NEPAL ELECTRICITY AUTHORITY

(An Undertaking of Government of Nepal)
Project Management Directorate

KHIMTI-BARHABISE-LAPSIPHEDI 400 KV SUBSTATION PROJECT

A component of
SASEC Power Transmission and Distribution System Strengthening Project

BIDDING DOCUMENT
FOR

Procurement of Plant
for
Design, Supply, Installation and Commissioning of 400 kV Gas insulated Substations (GIS) at New Khimti, Barhabise and Lapsiphedi

Single-Stage, Two-Envelope
Bidding Procedure

Issued on:	**21 May 2019**
Invitation for Bids No.:	**PMD/PTDSSP/KBL-75/76-01**
OCB No.:	**PMD/PTDSSP/KBL-75/76-01**
Employer:	**Nepal Electricity Authority**
Country:	**Nepal**

VOLUME –III OF III

May 2019

Khimti-Barhabise-Lapsiphedi 400 kV Substation Project
Project Management Directorate
Matatirtha, Chandragiri-11, Kathmandu,Nepal
Telephone: +977-1-5164096

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti ,Barhabise and Lapsiphedi Substations
Schedule No. 5: Grand Summary

S. N.	Description	New Khimti Substation		Barhabise Substation		Lapsephedi Substation		Total of all three substations(New Khimti,Barhabise & Lapsiphedi)	
		Total Price Foreign ( )*	Total Price Local (NPR)*	Total Price Foreign ( )*	Total Price Local (NPR)*	Total Price Foreign ( )*	Total Price Local (NPR)*	Total Price Foreign ( )*	Total Price Local (NPR)*
1	**TOTAL SCHEDULE NO. 1**	1	2	1	2	1	2	1	2
	Plant and Equipment including Mandatory Spares to be supplied from abroad, including Type Test Charges for Type Tests to be conducted abroad.								
	Sub-Total 1								
2	**TOTAL SCHEDULE NO. 2**								
	Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal including Type Test Charges								
	Sub-Total 2								
3	**TOTAL SCHEDULE NO. 3**								
	Design Services								
	Sub-Total 3								
4	**TOTAL SCHEDULE NO. 4**								
	a. Installation & 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 test charges to be conducted abroad								
	Sub-Total 4								
	GRAND TOTAL Excluding Taxes & Customs [1+2+3+4(a)+4(b)+4 (c) +4 (d) + 4 (e)]								

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

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation

Schedule No. 5: Grand Summary

Sl. No.	Description	New Khimti Substation	
		Total Price Foreign ( )*	Total Price Local ( )*
1	**TOTAL SCHEDULE NO. 1**	1	2
	Plant and Equipment including Mandatory Spares to be supplied from abroad, including Type Test Charges for Type Tests to be conducted abroad.		
	Sub-Total 1		
2	**TOTAL SCHEDULE NO. 2**		
	Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal including Type Test Charges		
	Sub-Total 2		
3	**TOTAL SCHEDULE NO. 3**		
	Design Services		
	Sub-Total 3		
4	**TOTAL SCHEDULE NO. 4**		
	a. Installation Charges		
	b. Training Charges for Training to be imparted abroad		
	c. Training Charges for Training to be imparted in Nepal		
	d. Maintenance charges		
	e. Type test charges to be conducted abroad		
	Sub-Total 4 **GRAND TOTAL Excluding Taxes & Customs [1+2+3+4(a)+4(b)+4 (c) +4 (d) + 4 (e)]**		

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
A	**420kV SF6 Gas Insulated Switchgear and Accessories**								
a)	420kV, 5000A SF6 GIS Bus Bar Module [Module description as per technical specification, Chapter 1- PSR]		2	Sets					
b)	420kV, 4000A SF6 GIS Line Feeder bay Module [Module description as per technical specification, Chapter 1- PSR]		2	Sets					
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module description as per technical specification, Chapter 1- PSR]		2	Sets					
d)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]								
i)	4000A		1	Sets					
ii)	2000A		1	Sets					
e)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories								
i)	4000 A , 50kA for 1 sec. Single Phase		300	m					
ii)	2000 A , 50kA for 1 sec. Single Phase		200	m					
f)	400 kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
i)	4000A, 50kA for 1 sec. Single Phase		6	nos					
ii)	2000A, 50kA for 1 sec. Single Phase		6	nos					
	Sub Total (A)								
B)	**245 kV SF6 Gas Insulated Switchgear and Accessories**								
a	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories								
a.1	2000A, 40kA for 1 sec. Single Phase		360	mtr.					
b	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
b.1	2000A, 40kA for 1 sec. Single Phase		6	nos					
c	220kV, SF6 to Cable Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
c.1	2000A, 40kA for 1 sec. Single Phase		6	nos					
	Sub Total (B)								

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
C)	**105 MVA,400/√3 /220/√3/33 kV Single Phase Auto Transformer as specified below**								
1	105 MVA,400/√3 /220/√3/33 kV Single Phase **Auto** Transformer outdoor type, complete with all fittings and accessories including Main Control Cabinet, cooling control cabinet, RTCC panel, OLTC, and On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor,necessary arrangment for Delta formation of LV winding & Neutral Formation and Earthing Arrangement, surge protection device and all fittings & accessories as specified/ required for completion of the scope of works as per technical specification (without transformer Oil)		4	Nos.					
2	Insulating oil for 105 MVA,400/√3 /220/√3/33 kV Single Phase Autotransformer (* 1Lot = Oil for 1 Autotransformers)		4	Lot*					
3	33kV Current transformer (NCT) for autotransformer		1	Nos.					
	Sub Total (C)								
D	**LT TRANSFORMER**								
1	630 kVA, 33/0.4kV		1	Nos					
	Sub Total (D)								
E)	**420KV Outdoor Equipment**								
1	336KV Surge Arrester (1-phase)		12	Nos.					
2	420kV BPI(1-Ph)		12	Nos.					
	Sub Total (E)								
F	**245KV Outdoor Equipment**								
1	216KV Surge Arrester (1-phase)		6	Nos.					
2	245kV BPI(1-Ph)		6	Nos.					
	Sub Total (F)								
G	**72.5kV EQUIPMENT**								
1	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure		1	No.					
2	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)		1	No.					
3	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)		3	Nos.					
4	72.5kV PT.(1-phase)		3	Nos.					
5	30kV Surge Arrestors (1-Phase)		3	Nos.					
6	72.5 kV BPI (1-phase)		3	Nos.					
	Sub Total (G)								

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
H	**Erection Hardware**								
H.1	**400kV One and Half Breaker-type layout for GIS termination arrangement**								
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:								
1.1	Transformer Bay		2	bays					
2	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:								
2.1	Line Bay		2	bays					
H.2	**220 kV DM-type layout for GIS termination arrangement of Transformer**								
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:								
1.1	Transformer Bay		2	bays					
	Sub Total (H)								
I	**CONTROL RELAY AND PROTECTION PANELS (WITH AUTOMATION)**								
1	**400kV**								
1.1	**Circuit Breaker Relay Panel**								
a	CB Relay Panel With Auto Reclose		2	Sets					
b	CB Relay Panel With out Auto Reclose		3	Sets					
1.2	**Line Protection Panel**		2	Sets					
1.3	**Transformer Protection Panel (For both HV & MV side) as per Specification**		1	Sets					
1.4	**Bus Bar Protection Panel**								
a	400kV (Duplicate Bus Bar Protection)		1	Set					
b	Augmentation of existing 220 kV bus bar protection scheme		1	Lot					
2	**Other/Common equipments Pertaining to C & R System**								
a	Time synchronisation equipment		1	Nos.					
b	Special Relay Test kit		1	Nos.					
	Sub Total (I)								

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
J	**SUBSTATION AUTOMATION**								
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and software for the substation alongwith associated equipments for the following Main bays to be automated as per Technical Specification:								
a	400 kV System		6	Nos.					
b	220 kV System		2	Nos.					
c	For Auxiliary system		1	Set					
2	Augumentations/Intregations of Operator Workstations (HMI) and all necessary accessories and software. *In the present scope, bidder shall include BCUs required for 400 kV bays including all necessary hardware and software to integrate with the existing Substation Automation System including up-dation of system database, displays, and development of additional displays and reports alll complete as per requirement.*		1	Lot					
3	Integration of all 400/220kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. all complete as per Technical Specification.		1	Lot					
	Sub Total (J)								
K	**Visual monitoring system (VMS) system**								
a)	Visual monitoring system (VMS) as specified/required complete in all respect including HF Cable, Other necessary cabling and power supply system		1	Lot					
	Sub Total (K)								
L	**LT Switchgear**								
a	400V Main switchboard		1	Set					
b	400V ACDB		1	Set					
c	400V MLDB		1	Set					
d	400V Emergency LDB		1	Set					
e	220V DCDB		1	Sets					
f	48V/50V DCDB		1	Sets					
	Sub Total (L)								
M	**Batteries**								
a	220V								
i	600 AH		2	Nos					
b	48V								
i	600 AH		2	Nos					
	Sub Total (M)								
N	**Float Cum Boost Battery Charger**								
a	220V Float Cum Boost Battery Charger								
i	80A/80A		2	Nos					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
b	48V Float Cum Boost Battery Charger								
i	80A/80A		2	Nos					
	Sub Total (N)								
O	**Fire Protection System**								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type		5	Nos					
ii	50 litre foam type		2	Nos					
iii	4.5 kg CO_2 type		8	Nos					
iv	4.5 kg Dry Chemical Power (DCP) type		5	Nos					
b	Smoke detection system		1	Set					
c	Fire detection and Alarm System		1	Set					
d	Hydrant system, complete U/G piping and accessories etc. from existing HVW/Fire Hydrant point from Fire Fighting Pump House								
i	400 kV Substation		1	Set					
e	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer / Reactor :								
i	105 MVA , 400/220 KV, 1-phase Autotransformer		4	nos					
	Sub Total (O)								
P	**Air conditioning & Ventilation System**								
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room of GIS Hall, Battery Room, Panel room cum administrative building		16	Nos					
b	Ventillation system for 400 kV GIS Hall		1	Lot					
	Sub Total (P)								
Q	**Cables along with clamps, glands, lugs and straight joints etc.**								
1	220 kV Cable								
1.1	220 kV grade 1 core, **1200sq.mm.XLPE insulated copper cable** as per technical specification		1.50	km					
1.2	Cable end termination(s) on Gantry/Tower as per technical specification		6	nos.					
	Sub Total (Q)								
R	**Fabrication, galvanising and supply of STEEL STRUCTURES (400kV Double Dead End Transmission Tower,Column, Gantry structures& Equipment support structures)**								
	Lattice/pipe Structure for tower,Colums,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)								

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
a	Lattice stucture & foundation bolts		207	MT					
b	Pipe Structure including Foundation Bolts .		19	MT					
c	Fastners for tower,Columns,beams and equipment support strcutures		2	MT					
	Sub Total (R)								
S	**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)		**1**	**LS**					
ii	Earth Rod (copper clad steel)		1	LS					
iii	Equipment for lightning protection		1	LS					
	Sub Total (S)								
T	**Illumination System**								
a	Illumination System for GIS Hall and Control Building Complete as per Specification		1	LS					
b	Switchyard lighting		1	LS					
c	Street lighting		1	LS					
	Sub Total (T)								
U	**POWER & CONTROL CABLES**								
a	Power Cables(PVC) - (1.1kV grade)		1	LS					
b	Power Cables (XLPE) - (1.1kV grade)		1	LS					
c	Control Cable (PVC) - (1.1kV grade)		1	LS					
d	Cable glands, lugs & straight through joints for Power & Control cables		1	LS					
	Sub Total (U)								
V	**Communication & Associated System**								
a	Interfacing of SAS to Existing Communication & Associated System		1	Lot					
b	Giga - Ethernet interfaces 10/100/1000 Mbps with Layer-2 switching Card (Minimum 4 interfaces per Card.)		2	Nos					
	Sub Total (V)								
W	**EOT Crane**								
1	EOT crane with suitable double Runway rails including trolley runway with conductors, fixtures, insulations size suitable to operate as and when required, complete with all accessories and slings as detailed in the specifications.		1	Set					
	Sub Total (W)								
X	**Digital Protection Coupler**								
1	Digital Protection Coupler		2	Nos					
	Sub Total (X)								

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
Y	**PRE-ENGINEERED BUILDINGS**								
i)	**400 kV GIS Building including all supply materials from abroad except civil works and for civil works refer schedule 4(a)**								
(a)	400 kV GIS Hall		600	Sq. M.					
(b)	AHU/ Panels Room		450	Sq. M.					
	Sub Total (Y)								
Z	**MANDATORY SPARES *(Break up of Lumpsum quantity shall be as per Annexure-I, Chapter-1, Project Specific Requirement)**								
1	**Gas Insulated Switchgear**								
a	Mandatory Spares required during O&M of 400kV GIS Substation		1	LS					
2	**400/220 kV, Auto Transformer**		1	LS					
3	**Surge Arrester**								
a	336kV Surge Arrester		1	LS					
b	216kV Surge Arrester		1	LS					
4	**Fire Fighting System**		1	LS					
5	**Battery Charger**		1	LS					
6	**Relay & Protection panel**		1	LS					
7	**Substation Automation System**		1	LS					
8	**Illumination System**		1	LS					
9	**LT Switchgear**		1	LS					
10	**Erection hardware**		1	LS					
11	**Bus Post Insulators**								
a	420kV BPI (1-Ph)		1	nos					
	Sub Total (Z)								
	Grand Total of Schedule I								

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

Date:

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation

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

LC: Local Currency (ALL Price in Local Currency)

Item No.	Item description	Quantity	Unit	Ex Faxtory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	VAT and other taxes
				Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (3) x (5)	7	8=(3)x(7)	9=6+8	10
	Total for Schedule 2 (Total of column 9 to be carried forward to Schdule 5: Grand Summary)								

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

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

Date:

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation
Price Schedule No 3: Design Services

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

NOTE: The design cost is included in schedule 1.

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
	Installation services									
A	**420kV SF6 Gas Insulated Switchgear and Accessories**									
a)	420kV, 5000A SF6 GIS Bus Bar Module [Module description as per technical specification, Chapter 1- PSR]			2	Sets					
b)	420kV, 4000A SF6 GIS Line Feeder bay Module [Module description as per technical specification, Chapter 1- PSR]			2	Sets					
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module description as per technical specification, Chapter 1- PSR]			2	Sets					
d)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]									
i)	4000A			1	Sets					
ii)	2000A			1	Sets					
e)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories									
i)	4000 A , 50kA for 1 sec. Single Phase			300	m					
ii)	2000 A , 50kA for 1 sec. Single Phase			200	m					
f)	400 kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
i)	4000A, 50kA for 1 sec. Single Phase			6	nos					
ii)	2000A, 50kA for 1 sec. Single Phase			6	nos					
	Sub Total (A)									
B	**245 kV SF6 Gas Insulated Switchgear and Accessories**									
a)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories									
a.1)	2000A, 40kA for 1 sec. Single Phase			360	mtr.					
b	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
b.1	2000A, 40kA for 1 sec. Single Phase			**6**	nos					
c	220kV, SF6 to Cable Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
c.1	2000A, 40kA for 1 sec. Single Phase			**6**	nos					
	Sub Total (B)									
C	**105 MVA,400/√3 /220/√3/33 kV Single Phase Auto Transformer as specified below**									

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
1	105 MVA,400/√3 /220/√3/33 kV Single Phase **Auto** Transformer outdoor type, complete with all fittings and accessories including Main Control Cabinet, cooling control cabinet, RTCC panel, OLTC, and On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor,necessary arrangment for Delta formation of LV winding & Neutral Formation and Earthing Arrangement, surge protection device and all fittings & accessories as specified/ required for completion of the scope of works as per technical specification (without transformer Oil)			4	Nos.					
2	Insulating oil for 105 MVA,400/√3 /220/√3/33 kV Single Phase Autotransformer (* 1Lot = Oil for 1 Autotransformers)			4	Lot*					
3	33kV Current transformer (NCT) for autotransformer			1	Nos.					
	Sub Total (C)									
D	**LT TRANSFORMER**									
1	630 kVA, 33/0.4kV			1	Nos.					
	Sub Total (D)									
E	**420KV Outdoor Equipment**									
1	336KV Surge Arrester (1-phase)			6	Nos.					
2	420kV BPI(1-Ph)			12	Nos.					
	Sub Total (E)									
F	**245KV Outdoor Equipment**									
1	216KV Surge Arrester (1-phase)			6	Nos.					
2	245kV BPI(1-Ph)			6	Nos.					
	Sub Total (F)									
G	**72.5kV EQUIPMENT**									
1	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure			1	No.					
2	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)			1	No.					
3	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)			3	Nos.					
4	72.5kV PT.(1-phase)			3	Nos.					
5	30kV Surge Arrestors (1-Phase)			3	Nos.					
6	72.5 kV BPI (1-phase)			3	Nos.					
	Sub Total (G)									
H	**Erection Hardware**									
H.1	**400kV One and Half Breaker-type layout for GIS termination arrangement**									
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:									
1.1	Transformer Bay			2	bays					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
2	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:									
2.1	Line Bay			2	bays					
H.2	**220 kV DM-type layout for GIS termination arrangement of Transformer**									
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:									
1.1	Transformer Bay			2	bays					
	Sub Total (H)									
I	**CONTROL RELAY AND PROTECTION PANELS (WITH AUTOMATION)**									
1	**400kV**									
1.1	**Circuit Breaker Relay Panel**									
a	CB Relay Panel With Auto Reclose			2	Sets					
b	CB Relay Panel With out Auto Reclose			3	Sets					
1.2	**Line Protection Panel**			2	Sets					
1.3	**Transformer Protection Panel (For both HV & MV side) as per Specification**			1	Sets					
1.4	**Bus Bar Protection Panel**									
a	400kV (Duplicate Bus Bar Protection)			1	Set					
b	Augmentation of existing 220 kV bus bar protection scheme (For 1 Nos. of ICT bays as specified)			1	Lot					
2	**Other/Common equipments Pertaining to C & R System**									
a	Time synchronisation equipment			1	Nos.					
b	Special Relay Test kit			1	Nos.					
	Sub Total (I)									
J	**SUBSTATION AUTOMATION**									
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and software for the substation alongwith associated equipments for the following Main bays to be automated as per Technical Specification:									
a	400 kV System			6	Nos.					
b	220 kV System			2	Nos.					
c	For Auxiliary system			1	Set					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
2	Augumentations/Intregations of Operator Workstations (HMI) and all necessary accessories and software. In the present scope, bidder shall include BCUs required for 400 kV bays including all necessary hardware and software to integrate with the existing Substation Automation System including up-dation of system database, displays, and development of additional displays and reports alll complete as per requirement.			1	Lot					
3	Integration of all 400/220kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.			1	Lot					
	Sub Total (J)									
K	**Visual monitoring system (VMS) system**									
a)	Visual monitoring system (VMS) as specified/required complete in all respect including HF Cable, Other necessary cabling and power supply system			1	Lot					
	Sub Total (K)									
L	**LT Switchgear**									
a	400V Main switchboard			1	Set					
b	400V ACDB			1	Set					
c	400V MLDB			1	Set					
d	400V Emergency LDB			1	Set					
e	220V DCDB			1	Sets					
f	48V/50V DCDB			1	Sets					
	Sub Total (L)									
M	**Batteries**									
a	220V									
i	600 AH			2	Nos					
b	48V									
i	600 AH			2	Nos					
	Sub Total (M)									
N	**Float Cum Boost Battery Charger**									
a	220V Float Cum Boost Battery Charger									
i	80A/80A			2	Nos					
b	48V Float Cum Boost Battery Charger									
i	80A/80A			2	Nos					
	Sub Total (N)									
O	**Fire Protection System**									
a	Portable /Trolley/Wheel mounted extinguishers									
i	9 litre water type			5	Nos					
ii	50 litre foam type			2	Nos					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
iii	4.5 kg CO_2 type			8	Nos					
iv	4.5 kg Dry Chemical Power (DCP) type			5	Nos					
b	Smoke detection system			1	Set					
c	Fire detection and Alarm System			1	Set					
d	Hydrant system, complete U/G piping and accessories etc. from existing HVW/Fire Hydrant point from Fire Fighting Pump House									
i	400 kV Substation			1	Set					
e	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer / Reactor :									
i	105 MVA , 400/220 KV, 1-phase Autotransformer			4	nos					
	Sub Total (O)									
P	**Air conditioning & Ventilation System**									
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room of GIS Hall, Battery Room, Panel room cum administrative building			16	Nos					
b	Ventillation system for 400 kV GIS Hall			1	Lot					
	Sub Total (P)									
Q	**Cables along with clamps, glands, lugs and straight joints etc.**									
1	220 kV Cable									
1.1	220 kV grade 1 core, **1200sq.mm.XLPE insulated copper cable** as per technical specification			1.50	km					
1.2	Cable end termination(s) on Gantry/Tower as per technical specification			6	nos					
	Sub Total (Q)									
R	**Fabrication, galvanising and supply of STEEL STRUCTURES (400kV Double Dead End Transmission Tower,Column, Gantry structures& Equipment support structures)**									
	Lattice/pipe Structure for tower,Colums,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)									
a	M.S Structural steel including Foundation Bolts .			207	MT					
b	Pipe Structure including Foundation Bolts .			19	MT					
c	Fastners for tower,Columns,beams and equipment support strcutures			2	MT					
	Sub Total (R)									
S	**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)			**1**	**LS**					
ii	Earth Rod (copper clad steel)			1	LS					
iii	Equipment for lightning protection			1	LS					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
	Sub Total (S)									
T	**Illumination System**									
a	Illumination System for GIS Halland Control Building Complete as per Specification			1	LS					
b	Switchyard lighting			1	LS					
c	Street lighting			1	LS					
	Sub Total (T)									
U	**POWER & CONTROL CABLES**									
a	Power Cables(PVC) - (1.1kV grade)			1	LS					
b	Power Cables (XLPE) - (1.1kV grade)			1	LS					
c	Control Cable (PVC) - (1.1kV grade)			1	LS					
d	Cable glands, lugs & straight through joints for Power & Control cables			1	LS					
	Sub Total (U)									
V	**Communication & Associated System**									
a	Interfacing of SAS to Existing Communication & Associated System			1	Lot					
b	Giga - Ethernet interfaces 10/100/1000 Mbps with Layer-2 switching Card (Minimum 4 interfaces per Card.)			2	Nos					
	Sub Total (V)									
W	**EOT Crane**									
1	EOT crane with suitable double Runway rails including trolley runway with conductors, fixtures, insulations size suitable to operate as and when required, complete with all accessories and slings as detailed in the specifications.			1	Set					
	Sub Total (W)									
X	**Digital Protection Coupler**									
1	Digital Protection Coupler			2	Nos					
	Sub Total (X)									
	Civil Construction Works (As per technical specifications)									
	SECTION: A : NEA ASSESSED QUANTITIES									
1.0	Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts			12500	Cu.Mtr.					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			800	Cu.Mtr.					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			75	Cu.Mtr.					
4.0	Providing and laying of Reinforced Cement Concrete Design Mix (M25) including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement.			2310	Cu.Mtr.					
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			330	Cu.Mtr.					
6.0	Steel Reinforcement (Fe 500)			210	MT					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
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.			30	MT					
8.0	Stone filling (40mm) over grating of Transformer /reactor Foundation			420	Cu.Mtr.					
9.0	Stone spreading including antiweed treatment in switchyard but excluding PCC.			4200	Sq. Mtr.					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
10.00	Supplying & laying hume pipe with collarsof grade (NP-3) but excluding reinforcement steel & concrete of bed/support/encasing of hume pipes which shall be paid seperately									
i)	250mm dia			25	RM					
ii)	300mm dia			25	RM					
iii)	450mm dia			25	RM					
iv)	600mm dia			25	RM					
11.00	Concrete road (including all crossings) as per technical specification and approved drawing but excluding reinforcement & concrete									
a.	Concrete Road			400	Sq. m.					
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									
a.	Section having four rails			250	Sq. m.					
13.0	Chain link fencing as per technical specification and approved drawing but excluding concrete which shall be paid seperately			456	RM					
14.0	switch yard Gate excluding concrete			2	No					
15.0	Dismantling & rerection of existing fence including sorting and stacking of serviceable & non-serviceable materials and disposal of debris as per the direction of engineer-in-charge			30	RM					
16.00	Supplying and erecting dewatering pumps									
a.	5 HP			2	Nos.					
b.	0.5 HP			4	Nos.					
17.00	Drain including culverts but excluding concrete ,hume pipes & reinforcement steel which shall be paid seperately									
a.	Type AA			600	RM					
b.	Type BB			120	RM					
c.	Type CC			15	RM					
d.	Type DD			15	RM					
18.00	External water supply as per technical from borewell to GIS Building including all items like excavation,pipes,fittings,jointings,valves,chambers/manholes etc									
a.	80mm Dia GI Pipe			150	RM					
b.	25mm Dia GI Pipe			50	RM					
19.00	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc.									
a	(i) 150 mm Dia.			75	RM					
20.0	Stone soling below foundations wherever specified in approved drawings during detailed engineering			90	Cu.Mtr.					
21.00	Site levelling									
i	Earth work in excavation and filling in all types of soils including soft/disintegrated rock with all leads and lifts within sub station boundary			40000	Cu.Mtr.					

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
ii	Earth work in filling with borrowed earth with all leads and lifts including royalty,taxes etc			2000	Cu.Mtr.					
22.00	Construction of retaining wall with random rubble masonary 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 masonary 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			1000	Cu.Mtr.					
23.0	**PRE ENGINEERED BUILDINGS**									
i)	**400 KV GIS BUILDING** **All civil works related to pre-engineered 400 kV GIS Buliding to be supplied as per schedule 1 including internal cable trench, finishing(external & Internal) etc. complete as per technical specification and approved drawings, excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS.**									
(a)	GIS Hall			600	Sq. M.					
(b)	AHU/ Panels Room			450	Sq. M.					
24	Geotechnical /Soil Investigation			1	LS					
	Total for Schedule 4(Total of column 9 and 11 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
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 : Installation and Other Services
(b):Training Charges for training to be imparted abroad (Common for all three substations)

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	Currency,	Training charge per Trainee per day	Total Training Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(5)x(6)x(8)
A	Training to Owners personnel on Design , testing and Maintenance aspect as per Technical Specification at manufacturer's works	i) GIS Equipments and System		4	5			
		ii) Control & Protection and Substation Automation System		4	5			
		iii) EHV GIS Substation Design		4	5			
	Total for Training Charges							

REMARKS:
1. Training at Manufacturer's works: The Contractor shall include in the training charges payment of per Diem allowance to NEA trainees @ USD 150 per day per trainee for the duration of training abroad towards accommodation, meals and other incidental expenses and to and fro economy class air ticket from Nepal to place of training. The duration of training shall be excluding travelling period.

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation
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 (Common for all three substations)

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

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

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

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation
Schedule No. 4 : Installation and Other Services
(d): Maintenance Charges

Sl No	Description	Unit	Qty.	Total Maintenance Charges	
				Currency	Total Maintenance Charges
1	None	Year			
2	None	Year			
	Total for Schedule 4 (Total of column 5 to be carried forward to Schedule 5: Grand Summary)				

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

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation

Schedule No. 4 : Installation and Other Services

(e) : Type Test Charges for Type Tests to be conducted abroad.(Common for all three substations)

Sl. No.	Description of Tests		Testing Location	TEST CHARGES	
				Currency	Amount
1	2		3	4	5
	400/220kV 1-Ph , 53.33 MVA Auto Transformer				
1	400/220 kV, 53.33 MVA, 1-Ph 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			
6		Dynamic Short Circuit Test for only 1-Ph Auto Transformer			
	400/220kV 1-Ph , 105 MVA Auto Transformer				
1	400/220 kV, 105 MVA, 1-Ph 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			
6		Dynamic Short Circuit Test for only 1-Ph Auto Transformer			
1	400 kV GIS Equipment	400 kV Gas Insulated Switchgear tests to be conducted as per relevant IEC			
	Total of Type Tests charges (Total of column 5 to be carried forward to Schedule 5: Grand Summary)				

Name of Bidder:

Signature of Bidder: **Date:**

(Printed Name)

(Designation)

(Common Seal)

Nepal Electricity Authority

Project Management Directorate

Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) New Khimti Substation

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

Item No.	Name & Description of Parts	Name of Original Manufacturer	Part No.	Number of Units in each set	Total No. of Sets to be provided	Unit Price	Total Price	Remarks
	None							

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

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation

Schedule No. 5: Grand Summary

Sl. No.	Description	Barhabise Substation	
		Total Price Foreign ( )*	Total Price Local ( )*
1	**TOTAL SCHEDULE NO. 1**	1	2
	Plant and Equipment including Mandatory Spares to be supplied from abroad, including Type Test Charges for Type Tests to be conducted abroad.		
	Sub-Total 1		
2	**TOTAL SCHEDULE NO. 2**		
	Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal including Type Test Charges		
	Sub-Total 2		
3	**TOTAL SCHEDULE NO. 3**		
	Design Services		
	Sub-Total 3		
4	**TOTAL SCHEDULE NO. 4**		
	a. Installation Charges		
	b. Training Charges for Training to be imparted abroad		
	c. Training Charges for Training to be imparted in Nepal		
	d. Maintenance charges		
	e. Type test charges to be conducted abroad		
	Sub-Total 4 **GRAND TOTAL Excluding Taxes & Customs [1+2+3+4(a)+4(b)+4 (c) +4 (d) + 4 (e)]**		

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
A	**420kV SF6 Gas Insulated Switchgear and Accessories**								
a)	420kV, 5000A SF6 GIS Bus Bar Module [Module description as per technical specification, Chapter 1- PSR]		2	Sets					
b)	420kV, 4000A SF6 GIS Line Feeder bay Module [Module description as per technical specification, Chapter 1- PSR]		4	Sets					
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module description as per technical specification, Chapter 1- PSR]		2	Sets					
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]		1	Sets					
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1-PSR]								
i)	4000A		3	Sets					
ii)	2000A		1	Sets					
f)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories								
i)	4000 A , 50kA for 1 sec. Single Phase		750	m					
ii)	2000 A , 50kA for 1 sec. Single Phase		200	m					
g)	400 kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
i)	4000A, 50kA for 1 sec. Single Phase		15	nos					
ii)	2000A, 50kA for 1 sec. Single Phase		6	nos					
	Sub Total (A)								
B)	**245 kV SF6 Gas Insulated Switchgear and Accessories**								
a)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories								
a.1)	2000A, 40kA for 1 sec. Single Phase		**240**	mtr.					
b	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
b.1	2000A, 40kA for 1 sec. Single Phase		**6**	nos					
c	220kV, SF6 to Cable Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
c.1	2000A, 40kA for 1 sec. Single Phase		6	nos					
	Sub Total (B)								
C	**53.33 MVA,400/√3 /220/√3/33 kV Single Phase Auto Transformer as specified below**								

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
					FC			FC	
			Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
1	53.33 MVA,400/√3 /220/√3/33 kV Single Phase **Auto** Transformer outdoor type, complete with all fittings and accessories including Main Control Cabinet, cooling control cabinet, RTCC panel, OLTC, and On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor,necessary arrangment for Delta formation of LV winding & Neutral Formation and Earthing Arrangement, surge protection device and all fittings & accessories as specified/ required for completion of the scope of works as per technical specification (without transformer Oil)		4	Nos.					
2	Insulating oil for 53.33 MVA,400/√3 /220/√3/33 kV Single Phase Autotransformer (* 1Lot = Oil for 1 Autotransformers)		4	Lot*					
3	33kV Current transformer (NCT) for autotrasnformer		1	Nos					
	Sub Total (C)								
D	**50MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor as specified below:**								
1	50MVAR, 420kV, three phase, 50 Hz separate winding Shunt Reactor, oil immersed, ONAN cooled, outdoor type complete with all fittings and accessories including Bushing & Current Transformers as detailed in the specifications & each equipped with the following : i) On line insulating oil drying system (Cartridge type) ii) On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system with optical temperature sensor		1	Nos.					
2	Insulating oil for first filling plus 10% extra to account for spillage etc. during filling for the Shunt Reactor		1	lot					
	Sub Total (D)								
E	**LT TRANSFORMER**								
1	630 kVA, 33/0.4kV		1	Nos					
	Sub Total (E)								
F	**420KV Outdoor Equipment**								
1	336KV Surge Arrester (1-phase)		18	Nos.					
2	420kV BPI(1-Ph)		18	Nos.					
	Sub Total (F)								
G	**245KV Outdoor Equipment**								
1	216KV Surge Arrester (1-phase)		6	Nos.					
2	245kV BPI(1-Ph)		6	Nos.					
	Sub Total (G)								
H	**72.5kV EQUIPMENT**								
1	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure		1	No.					
2	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)		1	No.					
3	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)		3	Nos.					

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
4	72.5kV PT.(1-phase)		3	Nos.					
5	30kV Surge Arrestors (1-Phase)		3	Nos.					
6	72.5 kV BPI (1-phase)		3	Nos.					
	Sub Total (H)								
I	**Erection Hardware**								
I.1	**400kV One and Half Breaker-type layout for GIS termination arrangement**								
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:								
1.1	Transformer Bay		2	bays					
1.2	Reactor Bays		1	bays					
2	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:								
2.1	Line Bay		4	bays					
I.2	**220 kV DM-type layout for GIS termination arrangement of Transformer**								
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:								
1.1	Transformer Bay		2	bays					
	Sub Total (I)								
J	**CONTROL RELAY AND PROTECTION PANELS (WITH AUTOMATION)**								
1	**400kV**								
1.1	**Circuit Breaker Relay Panel**								
a	CB Relay Panel With Auto Reclose		4	Sets					
b	CB Relay Panel With out Auto Reclose		6	Sets					
1.2	**Line Protection Panel**		4	Sets					
1.3	**Transformer Protection Panel (For both HV & MV side) as per Specification**		1	Sets					
1.4	**Reactor Protection Panel as per specification**		1	Sets					
1.5	**Bus Bar Protection Panel**								
a	400kV (Duplicate Bus Bar Protection)		1	Sets					
b	Augmentation of existing 220 kV bus bar protection scheme (For 1 Nos. of ICT bays as specified)		1	Lot					

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
2	**Other/Common equipments Pertaining to C & R System**								
a	Time synchronisation equipment		1	Nos.					
b	Special Relay Test kit		1	Nos.					
	Sub Total (J)								
K	**SUBSTATION AUTOMATION**								
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and software for the substation alongwith associated equipments for the following Main bays to be automated as per Technical Specification:								
a	400 kV System		11	Nos.					
b	220 kV System		2	Nos.					
c	For Auxiliary system		1	Set					
2	Augumentations/Intregations of Operator Workstations (HMI) and all necessary accessories and software. *In the present scope, bidder shall include BCUs required for 400 kV bays including all necessary hardware and software to integrate with the existing Substation Automation System including up-dation of system database, displays, and development of additional displays and reports alll complete as per requirement.*		1	Lot					
3	Integration of all 400/220kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.		1	Lot					
	Sub Total (K)								
L	**Visual monitoring system (VMS) system**								
a)	Visual monitoring system (VMS) as specified/required complete in all respect including HF Cable, Other necessary cabling and power supply system		1	Lot					
	Sub Total (L)								
M	**LT Switchgear**								
a	400V Main switchboard		1	Set					
b	400V ACDB		1	Set					
c	400V MLDB		1	Set					
d	400V Emergency LDB		1	Set					
e	220V DCDB		1	Sets					
f	48V/50V DCDB		1	Sets					
	Sub Total (M)								
N	**Batteries**								
a	220V								
i	600 AH		2	Nos					
b	48V								

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
					FC			FC	
			Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
i	600 AH		2	Nos					
	Sub Total (N)								
O	**Float Cum Boost Battery Charger**								
a	220V Float Cum Boost Battery Charger								
i	80A/80A		2	Nos					
b	48V Float Cum Boost Battery Charger								
i	80A/80A		2	Nos					
	Sub Total (O)								
P	**Fire Protection System**								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type		5	Nos					
ii	50 litre foam type		2	Nos					
iii	4.5 kg CO_2 type		8	Nos					
iv	4.5 kg Dry Chemical Power (DCP) type		5	Nos					
b	Smoke detection system		1	Set					
c	Fire detection and Alarm System		1	Set					
d	Hydrant system, complete U/G piping and accessories etc. from existing HVW/Fire Hydrant point from Fire Fighting Pump House								
i	400 kV Substation		1	Set					
f	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer / Reactor :								
i	53.33 MVA , 400/220 KV, 1-phase Autotransformer		4	nos					
ii	50 MVAR , 420 KV, Bus Reactor		1	Set					
	Sub Total (P)								
Q	**Air conditioning & Ventilation System**								
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room of GIS Hall, Battery Room, Panel room cum administrative building		16	Nos					
b	Ventillation system for 400 kV GIS Hall		1	Lot					
	Sub Total (Q)								
R	**Cables along with clamps, glands, lugs and straight joints etc.**								
1	220 kV Cable								
1.1	220 kV grade 1 core, **1200sq.mm.XLPE insulated copper cable** as per technical specification		1.50	km					
1.2	Cable end termination(s) on Gantry/Tower as per technical specification		6	nos.					
	Sub Total (R)								

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
S	**Fabrication, galvanising and supply of STEEL STRUCTURES (400kV Double Dead End Transmission Tower,Column, Gantry structures& Equipment support structures)**								
	Lattice/pipe Structure for tower,Colums,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)								
a	Lattice stucture & foundation bolts		274	MT					
b	Pipe Structure including Foundation Bolts .		27	MT					
c	Fastners for tower,Columns,beams and equipment support strcutures		3	MT					
	Sub Total (S)								
T	**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)		**1**	**LS**					
ii	Earth Rod (copper clad steel)		1	LS					
iii	Equipment for lightning protection		1	LS					
	Sub Total (T)								
U	**Illumination System**								
a	Illumination System for GIS Hall and Control Building Complete as per Specification		1	LS					
b	Switchyard lighting		1	LS					
c	Street lighting		1	LS					
	Sub Total (U)								
V	**POWER & CONTROL CABLES**								
a	Power Cables(PVC) - (1.1kV grade)		1	LS					
b	Power Cables (XLPE) - (1.1kV grade)		1	LS					
c	Control Cable (PVC) - (1.1kV grade)		1	LS					
d	Cable glands, lugs & straight through joints for Power & Control cables		1	LS					
	Sub Total (V)								
W	**Communication & Associated System**								
a	Interfacing of SAS to Existing Communication & Associated System		1	Lot					
b	Giga - Ethernet interfaces 10/100/1000 Mbps with Layer-2 switching Card (Minimum 4 interfaces per Card.)		2	Nos					
	Sub Total (W)								
X	**EOT Crane**								

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) =(8)	(10)
1	EOT crane with suitable double Runway rails including trolley runway with conductors, fixtures, insulations size suitable to operate as and when required, complete with all accessories and slings as detailed in the specifications.		1	Set					
	Sub Total (X)								
Y	**Digital Protection Coupler**								
1	Digital Protection Coupler		4	Nos					
	Sub Total (Y)								
Z	**PRE-ENGINEERED BUILDINGS**								
i)	**400 kV GIS Building including all supply materials from abroad except civil works and for civil works refer schedule 4(a)**								
(a)	400 kV GIS Hall		700	Sq. M.					
(b)	AHU / Panels Room		500	Sq. M.					
	Sub Total (X)								
ZA	**MANDATORY SPARES *(Break up of Lumpsum quantity shall be as per Annexure-I, Chapter-1, Project Specific Requirement)**								
1	**Gas Insulated Switchgear**								
a	Mandatory Spares required during O&M of 400kV GIS Substation		1	LS					
2	**400/220 kV, Auto Transformer**		1	LS					
3	**50 MVAR, 420kV Bus Reactor**		1	LS					
4	**Surge Arrester**								
a	336kV Surge Arrester		1	LS					
b	216kV Surge Arrester		1	LS					
5	**Fire Fighting System**		1	LS					
6	**Battery Charger**		1	LS					
7	**Relay & Protection panel**		1	LS					
8	**Substation Automation System**		1	LS					
9	**Illumination System**		1	LS					
10	**LT Switchgear**		1	LS					
11	**Erection hardware**		1	LS					
12	**Bus Post Insulators**								
a	420kV BPI (1-Ph)		1	nos					
	Sub Total (ZA)								
	Grand Total of Schedule I								

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

Date:

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation

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

LC: Local Currency (ALL Price in Local Currency)

Item No.	Item description	Quantity	Unit	Ex Faxtory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	VAT and other taxes
				Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (3) x (5)	7	8=(3)x(7)	9=6+8	10
	Total for Schedule 2 (Total of column 9 to be carried forward to Schdule 5: Grand Summary)								

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

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

Date:

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation
Price Schedule No 3: Design Services

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

NOTE: The design cost is included in schedule 1.

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
	Installation services									
A	**420kV SF6 Gas Insulated Switchgear and Accessories**									
a)	420kV, 5000A SF6 GIS Bus Bar Module [Module description as per technical specification, Chapter 1- PSR]			2	Sets					
b)	420kV, 4000A SF6 GIS Line Feeder bay Module [Module description as per technical specification, Chapter 1- PSR]			4	Sets					
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module description as per technical specification, Chapter 1- PSR]			2	Sets					
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]			1	Sets					
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1-PSR]									
i)	4000A			3	Sets					
ii)	2000A			1	Sets					
f)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories									
i)	4000 A , 50kA for 1 sec. Single Phase			750	m					
ii)	2000 A , 50kA for 1 sec. Single Phase			200	m					
g)	400 kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
i)	4000A, 50kA for 1 sec. Single Phase			15	nos					
ii)	2000A, 50kA for 1 sec. Single Phase			6	nos					
	Sub Total (A)									
B	**245 kV SF6 Gas Insulated Switchgear and Accessories**									
a)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories									
a.1)	2000A, 40kA for 1 sec. Single Phase			240	mtr.					
b)	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
b.1)	2000A, 40kA for 1 sec. Single Phase			6	nos					
c	220kV, SF6 to Cable Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
c.1	2000A, 40kA for 1 sec. Single Phase			**6**	nos					
	Sub Total (B)									
C	**53.33 MVA,400/√3 /220/√3/33 kV Single Phase Auto Transformer as specified below**									

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
1	53.33 MVA,400/√3 /220/√3/33 kV Single Phase **Auto** Transformer outdoor type, complete with all fittings and accessories including Main Control Cabinet, cooling control cabinet, RTCC panel, OLTC, and On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor,necessary arrangment for Delta formation of LV winding & Neutral Formation and Earthing Arrangement, surge protection device and all fittings & accessories as specified/ required for completion of the scope of works as per technical specification (without transformer Oil)			4	Nos.					
2	Insulating oil for 53.33 MVA,400/√3 /220/√3/33 kV Single Phase Autotransformer (* 1Lot = Oil for 1 Autotransformers)			4	Lot*					
3	33kV Current transformer (NCT) for autotrasnformer			1	Nos.					
	Sub Total (C)									
D	**50MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor as specified below:**									
1	50MVAR, 420kV, three phase, 50 Hz separate winding Shunt Reactor, oil immersed, ONAN cooled, outdoor type complete with all fittings and accessories including Bushing & Current Transformers as detailed in the specifications & each equipped with the following : i) On line insulating oil drying system (Cartridge type) ii) On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system with optical temperature sensor			1	Nos.					
2	Insulating oil for first filling plus 10% extra to account for spillage etc. during filling for the Shunt Reactor			1	lot					
	Sub Total (D)									
E	**LT TRANSFORMER**									
1	630 kVA, 33/0.4kV			1	Nos.					
	Sub Total (E)									
F	**420KV Outdoor Equipment**									
1	336KV Surge Arrester (1-phase)			18	Nos.					
2	420kV BPI(1-Ph)			18	Nos.					
	Sub Total (F)									
G	**245KV Outdoor Equipment**									
1	216KV Surge Arrester (1-phase)			6	Nos.					
2	245kV BPI(1-Ph)			6	Nos.					
	Sub Total (G)									
H	**72.5kV EQUIPMENT**									
1	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure			1	No.					
2	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)			1	No.					
3	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)			3	Nos.					
4	72.5kV PT.(1-phase)			3	Nos.					
5	30kV Surge Arrestors (1-Phase)			3	Nos.					

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
						Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
				Quantity	*Unit*	*Currency#*	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
6	72.5 kV BPI (1-phase)			3	Nos.					
	Sub Total (H)									
I	**Erection Hardware**									
I.1	**400kV One and Half Breaker-type layout for GIS termination arrangement**									
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:									
1.1	Transformer Bay			2	bays					
1.2	Reactor Bay			1	bays					
2	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:									
2.1	Line Bay			4	bays					
I.2	**220 kV DM-type layout for GIS termination arrangement of Transformer**									
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:									
1.1	Transformer Bay			2	bays					
	Sub Total (I)									
J	**CONTROL RELAY AND PROTECTION PANELS (WITH AUTOMATION)**									
1	**400kV**									
1.1	**Circuit Breaker Relay Panel**									
a	CB Relay Panel With Auto Reclose			4	Sets					
b	CB Relay Panel With out Auto Reclose			6	Sets					
1.2	**Line Protection Panel**			4	Sets					
1.3	**Transformer Protection Panel (For both HV & MV side) as per Specification**			1	Sets					
1.4	**Reactor Protection Panel as per specification**			1	Sets					
1.5	**Bus Bar Protection Panel**									
a	400kV (Duplicate Bus Bar Protection)			1	Sets					
b	Augmentation of existing 220 kV bus bar protection scheme (For 1 Nos. of ICT bays as specified)			1	Lot					
2	**Other/Common equipments Pertaining to C & R System**									
a	Time synchronisation equipment			1	Nos.					
b	Special Relay Test kit			1	Nos.					
	Sub Total (J)									
K	**SUBSTATION AUTOMATION**									

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	Unit	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	Unit Rate	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and software for the substation alongwith associated equipments for the following Main bays to be automated as per Technical Specification:									
a	400 kV System			11	Nos.					
b	220 kV System			2	Nos.					
c	For Auxiliary system			1	Set					
2	Augumentations/Intregations of Operator Workstations (HMI) and all necessary accessories and software. *In the present scope, bidder shall include BCUs required for 400 kV bays including all necessary hardware and software to integrate with the existing Substation Automation System including up-dation of system database, displays, and development of additional displays and reports alll complete as per requirement.*			1	Lot					
3	Integration of all 400/220kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.			1	Lot					
	Sub Total (K)									
L	**Visual monitoring system (VMS) system**									
a)	Visual monitoring system (VMS) as specified/required complete in all respect including HF Cable, Other necessary cabling and power supply system			1	Lot					
	Sub Total (L)									
M	**LT Switchgear**									
a	400V Main switchboard			1	Set					
b	400V ACDB			1	Set					
c	400V MLDB			1	Set					
d	400V Emergency LDB			1	Set					
e	220V DCDB			1	Sets					
f	48V/50V DCDB			1	Sets					
	Sub Total (M)									
N	**Batteries**									
a	220V									
i	600 AH			2	Nos					
b	48V									
i	600 AH			2	Nos					
	Sub Total (N)									
O	**Float Cum Boost Battery Charger**									
a	220V Float Cum Boost Battery Charger									
i	80A/80A			2	Nos					
b	48V Float Cum Boost Battery Charger									

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
i	80A/80A			2	Nos					
	Sub Total (O)									
P	**Fire Protection System**									
a	Portable /Trolley/Wheel mounted extinguishers									
i	9 litre water type			5	Nos					
ii	50 litre foam type			2	Nos					
iii	4.5 kg CO_2 type			8	Nos					
iv	4.5 kg Dry Chemical Power (DCP) type			5	Nos					
b	Smoke detection system			1	Set					
c	Fire detection and Alarm System			1	Set					
d	Hydrant system, complete U/G piping and accessories etc. from existing HVW/Fire Hydrant point from Fire Fighting Pump House									
i	400 kV Substation			1	Set					
f	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer / Reactor :									
i	53.33 MVA , 400/220 KV, 1-phase Autotransformer			4	nos					
ii	50 MVAR , 420 KV, Bus Reactor			1	Set					
	Sub Total (P)									
Q	**Air conditioning & Ventilation System**									
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room of GIS Hall, Battery Room, Panel room cum administrative building			16	Nos					
b	Ventillation system for 400 kV GIS Hall			1	Lot					
	Sub Total (Q)									
R	**Cables along with clamps, glands, lugs and straight joints etc.**									
1	220 kV Cable									
1.1	220 kV grade 1 core, **1200sq.mm.XLPE insulated copper cable** as per technical specification			1.50	km					
1.2	Cable end termination(s) on Gantry/Tower as per technical specification			6	nos					
	Sub Total (R)									
S	**Fabrication, galvanising and supply of STEEL STRUCTURES (400kV Double Dead End Transmission Tower,Column, Gantry structures& Equipment support structures)**									
	Lattice/pipe Structure for tower,Colums,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)									
a	Lattice stucture & foundation bolts			274	MT					
b	Pipe Structure including Foundation Bolts .			27	MT					
c	Fastners for tower,Columns,beams and equipment support strcutures			3	MT					
	Sub Total (S)									

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
T	**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)			**1**	**LS**					
ii	Earth Rod (copper clad steel)			1	LS					
iii	Equipment for lightning protection			1	LS					
	Sub Total (T)									
U	**Illumination System**									
a	Illumination System for GIS Halland Control Building Complete as per Specification			1	LS					
c	Switchyard lighting			1	LS					
d	Street lighting			1	LS					
	Sub Total (U)									
V	**POWER & CONTROL CABLES**									
a	Power Cables(PVC) - (1.1kV grade)			1	LS					
b	Power Cables (XLPE) - (1.1kV grade)			1	LS					
c	Control Cable (PVC) - (1.1kV grade)			1	LS					
d	Cable glands, lugs & straight through joints for Power & Control cables			1	LS					
	Sub Total (V)									
W	**Communication & Associated System**									
a	Interfacing of SAS to Existing Communication & Associated System			1	Lot					
b	Giga - Ethernet interfaces 10/100/1000 Mbps with Layer-2 switching Card (Minimum 4 interfaces per Card.)			2	Nos.					
	Sub Total (W)									
X	**EOT Crane**									
1	EOT crane with suitable double Runway rails including trolley runway with conductors, fixtures, insulations size suitable to operate as and when required, complete with all accessories and slings as detailed in the specifications.			1	Set					
	Sub Total (X)									
Y	**Digital Protection Coupler**									
1	Digital Protection Coupler			4	Nos					
	Sub Total (Y)									
	Civil Construction Works (As per technical specifications)									
	SECTION: A : NEA ASSESSED QUANTITIES									
1.0	Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts			13750	Cu.Mtr.					
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			880	Cu.Mtr.					
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			83	Cu.Mtr.					

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
4.0	Providing and laying of Reinforced Cement Concrete Design Mix (M25) including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement.			4235	Cu.Mtr.					
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			605	Cu.Mtr.					
6.0	Steel Reinforcement (Fe 500)			385	MT					
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.			55	MT					
8.0	Stone filling (40mm) over grating of Transformer /reactor Foundation			770	Cu.Mtr.					
9.0	Stone spreading including antiweed treatment in switchyard but excluding PCC.			7700	Sq. Mtr.					
10.00	Supplying & laying hume pipe with collarsof grade (NP-3) but excluding reinforcement steel & concrete of bed/support/encasing of hume pipes which shall be paid seperately									
i)	250mm dia			25	RM					
ii)	300mm dia			25	RM					
iii)	450mm dia			25	RM					
iv)	600mm dia			25	RM					
11.00	Concrete road (including all crossings) as per technical specification and approved drawing but ecluding reinforcement & concrete									
a.	Concrete Road			600	Sq. m.					
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									
a.	Section having four rails			350	Sq. m.					
13.0	Chain link fencing as per technical specification and approved drawing but excluding concrete which shall be paid seperately			836	RM					
14.0	switch yard Gate excluding concrete			2	No					
15.0	Dismantling & rerection of existing fence including sorting and stacking of serviceable & non-serviceable materials and disposal of debris as per the direction of engineer-in-charge			55	RM					
16.00	Supplying and erecting dewatering pumps									
a.	5 HP			2	Nos.					
b.	0.5 HP			4	Nos.					
17.00	Drain including culverts but excluding concrete ,hume pipes & reinforcement steel which shall be paid seperately									
a.	Type AA			1100	RM					
b.	Type BB			220	RM					
c.	Type CC			28	RM					
d.	Type DD			28	RM					
18.00	External water supply as per technical from borewell to GIS Building including all items like excavation,pipes,fittings,jointings,valves,chambers/manholes etc									
a.	80mm Dia GI Pipe			150	RM					
b.	25mm Dia GI Pipe			50	RM					

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
19.00	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc.									
a	(i) 150 mm Dia.			138	RM					
20.0	Stone soling below foundations wherever specified in approved drawings during detailed engineering			165	Cu.Mtr.					
21	**Site levelling**									
i	Earth work in excavation and filling in all types of soils including soft/disintegrated rock with all leads and lifts within sub station boundary			60000	Cu.Mtr.					
ii	Earth work in filling with borrowed earth with all leads and lifts including royalty,taxes etc			2000	Cu.Mtr.					
22.00	Construction of retaining wall with random rubble masonary 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 masonary 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			2000	Cu.Mtr.					
23	**PRE ENGINEERED BUILDINGS**									
i)	**400 KV GIS BUILDING** **All civil works related to pre-engineered 400 kV GIS Buliding to be supplied as per schedule 1 including internal cable trench, finishing(external & Internal) etc. complete as per technical specification and approved drawings, excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS.**									
(a)	GIS Hall			700	Sq. M.					
(b)	AHU/ Panels Room			500	Sq. M.					
24	Geotechnical /Soil Investigation			1	LS					
	Total for Schedule 4(Total of column 9 and 11 to be carried forward to Schedule 5: Grand Summary)									

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 : Installation and Other Services
(b):Training Charges for training to be imparted abroad (Common for all three substations)

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	Currency	Training charge per Trainee per day	Total Training Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(5)x(6)x(8)
A	None							
	Total for Training Charges							-

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

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation
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 (Common for all three substations)

Sl. No.	Description of the Test	Item for which training is to be imparted.	Training duration in days	Currency	Per Day Training Charges for Contractors Trainers	Total Training Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(4)x(6)
	None					
	Total for Training Charges					-
Total for Schedule 4 (Total of column 7 to be carried forward to Schedule 5: Grand Summary)						

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

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation
Schedule No. 4 : Installation and Other Services
(d): Maintenance Charges

Sl No	Description	Unit	Qty.	Total Maintenance Charges	
				Currency	Total Maintenance Charges
1	None	Year			
2	None	Year			
	Total for Schedule 4 (Total of column 5 to be carried forward to Schedule 5: Grand Summary)				

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

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation

Schedule No. 4 : Installation and Other Services

(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
	None			
	None			
	Total of Type Tests charges (Total of column 5 to be carried forward to Schedule 5: Grand Summary)			

Name of Bidder:

Signature of Bidder: **Date:**

(Printed Name)

(Designation)

(Common Seal)

Nepal Electricity Authority

Project Management Directorate

Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Barhabise Substation

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

Item No.	Name & Description of Parts	Name of Original Manufacturer	Part No.	Number of Units in each set	Total No. of Sets to be provided	Unit Price	Total Price	Remarks
	None							

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

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation

Schedule No. 5: Grand Summary

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

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) ='(8)	(10)
A	**420kV SF6 Gas Insulated Switchgear and Accessories**								
a)	420kV, 5000A SF6 GIS Bus Bar Module [Module description as per technical specification, Chapter 1- PSR]		2	Sets					
b)	420kV, 4000A SF6 GIS Line Feeder bay Module [Module description as per technical specification, Chapter 1- PSR]		4	Sets					
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module description as per technical specification, Chapter 1- PSR]		2	Sets					
d)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1-PSR]								
i)	4000A		2	Sets					
ii)	2000A		1	Sets					
e)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories								
i)	4000 A , 50kA for 1 sec. Single Phase		600	m					
ii)	2000 A , 50kA for 1 sec. Single Phase		200	m					
f)	400 kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
i)	4000A, 50kA for 1 sec. Single Phase		12	nos					
ii)	2000A, 50kA for 1 sec. Single Phase		6	nos					
	Sub Total (A)								
B)	**245 kV SF6 Gas Insulated Switchgear and Accessories**								
a)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories								
a.1)	2000A, 40kA for 1 sec. Single Phase		240	mtr.					
b	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
b.1	2000A, 40kA for 1 sec. Single Phase		6	nos					
c	220kV, SF6 to Cable Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure								
c.1	2000A, 40kA for 1 sec. Single Phase		6	nos					
	Sub Total (B)								

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	Unit	FC			FC	
					Currency#	Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) ='(8)	(10)
C	**53.33 MVA,400/√3 /220/√3/33 kV Single Phase Auto Transformer as specified below**								
1	53.33 MVA,400/√3 /220/√3/33 kV Single Phase **Auto** Transformer outdoor type, complete with all fittings and accessories including Main Control Cabinet, cooling control cabinet, RTCC panel, OLTC, and On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor,necessary arrangment for Delta formation of LV winding & Neutral Formation and Earthing Arrangement, surge protection device and all fittings & accessories as specified/ required for completion of the scope of works as per technical specification (without transformer Oil)		4	Nos.					
2	Insulating oil for 53.33 MVA,400/√3 /220/√3/33 kV Single Phase Autotransformer (* 1Lot = Oil for 1 Autotransformers)		4	Lot*					
3	33kV Current transformer (NCT) for autotrasnformer		1	Nos					
	Sub Total (C)								
D	**LT TRANSFORMER**								
1	630 kVA, 33/0.4kV		1	Nos					
	Sub Total (D)								
E	**420KV Outdoor Equipment**								
1	336KV Surge Arrester (1-phase)		18	Nos.					
2	420kV BPI(1-Ph)		18	Nos.					
	Sub Total (E)								
F	**245KV Outdoor Equipment**								
1	216KV Surge Arrester (1-phase)		6	Nos.					
2	245kV BPI(1-Ph)		6	Nos.					
	Sub Total (F)								
G	**72.5kV EQUIPMENT**								
1	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure		1	No.					
2	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)		1	No.					
3	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)		3	Nos.					
4	72.5kV PT.(1-phase)		3	Nos.					
5	30kV Surge Arrestors (1-Phase)		3	Nos.					
6	72.5 kV BPI (1-phase)		3	Nos.					
	Sub Total (G)								

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) ='(8)	(10)
H	**Erection Hardware**								
H.1	**400kV One and Half Breaker-type layout for GIS termination arrangement**								
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:								
1.1	Transformer Bay		2	bays					
2	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:								
2.1	Line Bay		4	bays					
H.2	**220 kV DM-type layout for GIS termination arrangement of Transformer**								
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:								
1.1	Transformer Bay		2	bays					
	Sub Total (H)								
I	**CONTROL RELAY AND PROTECTION PANELS (WITH AUTOMATION)**								
1	**400kV**								
1.1	**Circuit Breaker Relay Panel**								
a	CB Relay Panel With Auto Reclose		4	Sets					
b	CB Relay Panel With out Auto Reclose		4	Sets					
1.2	**Line Protection Panel**		4	Sets					
1.3	**Transformer Protection Panel (For both HV & MV side) as per Specification**		1	Sets					
1.4	**Bus Bar Protection Panel**								
a	400kV (Duplicate Bus Bar Protection)		1	Set					
b	Augmentation of existing 220 kV bus bar protection scheme (For 1 Nos. of ICT bays as specified)		1	Lot					
2	**Other/Common equipments Pertaining to C & R System**								
a	Time synchronisation equipment		1	Nos.					
b	Special Relay Test kit		1	Nos.					
	Sub Total (I)								

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) ='(8)	(10)
J	**SUBSTATION AUTOMATION**								
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and software for the substation alongwith associated equipments for the following Main bays to be automated as per Technical Specification:								
a	400 kV System		9	Nos.					
b	220 kV System		2	Nos.					
c	For Auxiliary system		1	Set					
2	Augumentations/Intregations of Operator Workstations (HMI) and all necessary accessories and software. *In the present scope, bidder shall include BCUs required for 400 kV bays including all necessary hardware and software to integrate with the existing Substation Automation System including up-dation of system database, displays, and development of additional displays and reports alll complete as per requirement.*		1	Lot					
3	Integration of all 400/220kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.		1	Lot					
	Sub Total (J)								
K	**Visual monitoring system (VMS) system**								
a)	Visual monitoring system (VMS) as specified/required complete in all respect including HF Cable, Other necessary cabling and power supply system		1	Lot					
	Sub Total (K)								
L	**LT Switchgear**								
a	400V Main switchboard		1	Set					
b	400V ACDB		1	Set					
c	400V MLDB		1	Set					
d	400V Emergency LDB		1	Set					
e	220V DCDB		1	Sets					
f	48V/50V DCDB		1	Sets					
	Sub Total (L)								
M	**Batteries**								
a	220V								
i	600 AH		2	Nos					
b	48V								
i	600 AH		2	Nos					
	Sub Total (M)								
N	**Float Cum Boost Battery Charger**								

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) ='(8)	(10)
a	220V Float Cum Boost Battery Charger								
i	80A/80A		2	Nos					
b	48V Float Cum Boost Battery Charger								
i	80A/80A		2	Nos					
	Sub Total (N)								
O	**Fire Protection System**								
a	Portable /Trolley/Wheel mounted extinguishers								
i	9 litre water type		5	Nos					
ii	50 litre foam type		2	Nos					
iii	4.5 kg CO_2 type		8	Nos					
iv	4.5 kg Dry Chemical Power (DCP) type		5	Nos					
b	Smoke detection system		1	Set					
c	Fire detection and Alarm System		1	Set					
d	Hydrant system, complete U/G piping and accessories etc. from existing HVW/Fire Hydrant point from Fire Fighting Pump House								
i	400 kV Substation		1	Set					
e	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer / Reactor :								
i	53.33 MVA , 400/220 KV, 1-phase Autotransformer		4	Nos					
	Sub Total (O)								
P	**Air conditioning & Ventilation System**								
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room of GIS Hall, Battery Room, Panel room cum administrative building		16	Nos					
b	Ventillation system for 400 kV GIS Hall		1	Lot					
	Sub Total (P)								
Q	**Cables along with clamps, glands, lugs and straight joints etc.**								
1	220 kV Cable								
1.1	220 kV grade 1 core, **1200sq.mm.XLPE insulated copper cable** as per technical specification		1.50	km					
1.2	Cable end termination(s) on Gantry/Tower as per technical specification		6	nos.					
	Sub Total (Q)								

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) ='(8)	(10)
R	**Fabrication, galvanising and supply of STEEL STRUCTURES (400kV Double Dead End Transmission Tower,Column, Gantry structures& Equipment support structures)**								
	Lattice/pipe Structure for tower,Colums,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)								
a	Lattice stucture & foundation bolts		274	MT					
b	Pipe Structure including Foundation Bolts .		27	MT					
c	Fastners for tower,Columns,beams and equipment support strcutures		3	MT					
	Sub Total (R)								
S	**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)		**1**	**LS**					
ii	Earth Rod (copper clad steel)		1	LS					
iii	Equipment for lightning protection		1	LS					
	Sub Total (S)								
T	**Illumination System**								
a	Illumination System for GIS Hall and Control Building Complete as per Specification		1	LS					
b	Switchyard lighting		1	LS					
c	Street lighting		1	LS					
	Sub Total (T)								
U	**POWER & CONTROL CABLES**								
a	Power Cables(PVC) - (1.1kV grade)		1	LS					
b	Power Cables (XLPE) - (1.1kV grade)		1	LS					
c	Control Cable (PVC) - (1.1kV grade)		1	LS					
d	Cable glands, lugs & straight through joints for Power & Control cables		1	LS					
	Sub Total (U)								
V	**Communication & Associated System**								
a	Interfacing of SAS to Existing Communication & Associated System		1	Lot					
b	Giga - Ethernet interfaces 10/100/1000 Mbps with Layer-2 switching Card (Minimum 4 interfaces per Card.)		2	Nos.					
	Sub Total (V)								

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No. 1:Plant, and Mandatory Spares Parts to be supplied from abroad

FC: Foreign Currency
LC: Local Currency

Item No.	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
			Quantity	*Unit*	FC			FC	
					Currency#	*Unit Rate*	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9) ='(8)	(10)
W	**EOT Crane**								
1	EOT crane with suitable double Runway rails including trolley runway with conductors, fixtures, insulations size suitable to operate as and when required, complete with all accessories and slings as detailed in the specifications.		1	Set					
	Sub Total (W)								
X	**Digital Protection Coupler**								
1	Digital Protection Coupler		4	Nos					
	Sub Total (X)								
Y	**PRE-ENGINEERED BUILDINGS**								
i)	**400 kV GIS Building including all supply materials from abroad except civil works and for civil works refer schedule 4(a)**								
(a)	400 kV GIS Hall		700	Sq. M.					
(b)	AHU / Panels Room		500	Sq. M.					
	Sub Total (Y)								
Z	**MANDATORY SPARES *(Break up of Lumpsum quantity shall be as per Annexure-I, Chapter-1, Project Specific Requirement)**								
1	**Gas Insulated Switchgear**								
a	Mandatory Spares required during O&M of 400kV GIS Substation		1	LS					
2	**400/220 kV, Auto Transformer**		1	LS					
3	**Surge Arrester**								
a	336kV Surge Arrester		1	LS					
b	216kV Surge Arrester		1	LS					
4	**Fire Fighting System**		1	LS					
5	**Battery Charger**		1	LS					
6	**Relay & Protection panel**		1	LS					
7	**Substation Automation System**		1	LS					
8	**Illumination System**		1	LS					
9	**LT Switchgear**		1	LS					
10	**Erection hardware**		1	LS					
11	**Bus Post Insulators**								
a	420kV BPI (1-Ph)		1	nos					
	Sub Total (Z)								
	Grand Total of Schedule I								

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No.2: Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal **LC: Local Currency (ALL Price in Local Currency)**

Item No.	Item description	Quantity	Unit	Ex Faxtory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes)	VAT and other taxes
				Unit Rate	Amount	Unit Rate	Amount		
1	2	3	4	5	6 = (3) x (5)	7	8=(3)x(7)	9=6+8	10
	Total for Schedule 2 (Total of column 9 to be carried forward to Schdule 5: Grand Summary)								

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

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Price Schedule No 3: Design Services

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

NOTE: The design cost is included in schedule 1.

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
	Installation services									
A	**420kV SF6 Gas Insulated Switchgear and Accessories**									
a)	420kV, 5000A SF6 GIS Bus Bar Module [Module description as per technical specification, Chapter 1- PSR]			2	Sets			-		
b)	420kV, 4000A SF6 GIS Line Feeder bay Module [Module description as per technical specification, Chapter 1- PSR]			4	Sets			-		
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module description as per technical specification, Chapter 1- PSR]			2	Sets			-		
d)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]									
i)	4000A			2	Sets			-		
ii)	2000A			1	Sets			-		
e)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories							-		
i)	4000 A , 50kA for 1 sec. Single Phase			600	m			-		
ii)	2000 A , 50kA for 1 sec. Single Phase			200	m			-		
f)	400 kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
i)	4000A, 50kA for 1 sec. Single Phase			12	nos					
ii)	2000A, 50kA for 1 sec. Single Phase			6	nos					
	Sub Total (A)							-		
B	**245 kV SF6 Gas Insulated Switchgear and Accessories**							-		
a)	SF6 Gas Insulated Bus Duct (GIB) outside GIS Hall alongwith associated support structure and accessories									
a.1	2000A, 40kA for 1 sec. Single Phase			240	mtr.					
b	220kV, SF6 to Air Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
b.1	2000A, 40kA for 1 sec. Single Phase			6	nos					
c	220kV, SF6 to Cable Bushing alongwith associated support structure for Connecting GIS to AIS alongwith support structure									
c.1	2000A, 40kA for 1 sec. Single Phase			**6**	nos					
	Sub Total (B)									
C	**53.33 MVA,400/√3 /220/√3/33 kV Single Phase Auto Transformer as specified below**							-		

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	Unit	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	Unit Rate	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
1	53.33 MVA,400/√3 /220/√3/33 kV Single Phase **Auto** Transformer outdoor type, complete with all fittings and accessories including Main Control Cabinet, cooling control cabinet, RTCC panel, OLTC, and On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor,necessary arrangment for Delta formation of LV winding & Neutral Formation and Earthing Arrangement, surge protection device and all fittings & accessories as specified/ required for completion of the scope of works as per technical specification (without transformer Oil)			4	Nos.			-		
2	Insulating oil for 53.33 MVA,400/√3 /220/√3/33 kV Single Phase Autotransformer (* 1Lot = Oil for 1 Autotransformers)			4	Lot*			-		
3	33kV Current transformer (NCT) for autotrasnformer			1	Nos.					
	Sub Total (C)							-		
								-		
D	**LT TRANSFORMER**									
1	630 kVA, 33/0.4kV			1	Nos.			-		
	Sub Total (D)							-		
E	**420KV Outdoor Equipment**							-		
1	336KV Surge Arrester (1-phase)			18	Nos.			-		
2	420kV BPI(1-Ph)			18	Nos.			-		
	Sub Total (E)							-		
								-		
F	**245KV Outdoor Equipment**							-		
1	216KV Surge Arrester (1-phase)			6	Nos.			-		
2	245kV BPI(1-Ph)			6	Nos.			-		
	Sub Total (F)							-		
								-		
G	**72.5kV EQUIPMENT**							-		
1	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure			1	No.					
2	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)			1	No.					
3	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)			3	Nos.					
4	72.5kV PT.(1-phase)			3	Nos.					
5	30kV Surge Arrestors (1-Phase)			3	Nos.					
6	72.5 kV BPI (1-phase)			3	Nos.					
	Sub Total (G)									
H	**Erection Hardware**							-		
H.1	**400kV One and Half Breaker-type layout for GIS termination arrangement**							-		
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:							-		
1.1	Transformer Bay			2	bays			-		

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
2	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:							-		
2.1	Line Bay			4	bays			-		
H.2	**220 kV DM-type layout for GIS termination arrangement of Transformer**							-		
1	Insulator strings, Disc Insulators, Hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:							-		
1.1	Transformer Bay			2	bays			-		
	Sub Total (H)							-		
								-		
I	**CONTROL RELAY AND PROTECTION PANELS (WITH AUTOMATION)**							-		
1	**400kV**							-		
1.1	**Circuit Breaker Relay Panel**							-		
a	CB Relay Panel With Auto Reclose			4	Sets			-		
b	CB Relay Panel With out Auto Reclose			4	Sets			-		
1.2	**Line Protection Panel**			4	Sets			-		
1.3	**Transformer Protection Panel (For both HV & MV side) as per Specification**			1	Sets			-		
1.4	**Bus Bar Protection Panel**							-		
a	400kV (Duplicate Bus Bar Protection)			1	Set			-		
b	Augmentation of existing 220 kV bus bar protection scheme (For 1 Nos. of ICT bays as specified)			1	Lot			-		
2	**Other/Common equipments Pertaining to C & R System**							-		
a	Time synchronisation equipment			1	Nos.			-		
b	Special Relay Test kit			1	Nos.			-		
	Sub Total (I)							-		
								-		
J	**SUBSTATION AUTOMATION**							-		
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and software for the substation alongwith associated equipments for the following Main bays to be automated as per Technical Specification:							-		
a	400 kV System			9	Nos.			-		
b	220 kV System			2	Nos.			-		
c	For Auxiliary system			1	Set			-		
2	Augumentations/Intregations of Operator Workstations (HMI) and all necessary accessories and software. *In the present scope, bidder shall include BCUs required for 400 kV bays including all necessary hardware and software to integrate with the existing Substation Automation System including up-dation of system database, displays, and development of additional displays and reports alll complete as per requirement.*			1	Lot			-		
3	Integration of all 400/220kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.			1	Lot			-		

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
	Sub Total (J)							-		
								-		
K	**Visual monitoring system (VMS) system**							-		
a)	Visual monitoring system (VMS) as specified/required complete in all respect including HF Cable, Other necessary cabling and power supply system			1	Lot			-		
	Sub Total (K)							-		
								-		
L	**LT Switchgear**							-		
a	400V Main switchboard			1	Set			-		
b	400V ACDB			1	Set			-		
c	400V MLDB			1	Set			-		
d	400V Emergency LDB			1	Set			-		
e	220V DCDB			1	Sets			-		
f	48V/50V DCDB			1	Sets			-		
	Sub Total (L)							-		
								-		
M	**Batteries**							-		
a	220V							-		
i	600 AH			2	Nos			-		
b	48V							-		
i	600 AH			2	Nos			-		
	Sub Total (M)							-		
								-		
N	**Float Cum Boost Battery Charger**									
a	220V Float Cum Boost Battery Charger									
i	80A/80A			2	Nos					
b	48V Float Cum Boost Battery Charger									
i	80A/80A			2	Nos					
	Sub Total (N)									
O	**Fire Protection System**							-		
a	Portable /Trolley/Wheel mounted extinguishers							-		
i	9 litre water type			5	Nos			-		
ii	50 litre foam type			2	Nos			-		
iii	4.5 kg CO_2 type			8	Nos			-		
iv	4.5 kg Dry Chemical Power (DCP) type			5	Nos			-		
b	Smoke detection system			1	Set			-		
c	Fire detection and Alarm System			1	Set			-		
d	Hydrant system, complete U/G piping and accessories etc. from existing HVW/Fire Hydrant point from Fire Fighting Pump House							-		
i	400 kV Substation			1	Set			-		
e	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for Transformer / Reactor :							-		
i	53.33 MVA , 400/220 KV, 1-phase Autotransformer			4	nos			-		

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	Unit	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	Unit Rate	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
	Sub Total (O)							-		
								-		
P	**Air conditioning & Ventilation System**							-		
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room of GIS Hall, Battery Room, Panel room cum administrative building			16	Nos			-		
b	Ventillation system for 400 kV GIS Hall			1	Lot			-		
	Sub Total (P)							-		
								-		
Q	**Cables along with clamps, glands, lugs and straight joints etc.**									
1	220 kV Cable									
1.1	220 kV grade 1 core, **1200sq.mm.XLPE insulated copper cable** as per technical specification			1.50	km					
1.2	Cable end termination(s) on Gantry/Tower as per technical specification			6	nos					
	Sub Total (Q)									
R	**Fabrication, galvanising and supply of STEEL STRUCTURES (400kV Double Dead End Transmission Tower,Column, Gantry structures& Equipment support structures)**							-		
	Lattice/pipe Structure for tower,Colums,beams and equipments including peak plates/pack washers and guest paltes including foundation bolts(nuts,washers,MS plate welded at the bottom)									
a	Lattice stucture & foundation bolts			274	MT			-		
b	Pipe Structure including Foundation Bolts .			27	MT					
c	Fastners for tower,Columns,beams and equipment support strcutures			3	MT			-		
	Sub Total (R)							-		
								-		
S	**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)			**1**	**LS**			-		
ii	Earth Rod (copper clad steel)			1	LS			-		
iii	Equipment for lightning protection			1	LS			-		
	Sub Total (S)							-		
								-		
T	**Illumination System**							-		
a	Illumination System for GIS Hall and Control Building Complete as per Specification			1	LS			-		
c	Switchyard lighting			1	LS			-		
d	Street lighting			1	LS			-		
	Sub Total (T)							-		
								-		

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
U	**POWER & CONTROL CABLES**							-		
a	Power Cables(PVC) - (1.1kV grade)			1	LS			-		
b	Power Cables (XLPE) - (1.1kV grade)			1	LS			-		
c	Control Cable (PVC) - (1.1kV grade)			1	LS			-		
d	Cable glands, lugs & straight through joints for Power & Control cables			1	LS			-		
	Sub Total (U)							-		
								-		
V	**Communication & Associated System**							-		
a	Interfacing of SAS to Existing Communication & Associated System			1	Lot			-		
b	Giga - Ethernet interfaces 10/100/1000 Mbps with Layer-2 switching Card (Minimum 4 interfaces per Card.)			2	Nos.			-		
	Sub Total (V)							-		
								-		
W	**EOT Crane**							-		
1	EOT crane with suitable double Runway rails including trolley runway with conductors, fixtures, insulations size suitable to operate as and when required, complete with all accessories and slings as detailed in the specifications.			1	Set			-		
	Sub Total (W)							-		
								-		
X	**Digital Protection Coupler**							-		
1	Digital Protection Coupler			4	Nos			-		
	Sub Total (V)							-		
	Civil Construction Works (As per technical specifications)							-		
	SECTION: A : NEA ASSESSED QUANTITIES							-		
1.0	Excavation in all types of soil and rock including backfilling disposal etc. for all leads and lifts			12500	Cu.Mtr.			-		
2.0	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)			800	Cu.Mtr.			-		
3.0	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)			75	Cu.Mtr.			-		
4.0	Providing and laying of Reinforced Cement Concrete Design Mix (M25) including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement.			3080	Cu.Mtr.			-		
5.0	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)			440	Cu.Mtr.			-		
6.0	Steel Reinforcement (Fe 500)			280	MT			-		
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.			40	MT			-		
8.0	Stone filling (40mm) over grating of Transformer /reactor Foundation			420	Cu.Mtr.			-		
9.0	Stone spreading including antiweed treatment in switchyard but excluding PCC.			5600	Sq. Mtr.			-		
10.00	Supplying & laying hume pipe with collarsof grade (NP-3) but excluding reinforcement steel & concrete of bed/support/encasing of hume pipes which shall be paid seperately							-		

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
i)	250mm dia			25	RM			-		
ii)	300mm dia			25	RM			-		
iii)	450mm dia			25	RM			-		
iv)	600mm dia			25	RM			-		
11.00	Concrete road (including all crossings) as per technical specification and approved drawing but ecluding reinforcement & concrete							-		
a.	Concrete Road			600	Sq. m.			-		
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							-		
a.	Section having four rails			250	Sq. m.			-		
13.0	Chain link fencing as per technical specification and approved drawing but excluding concrete which shall be paid seperately			600	RM			-		
14.0	switch yard Gate excluding concrete			2	No			-		
15.0	Dismantling & rerection of existing fence including sorting and stacking of serviceable & non-serviceable materials and disposal of debris as per the direction of engineer-in-charge			30	RM			-		
16.00	Supplying and erecting dewatering pumps							-		
a.	5 HP			2	Nos.			-		
b.	0.5 HP			4	Nos.			-		
17.00	Drain including culverts but excluding concrete ,hume pipes & reinforcement steel which shall be paid seperately							-		
a.	Type AA			800	RM			-		
b.	Type BB			160	RM			-		
c.	Type CC			20	RM			-		
d.	Type DD			20	RM			-		
18.00	External water supply as per technical from borewell to GIS Building including all items like excavation,pipes,fittings,jointings,valves,chambers/manholes etc							-		
a.	80mm Dia GI Pipe			150	RM			-		
b.	25mm Dia GI Pipe			50	RM			-		
19.00	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc.							-		
a	(i) 150 mm Dia.			100	RM			-		
20.0	Stone soling below foundations wherever specified in approved drawings during detailed engineering			90	Cu.Mtr.			-		
21	**Site levelling**							-		
i	Earth work in excavation and filling in all types of soils including soft/disintegrated rock with all leads and lifts within sub station boundary			60000	Cu.Mtr.			-		
ii	Earth work in filling with borrowed earth with all leads and lifts including royalty,taxes etc			2000	Cu.Mtr.					

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 (a): Installation and Other Services
(a): Installation and Construction Charges

FC: Foreign Currency
LC: Local Currency

Item No.	Description	Country of origin	Type & Designation	Estimated		Installation Charges				
				Quantity	*Unit*	Portion in Foreign Currency(FC)			Portion in Nepalese Currency (in NPR)	
						Currency#	*Unit Rate*	Total Amount	Unit Rate	Total Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7	(8)	(9)=(5)x(8)	10	(11)=(5)x(10)
22	Construction of retaining wall with random rubble masonary 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 masonary 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			2000	Cu.Mtr.					
23	**PRE ENGINEERED BUILDINGS**									
i)	**400 KV GIS BUILDING** **All civil works related to pre-engineered 400 kV GIS Buliding to be supplied as per schedule 1 including internal cable trench, finishing(external & Internal) etc. complete as per technical specification and approved drawings, excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS.**									
(a)	GIS Hall			700	Sq. M.					
(b)	AHU/ Panels Room			500	Sq. M.					
24	Geotechnical /Soil Investigation			1	LS			-		
	Total for Schedule 4(Total of column 9 and 11 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
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 : Installation and Other Services
(b):Training Charges for training to be imparted abroad (Common for all three substations)

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	Currency	Training charge per Trainee per day	Total Training Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)=(5)x(6)x(8)
	None							
	Total for Training Charges							-

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

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

Nepal Electricity Authority
Project Management Directorate
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
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 (Common for all three substations)

Sl. No.	Description of the Test	Item for which training is to be imparted.	Training duration in days	Currency	Per Day Training Charges for Contractors Trainers	Total Training Charges
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(4)x(6)
	None					
	Total for Training Charges					-
					Total for Schedule 4 (Total of column 7 to be carried forward to Schedule 5: Grand Summary)	

REMARKS:

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

NEPAL ELECTRICITY AUTHORITY
PROJECT MANAGEMENT DIRECTORATE
Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation
Schedule No. 4 : Installation and Other Services
(d): Maintenance Charges

Sl No	Description	Unit	Qty.	Total Maintenance Charges	
				Currency	Total Maintenance Charges
1	None	Year			
2	None	Year			
	Total for Schedule 4 (Total of column 5 to be carried forward to Schedule 5: Grand Summary)				

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

NEPAL ELECTRICITY AUTHORITY

PROJECT MANAGEMENT DIRECTORATE

Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation

Schedule No. 4 : Installation and Other Services

(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
	None			
	None			
	Total of Type Tests charges (Total of column 5 to be carried forward to Schedule 5: Grand Summary)			

Name of Bidder:

Signature of Bidder: Date:

(Printed Name)

(Designation)

(Common Seal)

Nepal Electricity Authority

Project Management Directorate

Khimti-Barhabise-Lapsiphedi 400 kV Substation Project

400 kV(GIS)/220kV (GIS) Lapsiphedi Substation

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

Item No.	Name & Description of Parts	Name of Original Manufacturer	Part No.	Number of Units in each set	Total No. of Sets to be provided	Unit Price	Total Price	Remarks
	None							

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