii) and (iii) below)		No.	1					
(i)	Optical Interface/SFP [#] for								
(a)	L4.2		Nos.	2					
(b)	L4.1		Nos.	2					
(c)	S4.1		Nos.	2					
(ii)	Tributary Cards								
i	E1 Interface card (Minimum 16 interfaces per card)		Nos.	1					
ii	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)		No.	2					
2	Equipment Cabinets								
(a)	For SDH Equipment		No.	1					

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Marsyangdi-Kathmandu 220 kV Transmission LineProject

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FC: Foreign Currency
LC: Local Currency

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)	Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes					
			Unit	Quantity					Currency#	FC		FC	LC
										Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10				
3	Main Distribution Frame(100 pairs)		No.	1									
	Note# :Optical interface/SFP can be provided with Optical base card or Control card with the condition that control card shall not be equipped with more than one Optical interface/SFP and optical card with not more than two Optical interface/SFP. However main and protection channel shall be terminated on separate cards												
	Note*: Set shall include all required hardware/software for complete TMN –Craft Terminal system as specified in technical specifications.												
	Note** : Consider for existing equipment installed at Matatitha (Existing) and Optical Interface Card(s)/SFP shall be suitable to integrate with equipment installed Marsyangdi Substation (Existing).												
	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	245kV GIS Termination Arrangement:												
i	Line Bay		Set	8									
ii	Transformer Bay (including 220 kV AIS connection for spare unit with GIS auxiliary bus module)		Set	2									
b	For 132 kV (Double Main Layout)												
i	Transformer Bay		Set	2									
ii	Bus work (For 3 bays and connection to existing 132kV switchyard, excluding bus post insulators)		Set	1									

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FC: Foreign Currency

LC: Local Currency

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)	Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes					
			Unit	Quantity					Currency#	FC		FC	LC
										Unit Rate	Amount		
1	2	3	4	5	6	7	8 = (7) x (5)	9=8	10				
c	For spare unit of 220/132/36 kV auto transformer connection through auxiliary buses (132 kV, tertiary & Neutral auxiliary buses only), Neutral formation and delta formation (for two banks): Required 132 kV BPI for 132 kV Auxilary bus, 72.5 kV BPI for tertiary auxiliary bus & delta formation, 36 kV BPI for Neutral formation & Neutral auxiliary bus including Al tube, bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures , Earthing of spare unit as per technical specification.		Set	1									
d	Erection Hardware etc for 72.5kV equipments & LT Transformer connection		Set	1									
e	Earthing and lightning protection including necesaary 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	Pumping arrangement for HVW system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house												
i	220/132kV (New) Substation		Set	1									
b	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.												
i	220/132kV (New) Substation		Set	1									
c	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer :												
c.1	Transformer												
i	53.33MVA , 220/132/33 KV, 1-phase Autotransformer		Sets	7									
C	Illumination System												
a	Control room cum administrative building illumination		LS	1									
b	Fire fighting building illumination		LS	1									
c	Switchyard lighting		LS	1									
d	Street lighting		LS	1									

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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)	Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes		
		Unit	Quantity	Currency#	FC		FC	LC		
1	2	3	4	5	6	Unit Rate	Amount	8 = (7) x (5)	9=8	10
e	Transit Camp illumination		LS	1						
f	245kV GIS Building including panel room		LS	1						
g	Township quarter (C-Type, 4 nos)		LS	1						
h	Township quarter (D-Type, 1 nos)		LS	1						
i	Car parkings		LS	1						
D	Air conditioning & ventilation System									
D.1	Air conditioning system									
(i)	Panel room in 245kV GIS Hall		LS	1						
D.2	Ventilation system									
(i)	245KV GIS hall		LS	1						
G	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						
H	Integration of all 220/132/33kV 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									
(I)	SPARES FOR AIS EQUIPMENTS									
A	145kV CB									
i)	Complete Pole of circuit breaker including pole column, interrupter, with driving mechanism and Marshaling Box but without support structure for									

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FC: Foreign Currency

LC: Local Currency

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

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FC: Foreign Currency

LC: Local Currency

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)	Total Amount (Excluding Taxes and Duties)	Custom, VAT and other taxes		
			Unit	Quantity					Currency#	FC
		1			2	3	4	5	6	7
J	COMMON SPARES									
i)	Bay unit Module		No.	1						
ii)	2 wire local subscriber interface card for PABX		No.	1						
iii)	E1 Interface card for PABX		No.	1						
	Sub-Total Part-C									
	Total For Extension of 220/132kV Marsyangdi Substation (220 kV GIS & 132 kV AIS) [(I-B)- (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 except.towers, conductors and earthwires.

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

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:

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LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
I-A	Extension of 220/132/33kV Matatirtha Substation								
	Part-A : EMPLOYER ASSESSED QUANTITIES								
A1	POWER TRANSFORMER								
A1.1	Testing & Maintenance Equipments								
a)	Transformer Oil Filtration plant (10KLPH)	No	1						
B	245 kV equipment								
1.0	216 kV Surge Arrestors (1-phase)	Nos.	31						
2.0	245 kV Bust Post Insulator (Except auxiliary buses of transformer)	Nos	70						
C	145 kV equipment								
1.0	145 kV Surge Arrestors								
a	120 kV Surge Arrestors (1- Phase)	Nos	7						
2.0	145kV Bus post insulators (Except auxiliary buses of transformer)	Set	15						
D1	72.5kV EQUIPMENT								
1.1	72.5 kV BPI (1-phase)	Nos.	15						
D.2	33kV Equipments								
1.1	30 kV Surge Arrestors (1-phase)	Nos.	3						
1.2	36 kV HG Fuse along with support insulator (1-phase)	Nos.	3						
E	RELAY PANELS (WITH AUTOMATION)								
1.0	220 kV								
a	Circuit Breaker Relay Panel								
i	With Auto Reclose	Set	5						
ii	With out Auto Reclose	Set	3						
b	Line Protection Panel (Matatirtha -Marsyangdi)	Set	2						
c	Line Protection Panel (Matatirtha –Trishuli)	Set	2						
d	Current Differential Relay for other end of line (Upper Trishuli 3A Line)	Nos	2						
e	Transformer Protection Panel (For both HV & MV side) including Remote Tap Changing Control Panel with AVR	Set	2						

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LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
f	Bus Bar Protection Panel	Set	1						
F	COMMON EQUIPMENTS								
1.0	Relay Testing Tool kit(3 phase type)	Set	1						
2.0	Time synchronisation equipment	No.	1						
G	SUBSTATION AUTOMATION								
G.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								
a	Main bays to be automated								
i	220 kV system	Bay Nos	10						
ii	Bays to be automated of existing 132 kV substation	Bay Nos	10						
iii	Bays to be automated of existing 33 kV substation	Bay Nos	8						
iv)	Bays to be automated of existing 11 kV substation	Bay Nos	11						
v)	BCU for controlling & monitoring of Auxilary System	Set	1						
H	Teleprotection & communication Equipments								
a(i)	Digital Protection Coupler	Nos	4						
a(ii)	Digital Protection Coupler(for other end)	Nos	2						
b	PABX with following configuration as per TS	Set	1						
i)	2 wire subscriber interface card with capacity 32 local subscribers (along with 32 nos. Instruments)								
ii)	4 wire E & M interface card with capacity 8 nos. trunks (For PLCC)								
iii)	E-1 interface with 2 trunks G-703								
iv)	2 wire interface with 1 trunk (For PSTN)								
c	Testing & Maintenance equipment (print test kit only)	Set	1						
d	4 wire telephone equipment	No	1						
I	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	220V DCDB	Sets	2						

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
J	Batteries								
a	220V								
i	600 AH	Nos	2						
K	Float Cum Boost Battery Charger								
a	220V Float Cum Boost Battery Charger								
i	80A/80A	Nos	2						
L	Diesel Generator with control Panel								
a	100 KVA	Set	1						
M	Fire Protection System								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type	Nos	5						
ii	50 litre foam type	Nos	2						
iii	4.5 kg CO ₂ type	Nos	13						
iv	4.5 kg Dry Chemical Power (DCP) type	Nos	5						
b	Smoke detection system	Set	1						
c	Fire detection and Alarm System	Set	1						
N	Cables along with clamps, glands, lugs and straight joints etc.								
a	Power Cables - (1.1kV grade)								
i	3.5Cx300 sqmm (XLPE) cable for filter Machine along with termination arrangement as per TS	KM	1						
O	Air conditioning System for Control room cum administrative building								
a	High wall type/Ceiling type split AC unit of 2 TR capacity	Nos	20						
p	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	426						
(b)	Pipe Structure including Foundation Bolts .	MT	150						
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)	MT	18						
Q	Communication equipments for Matatirtha Substation								
1	Transmission Equipment								

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		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
	(i) SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)								
	(a) Base Equipment (Common cards, Cross-connect/control cards, Optical base cards, Power supply cards, power cabling, other hardware & accessories including sub-racks, patch cords, DDF etc. fully equipped excluding (ii) and (iii) below)	No.	2						
	(ii) Optical Interface/SFP[#] for								
	a) L4.2	Nos.	4						
	b) L4.1	Nos.	6						
	c) S4.1	Nos.	2						
	(iii) Tributary Cards								
	i) E1 Interface card (Minimum 16 interfaces per card)	Nos.	2						
	ii) Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)	No.	4						
3	Equipment Cabinets								
	a) For SDH Equipment	No.	2						
4	TMN – Craft Terminal for SDH & PDH Equipments								
	(a) Hardware	Set*	1						
	(b) Software	Set*	1						
5	Main Distribution Frame(100 pairs)	No.	1						
6	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						
	Note# :Optical interface/SFP can be provided with Optical base card or Control card with the condition that control card shall not be equipped with more than one Optical interface/SFP and optical card with not more than two Optical interface/SFP. However main and protection channel shall be terminated on separate cards								
	Note*: Set shall include all required hardware/software for complete TMN –Craft Terminal system as specified in technical specifications.								

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Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
	Note** : Consider for existing equipment installed at Matatirtha (Existing) and Optical Interface Card(s)/SFP shall be suitable to integrate with equipment installed Matatirtha (Existing).								
	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, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:								
a	220 kV Layout (DMT Layout)								
i	Line Bay	Set	4						
ii	Transformer Bay	Set	2						
iii	TBC Bay	Set	1						
iv	BC bay	Set	1						
v	Bus work (Three Bays)	Set	3						
b	For spare unit of 220/132/36 kV auto transformer connection through auxiliary buses, Neutral formation and delta formation (for two banks): Required 245 kV BPI for HV auxiliary bus, 132 kV BPI for 132 kV Auxiliary bus, 72.5 kV BPI for tertiary auxiliary bus & delta formation, 36 kV BPI for Neutral formation & Neutral auxiliary bus including Al tube, bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures , Earthing of spare unit as per technical specification.	Set	1						
c	Erection Hardware etc for 72.5kV equipments & LT Transformer connection	Set	1						
d	Erection Hardware etc for 36 kV Transformer & LT Transformer connection	Set	1						
A1	Connection of 132 kV side of Transformer on exiting 132kV Bays								
i	132 kV cable (with Copper conductor) of suitable current rating along with cable termination kit (both end i.e.Transformer 132 kV end and 132 bay end) for 132 kV side of Transformer connection on existing 132kV Bays connection as per specification including one spare cable connection arrangement	Set	2						

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		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
A2	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	Pumping arrangement for H/V system & hydrant system, complete with all piping, valves, fittings, etc. inside pump house								
i	220/132kV (New) Substation	Set	1						
b	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.								
i	220/132kV (New) Substation	Set	1						
c	H/V spray system, Hydrant system and complete U/G & O/G piping and accessories etc. outside the pump house for Transformer :								
c.1	Transformer								
i	53.33MVA , 220/132/33 KV, 1-phase Autotransformer	Sets	7						
C	Illumination System								
a	Fire fighting building illumination	LS	1						
b	Illumination System for switchyard panel room								
i	220KV	Sets	4						
c	Control room cum administrative building illumination	LS	1						
d	Switchyard lighting	LS	1						
e	Street lighting	LS	1						
f	Township quarter (B-Type, 4 nos) for 2 nos. of quarter buildings	LS	1						
g	Township quarter (C-Type, 4 nos) for 1 no. of quarter buildings	LS	1						
h	Security room	LS	1						
i	Car parkings	LS	1						
D	Air conditioning System								
a	Air conditioning for S/Y panel room								
i	220KV	Sets	4						
E	POWER & CONTROL CABLES								

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		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
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	Integration with LDC and MCC								
F.1	Integration of all 220/132/33kV 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						
F.2	Integration of all 220/132/33kV 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								
(I)	72.5kV PT.(1-phase)	No.	1						
(II)	216 SA								
i)	Complete LA	No.	1						
ii)	Surge counter/monitor	Nos.	5						
(III)	120kV SA								
i)	Complete LA	No.	1						
ii)	Surge counter/monitor	Nos.	5						
(IV)	30kV SA								
i)	Complete LA	No.	1						
ii)	Surge counter/monitor	Nos.	5						
(V)	C&R PANELS								
i)	Transformer protection panel :								
a)	Transformer differential protection	No.	1						

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1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
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- Main-1	Set	1						
b)	Current differential Protection relay- Main-2	Set	1						
iii)	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						
(VI)	Teleprotection Equipments								
i)	Set of prints for protection coupler (digital)	Set	1						
(VII)	SAS								
i)	Bay Control Unit (IED) of each type	Set	1						
ii)	Ethernet Switch of each type	Set	1						
(VIII)	BATTERY CHARGER(220kV)								
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						
(IX)	COMMON SPARES								
i)	Bay unit Module	No.	1						

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1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
	Total for Extension of 220/132/33kV Matatirtha Substation(220 kV AIS) [(I-A)- (Part-A+ Part-B+ Part C)]								
I-B	Extension of 220/132/33kV Marsyangdi Substation (220 kV GIS & 132 kV AIS)								
	Part-A : EMPLOYER ASSESSED QUANTITIES								
A1	POWER TRANSFORMER								
A1.1	POWER TRANSFORMER								
a)	53.33MVA , 220/132/33 KV, 1-phase Autotransformer (Excluding insulating oil)	Nos.	3						
b)	Insulating oil for 53.33MVA , 220/132/33 KV, 1-phase Autotransformer (* 1Lot = Oil for 1Autotransformers)	Lot*	3						
c)	33kV Current transformer (NCT) for autotrasnformer	No	1						
(d)	Online insulating oil drying System	Nos.	3						
(e)	Online dissolved Gas (Multi-gas) and Moisture Analyser	Nos.	3						
A1.2	Testing & Maintenance Equipments								
a)	Transformer Oil Filtration plant (10KLPH)	No	1						
A2	LT TRANSFORMER								
1.0	630 kVA,33/0.400kV	Nos	1						
B	245 kV equipment								
1.10	Testing & Maintenance Equipment for GIS								
i)	EOT crane for 245kV GIS Hall	Set	1						
B2	245KV Outdoor Equipment								
1.1	216 KV Surge Arrester (1-phase)	Nos.	31						

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		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
1.2	245kV BPI	Nos.	14						
C	145 kV equipment								
1.0	145 kV Circuit Breaker (3-Phase) with support structure								
a	1250A, 31.5 kA	Nos	1						
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	3						
3.0	145 kV Current Transformer (1- Phase)								
a	800A, 31.5 kA with 120% extended rating	Nos	3						
4.0	145 kV Surge Arrestors								
a	120 kV Surge Arrestors (1- Phase)	Nos	7						
5.0	145 kV Bus post insulators (Except for auxiliary buses of transformer)	Set	85						
6.0	72.5kV EQUIPMENT								
1.1	72.5 kV BPI (1-phase)	Nos.	3						
7	33kV Equipments								
1.1	33 kV, 630A Isolators with out earth switch (3-phase, DBR type)	No.	1						
1.2	30 kV Surge Arrestors (1-phase)	Nos.	3						
1.3	36 kV BPI	Nos.	3						
1.4	36 kV HG Fuse along with support insulator (1-phase)	Nos.	3						
E	RELAY PANELS (WITH AUTOMATION)								
1.0	220 kV								
a	Circuit Breaker Relay Panel								
i	With Auto Reclose	Set	8						

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1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
	ii With out Auto Reclose	Set	3						
b	Line Protection Panel	Set	6						
c	Current Differential Relay for other end of line	Nos	4						
d	Transformer Protection Panel (For both HV & MV side) including Remote Tap Changing Control Panel with AVR	Set	2						
e	Bus Bar Protection Panel	Set	1						
2.0	132 kV								
a	Circuit Breaker Relay Panel								
	ii With out Auto Reclose	Set	2						
b	Bus Bar Protection Panel (augmentation for 2 ICT bays)	Set	2						
F	COMMON EQUIPMENTS								
1.0	Relay Test tool kit(3 phase type)	Set	1						
2.0	Time synchronisation equipment	No.	1						
G	SUBSTATION AUTOMATION								
G.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								
a	Main bays to be automated								
i	220 kV system	Bay Nos	11						
ii	132 kV system (Transformer bay under present scope)	Bay Nos	2						
iii	Bays to be automated of existing 132 kV substation	Bay Nos	6						
iv)	Bays to be automated of existing 33 kV substation	Bay Nos	3						
v)	BCU for controlling & monitoring of Auxilary System	Set	1						
H	Teleprotection & communication Equipments								
h(i)	Digital Protection Coupler	Nos	6						
h(ii)	Digital Protection Coupler(for other end)	Nos	4						
a	PBAX with following configuration as per TS	Set	1						

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1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
i)	2 wire subscriber interface card with capacity 32 local subscribers (along with 32 nos. Instruments)								
ii)	4 wire E & M interface card with capacity 8 nos. trunks (For PLCC)								
iii)	E-1 interface with 2 trunks G-703								
iv)	2 wire interface with 1 trunk (For PSTN)								
b	Testing & Maintenance equipment (print test kit only)	Set	1						
c	4 wire telephone equipment	No	1						
I	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	220V DCDB	Sets	2						
J	Batteries								
a	220V								
i	600 AH	Nos	2						
K	Float Cum Boost Battery Charger								
a	220V Float Cum Boost Battery Charger								
i	80A/80A	Nos	2						
L	Diesel Generator with control Panel								
a	100 kVA	Set	1						
M	Fire Protection System								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type	Nos	5						
ii	50 litre foam type	Nos	2						
iii	4.5 kg CO ₂ type	Nos	13						
iv	4.5 kg Dry Chemical Power (DCP) type	Nos	5						

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b	Smoke detection system	Set	1						
c	Fire detection and Alarm System	Set	1						
N	Cables along with clamps, glands, lugs and straight joints etc.								
(a)	Power Cables - (1.1kV grade)								
i	3.5Cx300 sqmm (XLPE) cable for filter Machine along with termination arrangement as per TS	KM	1						
O	Air conditioning System for Control room cum administrative building								
a	High wall type/Ceiling type split AC unit of 2 TR capacity	Nos	25						
P1	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	163						
(b)	Pipe Structure including Foundation Bolts .	MT	45						
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)	MT	8						
P2	PRE-ENGINEERED BUILDING								
1)	220kV GIS Hall & Control Room Building including all supply materials from abroad except civil works and for civil works refer Schedule 4(a)								
a)	220kV GIS Hall	Sq.M	510						
b)	AHU/Panel Room	Sq.M	200						
c)	220kV two storeyed Control Room Building	Sq.M	775						
Q	Communication equipments for Marsyangdi Substation								
1	Transmission equipments								
(i)	SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)								

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		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
(a)	Base Equipment (Common cards, Cross-connect/control cards, Optical base cards, Power supply cards, power cabling, other hardware & accessories including sub-racks, patch cords, DDF etc. fully equipped excluding (ii) and (iii) below)	No.	2						
(ii)	Optical Interface/SFP[#] for								
(a)	L4.2	Nos.	6						
(b)	L4.1	Nos.	6						
(iii)	Tributary Cards								
i	E1 Interface card (Minimum 16 interfaces per card)	Nos.	2						
ii	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)	No.	4						
3	Equipment Cabinets								
(a)	For SDH Equipment	No.	2						
4	Main Distribution Frame(100 pairs)	No.	1						
5	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						
	At Kathmandu LDC								
A1	SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)								
(a)	Base Equipment (Common cards, Cross-connect/control cards, Optical base cards, Power supply cards, power cabling, other hardware & accessories including sub-racks, patch cords, DDF etc. fully equipped excluding (ii) and (iii) below)	No.	1						
(i)	Optical Interface/SFP[#] for								
(a)	L4.2	Nos.	2						
(b)	L4.1	Nos.	2						
(c)	S4.1	Nos.	2						
(ii)	Tributary Cards								

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LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
	i) E1 Interface card (Minimum 16 interfaces per card)	Nos.	1						
	ii) Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)	No.	2						
2	Equipment Cabinets								
(a)	For SDH Equipment	No.	1						
3	Main Distribution Frame(100 pairs)	No.	1						
	Note# :Optical interface/SFP can be provided with Optical base card or Control card with the condition that control card shall not be equipped with more than one Optical interface/SFP and optical card with not more than two Optical interface/SFP. However main and protection channel shall be terminated on separate cards								
	Note*: Set shall include all required hardware/software for complete TMN –Craft Terminal system as specified in technical specifications.								
	Note** : Consider for existing equipment installed at Matatitha (Existing) and Optical Interface Card(s)/SFP shall be suitable to integrate with equipment installed Marsyangdi Substation (Existing).								
	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	245kV GIS Termination Arrangement:								
i	Line Bay	Set	8						

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Marsyangdi-Kathmandu 220 kV Transmission LineProject

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LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
	ii Transformer Bay (including 220 kV AIS connection for spare unit with GIS auxiliary bus module)	Set	2						
b	For 132 kV (Double Main Layout)								
i	Transformer Bay	Set	2						
ii	Bus work (For 3 bays and connection to existing 132kV switchyard, excluding bus post insulators)	Set	1						
c	For spare unit of 220/132/36 kV auto transformer connection through auxiliary buses (132 kV, tertiary & Neutral auxiliary buses only), Neutral formation and delta formation (for two banks): Required 132 kV BPI for 132 kV Auxiliary bus, 72.5 kV BPI for tertiary auxiliary bus & delta formation, 36 kV BPI for Neutral formation & Neutral auxiliary bus including Al tube, bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures , Earthing of spare unit as per technical specification.	Set	1						
d	Erection Hardware etc for 72.5kV equipments & LT Transformer connection	Set	1						
e	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	Pumping arrangement for HVW system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house								
i	220/132kV (New) Substation	Set	1						
b	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.								
i	220/132kV (New) Substation	Set	1						
c	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer :								
c.1	Transformer								

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LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	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-C: Mandatory Spares								
(I)	SPARES FOR AIS EQUIPMENTS								
A	145kV CB								
i)	Complete Pole of circuit breaker including pole column, interrupter, with driving mechanism and Marshaling Box but without support structure for								
	1250A, 31.5 KA (No. of Pole)	No.	1						
ii)	Rubber gaskets, 'O' rings and seals (for complete replacement of one pole of CB)	Set	1						
iii)	Trip coils with resistor	Nos.	2						
iv)	Closing coils with resistor	Nos.	1						
v)	Terminal Pads & connectors	Nos.	2						
vi)	Molecular filter	Nos.	2						
vii)	Relays, Power contactors, switch fuse units, limit switches, push buttons, timers & MCB etc. (1 no. of each type)	Set	1						
viii)	Pressure switches / Density monitor (1 no. of each type)	Set	1						
ix)	Auxiliary switch assembly (for one pole of CB)	Set	1						
B	145kV Isolator								
i)	One complete pole including support Insulator, motor operating mechanism (MOM) with box but excluding structure								
	1250A, 31.5 KA, 1 E/S (no. of pole)	No.	1						
ii)	Copper contact fingers for male & female contacts	Set	2						
iii)	Open/Close contactor assembly, timers, key interlock push button switch & auxilliary switches	Set	1						
iv)	Limit Switch	Set	2						
v)	Terminal Pads & Connectors	Nos.	3						
C	145kV CT								
i	800A, 31.5 kA with 120% extended rating	No.	1						
D	216 SA								
i)	Complete LA	No.	1						

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LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
ii)	Surge counter/monitor	Nos.	5						
E	120kV SA								
i)	Complete LA	No.	1						
ii)	Surge counter/monitor	Nos.	5						
F	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- Main-1	No.	1						
b)	Current differential Protection relay- Main-2	No.	1						
iii)	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						
G	Teleprotection Equipments								
i)	Set of prints for protection coupler(digital)	Set	1						
H	SAS								
i)	Bay Control Unit (IED) of each type	Set	1						
ii)	Ethernet Switch of each type	Set	1						

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LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10
I	BATTERY CHARGER(220kV)								
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						
J	COMMON SPARES								
i)	Bay unit Module	No.	1						
ii)	2 wire local subscriber interface card for PABX	No.	1						
iii)	E1 Interface card for PABX	No.	1						
	Sub-Total Part-C								
	Total For Extension of 220/132kV Marsyangdi Substation (220 kV GIS & 132 kV AIS) [(I-B)-(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 except.towers, conductors and earthwires.

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

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)

Date:

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ICB-PMD-MKTLP-076/77-02: Design, Supply, Installation and Commissioning of 220 kV AIS Substation at Matatirtha, Kathmandu & 220 kV GIS Substation at Markichowk, Marsyangdi

LC: Local Currency (ALL Price in Local Currency)

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

Item No.	Item description	Estimated		Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	Custom, VAT and other taxes
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (4) x (5)	7	8=(4)x(7)	9=6+8	10

(Designation)
(Common Seal)

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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
	Design of the remaining scope of works for Matatirtha substation as per Technical specification	1	LOT				
	Design of the remaining scope of works for Marsyangdi substation as per Technical specification	1	LOT				
	Total (Total of column 7 and 8 to be carried forward to Schedule No. 5: Grand Summary)						

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

Date:

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Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

[illegible]

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ICB-PMD-MKTLP-076/77-02: Design, Supply, Installation and Commissioning of 220 kV AIS Substation at Matatirtha, Kathmandu & 220 kV GIS Substation at Markichowk, Marsyangdi

Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Qty.	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	216 kV Surge Arrestors (1-phase)			Nos.	31					
2.0	245 kV Bust Post Insulator (Except auxiliary buses of transformer)			Nos	70					
C	145 kV equipment (To be supplied by the Contractor)									
1.0	145 kV Surge Arrestors									
a	120 kV Surge Arrestors (1- Phase)			Nos	7					
2.0	145kV Bus post insulators (Except auxiliary buses of transformer)			Set	15					
D1-1	72.5kV EQUIPMENT (Owner Supplied)									
1.1	72.5 kV, 1250A, 31.5kA Circuit Breaker (3-phase) with support structure			No.	1					
1.2	72.5 kV, 1250A,31.5kA Isolators with earth switch (3-phase, DBR type)			No.	1					
1.3	72.5kV, 1250A, 31.5 kA with 120% extended rating CT.			Nos.	3					
1.4	72.5kV PT.(1-phase)			Nos.	3					
D1-2	72.5kV EQUIPMENT (To be supplied by the Contractor)									
1.5	72.5 kV BPI (1-phase)			Nos.	15					
D.2-1	33kV Equipments (Owner Supplied)									
1.1	33 kV, 630A Isolators with out earth switch (3-phase, DBR type)			No.	1					
D.2-2	33kV Equipments									
1.1	30 kV Surge Arrestors (1-phase)			Nos.	3					
1.2	36 kV HG Fuse along with support insulator (1-phase)			Nos.	3					
E	RELAY PANELS (WITH AUTOMATION)									
1.0	220 kV									
a	Circuit Breaker Relay Panel									
i	With Auto Reclose			Set	5					
ii	With out Auto Reclose			Set	3					
b	Line Protection Panel (Matatirtha -Marsyangdi)			Set	2					
c	Line Protection Panel (Matatirtha –Trishuli)			Set	2					
d	Current Differential Relay for other end of line (Upper Trishuli 3A Line)			Nos	2					

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Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Qty.	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
e	Transformer Protection Panel (For both HV & MV side) including Remote Tap Changing Control Panel with AVR			Set	2					
f	Bus Bar Protection Panel			Set	1					
E1	Disconnection of protection wiring from existing protection panels of Upper Trishuli 3A Line to the respective control panels. Electrical wiring and connection in the existing control panels (including hardware modifications and addition of auxiliary relays if required) from the new 220/132kV transformer protection panel for making complete operation for LV side of 220/132kV transformers (one line=1 Set)			Set	2					
F	COMMON EQUIPMENTS									
1.0	Special Relay Test Tool kit(3phase type)			No	1					
G	SUBSTATION AUTOMATION									
G.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									
a	Main bays to be automated									
i	220 kV system			Bay Nos	10					
ii	Bays to be automated of existing 132 kV substation			Bay Nos	10					
iii	Bays to be automated of existing 33 kV substation			Bay Nos	8					
iv)	Bays to be automated of existing 11 kV substation			Bay Nos	11					
v)	BCU for controlling & monitoring of Auxiliary System			Set	1					
H	Teleprotection & communication Equipments									
a(i)	Digital Protection Coupler			Nos	4					
a(ii)	Digital Protection Coupler(for other end)			Nos	2					
b	PABX with following configuration as per TS			Set	1					
i)	2 wire subscriber interface card with capacity 32 local subscribers (along with 32 nos. Instruments)									
ii)	4 wire E & M interface card with capacity 8 nos. trunks (For PLCC)									
iii)	E-1 interface with 2 trunks G-703									
iv)	2 wire interface with 1 trunk (For PSTN)									
c	Testing & Maintenance equipment (print test kit only)			Set	1					
d	4 wire telephone equipment			No	1					

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Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Qty.	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
I	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	220V DCDB			Sets	2					
J	Batteries									
a	220V									
i	600 AH			Nos	2					
K	Float Cum Boost Battery Charger									
a	220V Float Cum Boost Battery Charger									
i	80A/80A			Nos	2					
L	Diesel Generator with control Panel									
a	100 KVA			Set	1					
M	Fire Protection System									
a	Portable /Trolley/Wheel mounted extinguishers									
i	9 litre water type			Nos	5					
ii	50 litre foam type			Nos	2					
iii	4.5 kg CO ₂ type			Nos	13					
iv	4.5 kg Dry Chemical Power (DCP) type			Nos	5					
b	Smoke detection system			Set	1					
c	Fire detection and Alarm System			Set	1					
N	Cables along with clamps, glands, lugs and straight joints etc.									
b	Power Cables - (1.1kV grade)									
i	3.5Cx300 sqmm (XLPE) cable for filter Machine along with termination arrangement as per TS			KM	1					
O	Air conditioning System for Control room cum administrative building									
a	High wall type/Ceiling type split AC unit of 2 TR capacity			Nos	20					

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Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Qty.	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
P	Erection 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	426					
(b)	Pipe Structure including Foundation Bolts .			MT	150					
(c)	Fastners and step bolts.(Nuts,Bolts & Washers)			MT	18					
Q	Communication equipments for Matatirha Substation									
1	Transmission Equipment									
(i)	SDH Equipment (STM- 4 MADM, upto 3 MSP protected directions)									
(a)	Base Equipment (Common cards, Cross-connect/control cards, Optical base cards, Power supply cards, power cabling, other hardware & accessories including sub-racks, patch cords, DDF etc. fully equipped excluding (ii) and (iii) below)			No.	2					
(ii)	Optical Interface/SFP [#] for									
(a)	L4.2			Nos.	4					
(b)	L4.1			Nos.	6					
(c)	S4.1			Nos.	2					
(iii)	Tributary Cards									
i	E1 Interface card (Minimum 16 interfaces per card)			Nos.	2					
ii	Ethernet interfaces 10/100 Mbps with Layer-2 switching (Minimum 4 interfaces per card.)			No.	4					
2	Equipment Cabinets									
(a)	For SDH Equipment			No.	2					
3	TMN – Craft Terminal for SDH & PDH Equipments									
(a)	Hardware			Set*	1					
(b)	Software			Set*	1					
4	Main Distribution Frame(100 pairs)			No.	1					
5	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					

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Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Qty.	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
	Note# :Optical interface/SFP can be provided with Optical base card or Control card with the condition that control card shall not be equipped with more than one Optical interface/SFP and optical card with not more than two Optical interface/SFP. However main and protection channel shall be terminated on separate cards									
	Note*: Set shall include all required hardware/software for complete TMN –Craft Terminal system as specified in technical specifications.									
	Note** : Consider for existing equipment installed at Matatitha (Existing) and Optical Interface Card(s)/SFP shall be suitable to integrate with equipment installed Matatirtha (Existing).									
	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, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:									
a	220 kV Layout (DMT Layout)									
i	Line Bay			Set	4					
ii	Transformer Bay			Set	2					
iii	TBC Bay			Set	1					
iv	BC bay			Set	1					
v	Bus work (Three Bays)			Set	3					
b	For spare unit of 220/132/36 kV auto transformer connection through auxiliary buses, Neutral formation and delta formation (for two banks): Required 245 kV BPI for HV auxiliary bus, 132 kV BPI for 132 kV Auxiliary bus, 72.5 kV BPI for tertiary auxiliary bus & delta formation, 36 kV BPI for Neutral formation & Neutral auxiliary bus including Al tube, bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures, Earthing of spare unit as per technical specification.			Set	1					
c	Erection Hardware etc for 72.5kV equipments & LT Transformer connection			Set	1					
d	Erection Hardware etc for 36 kV Transformer & LT Transformer connection			Set	1					
A1	Connection of 132 kV side of Transformer on exiting 132kV Bays									
i	132 kV cable (with Copper conductor) of suitable current rating along with cable termination kit (both end i.e. Transformer 132 kV end and 132 bay end) for 132 kV side of Transforme connection on exiting 132kV Bays connection as per specification including one spare cable connection arrangement			Set	2					

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Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

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SASEC Power System Expansion Project
Marsyangdi-Kathmandu 220 kV Transmission Line Project

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Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Qty.	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
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	Integration with LDC and MCC									
F.1	Integration of all 220/132/33kV 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					
F.2	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.	7000					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			Cu.Mtr.	820					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			Cu.Mtr.	500					
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.	3100					
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			Cu.Mtr.	2250					
6.0	Steel Reinforcement (Fe 500)			MT	230					
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, embedments, edge protection angles for cable trenches but excluding the reinforcement steel and steel for lattice and pipe structures which shall be paid seperately.			MT	45					
8.0	Stone filling (40mm) over grating of Transformer /reactor Foundation			Cu.Mtr.	10					
9.0	Stone spreading including antiweed treatment in switchyard but excluding PCC.			Sq. Mtr.	30000					

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(a): Installation and Construction Charges

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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
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 seperately under respective items of BPS									
i)	250mm dia			RM	150					
ii)	300mm dia			RM	120					
iii)	450mm dia			RM	80					
iv)	600mm dia			RM	88					
v)	900 mm dia			RM	300					
11.0	Concrete road as per technical specification and approved drawing including all items such as excavation, compaction, rolling, watering, WBM, etc but excluding reinforcement & concrete which shall be paid seperately under respective items of BPS									
a.	Concrete Road			Sq. m.	3000					
11.1	Construction of BlackTop(Bituminous/ asphaltic) road as per Specification and approved drawing, all Complete									
a.	Black top/bituminous (asphaltic) Road			Sq.m.	2000					
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.	350					
13.0	Chain link fencing as per technical specification and approved drawing but excluding concrete which shall be paid seperately under respective items of BPS			RM	300					
14.0	Switch yard Gate excluding concrete which shall be paid seperately under respective items of BPS			Nos.	2					
15.0	Supplying and erecting dewatering pumps									
a.	5 HP			Nos.	2					
b.	0.5 HP			Nos.	2					
16.0	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 AA (300mm wide x Depth up to 600mm)			RM	1800					
b.	Type BB (450 wide x Depth From 600 to 900mm)			RM	1400					

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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
i	All civil works for Boundary wall including excavation,brick work with CD75 bricks in CM 1:6, 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	500					
b)	Supplementary work to the existing boundary wall									
i	15 mm cement plaster on the BOTH side of single or half brick wall WITH CEMENT PLASTER 1:6 (1 cement : 6 fine sand)			sqm	625					
ii	Finishing walls with weather coat of required shade, two over one coat of primer			sqm	3555					
iii	Fencing over Y M.S. Angle post Placed over boundary wall through galvanised barbed wire (4x2 lines) weighing 9.38 kg per 100 meter, fixing and tightening complete			RM	711					
iv	Fencing with Punched tape concertina coil 600 mm dia over Y M.S. Angle post Placed over boundary wall weighing 9.38 kg per 100 meter, fixing and tightening complete			RM	711					
v	Painting Steel work with approved Quality synthetic enema paint two or more coat over two coats of Steel Primer			sqm	100					
29	Main boundary wall Gate (Steel) including all works complete as per technical specification			LS	2					
30	All civil works for security room as per TS including septic tank and soak pit. Internal and external finish, sanitary and plumbing works, plinth protection etc. to complete the building are included in the item.			Sq. m.	18					
31	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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(a): Installation and Construction Charges

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(a): Installation and Construction Charges

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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
a	1250A, 31.5 kA			Nos	1					
3.0	145kV Isolator (3-phase)-HDB (Owner Supplied)									
a	1250A, 31.5 KA, Isolator with one E/S			Nos	2					
b	1250 A, 31.5KA, Isolator without E/S			Nos	3					
4.0	145kV Isolator (3-phase)-HDB(To be supplied by the Contractor)									
a	1250A, 31.5 KA, Isolator with one E/S			Nos	2					
b	1250 A, 31.5KA, Isolator without E/S			Nos	3					
5.0	145 kV Current Transformer (1- Phase)(Owner Supplied)									
a	800A, 31.5 kA with 120% extended rating			Nos	3					
6.0	145 kV Current Transformer (1- Phase)(To be supplied by the Contractor)									
a	800A, 31.5 kA with 120% extended rating			Nos	3					
C-2	145 kV equipment (To be supplied by the Contractor)									
1.0	145 kV Surge Arrestors									
a	120 kV Surge Arrestors (1- Phase)			Nos	7					
2.0	145 kV Bus post insulators (Except for auxiliary buses of transformer)			Set	85					
D-1	72.5kV EQUIPMENT (Owner Supplied)									
1.1	72.5 kV, 1250A, 31.5kA Circuit Breaker (3-phase) with support structure			No.	1					
1.2	72.5 kV, 1250A,31.5kA Isolators with earth switch (3-phase, DBR type)			No.	1					
1.3	72.5kV, 1250A, 31.5 kA with 120% extended rating CT.			Nos.	3					
1.4	72.5kV PT.(1-phase)			Nos.	3					
D-2	72.5kV EQUIPMENT									
1.5	72.5 kV BPI (1-phase)			Nos.	3					
E	33kV Equipments(To be supplied by the Contractor)									
1.1	33 kV, 630A Isolators with out earth switch (3-phase, DBR type)			No.	1					
1.2	30 kV Surge Arrestors (1-phase)			Nos.	3					
1.3	36 kV BPI			Nos.	3					
1.4	36 kV HG Fuse along with support insulator (1-phase)			Nos.	3					

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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
E	RELAY PANELS (WITH AUTOMATION)									
1.0	220 kV									
a	Circuit Breaker Relay Panel									
i	With Auto Reclose			Set	8					
ii	With out Auto Reclose			Set	3					
b	Line Protection Panel			Set	6					
c	Current Differential Relay for other end of line			Nos	4					
d	Transformer Protection Panel (For both HV & MV side) including Remote Tap Changing Control Panel with AVR			Set	2					
e	Bus Bar Protection Panel			Set	1					
2.0	132 kV									
a	Circuit Breaker Relay Panel									
ii	Without Auto Reclose			Set	2					
b	Bus Bar Protection Panel (augmentation for 2 ICT bays)			Set	2					
F	COMMON EQUIPMENTS									
1.0	Special Relay Test Tool kit(3 phase type)			No	1					
G	SUBSTATION AUTOMATION									
G.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									
a	Main bays to be automated									
i	220 kV system			Bay Nos	11					
ii	132 kV system (Transformer bays under present scope)			Bay Nos	2					
iii	Bays to be automated of existing 132 kV substation			Bay Nos	6					
iv)	Bays to be automated of existing 33 kV substation			Bay Nos	3					
v)	BCU for controlling & monitoring of Auxilary System			Set	1					
H	Teleprotection & communication Equipments									
h(i)	Digital Protection Coupler			Nos	6					
h(ii)	Digital Protection Coupler(for other end)			Nos	4					
a	PBAX with following configuration as per TS			Set	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
a	245kV GIS Termination Arrangement:									
i	Line Bay			Set	8					
ii	Transformer Bay (including 220 kV AIS connection for spare unit with GIS auxiliary bus module)			Set	2					
b	For 132 kV (Double Main Layout)									
i	Transformer Bay			Set	1					
ii	Bus work (For four bays, excluding bus post insulators)			Set	1					
c	For spare unit of 220/132/36 kV auto transformer connection through auxiliary buses (132 kV, tertiary & Neutral auxiliary buses only), Neutral formation and delta formation (for one bank): Required 132 kV BPI for 132 kV Auxiliary bus, 72.5 kV BPI for tertiary auxiliary bus & delta formation, 36 kV BPI for Neutral formation & Neutral auxiliary bus including Al tube, bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures , Earthing of spare unit as per technical specifications			Set	1					
d	Erection Hardware etc for 72.5kV equipments & LT Transformer connection			Set	1					
e	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	Pumping arrangement for HVW system & hydrant system, complete with all piping, valves, fittings,etc. inside pump house									
i	220/132kV (New) Substation			Set	1					
b	Hydrant system, complete U/G piping and accessories etc. outside the Pump House.									
i	220/132kV (New) Substation			Set	1					
c	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. outside the pump house for Transformer :									
c.1	Transformer									
i	53.33MVA , 220/132/33 KV, 1-phase Autotransformer			Sets	4					
C	Illumination System									
a	Control room cum administrative building illumination			LS	1					
b	Fire fighting building illumination			LS	1					
c	Switchyard lighting			LS	1					
d	Street lighting			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
e	Transit Camp illumination			LS	1					
f	245kV GIS Building including panel room			LS	1					
g	Township quarter (C-Type, 4 nos)			LS	1					
h	Township quarter (D-Type, 1 nos)			LS	1					
i	Car parkings			LS	1					
D	Air conditioning & ventilation System									
D.1	Air conditioning system									
(i)	Panel room in 245kV GIS Hall			LS	1					
D.2	Ventilation system									
(i)	245KV GIS hall			LS	1					
G	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					
H	Integration of all 220/132/33kV 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.	12700					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			Cu.Mtr.	1650					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			Cu.Mtr.	650					
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.	4600					
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			Cu.Mtr.	2250					

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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
6.0	Steel Reinforcement (Fe 500)			MT	340					
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, embedments, edge protection angles for cable trenches but excluding the reinforcement steel and steel for lattice and pipe structures which shall be paid seperately.			MT	21					
8.0	Stone filling (40mm) over grating of Transformer /reactor Foundation			Cu.Mtr.	10					
9.0	Stone spreading including antiweed treatment in switchyard but excluding PCC.			Sq. Mtr.	15000					
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 seperately under respective items of BPS									
i)	250mm dia			RM	150					
ii)	300mm dia			RM	120					
iii)	450mm dia			RM	80					
iv)	600mm dia			RM	40					
11.0	Concrete road as per technical specification and approved drawing including all items such as excavation, compaction, rolling, watering, WBM, etc but excluding reinforcement & concrete which shall be paid seperately under respective items of BPS									
a.	Concrete Road			Sq. m.	2400					
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.	100					
13.0	Chain link fencing as per technical specification and approved drawing but excluding concrete which shall be paid seperately under respective items of BPS			RM	300					
14.0	Switch yard Gate excluding concrete which shall be paid seperately under respective items of BPS			Nos.	1					
15.0	Supplying and erecting dewatering pumps									
a.	0.5 HP			Nos.	2					

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		Country of Origin	Type & Designation	Unit	Qty.	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
16.0	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 AA (300mm wide x Depth up to 600mm)			RM	1500					
b.	Type BB (450 wide x Depth From 600 to 900mm)			RM	300					
c.	Type CC (600 wide x Depth From 900 to 1200mm)			RM	300					
d.	Type DD (750 wide x Depth From 1200 to 1500mm)			RM	300					
17.0	External water supply as per technical specification from borewell/single point of water supply within substation boundary to Fire water Tank, control room Building and other buildings as applicable including all items like excavation, pipes, fittings, jointings, valves, chambers/manholes etc									
a.	80mm Dia GI Pipe			RM	100					
b.	50mm dia GI pipe			RM	80					
c.	40mm dia GI pipe			RM	60					
d.	25mm Dia GI Pipe			RM	40					
18.0	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc.									
a.	(i) 250 mm Dia.			RM	100					
b.	(i) 150 mm Dia.			RM	100					
19.0	Local Sand filling around and under DG Set Foundation and other foundations as applicable.			Cu.Mtr.	300					
20.0	Stone soling below foundations wherever specified in approved drawings during detailed engineering			Cu.Mtr.	156					
21	Construction of brick works after manual excavation with backfilling of soil between the foundation and plinth level without harm to the existing structural elements as per technical specification and approved drawing.									
i	Transit Camp			Cu.m	28					
ii	Township (quarters)									
(a)	C type			Cu.m	56.000					
(b)	D type			Cu.m	26.000					

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SASEC Power System Expansion Project
Marsyangdi-Kathmandu 220 kV Transmission LineProject

ICB-PMD-MKTLP-076/77-02: Design, Supply, Installation and Commissioning of 220 kV AIS Substation at Matatirtha, Kathmandu & 220 kV GIS Substation at Markichowk, Marsyangdi

Schedule No. 4 : Installation and Other Services

(a): Installation and Construction Charges

(a). Installation and Construction Charges

Sl. No.	Item Description	Installation Charges								
		Country of Origin	Type & Designation	Unit	Qty.	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
	Total For Extension of 220/132kV Marsyangdi Substation (220 kV GIS & 132 kV AIS) (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)

Date:

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
SASEC Power System Expansion Project

Marsyangdi-Kathmandu 220 kV Transmission Line Project

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Schedule No. 4 : Installation and Other Services

(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	Unit rate	Total Training Charges
1	2		3	4	5	6	7	8 = 4x5x7
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		5	10			
		ii) Switchyard Equipments (CT, CVT, Isolator and Circuit Breaker) and GIS Equipments		5	10			
		iii) Telecommunication Equipment (SDH,MUX & NMS (Craft Terminal)) and PLCC		3	7			
	Total for Training Charges (total of coulumn 8 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
SASEC Power System Expansion Project
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Schedule No. 4 : Installation and Other Services

(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	Training Charges for Contractors Trainers		
				Currency	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 each substation 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) Switchyard Equipments (CT, CVT, Isolator and Circuit Breaker) (applicable for Matatirtha Substation))	5			
		iv)GIS equipment (applicable for Marsyangdi Substation)	5			
		iv) Telecommunication Equipment (SDH, MUX & NMS (Craft Terminal)) and PLCC	5			
		v) Transformers	2			
	Total for Training Charges (Total of column 7 to be carried forward to Schedule 5: Grand Summary)					

REMARKS:

Date:

Signature:

Printed Name:

Designation:

Common Seal:

NOTE: To and fro charges and accommodation for the Instructor (Trainer) and Training material for the Trainees shall be included in the prices quoted by the bidder. However, arrangements for trainees and premises for conducting the training shall be arranged by OWNER.

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Schedule No. 4 : Installation and Other Services

(d): Maintenance Charges

SI No	Description	Unit	Qty.	Total Maintenance Charges	
				Currency	Total Maintenance Charges
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 (To be carried forward to Schedule 5: Grand Summary)				

Date:

____ Signature:

Printed Name:

Designation:

Common Seal:

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Schedule No. 4(e)

Type Test Charges for Type Tests to be conducted abroad

Sl. No.	Description of Tests		Testing Location	TEST CHARGES	
				Currency	Amount
1	2		3	4	5
	220/132/33kV 1-Ph , 53.33 MVA Auto Transformer (for Matatirtha& Marsyangdi Substations)				
1	220/132/33kV Auto Transformer	Temperature rise test			
2		Measurement of harmonic level in no load current			
3		Measurement of acoustic noise level			
4		Measurement of Zero seq. reactance			
5		Measurement of power taken by fans and oil pumps			
	Total of Type Tests charges (Total of column 5 to be carried forward to Schedule 5: Grand Summary)				

Date:

Signature:

Printed Name:

Designation:

Common Seal:

NEPAL ELECTRICITY AUTHORITY
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Marsyangdi-Kathmandu 220 kV Transmission Line Project

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Schedule No. 4(f)

Type Test Charges for Type Tests to be conducted in Nepal.

Sl. No.	Description of Tests		Testing Location	TEST CHARGES	
				Currency #	Amount
1	2		3	4	5
	220/132/33kV 1-Ph , 53.33 MVA Auto Transformer (for Matatirtha& Marsyangdi Substations)				
1	220/132/33kV Auto Transformer	Temperature rise test	Not Applicable		
2		Measurement of harmonic level in no load current	Not Applicable		
3		Measurement of acoustic noise level	Not Applicable		
4		Measurement of Zero seq. reactance	Not Applicable		
5		Measurement of power taken by fans and oil pumps	Not Applicable		
	Total of Type Tests charges (Total of column 5 to be carried forward to Schedule 5: Grand Summary)				

Date:

Signature:

Printed Name:

Designation:

Common Seal:

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Schedule No. 5: Grand Summary

		Total Price Foreign ()*	Total Price Local ()*
1	TOTAL SCHEDULE NO. 1		
	Plant and Equipment including Mandatory Spares to be supplied from abroad.	-	
2	TOTAL SCHEDULE NO. 2		
	Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal		
3	TOTAL SCHEDULE NO. 3		
	Design Services	-	
4	TOTAL SCHEDULE NO. 4		
	(a) Installation and construction 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 Tests charges for type Tests to be conducted abroad	-	
	(f) Type Tests charges for type Tests to be conducted Nepal		
	GRAND TOTAL [1+2+3+4]	0.00	0.00

Date:

Signature:
Printed Name:
Designation:
Common Seal:

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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: