

NEPAL ELECTRICITY AUTHORITY

(An Undertaking of Government of Nepal)

TRANSMISSION DIRECTORATE



HETAUDA-DHALKEBAR-INARUWA 400KV SUBSTATION EXPANSION PROJECT

BIDDING DOCUMENT FOR

Procurement of Plant Design, Supply, Installation, Testing and
Commissioning of 400 kV Hetauda and Inaruwa Substations

Single-Stage, Two-Envelope
Bidding Procedure

Issued on:
Issued to:
Invitation for Bids No.: HDI/ICB/GIS/HTD-INA
ICB No.: HDI/ICB/GIS/HTD-INA
Employer: Nepal Electricity Authority
Country: Nepal

VOLUME III OF III

May 2018

Table of Contents - Summary Description

PART I BIDDING PROCEDURES

Section 1 - Instructions to Bidders (ITB) -----	1-1
This Section specifies the procedures by Bidders in the preparation and submission of their Bids following a Single-Stage, Two-Envelope bidding procedure. Information is also provided on the submission, opening, and evaluation of bids and on the award of contract.	
Section 2 - Bid Data Sheet (BDS) -----	2-1
This Section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section 1 - Instructions to Bidders.	
Section 3 - Evaluation and Qualification Criteria (EQC) -----	3-1
This Section contains the bid evaluation criteria to determine the lowest evaluated bid and specifies the necessary qualifications of Bidders.	
Section 4 - Bidding Forms (BDF) -----	4-1
This Section contains the forms which are to be completed by the Bidder and submitted as part of its Bid.	
Section 5 - Eligible Countries (ELC) -----	5-1
This Section contains the list of eligible countries.	

PART II REQUIREMENTS

Section 6 - Employer's Requirements (ERQ) -----	6-1
This Section contains the Scope of Supply of Plant and Services, Specifications, the Drawings, and Supplementary Information that describe the plant and services to be procured, Personnel Requirements, Equipment Requirements, Certificates, and Change Orders.	

PART III CONDITIONS OF CONTRACT AND CONTRACT FORMS

Section 7 - General Conditions of Contract (GCC) -----	7-1
This Section contains the general clauses to be applied in all contracts. These Conditions are subject to the variations and additions set out in Section 8 (Special Conditions of Contract).	
Section 8 - Special Conditions of Contract (SCC) -----	8-1
This Section contains provisions that are specific to each contract and that modify or supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC. The clause number of the SCC is the corresponding clause number of the GCC.	
Section 9 - Contract Forms (COF) -----	9-1
This Section contains forms, which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.	

Schedule of Rates and Prices

Schedules of Rates and Prices

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation

PREAMBLE

A. General

1	The Price Schedules are divided into separate Schedules as follows:
Schedule No. 1:	Plant and Mandatory Spare Parts Supplied from Abroad
Schedule No. 2:	Ú æ} c Á æ} á Á T æ} á æc [^ Á Û] æ! ^ Á Ú æ! c • Á Û ~] ã ^ á Á ~
Schedule No. 3:	Design Services (Not Applicable)
Schedule No. 4:	Installation and Other Services
Schedule No. 5:	Grand Summary
Schedule No. 6:	Recommended Spare Parts
2	The Schedules do not generally give a full description of the plant to be supplied and the services to be performed under each item. Bidders shall be deemed to have read the Requirements and other sections of the Bidding Document and reviewed the Drawings to ascertain the full scope of the requirements included in each item prior to filling in the rates and prices. The entered rates and prices shall be deemed to cover the full scope as aforesaid, including overheads and profit.
3	If Bidders are unclear or uncertain as to the scope of any item, they shall seek clarification in accordance with ITB 7 prior to submitting their bid.
B. Pricing	
4	The units and rates in figures entered into the Price Schedules should be type written or if written by hand, must be in print form. Any alterations necessary due to errors, etc., shall be initialed by the Bidder. As specified in the Bid Data Sheet and Special Conditions of Contract, prices shall be fixed and firm for the duration of the Contract, or prices shall be subject to adjustment in accordance with the corresponding Appendix (Price Adjustment) to the Contract Agreement.
5	Bid prices shall be quoted in the manner indicated and in the currencies specified in the Instructions to Bidders in the Bidding Document. For each item, Bidders shall complete each appropriate column in the respective Schedules, giving the price breakdown as indicated in the Schedules. Prices given in the Schedules against each item shall be for the scope covered by that item as
6	When requested by the Employer for the purposes of making payments or part payments, valuing variations or evaluating claims, or for such other purposes as the Employer may reasonably require, the Contractor shall provide the Employer with a breakdown of any composite or lump sum items included in the Schedules.
7	Bidders are instructed to quote the price schedule no. 1 (Plant, and Mandatory Spares Parts supplied from abroad) either in foreign currency (USD) or Nepalese Rupees (NRs.) and rest price schedule Price Schedule 2 (Plant, and Mandatory Spares Parts supplied Within Employer's Country) and Price Schedule No 4 (Installation Services) entirely in Nepalese Rupees (NRs).

Nepal Electricity Authority

Transmission Directorate

Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project

(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation

Price Schedule No. 5. Grand Summary

S.N.	Description	Foreign Currency (US)	Nepalese Rupees (NRs.)
1	Total Price Schedule No. 1. Plant, and Mandatory Spares Parts supplied from	-	
2	Total Price Schedule No. 2. Plant, and Mandatory Spares Parts supplied from the Employer's country	NA	NA
3	Total Price Schedule No. 3. Design Services	Covered in the prices of the other schedule	
4	Schedule No. 4. Installation Services		
Part -A:	Local Transportation, Insurance and other incidental services (including port clearance etc.)		
Part - B:	Installation Charges		
Part - C:	Civil Works		-
Part- D:	(I) Training Charges for Training to be imparted abroad		-
	(II) Training Charges for Training to be imparted within the Employer's country		-
	Total of Price Schedule no.4: Installation Services		-
	Grand Total Excluding VAT and Custom Duties	-	-

Nepal Electricity Authority
Transmission Directorate
Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project
(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation
Price Schedule 1. Plant, and Mandatory Spares Parts supplied from abroad

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
I	Part A: Hetauda Substation							
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]		1	Set			-	
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]		1	Set			-	
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]						-	
i)	4000 A		3	Set			-	
ii)	2000 A		1	Set			-	
f)	400 kV Auxiliary Bus to connect spare unit of Transformer Module description as per technical specification, Chapter 1- PSR]		1	Set			-	
g)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between GIS Busbar and outdoor equipments along with support structure						-	
	4000 A		750	M			-	
	2000 A		300	M			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
h)	Testing & Maintenance Equipment for 400 kV GIS						-	
i)	SF6 Gas Processing Unit (filling and evacuating)		1	Set		-	-	
ii)	Online Partial Discharge Monitoring System		1	Set		-	-	
iii)	SF6 gas analyzer		1	Set		-	-	
iv)	SF6 Gas Leak Detector		1	Set		-	-	
Sub Total (A)							-	
B	as specified below							
1	167 MVA, 400kV Transformer with series winding for HV & IV and separate winding for LV, 50Hz, YNaOd11, oil immersed, ONAN/ OFAF(or OFAF1 & OFAF2) cooled, outdoor type, complete with all fittings and accessories including Main Control Cabinet, Cooling control cabinet, Digital RTCC panel, OLTC, neutral point and On line Dissolved Gas (Multi Gas) Analysis and monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor, need arrangement for Delta formation of LV winding & Neutral Point Formation and Earthing Arrangement, surge protection, Neutral Current transformer (NCT) and all fittings & accessories as specified/ required for completion of the scope of work as per technical specification		4	Nos.			-	
2	Insulating oil for first filling plus 10 % extra to account for spillage, sampling etc. for all the Transformers.		1	Lot			-	
3	Oil Storage tank of 25KL		2	Nos.			-	
4	Steel rails with all accessories to fix it on transformer foundation		1	Lot			-	
Sub Total (B)							-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
C	50 MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor as specified below:							
1	50 MVAR, 420kV, three phase, 50 Hz separate winding Reactor, oil immersed, ONAN cooled, outdoor type complete with all fittings and accessories including Bushing Transformers as detailed in the specifications & each with the following : i) On line insulating oil drying system (Cartridge type) ii) On line Dissolved Gas (Multi Gas) Analysis and monitoring system with optical temperature sensor.		1	Nos.			-	
2	Insulating oil for first filling plus 10% extra to allow for spillage etc. during filling for the Shunt Reactor		1	lot			-	
3	Steel rails with all accessories to fix it on Reactors foundation		1	lot			-	
Sub Total (C)							-	
D	LT TRANSFORMER							
1	630 kVA, 33/0.4 kV		1	Nos.			-	
Sub Total (D)							-	
E	Diesel Generator Silent type with Enclosure & control Panel							
1	250 kVA		1	Set			-	
Sub Total (E)							-	
F	420KV Outdoor Equipment							
1	336KV Surge Arrester (1-phase)		19	Nos.			-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)		12	Nos.			-	
3	420kV BPI(1-Ph)		20	Nos.			-	
Sub Total (F)							-	
G	245KV Outdoor Equipment							

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
1	1600A, 40 KA, Single Pole Isolator with one E/S		4	Nos.			-	
2	1600A, 40 KA, Single Pole Isolator without E/S		3	Nos			-	
3	216 kV Surge Arrestors (1-phase)		4	Nos.			-	
4	245 kV Bust Post Insulator		21	Nos			-	
Sub Total (G)							-	
H	72.5kV EQUIPMENT							
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure		1	No.			-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)		1	No.			-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)		3	Nos.			-	
iv	72.5kV PT.(1-phase)		3	Nos.			-	
v	72.5 kV BPI (1-phase)		6	Nos.			-	
vi	33kV SA (1-phase)		3	Nos.			-	
Sub Total (H)							-	
I	Cables along with clamps, glands, lugs and straight joints etc.						-	
a	Power Cables - (1.1kV grade)						-	
i	3.5Cx300 sqmm Al. (XLPE), cable for connection in Main Board from 400 V ACDB located at existing control room with termination arrangement as per TS		0.8	KM			-	
ii	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along with termination arrangement as per TS		0.5	KM			-	
Sub Total (I)							-	
J	Erection Hardware							
J.1	400kV One and Half Breaker-type layout for GIS termination arrangement							

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
1	Insulator strings, Polymer Long Rod composite Insulator Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector connector 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 (including 400 kV AIS connection for s with GIS auxiliary bus module)		1	Lot			-	
1.2	Reactor Bays		1	Lot			-	
2	Insulator strings, Polymer Long Rod composite Insulator Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:						-	
2.1	Line Bays		1	Lot			-	
J.2	220 kV Double Main and Transfer-type layout for Transf termination arrangement						-	
1	Insulator strings, Polymer Long Rod composite Insulator Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector connector for Transformers Junction box, earthwire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. for the following:						-	
1.1	Transformer Bay (including 220 kV AIS connection for s with GIS auxiliary bus module)		1	Lot			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
J.3	For spare unit of 400/220/33 kV auto transformer connected through auxiliary buses (tertiary & Neutral auxiliary bus Neutral formation and delta formation (for one bank): R 72.5 kV BPI for tertiary auxiliary bus & delta formation, for Neutral formation & Neutral auxiliary bus including bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures , Earthing of s as per technical specification.		1	Lot			-	
J.4	Erection Hardware etc for 72.5kV equipments & LT Trans connections		1	Lot			-	
Sub Total (J)								-
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)							
1	400kV							
1.1	Circuit Breaker Relay Panel							
a	CB Relay Panel With Auto Reclose		6	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) for nos. single phase transformer (1 No. of ICT) as per Specification		1	Sets			-	
1.4	Reactor Protection Panel as per specification		1	Sets			-	
1.5	Bus Bar Protection Panel						-	
a	400kV		1	Set			-	
b	Augmentation of existing 220 kV bus bar protection scheme (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 (K)								-

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
L	SUBSTATION AUTOMATION							
1	Complete Substation automation system/ Augmentation of 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		10	Nos.			-	
b	220 kV System		1	Nos.			-	
c	33 kV System		1	Nos.			-	
d	For Auxiliary system		1	Set			-	
2	Complete Operator Workstations (HMI) and all necessary accessories and software including Augmentations/Integration of the existing 220 kV substation which shall be equipped with substation Automation system based on IEC 61850 as per		1	Lot			-	
3	Integration of all 400/220kV Bays under present scope of SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Center Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.		1	Lot			-	
Sub Total (L)							-	
M	Digital Protection Coupler& PBAX							
a)	Digital Protection Coupler as per TS		4	Nos.			-	
b)	PBAX as per TS		1	Sets			-	
c)	VOIP telephone instrument with one common switch (mini) including hardware and software as per specification		1	Sets			-	
Sub Total (M)							-	
N	Visual monitoring system (VMS) system							

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
a)	Visual monitoring system (VMS) as specified/required in all respect including HF Cable, Other necessary cable power supply system		1	Lot			-	
Sub Total (N)							-	
O	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	48/50V DCDB		1	Sets			-	
Sub Total (O)							-	
P	Batteries & Battery Chargers							
P.1	Batteries & Chargers (To be installed at Dhalkebar Substation)							
a	220V, 600 AH Batteries		2	Nos			-	
a	220 V Float Cum Boost Batter Charger (80A/80A)		2	Nos			-	
P.2	Batteries (The Rating of the batteries shall be decided as per requirement of the specification and shall be worked out by Bidder)						-	
a	220V		2	Nos			-	
b	48V		2	Nos			-	
P.3	Float Cum Boost Battery Charger (The rating of the battery shall be decided as per requirement of the specification and shall be worked out by bidder)						-	
a	220 V Float Cum Boost Batter Charger		2	Nos			-	
b	48 V Float Cum Boost Battery Charger		2	Nos			-	
Sub Total (P)							-	
Q	Fire Protection System							
a	Portable /Trolley/Wheel mounted extinguishers							

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
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 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 accessories etc. out side the pump house for Transformer / P						-	
i	167 MVA , 400/220 KV, 1-phase Autotransformer		4	Sets			-	
ii	50 MVAR , 420 KV, Bus Reactor		1	Set			-	
Sub Total (Q)							-	
R	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, Control room cum administrative building		20	Nos			-	
b	Ventillation system for 400 kV GIS Hall Building		1	Lot			-	
Sub Total (R)							-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.							
a	Lattice Structure including Foundation Bolts		350	MT			-	
b	Pipe Structure including Foundation Bolts .		40	MT			-	
c	Fastners and step bolts.(Nuts,Bolts & Washers)		10	MT			-	
Sub Total (S)							-	
T	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect							

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks	
						Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)	
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 Building Complete as per Specification		1	LS			-		
b	Illumination System for Control Room Building Complete as per Specification		1	LS			-		
c	Switchyard lighting		1	LS			-		
d	DG Room lighting		1	LS			-		
e	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	Telecommunication & Associated System								

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks	
						Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)	
a	Fiber Optics Based Communication Panel, PMU panel equipment including allied equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment - # V Terminal Equipment both hardware/software (for SDH Equipments), Synchronization Equipment, MDF((100 ports) FODP etc. complete in all respects as per technical specifications complete all respect.		1	Lot			-		
b	48 Pair Fibre (DWDM -G.652D), Fibre Optic Approach Cable		1	Km.			-		
c	Installation hardware set for above 48 Fibre, Fibre Optic Cable		1	Lot			-		
Sub Total (W)								-	
X	EOT Crane								
1	EOT crane with suitable double Runway rails including runway with conductors, fixtures, insulations etc. to operate as and when required, complete with all accessories and slings as detailed in the specifications.		1	Set			-		
Sub Total (X)								-	
Y	Pre-Engineered GIS Building								
a	Supply,fabrication of M.S Structural steel as per TS to complete works		300	MT			-		
b	Other Miscellaneous item such as roof panels/wall panels per TS to complete the works		1	LS			-		
Sub Total (Y)								-	
Z	MANDATORY SPARES *(Break up of Lumpsum quantity shall be as per Annexure-I, Chapter-1, Project Specific Requirement)						-		

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
1	Gas Insulated Switchgear (GIS), Mandatory Spares required O&M of 400kV GIS Substation		1	LS			-	
2	167 MVA, 400/220/33 kV, Auto Transformer		1	LS			-	
3	50 MVAR, 420kV Bus Reactor		1	LS			-	
4	400kV CVT Capacitive Voltage Transformer		1	LS			-	
5	Isolator						-	
	245kV		1	LS			-	
	72.5kV		1	LS			-	
6	Circuit Breaker						-	
	72.5kV		1	LS			-	
7	72.5kV Current Transformer		1	LS			-	
8	72.5kV Voltage Transformer		1	LS			-	
6	Surge Arrester						-	
a	336kV Surge Arrester		1	LS			-	
b	216kV Surge Arrester		1	LS			-	
c	33kV Surge Arrester		1	LS			-	
7	Fire Fighting System		1	LS			-	
8	Batteries & Battery Chargers						-	
a	220V		1	LS			-	
b	48 V		1	LS			-	
9	Relay & Protection panel		1	LS			-	
10	Substation Automation System		1	LS			-	
11	Illumination System		1	LS			-	
12	2 TR Split AC Units		1	LS			-	
13	LT Switchgear		1	LS			-	
14	Erection hardware		1	LS			-	
15	Bus Post Insulators						-	
a	400kV		1	LS			-	
b	220 kV		1	LS			-	
c	72.5 kV		1	LS			-	
d	33 kV		1	LS			-	
16	630 kVA, 33/0.400kV , LT Transformer		1	LS			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
17	Communication Equipments		1	LS			-	
	Sub Total (Z)						-	
	Total of Part A						-	
II	Part B: Inaruwa Substation							
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]		3	Set			-	
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]		1	Set			-	
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]						-	
i)	4000 A		2	Set			-	
ii)	2000 A		1	Set			-	
f)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between GIS Busbar and outdoor equipments along with support structure						-	
	4000 A		750	M			-	
	2000 A		450	M			-	
g)	Testing & Maintenance Equipment for 400 kV GIS						-	
i)	SF6 Gas Processing Unit (filling and evacuating)		1	Set			-	
ii)	Online Partial Discharge Monitoring System		1	Set			-	
iii)	SF6 gas analyzer		1	Set			-	
iv)	SF6 Gas Leak Detector		1	Set			-	
	Sub Total (A)						-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
B	315 MVA, 400/220 /33 kV Three phase Auto Trans specified below							
1	315 MVA, 400/220/33 kV three phase Auto Transformer with series winding for HV & IV and separate winding for LV, 50Hz, YNaOd11, oil immersed, ONAN/ OFAF (or ONAF1 & ONAF2) cooled, outdoor type, complete with all fittings and accessories including Main Control Cabinet, Cooling control cabinet, Digital RTCC panel, OLTC, neutral point and On line Dissolved Gas (Multi Gas) Analysis and monitoring system, online insulating oil drying system (Cartridge type) with optical temperature sensor and accessories as specified/ required for completion of scope of works as per technical specification		3	Nos.			-	
2	Insulating oil for first filling plus 10 % extra to account for spillage, sampling etc. for all the Transformers.		1	Lot			-	
3	Oil Storage tank of 20KL		2	Nos.			-	
4	Steel rails with all accessories to fix it on transformer foundation		1	Lot			-	
Sub Total (B)							-	
C	50MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor specified below:							
1	50MVAR, 420kV, three phase, 50 Hz separate winding Reactor, oil immersed, ONAN cooled, outdoor type complete with all fittings and accessories including Bushing etc. Transformers as detailed in the specifications & each with the following : i) On line insulating oil drying system ii) On line Dissolved Gas (Multi Gas) Analysis and monitoring system with optical temperature sensor		1	Nos.			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
2	Insulating oil for first filling plus 10% extra to a spillage etc. during filling for the Shunt Reactor		1	lot			-	
3	Steel rails with all accessories to fix it on Reactors foundation		1	lot			-	
Sub Total (C)								-
D	LT TRANSFORMER							
1	630 kVA, 33/0.4 kV		1	Nos.			-	
Sub Total (D)								-
E	Diesel Generator Silent type with Enclosure & control Panel							
1	250 kVA		1	Set			-	
Sub Total (E)								-
F	420KV Outdoor Equipment							
1	336KV Surge Arrester (1-phase)		18	Nos.			-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)		6	Nos.			-	
3	420kV BPI(1-Ph)		18	Nos.			-	
Sub Total (F)								-
G	245KV Outdoor Equipment							
1.0	245 kV Circuit Breakers (3-Phase) with support structure							
a	1600A, 40KA		3	Nos			-	
2.0	245kV Isolator (3-phase)-Double Break						-	
a	1600A, 40 KA, Isolator with one E/S		3	Nos			-	
b	1600A, 40 KA, Isolator with two E/s		3	Nos			-	
c	1600 A, 40KA, Tandem Isolator without E/S		6	Nos			-	
3.0	245 kV Current Transformer (1-Phase)						-	
a	1600A, 40KA with 120% extended current rating		9	Nos			-	
4.0	216 kV Surge Arrestors (1-phase)		9	Nos.			-	
5.0	245 kV Bust Post Insulator		63	Nos			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
	Sub Total (G)						-	
H	72.5kV EQUIPMENT							
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure		1	No.			-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)		1	No.			-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)		3	Nos.			-	
iv	72.5kV PT.(1-phase)		3	Nos.			-	
v	72.5 kV BPI (1-phase)		6	Nos.			-	
vi	33kV SA (1-phase)		3	Nos.			-	
	Sub Total (H)						-	
I	Cables along with clamps, glands, lugs and straight joints etc.						-	
a	Power Cables - (1.1kV grade)						-	
i	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along termination arrangement as per TS		0.5	KM			-	
	Sub Total (I)						-	
J	Erection Hardware							
J.1	400kV One and Half Breaker-type layout for GIS terminal arrangement							
1	Insulator strings, Polymer Long Rod composite Insulators, Hardware,conductor bus-bar materials,cable trays,Bay MB, clamps, spacers,connectorsincluding equipment connector connector for TransformersJunctionbox, earthwire earthing materialrisers,buriedcabletrenches/pipeequipment& lighting all accessories etc. applicable for the following:							
1.1	Transformers Bays		1	Lot			-	
1.2	Reactor Bays		1	Lot			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
2	Insulator strings, Polymer Long Rod composite Insulators, Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector for Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:						-	
2.1	Line Bays		1	Lot			-	
J.2	220 kV Double Main and Transfer-type layout for Transformer termination arrangement						-	
1	Insulator strings, Polymer Long Rod composite Insulators, Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. for the following:						-	
1.1	Transformer Bays		1	Lot			-	
J.3	72.5 kV Single Bus Type for LT Transformer termination arrangement						-	
1	Insulator strings, Polymer Long Rod composite Insulators, Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector for Transformers, Junction box, earthwire, earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. for the following:						-	
1.1	LT Transformer Bay		1	Lot			-	
	Sub Total (J)						-	
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)							
1	400kV							

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
1.1	Circuit Breaker Relay Panel							
a	CB Relay Panel With Auto Reclose		3	Sets			-	
b	CB Relay Panel With out Auto Reclose		6	Sets			-	
1.2	Line Protection Panel		2	Sets			-	
1.3	Transformer Protection Panel (For both HV & MV side) in nos. ICTs as per Specification		3	Sets			-	
1.4	Reactor Protection Panel as per specification		1	Sets			-	
1.5	Bus Bar Protection Panel						-	
a	400kV		1	Set			-	
b	Augmentation of existing 220 kV bus bar protection scheme (Nos. of ICT bays as specified)		1	Lot			-	
1.6	72.5kV						-	
a	Circuit Breaker Relay Panel		1	Nos.			-	
b	Transformer Protection Panel		1	Nos.			-	
2	Other/Common equipments Pertaining to C & R System						-	
a	Time synchronisation equipment		1	Nos.			-	
b	Special Relay Test kit		1	Nos.			-	
	Sub Total (K)						-	
L	SUBSTATION AUTOMATION							
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and software for the substation alongwith associated equipments for following Main bays to be automated as per Technical Specification:							
a	400 kV System		9	Nos.			-	
b	220 kV System		3	Nos.			-	
c	33 kV System		1	Nos.			-	
d	For Auxiliary system		1	Set			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
2	Augmentations/Integrations of Operator Workstations (all necessary accessories and software. The existing 220 kV substation shall be equipped with SCADA Automation system based on IEC 61850 . In the present bidder shall include BCUs required for 400 kV bays all necessary hardware and software to integrate with existing Substation Automation System including up-date system database, displays, and development of additional displays and reports as per requirement.		1	Lot			-	
3	Integration of all 400/220kV Bays under present scope of SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Center Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.		1	Lot			-	
Sub Total (L)							-	
M	Digital Protection Coupler& PBAX							
a)	Digital Protection Coupler as per TS		4	Nos.			-	
b)	PBAX as per TS		1	Sets			-	
c)	VOIP telephone instrument with one common switch (minimum) including hardware and software as per specification		1	Sets			-	
Sub Total (M)							-	
N	Visual monitoring system (VMS) system							
a)	Visual monitoring system (VMS) as specified/required in all respect including HF Cable, Other necessary cables and power supply system		1	Lot			-	
Sub Total (N)							-	
O	LT Switchgear							
a)	400V Main switchboard Augmentation works as per technical Specification complete		1	Set			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
b	400V ACDB as per TS		1	Set			-	
c	400V MLDB as per TS		1	Set			-	
d	400V Emergency LDB as per TS		1	Set			-	
e	220V DCDB		1	Set			-	
f	48/50V DCDB		1	Set			-	
Sub Total (O)							-	
P	Batteries & Battery Chargers							
P.1	Batteries (The Rating of the batteries shall be decided as per requirement of the specification and shall be worked out by Bidder)							
a	220V		2	Nos			-	
b	48V		2	Nos			-	
P.2	Float Cum Boost Battery Charger (The rating of the battery shall be decided as per requirement of the specification and shall be worked out by bidder)						-	
a	220 V Float Cum Boost Battery Charger		2	Nos			-	
b	48 V Float Cum Boost Battery Charger		2	Nos			-	
Sub Total (P)							-	
Q	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 HVV/Fire Hydrant point from Fire Fighting Pump House						-	
i	400 kV Substation		1	Set			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks	
						Unit Rate	Total Amount		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)	
e	HWW spray system, Hydrant system and complete U/G & O/G accessories etc. out side the pump house for Transformer / P						-		
i	315 MVA , 400/220 KV, 3-phase Autotransformer		3	Sets			-		
ii	50 MVAR , 420 KV, Bus Reactor		1	Set			-		
Sub Total (Q)								-	
R	Air conditioning & Ventilation System								
a	High wall type split AC unit of 2 TR capacity for Air conditioning LCC room of GIS Hall, Battery Room, Panel room cum administration building		20	Nos.			-		
b	Ventillation system for 400 kV GIS Hall Building		1	Lot			-		
Sub Total (R)								-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.								
a	Lattice Structure including Foundation Bolts		360	MT			-		
b	Pipe Structure including Foundation Bolts .		40	MT			-		
c	Fastners and step bolts.(Nuts,Bolts & Washers)		10	MT			-		
Sub Total (S)								-	
T	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect								
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 Building Complete as per Specification		1	LS			-		

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
b	illumination System for DG and Battery Room Building Complete 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	Telecommunication & Associated System							
a	Fiber Optics Based Communication Panel, PMU panel equipment including allied equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment # V Terminal Equipment both hardware/software (for SDH Equipments), Synchronization Equipment, MDF((100 ports), FODP etc. complete in all respects as per technical specification complete all respect.		1	Lot			-	
b	48 Pair Fibre (DWDM -G.652D), Fibre Optic Approach Cable		0.5	Km.			-	
c	Installation hardware set for above 48 Fibre, Fibre Optic Cable		1	Lot			-	
Sub Total (W)							-	
X	EOT Crane							

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
1	EOT crane with suitable double Runway rails including runway with conductors, fixtures, insulations etc. to operate as and when required, complete with all accessories and slings as detailed in the specifications.		1	Set			-	
Sub Total (X)							-	
Y	Pre-Engineered GIS Building							
a	Supply,fabrication of M.S Structural steel as per TS to complete the works		300	MT			-	
b	Other Miscellaneous item such as roof panels/wall panels per TS to complete the works		1	LS			-	
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 (GIS), Mandatory Spares required for O&M of 400kV GIS Substation		1	LS			-	
2	315 MVA, 400/220/33 kV, Auto Transformer		1	LS			-	
3	50 MVAR, 420kV Bus Reactor		1	LS			-	
4	400kV CVT Capacitive Voltage Transformer		1	LS			-	
5	Isolator						-	
a	245kV		1	LS			-	
b	72.5kV		1	LS			-	
6	Circuit Breaker						-	
a	245 kV		1	LS			-	
b	72.5kV		1	LS			-	
7	72.5kV Current Transformer		1	LS			-	
8	72.5kV Voltage Transformer		1	LS			-	
6	Surge Arrester						-	
a	336kV Surge Arrester		1	LS			-	

Item No.	Description	Country of Origin	Quantity	Unit	Currency	Total CIP-Nepal Border Price (Excluding Taxes and Duties)		Remarks
						Unit Rate	Total Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(4)x(7)	(9)
b	216kV Surge Arrester		1	LS			-	
c	33kV Surge Arrester		1	LS			-	
7	Fire Fighting System		1	LS			-	
8	Batteries & Battery Chargers						-	
a	220V		1	LS			-	
b	48 V		1	LS			-	
9	Relay & Protection panel		1	LS			-	
10	Substation Automation System		1	LS			-	
11	Illumination System		1	LS			-	
12	2 TR Split AC Units		1	LS			-	
13	LT Switchgear		1	LS			-	
14	Erection hardware		1	LS			-	
15	Bus Post Insulators						-	
a	400kV		1	LS			-	
b	220 kV		1	LS			-	
c	72.5 kV		1	LS			-	
d	33 kV		1	LS			-	
16	630 kVA, 33/0.400kV , LT Transformer		1	LS			-	
17	Communication Equipments		1	LS			-	
	Sub Total (Z)						-	
	Total of Part B						-	
	Grand Total: Schedule 1 (Part A+Part B)						-	

Signature of Bidder _____

Name of Bidder _____

Note	The prices shall be quoted either in the currency of Nepalese Rupees (NRs.) or foreign currency (USD) only as per ITB 19.1 of the BDS.
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Nepal Electricity Authority
Transmission Directorate
Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project
(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation

Price Schedule 2. Plant, and Mandatory Spares Parts supplied Within Employer's Country

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
I	Part A: Hetauda Substation					
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]	1	Set		-	
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]	1	Set		-	
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]				-	
i)	4000 A	3	Set		-	
ii)	2000 A	1	Set		-	
f)	400 kV Auxiliary Bus to connect spare unit of Transformer Module description as per technical specification, Chapter 1- PSR]	1	Set		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
g)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between GIS Busbar and outdoor equipments along with support structure				-	
	4000 A	750	M		-	
	2000 A	300	M		-	
h)	Testing & Maintenance Equipment for 400 kV GIS				-	
i)	SF6 Gas Processing Unit (filling and evacuating)	1	Set	-	-	
ii)	Online Partial Discharge Monitoring System	1	Set		-	
iii)	SF6 gas analyzer	1	Set	-	-	
iv)	SF6 Gas Leak Detector	1	Set	-	-	
	Sub Total (A)				-	
B	as specified below					
1	167 MVA, 400kV Transformer with series winding for HV & IV and separate winding for LV, 50Hz, YNaOd11, oil immersed, ONAN/ COFAF(or OFAF1 & OFAF2) cooled, outdoor type, complete all fittings and accessories including Main Control Cabinet, Cooling control cabinet, Digital RTCC panel, OLTC, neutral and On line Dissolved Gas (Multi Gas) Analysis and monitoring system, online insulating oil drying system (Catalytic type) with optical temperature sensor, necessary arrangement for Delta formation of LV winding & Neutral Formation Earthing Arrangement, surge protection device, Neutral transformer (NCT) and all fittings & accessories as specified required for completion of the scope of works as per specification	4	Nos.		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
2	Insulating oil for first filling plus 10 % extra to account spillage, sampling etc. for all the Transformers.	1	Lot		-	
3	Oil Storage tank of 25KL	2	Nos.		-	
4	Steel rails with all accessories to fix it on transformer foundation	1	Lot		-	
	Sub Total (B)				-	
C	50 MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor specified below:					
1	50 MVAR, 420kV, three phase, 50 Hz separate winding Reactor, oil immersed, ONAN cooled, outdoor type complete with all fittings and accessories including Bushing and Transformers as detailed in the specifications & each with the following : i) On line insulating oil drying system (Cartridge type) ii) On line Dissolved Gas (Multi Gas) Analysis and monitoring system with optical temperature sensor.	1	Nos.		-	
2	Insulating oil for first filling plus 10% extra to account spillage etc. during filling for the Shunt Reactor	1	lot		-	
3	Steel rails with all accessories to fix it on Reactors foundation	1	lot		-	
	Sub Total (C)				-	
D	LT TRANSFORMER					
1	630 kVA, 33/0.4 kV	1	Nos.		-	
	Sub Total (D)				-	
E	Diesel Generator Silent type with Enclosure & control Panel					

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	250 kVA	1	Set		-	
	Sub Total (E)				-	
F	420KV Outdoor Equipment					
1	336KV Surge Arrester (1-phase)	19	Nos.		-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)	12	Nos.		-	
3	420kV BPI(1-Ph)	20	Nos.		-	
	Sub Total (F)				-	
G	245KV Outdoor Equipment					
1	1600A, 40 KA, Single Pole Isolator with one E/S	4	Nos.		-	
2	1600A, 40 KA, Single Pole Isolator without E/S	3	Nos		-	
3	216 kV Surge Arrestors (1-phase)	4	Nos.		-	
4	245 kV Bust Post Insulator	21	Nos		-	
	Sub Total (G)				-	
H	72.5kV EQUIPMENT				-	
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure	1	No.		-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)	1	No.		-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)	3	Nos.		-	
iv	72.5kV PT.(1-phase)	3	Nos.		-	
v	72.5 kV BPI (1-phase)	6	Nos.		-	
vi	33kV SA (1-phase)	3	Nos.		-	
	Sub Total (H)				-	
I	Cables along with clamps, glands, lugs and straight joints etc.				-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
a	Power Cables - (1.1kV grade)				-	
i	3.5Cx300 sqmm Al. (XLPE), cable for connection in Main Board from 400 V ACDB located at existing control room with termination arrangement as per TS	0.8	KM		-	
ii	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along with termination arrangement as per TS	0.5	KM		-	
Sub Total (I)					-	
J	Erection Hardware					
J.1	400kV One and Half Breaker-type layout for GIS terminal arrangement					
1	Insulator strings, Polymer Long Rod composite Insulator Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector for Transformers, junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:					
1.1	Transformer Bay (including 400 kV AIS connection for substation with GIS auxiliary bus module)	1	Lot		-	
1.2	Reactor Bays	1	Lot		-	
2	Insulator strings, Polymer Long Rod composite Insulator Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector for Junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:				-	
2.1	Line Bays	1	Lot		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
J.2	220 kV Double Main and Transfer-type layout for Transf termination arrangement				-	
1	Insulator strings, Polymer Long Rod composite Insulator, Hardware,conductorbus-bar materials,cable trays,Bay MB, clamps, spacers,connectorsincluding equipment connector connectorfor Transformersjunctionbox, earthwireearthing materialisers,buriedcabletrenches/pipeequipment& lighting all accessories etc. for the following:				-	
1.1	Transformer Bay (including 220 kV AIS connection for s with GIS auxiliary bus module)	1	Lot		-	
J.3	For spare unit of 400/220/33 kV auto transformer con through auxiliary buses (tertiary & Neutral auxiliary bus Neutral formation and delta formation (for one bank): R 72.5 kV BPI for tertiary auxiliary bus & delta formation, for Neutral formation & Neutral auxiliary bus including bus-bar materials, clamps, spacers, connectors, including equipment connectors, support structures , Earthing of as per technical specification.	1	Lot		-	
J.4	Erection Hardware etc for 72.5kV equipments & LT Tran connections	1	Lot		-	
Sub Total (J)						-
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)					
1	400kV					
1.1	Circuit Breaker Relay Panel					
a	CB Relay Panel With Auto Reclose	6	Sets		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
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) nos. single phase transformer (1 No. of ICT) as per Spec	1	Sets		-	
1.4	Reactor Protection Panel as per specification	1	Sets		-	
1.5	Bus Bar Protection Panel				-	
a	400kV	1	Set		-	
b	Augmentation of existing 220 kV bus bar protection sch (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 (K)				-	
L	SUBSTATION AUTOMATION					
1	Complete Substation automation system/ Augumentation Substation automation system- including hardware and s for the substation alongwith associated equipments for following Main bays to be automated as per Technical Specification:					
a	400 kV System	10	Nos.		-	
b	220 kV System	1	Nos.		-	
c	33 kV System	1	Nos.		-	
d	For Auxiliary system	1	Set		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
2	Complete Operator Workstations (HMI) and all necessary accessories and software including Augmentations/Integration of the existing 220 kV substation which shall be equipped with substation Automation system based on IEC 61850 as per	1	Lot		-	
3	Integration of all 400/220kV Bays under present scope SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.	1	Lot		-	
Sub Total (L)					-	
M	Digital Protection Coupler& PBAX					
a)	Digital Protection Coupler as per TS	4	Nos.		-	
b)	PBAX as per TS	1	Sets		-	
c)	VOIP telephone instrument with one common switch (module) including hardware and software as per specification	1	Sets		-	
Sub Total (M)					-	
N	Visual monitoring system (VMS) system					
a)	Visual monitoring system (VMS) as specified/required in all respect including HF Cable, Other necessary cable power supply system	1	Lot		-	
Sub Total (N)					-	
O	LT Switchgear					
a)	400V Main switchboard	1	Set		-	
b)	400V ACDB	1	Set		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
c	400V MLDB	1	Set		-	
d	400V Emergency LDB	1	Set		-	
e	220V DCDB	1	Sets		-	
f	48/50V DCDB	1	Sets		-	
	Sub Total (O)				-	
P	Batteries & Battery Chargers					
P.1	Batteries & Chargers (To be installed at Dhalkebar Substation)					
a	220V, 600 AH Batteries	2	Nos		-	
a	220 V Float Cum Boost Batter Charger (80A/80A)	2	Nos		-	
P.2	Batteries (The Rating of the batteries shall be decided as per requirement of the specifucation and shall be worked out by				-	
a	220V	2	Nos		-	
b	48V	2	Nos		-	
P.3	Float Cum Boost Battery Charger (The rating of the battery decided as per requirementof the specification and shall be w by bidder)				-	
a	220 V Float Cum Boost Batter Charger	2	Nos		-	
b	48 V Float Cum Boost Battery Charger	2	Nos		-	
	Sub Total (P)				-	
Q	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 C ₂ type	8	Nos		-	
iv	4.5 kg Dry Chemical Power (DCP) type	5	Nos		-	
b	Smoke detection system	1	Set		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
c	Fire detection and Alarm System	1	Set		-	
d	Hydrant system, complete U/G piping and accessories etc. from HVV/Fire Hydrant point from Fire Fighting Pump House				-	
i	400 kV Substation	1	Set		-	
e	HVV spray system, Hydrant system and complete U/G & O/G accessories etc. out side the pump house for Transformer /				-	
i	167 MVA , 400/220 KV, 1-phase Autotransformer	4	Sets		-	
ii	50 MVAR , 420 KV, Bus Reactor	1	Set		-	
	Sub Total (Q)				-	
R	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, Control room cum administrative building	20	Nos		-	
b	Ventillation system for 400 kV GIS Hall Building	1	Lot		-	
	Sub Total (R)				-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.					
a	Lattice Structure including Foundation Bolts	350	MT		-	
b	Pipe Structure including Foundation Bolts .	40	MT		-	
c	Fastners and step bolts.(Nuts,Bolts & Washers)	10	MT		-	
	Sub Total (S)				-	
T	Earthing and lightning protection including necessary connectors/connections, risers etc. complete in all respect					
i	Earth Conductor (copper)	1	LS		-	
ii	Earth Rod (copper clad steel)	1	LS		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
iii	Equipment for lightning protection	1	LS		-	
Sub Total (T)					-	
U	Illumination System					
a	Illumination System for GIS Hall Building Complete as per Specification	1	LS		-	
b	Illumination System for Control Room Building Complete as per Specification	1	LS		-	
c	Switchyard lighting	1	LS		-	
d	DG Room lighting	1	LS		-	
e	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	Telecommunication & Associated System					

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
a	Fiber Optics Based Communication Panel, PMU panel equipment including allied equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment # V Terminal Equipment both hardware/software (for SDH Equipments), Synchronization Equipment, MDF((100 pairs) FODP etc. complete in all respects as per technical specifications complete all respect	1	Lot		-	
b	48 Pair Fibre (DWDM -G.652D), Fibre Optic Approach Cable	1	Km.		-	
c	Installation hardware set for above 48 Fibre, Fibre Optic Cable	1	Lot		-	
Sub Total (W)					-	
X	EOT Crane					
1	EOT crane with suitable double Runway rails including runway with conductors, fixtures, insulations size to operate as and when required, complete with all accessories and slings as detailed in the specifications.	1	Set		-	
Sub Total (X)					-	
Y	Pre-Engineered GIS Building					
a	Supply,fabrication of M.S Structural steel as per TS to complete the works	300	MT		-	
b	Other Miscellaneous item such as roof panels/wall panels per TS to complete the works	1	LS		-	
Sub Total (Y)					-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
Z	MANDATORY SPARES *(Break up of Lumpsum quantity sh per Annexure-I, Chapter-1, Project Specific Requirement)				-	
1	Gas Insulated Switchgear (GIS), Mandatory Spares requi during O&M of 400kV GIS Substation	1	LS		-	
2	167 MVA, 400/220/33 kV, Auto Transformer	1	LS		-	
3	50 MVAR, 420kV Bus Reactor	1	LS		-	
4	400kV CVT Capacitive Voltage Transformer	1	LS		-	
5	Isolator				-	
	245kV	1	LS		-	
	72.5kV	1	LS		-	
6	Circuit Breaker				-	
	72.5kV	1	LS		-	
7	72.5kV Current Transformer	1	LS		-	
8	72.5kV Voltage Transformer	1	LS		-	
6	Surge Arrester				-	
a	336kV Surge Arrester	1	LS		-	
b	216kV Surge Arrester	1	LS		-	
c	33kV Surge Arrester	1	LS		-	
7	Fire Fighting System	1	LS		-	
8	Batteries & Battery Chargers				-	
a	220V	1	LS		-	
b	48 V	1	LS		-	
9	Relay & Protection panel	1	LS		-	
10	Substation Automation System	1	LS		-	
11	Illumination System	1	LS		-	
12	2 TR Split AC Units	1	LS		-	
13	LT Switchgear	1	LS		-	
14	Erection hardware	1	LS		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
15	Bus Post Insulators				-	
a	400kV	1	LS		-	
b	220 kV	1	LS		-	
c	72.5 kV	1	LS		-	
d	33 kV	1	LS		-	
16	630 kVA, 33/0.400kV , LT Transformer	1	LS		-	
17	Communication Equipments	1	LS		-	
	Sub Total (Z)				-	
	Total of Part A				-	
II	Part B: Inaruwa Substation					
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]	3	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]		Sets		-	
i	4000 A	2	Sets		-	
ii	2000 A	1	Set		-	
f)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between GIS Busbar and outdoor equipments along with support structure				-	
	4000 A	750	M		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	2000 A	450	M		-	
g)	Testing & Maintenance Equipment for 400 kV GIS				-	
i	SF6 Gas Processing Unit (filling and evacuating)	1	Set		-	
ii	Online Partial Discharge Monitoring System	1	Set		-	
iii	SF6 gas analyzer	1	Set		-	
iv	SF6 Gas Leak Detector	1	Set		-	
	Sub Total (A)				-	
B	315 MVA, 400/220 /33 kV Three phase Auto Trans specified below					
1	315 MVA, 400/220/33 kV three phase Auto Transformer with series winding for HV & IV and separ winding for LV, 50Hz, YNaOd11, oil immersed, ONAN/ OFAF (or ONAF1 & ONAF2) cooled, outdoor type, comp all fittings and accessories including Main Control Cab Cooling control cabinet, Digital RTCC panel, OLTC, neut and On line Dissolved Gas (Multi Gas) Analysis and m monitoring system, online insulating oil drying system type) with optical temperature sensor and all fittings accessories as specified/ required for completion of th of works as per technical specification	3	Nos.		-	
2	Insulating oil for first filling plus 10 % extra to account spillage, sampling etc. for all the Transformers.	1	Lot		-	
3	Oil Storage tank of 20KL	2	Nos.		-	
4	Steel rails with all accessories to fix it on transformer foundation		Lot		-	
	Sub Total (B)				-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
C	50MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor specified below:					
1	50MVAR, 420kV, three phase, 50 Hz separate winding Reactor, oil immersed, ONAN cooled, outdoor type complete with all fittings and accessories including Bushing and Transformers as detailed in the specifications & each with the following : i) On line insulating oil drying system ii) On line Dissolved Gas (Multi Gas) Analysis and 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		-	
3	Steel rails with all accessories to fix it on Reactors foundation		lot		-	
Sub Total (C)					-	
D	LT TRANSFORMER					
1	630 kVA, 33/0.4 kV	1	Nos.		-	
Sub Total (D)					-	
E	Diesel Generator Silent type with Enclosure & control Panel					
1	250 kVA	1	Set		-	
Sub Total (E)					-	
F	420KV Outdoor Equipment					
1	336KV Surge Arrester (1-phase)	18	Nos.		-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)	6	Nos.		-	
3	420kV BPI(1-Ph)	18	Nos.		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	Sub Total (F)				-	
G	245KV Outdoor Equipment					
1.0	245 kV Circuit Breakers (3-Phase) with support structure					
a	1600A, 40KA	3	Nos		-	
2.0	245kV Isolator (3-phase)-Double Break				-	
a	1600A, 40 KA, Isolator with one E/S	3	Nos		-	
b	1600A, 40 KA, Isolator with two E/s	3	Nos		-	
c	1600 A, 40KA, Tandem Isolator without E/S	6	Nos		-	
3.0	245 kV Current Transformer (1-Phase)				-	
a	1600A, 40KA with 120% extended current rating	9	Nos		-	
4.0	216 kV Surge Arrestors (1-phase)	9	Nos.		-	
5.0	245 kV Bust Post Insulator	63	Nos		-	
	Sub Total (G)				-	
H	72.5kV EQUIPMENT				-	
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure		No.		-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)		No.		-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)	3	Nos.		-	
iv	72.5kV PT.(1-phase)	3	Nos.		-	
v	72.5 kV BPI (1-phase)	6	Nos.		-	
vi	33kV SA (1-phase)	3	Nos.		-	
	Sub Total (H)				-	
I	Cables along with clamps, glands, lugs and straight joints etc.				-	
a	Power Cables - (1.1kV grade)				-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
i	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along termination arrangement as per TS	0.5	KM		-	
Sub Total (I)					-	
J	Erection Hardware					
J.1	400kV One and Half Breaker-type layout for GIS termination arrangement					
1	Insulator strings, Polymer Long Rod composite Insulator Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector for Transformers, Junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:					
1.1	Transformers Bays	1	Lot		-	
1.2	Reactor Bays	1	Lot		-	
2	Insulator strings, Polymer Long Rod composite Insulator Hardware, conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connector Junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:				-	
2.1	Line Bays	1	Lot		-	
J.2	220 kV Double Main and Transfer-type layout for Transformer termination arrangement				-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	Insulator strings, Polymer Long Rod composite Insulator Hardware,conductorbus-barmaterials,cable trays,Bay MB, clamps, spacers,connectorsincluding equipment connector connectorfor Transformersjunctionbox, earthwireearthing materialrisers,buriedcabletrenches/pipeequipment& lighting all accessories etc. for the following:				-	
1.1	Transformer Bays	1	Lot		-	
J.3	72.5 kV Single Bus Type for LT Transformer termination arrangement				-	
1	Insulator strings, Polymer Long Rod composite Insulator Hardware,conductorbus-barmaterials,cable trays,Bay MB, clamps, spacers,connectorsincluding equipment connector connectorfor Transformersjunctionbox, earthwireearthing materialrisers,buriedcabletrenches/pipeequipment& lighting all accessories etc. for the following:				-	
1.1	LT Transformer Bay	1	Lot		-	
	Sub Total (J)				-	
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)					
1	400kV					
1.1	Circuit Breaker Relay Panel					
a	CB Relay Panel With Auto Reclose	3	Sets		-	
b	CB Relay Panel With out Auto Reclose	6	Sets		-	
1.2	Line Protection Panel	2	Sets		-	
1.3	Transformer Protection Panel (For both HV & MV side) nos. ICTs as per Specification	3	Sets		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1.4	Reactor Protection Panel as per specification	1	Sets		-	
1.5	Bus Bar Protection Panel				-	
a	400kV	1	Set		-	
b	Augmentation of existing 220 kV bus bar protection sch Nos. of ICT bays as specified)	1	Lot		-	
1.6	72.5kV				-	
a	Circuit Breaker Relay Panel	1	Nos.		-	
b	Transformer Protection Panel	1	Nos.		-	
2	Other/Common equipments Pertaining to C & R System				-	
a	Time synchronisation equipment	1	Nos.		-	
b	Special Relay Test kit	1	Nos.		-	
	Sub Total (K)				-	
L	SUBSTATION AUTOMATION					
1	Complete Substation automation system/ Augumentatio Substation automation system- including hardware and s for the substation alongwith associated equipments for following Main bays to be automated as per Technical Specification:					
a	400 kV System	9	Nos.		-	
b	220 kV System	3	Nos.		-	
c	33 kV System	1	Nos.		-	
d	For Auxiliary system	1	Set		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
2	Augmentations/Intregations of Operator Workstations all necessary accessories and software. <i>The existing 220 kV substation shall be equipped with SCADA Automation system based on IEC 61850 . In the present bidder shall include BCUs required for 400 kV bays all necessary hardware and software to integrate with existing Substation Automation System including up-dating system database, displays, and development of additional displays and reports as per requirement.</i>	1	Lot		-	
3	Integration of all 400/220kV Bays under present scope SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Kathmandu including supply of Hardware, Software, accessories etc. complete as per Technical Specification.	1	Lot		-	
Sub Total (L)					-	
M	Digital Protection Coupler& PBAX					
a)	Digital Protection Coupler as per TS	4	Nos.		-	
b)	PBAX as per TS	1	Sets		-	
c)	VOIP telephone instrument with one common switch (m including hardware and software as per specification	1	Sets		-	
Sub Total (M)					-	
N	Visual monitoring system (VMS) system					
a)	Visual monitoring system (VMS) as specified/required in all respect including HF Cable, Other necessary cabling power supply system	1	Lot		-	
Sub Total (N)					-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
O	LT Switchgear					
a	400V Main switchboard Augumentation works as per technical Specification complete	1	Set		-	
b	400V ACDB as per TS	1	Set		-	
c	400V MLDB as per TS	1	Set		-	
d	400V Emergency LDB as per TS	1	Set		-	
e	220V DCDB	1	Sets		-	
f	48/50V DCDB	1	Sets		-	
	Sub Total (O)				-	
P	Batteries & Battery Chargers					
P.1	Batteries (The Rating of the batteries shall be decided as per requirement of the specification and shall be worked out by Bidder)					
a	220V	2	Nos		-	
b	48V	2	Nos		-	
P.2	Float Cum Boost Battery Charger (The rating of the battery shall be decided as per requirement of the specification and shall be worked out by bidder)				-	
a	220 V Float Cum Boost Batter Charger	2	Nos		-	
b	48 V Float Cum Boost Battery Charger	2	Nos		-	
	Sub Total (P)				-	
Q	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		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
b	Smoke detection system	1	Set		-	
c	Fire detection and Alarm System	1	Set		-	
d	Hydrant system, complete U/G piping and accessories etc. fro				-	
i	400 kV Substation	1	Set		-	
e	HVV spray system, Hydrant system and complete U/G & O/G accessories etc. out side the pump house for Transformer /				-	
i	315 MVA , 400/220 KV, 3-phase Autotransformer	3	Sets		-	
ii	50 MVAR , 420 KV, Bus Reactor	1	Set		-	
Sub Total (Q)					-	
R	Air conditioning & Ventilation System					
a	High wall type split AC unit of 2 TR capacity for Air condition	20	Nos.		-	
b	LCC room of GIS Hall, Battery Room, Panel room cum administr building					
b	Ventillation system for 400 kV GIS Hall Building	1	Lot		-	
Sub Total (R)					-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.					
a	Lattice Structure including Foundation Bolts	360	MT		-	
b	Pipe Structure including Foundation Bolts .	40	MT		-	
c	Fastners and step bolts.(Nuts,Bolts & Washers)	10	MT		-	
Sub Total (S)					-	
T	Earthing and lightning protection including necessaary connectors/connections, risers etc. complete in all respect					
i	Earth Conductor (copper)	1	LS		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
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 Building Complete as per Specification	1	LS		-	
b	Illumination System for DG and Battery Room 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	Telecommunication & Associated System					

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
a	Fiber Optics Based Communication Panel, PMU panel equipment including allied equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment - # V Terminal Equipment both hardware/software (for SDH Equipments), Synchronization Equipment, MDF((100 pairs FODP etc. complete in all respects as per technical specifications complete all respect	1	Lot		-	
b	48 Pair Fibre (DWDM -G.652D), Fibre Optic Approach Cable	0.5	Km.		-	
c	Installation hardware set for above 48 Fibre, Fibre Optic Cable	1	Lot		-	
Sub Total (W)					-	
X	EOT Crane					
1	EOT crane with suitable double Runway rails including runway with conductors, fixtures, insulations size to operate as and when required, complete with all accessories and slings as detailed in the specifications.	1	Set		-	
Sub Total (X)					-	
Y	Pre-Engineered GIS Building					
a	Supply,fabrication of M.S Structural steel as per TS to complete the works	300	MT		-	
b	Other Miscellaneous item such as roof panels/wall panels per TS to complete the works	1	LS		-	
Sub Total (Y)					-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
Z	MANDATORY SPARES *(Break up of Lumpsum quantity sh per Annexure-I, Chapter-1, Project Specific Requirement)				-	
1	Gas Insulated Switchgear (GIS), Mandatory Spares requi during O&M of 400kV GIS Substation	1	LS		-	
2	315 MVA, 400/220/33 kV, Auto Transformer	1	LS		-	
3	50 MVAR, 420kV Bus Reactor	1	LS		-	
4	400kV CVT Capacitive Voltage Transformer	1	LS		-	
5	Isolator				-	
a	245kV	1	LS		-	
b	72.5kV	1	LS		-	
6	Circuit Breaker				-	
a	245 kV	1	LS		-	
b	72.5kV	1	LS		-	
7	72.5kV Current Transformer	1	LS		-	
8	72.5kV Voltage Transformer	1	LS		-	
6	Surge Arrester				-	
a	336kV Surge Arrester	1	LS		-	
b	216kV Surge Arrester	1	LS		-	
c	33kV Surge Arrester	1	LS		-	
7	Fire Fighting System	1	LS		-	
8	Batteries & Battery Chargers				-	
a	220V	1	LS		-	
b	48 V	1	LS		-	
9	Relay & Protection panel	1	LS		-	
10	Substation Automation System	1	LS		-	
11	Illumination System	1	LS		-	
12	2 TR Split AC Units	1	LS		-	
13	LT Switchgear	1	LS		-	

Item No.	Description	Quantity	Unit	Total EXW Price (Excluding Taxes and D		Remarks
				Unit Price at EXW(NRs.)	Total EXW Price (NR	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
14	Erection hardware	1	LS		-	
15	Bus Post Insulators				-	
a	400kV	1	LS		-	
b	220 kV	1	LS		-	
c	72.5 kV	1	LS		-	
d	33 kV	1	LS		-	
16	630 kVA, 33/0.400kV , LT Transformer	1	LS		-	
17	Communication Equipments	1	LS		-	
	Sub Total (Z)				-	
	Total of Part B				-	
	Grand Total: Schedule 2 (Part A+Part B)				-	

Signature of Bidder _____

Name of Bidder _____

Nepal Electricity Authority
 Transmission Directorate
 Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project
 (Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation
 Price Schedule No 3: Design Services

			Local Currency Portion	Foreign Currency Portion (optional)	Local Currency Portion	Foreign currency Portion(optional)
(1)	(2)	(3)	(4)	(5)	(6)=(4)x(3)	(7)=(5)x(3)
	The scope of the Contract cover detail design as well. The price detail design is deemed to have covered in the prices of the other schedules	Not Applicable				

Signature of Bidder _____

Name of Bidder _____

Nepal Electricity Authority
Transmission Directorate
Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project
(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation

Price Schedule No 4. Installation Services

Part -A: Local Transportation, Insurance and other Incidental services (including port clearance etc.)

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
I	Part A: Hetauda Substation					
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]	1	Set		-	
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]	1	Set		-	
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]				-	
i	4000 A	3	Set		-	
ii	2000 A	1	Set		-	
f)	400 kV Auxiliary Bus to connect spare unit of Transformer [Module description as per technical specification, Chapter 1- PSR]	1	Set		-	
g)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between indoor and outdoor equipments along with support structure				-	
	4000 A	750	M		-	
	2000 A	300	M		-	
h)	Testing & Maintenance Equipment for 400 kV GIS				-	
i	SF6 Gas Processing Unit (filling and evacuating)	1	Set		-	
ii	Online Partial Discharge Monitoring System	1	Set		-	
iii	SF6 gas analyzer	1	Set		-	
iv	SF6 Gas Leak Detector	1	Set		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	Sub Total (A)				-	
B						
1	167 MVA, 400kV/11kV Transformer with series winding for HV & IV and separate winding for LV YNaOd11, oil immersed, ONAN/ ONAF/ OFAF(or OFAF1 & OFAF2) cooled, outdoor type, complete with all fittings and accessories including Main Control Panel, Cooling control cabinet, Digital RTCC panel, OLTC, neutral CTs and On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring system, insulating oil drying system (Cartridge type) with optical temperature sensor, necessary arrangement for Delta formation of LV winding & Neutral Formation and Earthing Arrangement, protection device, Neutral Current transformer and all fittings & accessories specified/ required for completion of the scope of works as per technical specification	4	Nos.		-	
2	Insulating oil for first filling plus 10 % extra to account for spillage, same as for the Transformers.	1	Lot		-	
3	Oil Storage tank of 25KL	2	Nos.		-	
4	Steel rails with all accessories to fix it on transformer foundation	1	Lot		-	
	Sub Total (B)				-	
C	50 MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor as specified below:					
1	50 MVAR, 420kV, three phase, 50 Hz separate winding Shunt Reactor, outdoor type, ONAN cooled, outdoor type complete with all fittings and accessories including Bushing & Current Transformers as detailed in the specifications & each 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, same as for the filling for the Shunt Reactor	1	lot		-	
3	Steel rails with all accessories to fix it on Reactors foundation	1	lot		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	Sub Total (C)				-	
D	LT TRANSFORMER					
1	630 kVA, 33/0.4 kV	1	Nos.		-	
	Sub Total (D)				-	
E	Diesel Generator Silent type with Enclosure & control Panel					
1	250 kVA	1	Set		-	
	Sub Total (E)				-	
F	420KV Outdoor Equipment					
1	336KV Surge Arrester (1-phase)	19	Nos.		-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)	12	Nos.		-	
3	420kV BPI(1-Ph)	20	Nos.		-	
	Sub Total (F)				-	
G	245KV Outdoor Equipment					
1	1600A, 40 KA, Single Pole Isolator with one E/S	4	Nos.		-	
2	1600A, 40 KA, Single Pole Isolator without E/S	3	Nos.		-	
3	216 kV Surge Arrestors (1-phase)	4	Nos.		-	
4	245 kV Bust Post Insulator	21	Nos.		-	
	Sub Total (G)				-	
H	72.5kV EQUIPMENT				-	
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure	1	No.		-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)	1	No.		-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)	3	Nos.		-	
iv	72.5kV PT.(1-phase)	3	Nos.		-	
v	72.5 kV BPI (1-phase)	6	Nos.		-	
vi	33kV SA (1-phase)	3	Nos.		-	
	Sub Total (H)				-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
I	Cables along with clamps, glands, lugs and straight joints etc.				-	
a	Power Cables - (1.1kV grade)				-	
i	3.5Cx300 sqmm Al. (XLPE), cable for connection in Main Switch Board from located at existing control room along with termination arrangement as per	0.8	KM		-	
ii	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along with termination as per TS	0.5	KM		-	
Sub Total (I)					-	
J	Erection Hardware					
J.1	400kV One and Half Breaker-type layout for GIS termination arrangement					
1	Insulators, strings, Polymer Long Rod composite insulators, hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connector for Transformers, junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:					
1.1	Transformer Bay (including 400 kV AIS connection for spare unit with GIS module)	1	Lot		-	
1.2	Reactor Bays	1	Lot		-	
2	Insulators, strings, Polymer Long Rod composite insulators, hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:					
2.1	Line Bays	1	Lot		-	
J.2	220 kV Double Main and Transfer-type layout for Transformer termination arrangement					
1	Insulators, strings, Polymer Long Rod composite insulators, hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connector for Transformers, junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the following:					
1.1	Transformer Bay (including 220 kV AIS connection for spare unit with GIS module)	1	Lot		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
J.3	For spare unit of 400/220/33 kV auto transformer connection through auto tertiary & Neutral auxiliary buses only), Neutral formation and delta formation (bank): Required 72.5 kV BPI for tertiary auxiliary bus & delta formation, 3 Neutral formation & Neutral auxiliary bus including Al tube, bus-bar material, spacers, connectors, including equipment connectors, support structures, spare unit as per technical specification.	1	Lot		-	
J.4	Erection Hardware etc for 72.5kV equipments & LT Transformers connections	1	Lot		-	
Sub Total (J)					-	
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)					
1	400kV					
1.1	Circuit Breaker Relay Panel					
a	CB Relay Panel With Auto Reclose	6	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) for four nos. single transformer (1 No. of ICT) as per Specification	1	Sets		-	
1.4	Reactor Protection Panel as per specification	1	Sets		-	
1.5	Bus Bar Protection Panel				-	
a	400kV	1	Set		-	
b	Augmentation of existing 220 kV bus bar protection scheme (For 1 Nos. of 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 (K)					-	
L	SUBSTATION AUTOMATION					
1	Complete Substation automation system/ Augumentation of Substation automation system- including hardware and software for the substation alongwith associated equipments for the following Main bays to be automated as per Technical					
a	400 kV System	10	Nos.		-	
b	220 kV System	1	Nos.		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
c	33 kV System	1	Nos.		-	
d	For Auxilliary system	1	Set		-	
2	Complete Operator Workstations (HMI) and all necessary accessories and including Augumentations/Intregations to existing 220 kV substation which s equipped with substation Automation system based on IEC 61850 as per	1	Lot		-	
3	Integration of all 400/220kV Bays under present scope with the SCADA of (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Software, accessories etc. complete as per Technical Specification.	1	Lot		-	
Sub Total (L)						-
M	Digital Protection Coupler& PBAX					
a)	Digital Protection Coupler as per TS	4	Nos.		-	
b)	PBAX as per TS	1	Sets		-	
c)	VOIP telephone instrument with one common switch (min. 4 port) including and software as per specification	1	Sets		-	
Sub Total (M)						-
N	Visual monitoring system (VMS) system					
a)	Visual monitoring system (VMS) as specified/required complete in all re including HF Cable, Other necessary cabling and power supply system	1	Lot		-	
Sub Total (N)						-
O	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)	48/50V DCDB	1	Sets		-	
Sub Total (O)						-

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
P	Batteries & Battery Chargers					
P.1	Batteries & Chargers (To be installed at Dhalkebar Substation)					
a	220V, 600 AH Batteries	2	Nos		-	
a	220 V Float Cum Boost Batter Charger (80A/80A)	2	Nos		-	
P.2	Batteries (The Rating of the batteries shall be decided as per requirement of the specification and shall be worked out by Bidder)				-	
a	220V	2	Nos		-	
b	48V	2	Nos		-	
P.3	Float Cum Boost Battery Charger (The rating of the battery shall be decided as per requirement of the specification and shall be worked out by bidder)				-	
a	220 V Float Cum Boost Batter Charger	2	Nos		-	
b	48 V Float Cum Boost Battery Charger	2	Nos		-	
Sub Total (P)					-	
Q	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 HWW/Fire Fighting Pump House				-	
i	400 kV Substation	1	Set		-	
e	HWW spray system, Hydrant system and complete U/G & O/G piping and accessories from the pump house for Transformer / Reactor :				-	
i	167 MVA , 400/220 KV, 1-phase Autotransformer	4	Sets		-	
ii	50 MVAR , 420 KV, Bus Reactor	1	Set		-	
Sub Total (Q)					-	
R	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, Control room cum administrative building	20	Nos		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
b	Ventilation system for 400 kV GIS Hall Building	1	Lot		-	
	Sub Total (R)				-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.					
a	Lattice Structure including Foundation Bolts	350	MT		-	
b	Pipe Structure including Foundation Bolts .	40	MT		-	
c	Fastners and step bolts.(Nuts,Bolts & Washers)	10	MT		-	
	Sub Total (S)				-	
T	Earthing and lightning protection including necessary connectors/connections, rise complete in all respect					
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 Building Complete as per Specification	1	LS		-	
b	Illumination System for Control Room Building Complete as per Specification	1	LS		-	
c	Switchyard lighting	1	LS		-	
d	DG Room lighting	1	LS		-	
e	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)				-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
W	Telecommunication & Associated System					
a	Fiber Optics Based Communication Panel, PMU panel equipment including equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment, Synchronization Equipment, Synchronization Equipment, MDF((100 pairs), FODP etc. complete in all respects as per specifications complete all respect	1	Lot		-	
b	48 Pair Fibre (DWSM -G.652D), Fibre Optic Approach Cable	1	Km.		-	
c	Installation hardware set for above 48 Fibre, Fibre Optic Approach Cable	1	Lot		-	
Sub Total (W)					-	
X	EOT Crane					
1	EOT crane with suitable double Runway rails including trolley runway conductors, fixtures, insulations size suitable to operate as and when complete with all accessories and slings as detailed in the specifications	1	Set		-	
Sub Total (X)					-	
Y	Pre-Engineered GIS Building					
a	Supply,fabrication of M.S Structural steel as per TS to complete the works	300	MT		-	
b	Other Miscellaneous item such as roof panels/wall panels etc. as per TS to works	1	LS		-	
Sub Total (Y)					-	
Z	MANDATORY SPARES *(Break up of Lumpsum quantity shall be as per Annexure Chapter-1, Project Specific Requirement)					
1	Gas Insulated Switchgear (GIS), Mandatory Spares required during O&M of Substation	1	LS		-	
2	167 MVA, 400/220/33 kV, Auto Transformer	1	LS		-	
3	50 MVAR, 420kV Bus Reactor	1	LS		-	
4	400kV CVT Capacitive Voltage Transformer	1	LS		-	
5	Isolator				-	
	245kV	1	LS		-	
	72.5kV	1	LS		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
6	Circuit Breaker				-	
	72.5kV	1	LS		-	
7	72.5kV Current Transformer	1	LS		-	
8	72.5kV Voltage Transformer	1	LS		-	
6	Surge Arrester				-	
a	336kV Surge Arrester	1	LS		-	
b	216kV Surge Arrester	1	LS		-	
c	33kV Surge Arrester	1	LS		-	
7	Fire Fighting System	1	LS		-	
8	Batteries & Battery Chargers				-	
a	220V	1	LS		-	
b	48 V	1	LS		-	
9	Relay & Protection panel	1	LS		-	
10	Substation Automation System	1	LS		-	
11	Illumination System	1	LS		-	
12	2 TR Split AC Units	1	LS		-	
13	LT Switchgear	1	LS		-	
14	Erection hardware	1	LS		-	
15	Bus Post Insulators				-	
a	400kV	1	LS		-	
b	220 kV	1	LS		-	
c	72.5 kV	1	LS		-	
d	33 kV	1	LS		-	
16	630 kVA, 33/0.400kV , LT Transformer	1	LS		-	
17	Communication Equipments	1	LS		-	
	Sub Total (Z)				-	
	Total of Part A				-	
II	Part B: Inaruwa Substation					
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		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module description as per technical specification, Chapter 1- PSR]	3	Set		-	
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]	1	Set		-	
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]				-	
i)	4000 A	2	Set		-	
ii)	2000 A	1	Set		-	
f)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between indoor and outdoor equipments along with support structure				-	
	4000 A	750	M		-	
	2000 A	450	M		-	
g)	Testing & Maintenance Equipment for 400 kV GIS				-	
i)	SF6 Gas Processing Unit (filling and evacuating)	1	Set		-	
ii)	Online Partial Discharge Monitoring System	1	Set		-	
iii)	SF6 gas analyzer	1	Set		-	
iv)	SF6 Gas Leak Detector	1	Set		-	
	Sub Total (A)				-	
B	315 MVA, 400/220 /33 kV Three phase Auto Transformers as specified below					
1	315 MVA, 400/220/33 kV three phase Auto Transformer with series winding for HV & IV and separate winding for LV, YNaOd11, oil immersed, ONAN/ ONAF/ OFAF (or ONAF1 & ONAF2) cooled type, complete with all fittings and accessories including Main Control Cabinet, Cooling control cabinet, Digital RTCC panel, OLTC, neutral CTs and On line Gas (Multi Gas) Analysis and moisture monitoring system, online insulation system (Cartridge type) with optical temperature sensor and all fittings as specified/ required for completion of the scope of works as per technical specification	3	Nos.		-	
2	Insulating oil for first filling plus 10 % extra to account for spillage, same as the Transformers.	1	Lot		-	
3	Oil Storage tank of 20KL	2	Nos.		-	
4	Steel rails with all accessories to fix it on transformer foundation	1	Lot		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	Sub Total (B)				-	
C	50MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor as specified below:					
1	50MVAR, 420kV, three phase, 50 Hz separate winding Shunt Reactor, ONAN cooled, outdoor type complete with all fittings and accessories Bushing & Current Transformers as detailed in the specifications & each with the following : i) On line insulating oil drying system ii) On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring optical temperature sensor	1	Nos.		-	
2	Insulating oil for first filling plus 10% extra to account for spillage filling for the Shunt Reactor	1	lot		-	
3	Steel rails with all accessories to fix it on Reactors foundation	1	lot		-	
	Sub Total (C)				-	
D	LT TRANSFORMER					
1	630 kVA, 33/0.4 kV	1	Nos.		-	
	Sub Total (D)				-	
E	Diesel Generator Silent type with Enclosure & control Panel					
1	250 kVA	1	Set		-	
	Sub Total (E)				-	
F	420KV Outdoor Equipment					
1	336KV Surge Arrester (1-phase)	18	Nos.		-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)	6	Nos.		-	
3	420kV BPI(1-Ph)	18	Nos.		-	
	Sub Total (F)				-	
G	245KV Outdoor Equipment					
1.0	245 kV Circuit Breakers (3-Phase) with support structure					
a	1600A, 40KA	3	Nos		-	
2.0	245kV Isolator (3-phase)-Double Break				-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
a	1600A, 40 KA, Isolator with one E/S	3	Nos		-	
b	1600A, 40 KA, Isolator with two E/s	3	Nos		-	
c	1600 A, 40KA, Tandem Isolator without E/S	6	Nos		-	
3.0	245 kV Current Transformer (1-Phase)				-	
a	1600A, 40KA with 120% extended current rating	9	Nos		-	
4.0	216 kV Surge Arrestors (1-phase)	9	Nos.		-	
5.0	245 kV Bust Post Insulator	63	Nos		-	
	Sub Total (G)				-	
H	72.5kV EQUIPMENT				-	
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure	1	No.		-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)	1	No.		-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)	3	Nos.		-	
iv	72.5kV PT.(1-phase)	3	Nos.		-	
v	72.5 kV BPI (1-phase)	6	Nos.		-	
vi	33kV SA (1-phase)	3	Nos.		-	
	Sub Total (H)				-	
I	Cables along with clamps, glands, lugs and straight joints etc.				-	
a	Power Cables - (1.1kV grade)				-	
i	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along with termination as per TS	0.5	KM		-	
	Sub Total (I)				-	
J	Erection Hardware					
J.1	400kV One and Half Breaker-type layout for GIS termination arrangement					
1	Insulators, strings, Polymer Long Rod composite insulators, hardware, conductors, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connector for Transformers, junction box, earth wire earthing materials, risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:					
1.1	Transformers Bays	1	Lot		-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1.2	Reactor Bays	1	Lot		-	
2	Insulators, strings, Polymer Long Rod composite insulators, hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connector for Transformers, junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:				-	
2.1	Line Bays	1	Lot		-	
J.2	220 kV Double Main and Transfer-type layout for Transformer termination arrangement				-	
1	Insulators, strings, Polymer Long Rod composite insulators, hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connector for Transformers, junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:				-	
1.1	Transformer Bays	1	Lot		-	
J.3	72.5 kV Single Bus Type for LT Transformer termination arrangement				-	
1	Insulators, strings, Polymer Long Rod composite insulators, hardware, conductor, bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connector for Transformers, junction box, earth wire earthing material risers, buried cable trenches/pipe equipment & lighting all accessories etc. applicable for the following:				-	
1.1	LT Transformer Bay	1	Lot		-	
	Sub Total (J)				-	
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)					
1	400kV					
1.1	Circuit Breaker Relay Panel					
a	CB Relay Panel With Auto Reclose	3	Sets		-	
b	CB Relay Panel With out Auto Reclose	6	Sets		-	
1.2	Line Protection Panel	2	Sets		-	
1.3	Transformer Protection Panel (For both HV & MV side) for three nos. ICTS Specification	3	Sets		-	
1.4	Reactor Protection Panel as per specification	1	Sets		-	
1.5	Bus Bar Protection Panel				-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
a	400kV	1	Set		-	
b	Augmentation of existing 220 kV bus bar protection scheme (For 3 Nos. of specified)	1	Lot		-	
1.6	72.5kV				-	
a	Circuit Breaker Relay Panel	1	Nos.		-	
b	Transformer Protection Panel	1	Nos.		-	
2	Other/Common equipments Pertaining to C & R System				-	
a	Time synchronisation equipment	1	Nos.		-	
b	Special Relay Test kit	1	Nos.		-	
Sub Total (K)					-	
L	SUBSTATION AUTOMATION					
1	Complete Substation automation system/ Augmentation of 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	3	Nos.		-	
c	33 kV System	1	Nos.		-	
d	For Auxiliary system	1	Set		-	
2	Augmentations/Integrations of Operator Workstations (HMI) and all necessary accessories and software. <i>The existing 220 kV substation shall be equipped with substation Automation based on IEC 61850 . In the present scope, bidder shall include BCUs for 220 kV bays including all necessary hardware and software to integrate with Substation Automation System including up-dation of system database, development of additional displays and reports as per requirement.</i>	1	Lot		-	
3	Integration of all 400/220kV Bays under present scope with the SCADA system (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Software, accessories etc. complete as per Technical Specification.	1	Lot		-	
Sub Total (L)					-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
M	Digital Protection Coupler& PBAX					
a)	Digital Protection Coupler as per TS	4	Nos.		-	
b)	PBAX as per TS	1	Sets		-	
c)	VOIP telephone instrument with one common switch (min. 4 port) including and software as per specification	1	Sets		-	
	Sub Total (M)				-	
N	Visual monitoring system (VMS) system					
a)	Visual monitoring system (VMS) as specified/required complete in all re including HF Cable, Other necessary cabling and power supply system	1	Lot		-	
	Sub Total (N)				-	
O	LT Switchgear					
a)	400V Main switchboard Augmentation works as per technical Specification	1	Set		-	
b)	400V ACDB as per TS	1	Set		-	
c)	400V MLDB as per TS	1	Set		-	
d)	400V Emergency LDB as per TS	1	Set		-	
e)	220V DCDB	1	Sets		-	
f)	48/50V DCDB	1	Sets		-	
	Sub Total (O)				-	
P	Batteries & Battery Chargers					
P.1	Batteries (The Rating of the batteries shall be decided as per requirement of the and shall be worked out by Bidder)					
a)	220V	2	Nos		-	
b)	48V	2	Nos		-	
P.2	Float Cum Boost Battery Charger (The rating of the battery shall be decided as per requirement of the specification and shall be worked out by bidder)					
a)	220 V Float Cum Boost Batter Charger	2	Nos		-	
b)	48 V Float Cum Boost Battery Charger	2	Nos		-	
	Sub Total (P)				-	
Q	Fire Protection System					
a)	Portable /Trolley/Wheel mounted extinguishers					

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
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 HWW/Fire from Fire Fighting Pump House				-	
i	400 kV Substation	1	Set		-	
e	HWW spray system, Hydrant system and complete U/G & O/G piping and accessories from the pump house for Transformer / Reactor :				-	
i	315 MVA , 400/220 KV, 3-phase Autotransformer	3	Sets		-	
ii	50 MVAR , 420 KV, Bus Reactor	1	Set		-	
Sub Total (Q)					-	
R	Air conditioning & Ventilation System					
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room Battery Room, Panel room cum administrative building	20	Nos.		-	
b	Ventillation system for 400 kV GIS Hall Building	1	Lot		-	
Sub Total (R)					-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.					
a	Lattice Structure including Foundation Bolts	360	MT		-	
b	Pipe Structure including Foundation Bolts .	40	MT		-	
c	Fastners and step bolts.(Nuts,Bolts & Washers)	10	MT		-	
Sub Total (S)					-	
T	Earthing and lightning protection including necessary connectors/connections, rise complete in all respect					
i	Earth Conductor (copper)	1	LS		-	
ii	Earth Rod (copper clad steel)	1	LS		-	
iii	Equipment for lightning protection	1	LS		-	
Sub Total (T)					-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
U	Illumination System					
a	Illumination System for GIS Hall Building Complete as per Specification	1	LS		-	
b	Illumination System for DG and Battery Room 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)				-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
W	Telecommunication & Associated System					
a	Fiber Optics Based Communication Panel, PMU panel equipment including equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment both hardware/software (for SDH Equipments), Synchronization Equipment, MDF((100 pairs), FODP etc. complete in all respects as per specifications complete all respect	1	Lot		-	
b	48 Pair Fibre (DWDM -G.652D), Fibre Optic Approach Cable	0.5	Km.		-	
c	Installation hardware set for above 48 Fibre, Fibre Optic Approach Cable	1	Lot		-	
Sub Total (W)					-	
X	EOT Crane					
1	EOT crane with suitable double Runway rails including trolley runway conductors, fixtures, insulations size suitable to operate as and when complete with all accessories and slings as detailed in the specifications	1	Set		-	
Sub Total (X)					-	
Y	Pre-Engineered GIS Building					
a	Supply,fabrication of M.S Structural steel as per TS to complete the works	300	MT		-	
b	Other Miscellaneous item such as roof panels/wall panels etc. as per TS to works	1	LS		-	
Sub Total (Y)					-	
Z	MANDATORY SPARES *(Break up of Lumpsum quantity shall be as per Annex Chapter-1, Project Specific Requirement)					
1	Gas Insulated Switchgear (GIS), Mandatory Spares required during O&M of Substation	1	LS		-	
2	315 MVA, 400/220/33 kV, Auto Transformer	1	LS		-	
3	50 MVAR, 420kV Bus Reactor	1	LS		-	
4	400kV CVT Capacitive Voltage Transformer	1	LS		-	
5	Isolator				-	

Item No.	Description	Quantity	Unit	Insurance, Clearing, Forwarding and Transportation upto site (NPR)		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
a	245kV	1	LS		-	
b	72.5kV	1	LS		-	
6	Circuit Breaker				-	
a	245 kV	1	LS		-	
b	72.5kV	1	LS		-	
7	72.5kV Current Transformer	1	LS		-	
8	72.5kV Voltage Transformer	1	LS		-	
6	Surge Arrester				-	
a	336kV Surge Arrester	1	LS		-	
b	216kV Surge Arrester	1	LS		-	
c	33kV Surge Arrester	1	LS		-	
7	Fire Fighting System	1	LS		-	
8	Batteries & Battery Chargers				-	
a	220V	1	LS		-	
b	48 V	1	LS		-	
9	Relay & Protection panel	1	LS		-	
10	Substation Automation System	1	LS		-	
11	Illumination System	1	LS		-	
12	2 TR Split AC Units	1	LS		-	
13	LT Switchgear	1	LS		-	
14	Erection hardware	1	LS		-	
15	Bus Post Insulators				-	
a	400kV	1	LS		-	
b	220 kV	1	LS		-	
c	72.5 kV	1	LS		-	
d	33 kV	1	LS		-	
16	630 kVA, 33/0.400kV , LT Transformer	1	LS		-	
17	Communication Equipments	1	LS		-	
	Sub Total (Z)				-	
	Total of Part B				-	
	Grand Total: Schedule 4A (Part A+Part B)				-	

Signature of Bidder _____

Name of Bidder _____

Nepal Electricity Authority
Transmission Directorate
Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project
(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation

Price Schedule 4: Installation Services

Part B: Installation Charges

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
I	Part A: Hetauda Substation					
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]	1	Set		-	
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module description as per technical specification, Chapter 1- PSR]	1	Set		-	
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical specification, Chapter 1- PSR]				-	
i	4000 A	3	Set		-	
ii	2000 A	1	Set		-	
f)	400 kV Auxiliary Bus to connect spare unit of Transformer [Module description as per technical specification, Chapter 1- PSR]	1	Set		-	
g)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between GIS and outdoor equipments along with support structure				-	
	4000 A	750	M		-	
	2000 A	300	M		-	
h)	Testing & Maintenance Equipment for 400 kV GIS				-	
i	SF6 Gas Processing Unit (filling and evacuating)	1	Set			

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
ii	Online Partial Discharge Monitoring System	1	Set			
iii	SF6 gas analyzer	1	Set			
iv	SF6 Gas Leak Detector	1	Set			
Sub Total (A)					-	
B	U t o			u		
1	167 MVA, 400/ Transformer with series winding for HV & IV and separate winding for LV, YNaOd11, oil immersed, ONAN/ ONAF/ OFAF(or OFAF1 & OFAF2) cooled, out complete with all fittings and accessories including Main Control Cabinet, control cabinet, Digital RTCC panel, OLTC, neutral CTs and On line Dissolve Gas) Analysis and moisture monitoring, system insulating oil drying system (Cartridge type) with optical temperature sensor, necessary arrangment f formation of LV winding & Neutral Formation and Earthing Arrangement, s protection device, Neutral Current transformer and fittings & accessories specified/ required for completion of the scope of works as per technical	4	Nos.		-	
2	Insulating oil for first filling plus 10 % extra to account for spillage, sample the Transformers.	1	Lot		-	
3	Oil Storage tank of 25KL	2	Nos.		-	
4	Steel rails with all accessories to fix it on transformer foundation	1	Lot		-	
Sub Total (B)					-	
C	50 MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor as specified below:					

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	50 MVAR, 420kV, three phase, 50 Hz separate winding Shunt Reactor, oil ONAN cooled, outdoor type complete with all fittings and accessories in Bushing & Current Transformers as detailed in the specifications & each e the following : i) On line insulating oil drying system (Cartridge type) ii) On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring sy optical temperature sensor.	1	Nos.		-	
2	Insulating oil for first filling plus 10% extra to account for spillage for the Shunt Reactor	1	lot		-	
3	Steel rails with all accessories to fix it on Reactors foundation	1	lot		-	
Sub Total (C)						-
D	LT TRANSFORMER					
1	630 kVA, 33/0.4 kV	1	Nos.		-	
Sub Total (D)						-
E	Diesel Generator Silent type with Enclosure & control Panel					
1	250 kVA	1	Set		-	
Sub Total (E)						-
F	420KV Outdoor Equipment					
1	390KV Surge Arrester (1-phase)	19	Nos.		-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)	12	Nos.		-	
3	420kV BPI(1-Ph)	20	Nos.		-	
Sub Total (F)						-
G	245KV Outdoor Equipment					
1	1600A, 40 KA, Single Pole Isolator with one E/S	4	Nos.		-	
2	1600A, 40 KA, Single Pole Isolator without E/S	3	Nos		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
3	216 kV Surge Arrestors (1-phase)	4	Nos.		-	
4	245 kV Bust Post Insulator	21	Nos		-	
	Sub Total (G)				-	
H	72.5kV EQUIPMENT				-	
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure	1	No.		-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)	1	No.		-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)	3	Nos.		-	
iv	72.5kV PT.(1-phase)	3	Nos.		-	
v	72.5 kV BPI (1-phase)	6	Nos.		-	
vi	33kV SA (1-phase)	3	Nos.		-	
	Sub Total (H)				-	
I	Cables along with clamps, glands, lugs and straight joints etc.				-	
a	Power Cables - (1.1kV grade)				-	
i	3.5Cx300 sqmm Al. (XLPE), cable for connection in Main Switch Board from located at existing control room along with termination arrangement as per	0.8	KM		-	
ii	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along with termination a per TS	0.5	KM		-	
	Sub Total (I)				-	
J	Erection Hardware					
J.1	400kV One and Half Breaker-type layout for GIS termination arrangement					

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	Insulator strings Polymer Long Rod composite insulators, Hardware conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, junction box, earth wire earthing material isers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:					
1.1	Transformer Bay (including 400 kV AIS connection for spare unit with GIS at module)	1	Lot		-	
1.2	Reactor Bays	1	Lot		-	
2	Insulator strings Polymer Long Rod composite insulators, Hardware conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, junction box, earth wire earthing material isers, buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:					
2.1	Line Bays	1	Lot		-	
J.2	220 kV Double Main and Transfer-type layout for Transformer termination arrangement					
1	Insulator strings Polymer Long Rod composite insulators, Hardware conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, junction box, earth wire earthing material isers, buried cable trenches/pipe equipment & lighting, all accessories etc. for the					
1.1	Transformer Bay (including 220 kV AIS connection for spare unit with GIS at module)	1	Lot		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
J.3	For spare unit of 400/220/33 kV auto transformer connection through auxiliary tertiary & Neutral auxiliary buses only), Neutral formation and delta formation bank): Required 72.5 kV BPI for tertiary auxiliary bus & delta formation, 36 Neutral formation & Neutral auxiliary bus including Al tube, bus-bar material spacers, connectors, including equipment connectors, support structures , Ea unit as per technical specification.	1	Lot		-	
J.4	Erection Hardware etc for 72.5kV equipments & LT Transformers connections	1	Lot		-	
	Sub Total (J)				-	
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)					
1	400kV					
1.1	Circuit Breaker Relay Panel					
a	CB Relay Panel With Auto Reclose	6	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) for four nos. single p transformer (1 No. of ICT) as per Specification	1	Sets		-	
1.4	Reactor Protection Panel as per specification	1	Sets		-	
1.5	Bus Bar Protection Panel				-	
a	400kV	1	Set		-	
b	Augmentation of existing 220 kV bus bar protection scheme (For 1 Nos. of I 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 (K)				-	
L	SUBSTATION AUTOMATION					

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	Complete Substation automation system/ Augumentation of Substation auto including hardware and software for the substation alongwith associated eq the following Main bays to be automated as per Technical Specification:					
a	400 kV System	10	Nos.		-	
b	220 kV System	1	Nos.		-	
c	33 kV System	1	Nos.			
d	For Auxilliary system	1	Set		-	
2	Complete Operator Workstations (HMI) and all necessary accessories and so including Augumentations/Intregations on existing 220 kV substation which sha equipped with substation Automation system based on IEC 61850 as per TS	1	Lot		-	
3	Integration of all 400/220kV Bays under present scope with the SCADA of S Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware accessories etc. complete as per Technical Specification.	1	Lot		-	
Sub Total (L)					-	
M	Digital Protection Coupler& PBAX					
a)	Digital Protection Coupler as per TS	4	Nos.		-	
b)	PBAX as per TS	1	Sets		-	
c)	VOIP telephone instrument with one common switch (min. 4 port) including f software as per specification	1	Sets		-	
Sub Total (M)					-	
N	Visual monitoring system (VMS) system					
a)	Visual monitoring system (VMS) as specified/required complete in all resp HF Cable, Other necessary cabling and power supply system	1	Lot		-	
Sub Total (N)					-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
O	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	48/50V DCDB	1	Sets		-	
	Sub Total (O)				-	
P	Batteries & Battery Chargers					
P.1	Batteries & Chargers (To be installed at Dhalkebar Substation)					
a	220V, 600 AH Batteries	2	Nos		-	
a	220 V Float Cum Boost Batter Charger (80A/80A)	2	Nos		-	
P.2	Batteries (The Rating of the batteries shall be decided as per requirement of the sp shall be worked out by Bidder)				-	
a	220V	2	Nos		-	
b	48V	2	Nos		-	
P.3	Float Cum Boost Battery Charger (The rating of the battery shall be decided as per the specification and shall be worked out by bidder)				-	
a	220 V Float Cum Boost Batter Charger	2	Nos		-	
b	48 V Float Cum Boost Battery Charger	2	Nos		-	
	Sub Total (P)				-	
Q	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		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
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 H 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 pump house for Transformer / Reactor :				-	
i	167 MVA , 400/220 KV, 1-phase Autotransformer	4	Sets		-	
ii	50 MVAR , 420 KV, Bus Reactor	1	Set		-	
Sub Total (Q)					-	
R	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, Control room cum administrative building	20	Nos		-	
b	Ventillation system for 400 kV GIS Hall Building	1	Lot		-	
Sub Total (R)					-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.					
a	Lattice Structure including Foundation Bolts	350	MT		-	
b	Pipe Structure including Foundation Bolts	40	MT		-	
c	Fastners and step bolts.(Nuts,Bolts & Washers)	10	MT		-	
Sub Total (S)					-	
T	Earthing and lightning protection including necessary connectors/connections, risers complete in all respect					
i	Earth Conductor (copper)	1	LS		-	
ii	Earth Rod (copper clad steel)	1	LS		-	
iii	Equipment for lightning protection	1	LS		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	Sub Total (T)				-	
U	Illumination System					
a	Illumination System for GIS Hall Building Complete as per Specification	1	LS		-	
b	Illumination System for Control Room Building Complete as per Specification	1	LS		-	
c	Switchyard lighting	1	LS		-	
d	DG Room lighting	1	LS		-	
e	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	Telecommunication & Associated System					
a	Fiber Optics Based Communication Panel, PMU panel equipment including equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment both hardware/software (for SDH Equipments), Synchronization MDF((100 pairs), FODP etc. complete in all respects as per technical spec complete all respect	1	Lot		-	
b	48 Pair Fibre (DWDM -G.652D), Fibre Optic Approach Cable	1	Km.		-	
c	Installation hardware set for above 48 Fibre, Fibre Optic Approach Cable	1	Lot		-	
	Sub Total (W)				-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
X	EOT Crane					
1	EOT crane with suitable double Runway rails including trolley runway w conductors, fixtures, insulations size suitable to operate as and when complete with all accessories and slings as detailed in the specifications.	1	Set		-	
	Sub Total (X)				-	
Y	Pre-Engineered GIS Building					
a	Supply,fabrication of M.S Structural steel as per TS to complete the works	300	MT		-	
b	Other Miscellaneous item such as roof panels/wall panels etc. as per TS to c works	1	LS		-	
	Sub Total (Y)				-	
	Total of Part A				-	
II	Part B: Inaruwa Substation					
A	420kV SF6 Gas Insulated Switchgear and Accessories					
a)	420kV, 5000A SF6 GIS Bus Bar Module [Module description as per techn specification, Chapter 1- PSR]	2	Sets		-	
b)	420kV, 4000A SF6 GIS Line Feeder bay Module [Module description as pe specification, Chapter 1- PSR]	2	Sets		-	
c)	420kV, 2000A, SF6 GIS Auto Transformer bay Module [Module descriptio technical specification, Chapter 1- PSR]	3	Set		-	
d)	420kV, 4000A, SF6 GIS Bus Shunt Reactor bay Module [Module descripti technical specification, Chapter 1- PSR]	1	Set		-	
e)	420kV, SF6 GIS Tie bay Module [Module description as per technical spec Chapter 1- PSR]				-	
i)	4000 A	2	Set		-	
ii)	2000 A	1	Set		-	
f)	1 Phase SF6 Gas Insulated Bus Duct (GIB) for inter-connection between G outdoor equipments along with support structure				-	
	4000 A	750	M		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	2000 A	450	M		-	
g)	Testing & Maintenance Equipment for 400 kV GIS				-	
i	SF6 Gas Processing Unit (filling and evacuating)	1	Set		-	
ii	Online Partial Discharge Monitoring System	1	Set		-	
iii	SF6 gas analyzer	1	Set		-	
iv	SF6 Gas Leak Detector	1	Set		-	
Sub Total (A)						-
B	315 MVA, 400/220 /33 kV Three phase Auto Transformers as specified below	below				
1	315 MVA, 400/220/33 kV three phase Auto Transformer with series winding for HV & IV and separate winding for LV, YNaOd11, oil immersed, ONAN/ ONAF/ OFAF (or ONAF1 & ONAF2) cooled, or complete with all fittings and accessories including Main Control Cabinet, control cabinet, Digital RTCC panel, OLTC, neutral CTs and On line Dissolve Gas) Analysis and moisture monitoring system, online insulating oil drying (Cartridge type) with optical temperature sensor and all fittings & access specified/ required for completion of the scope of works as per technical specifications.	3	Nos.		-	
2	Insulating oil for first filling plus 10 % extra to account for spillage, sample the Transformers.	1	Lot		-	
3	Oil Storage tank of 20KL	2	Nos.		-	
4	Steel rails with all accessories to fix it on transformer foundation	1	Lot		-	
Sub Total (B)						-
C	50MVAR, 420kV, three phase, 50 Hz Bus Shunt Reactor as specified below:					

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	50MVAR, 420kV, three phase, 50 Hz separate winding Shunt Reactor, oil i ONAN cooled, outdoor type complete with all fittings and accessories in Bushing & Current Transformers as detailed in the specifications & each e the following : i) On line insulating oil drying system ii) On line Dissolved Gas (Multi Gas) Analysis and moisture monitoring sy optical temperature sensor	1	Nos.		-	
2	Insulating oil for first filling plus 10% extra to account for spillage for the Shunt Reactor	1	lot		-	
3	Steel rails with all accessories to fix it on Reactors foundation	1	lot		-	
Sub Total (C)					-	
D	LT TRANSFORMER					
1	630 kVA, 33/0.4 kV	1	Nos.		-	
Sub Total (D)					-	
E	Diesel Generator Silent type with Enclosure & control Panel					
1	250 kVA	1	Set		-	
Sub Total (E)					-	
F	420KV Outdoor Equipment					
1	336KV Surge Arrester (1-phase)	18	Nos.		-	
2	8800pF, 420kV Capacitive Voltage Transformer (1- Phase)	6	Nos.		-	
3	420kV BPI(1-Ph)	18	Nos.		-	
Sub Total (F)					-	
G	245KV Outdoor Equipment					
1.0	245 kV Circuit Breakers (3-Phase) with support structure					
a	1600A, 40KA	3	Nos		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
2.0	245kV Isolator (3-phase)-Double Break				-	
a	1600A, 40 KA, Isolator with one E/S	3	Nos		-	
b	1600A, 40 KA, Isolator with two E/s	3	Nos		-	
c	1600 A, 40KA, Tandem Isolator without E/S	6	Nos		-	
3.0	245 kV Current Transformer (1-Phase)				-	
a	1600A, 40KA with 120% extended current rating	9	Nos		-	
4.0	216 kV Surge Arrestors (1-phase)	9	Nos.		-	
5.0	245 kV Bust Post Insulator	63	Nos		-	
	Sub Total (G)				-	
H	72.5kV EQUIPMENT				-	
i	72.5 kV, 600A, 31.5kA Circuit Breaker (3-phase) with support structure	1	No.		-	
ii	72.5 kV, 600A,31.5kA Isolators with earth switch (3-phase, DBR type)	1	No.		-	
iii	72.5kV, 600A, 31.5 kA with 120% extended rating CT (1- Phase)	3	Nos.		-	
iv	72.5kV PT.(1-phase)	3	Nos.		-	
v	72.5 kV BPI (1-phase)	6	Nos.		-	
vi	33kV SA (1-phase)	3	Nos.		-	
	Sub Total (H)				-	
I	Cables along with clamps, glands, lugs and straight joints etc.				-	
a	Power Cables - (1.1kV grade)				-	
i	3.5Cx300 sqmm Al. (XLPE), cable for filter Machine along with termination a per TS	0.5	KM		-	
	Sub Total (I)				-	
J	Erection Hardware					
J.1	400kV One and Half Breaker-type layout for GIS termination arrangement					

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	Insulator strings Polymer Long Rod composite insulators, hardware conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, junction box, earth wire earthing materialisers buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:					
1.1	Transformers Bays	1	Lot		-	
1.2	Reactor Bays	1	Lot		-	
2	Insulator strings Polymer Long Rod composite insulators, hardware conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, junction box, earth wire earthing materialisers buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:				-	
2.1	Line Bays	1	Lot		-	
J.2	220 kV Double Main and Transfer-type layout for Transformer termination arrangement				-	
1	Insulator strings Polymer Long Rod composite insulators, hardware conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, junction box, earth wire earthing materialisers buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:				-	
1.1	Transformer Bays	1	Lot		-	
J.3	72.5 kV Single Bus Type for LT Transformer termination arrangement				-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	Insulator strings Polymer Long Rod composite insulators, hardware conductor bus-bar materials, cable trays, Bay MB, clamps, spacers, connectors including equipment connectors, connectors for Transformers, junction box, earth wire earthing materialisers buried cable trenches/pipe equipment & lighting, all accessories etc. applicable for the following:				-	
1.1	LT Transformer Bay	1	Lot		-	
	Sub Total (J)				-	
K	CONTROL RELAY & PROTECTION PANELS (WITH AUTOMATION)					
1	400kV					
1.1	Circuit Breaker Relay Panel					
a	CB Relay Panel With Auto Reclose	3	Sets		-	
b	CB Relay Panel With out Auto Reclose	6	Sets		-	
1.2	Line Protection Panel	2	Sets		-	
1.3	Transformer Protection Panel (For both HV & MV side) for three nos. ICTs as per Specification	3	Sets		-	
1.4	Reactor Protection Panel as per specification	1	Sets		-	
1.5	Bus Bar Protection Panel				-	
a	400kV	1	Set		-	
b	Augmentation of existing 220 kV bus bar protection scheme (For 3 Nos. of ICTs as specified)	1	Lot		-	
1.6	72.5kV				-	
a	Circuit Breaker Relay Panel	1	Nos.		-	
b	Transformer Protection Panel	1	Nos.		-	
2	Other/Common equipments Pertaining to C & R System				-	
a	Time synchronisation equipment	1	Nos.		-	
b	Special Relay Test kit	1	Nos.		-	
	Sub Total (K)				-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
L	SUBSTATION AUTOMATION					
1	Complete Substation automation system/ Augumentation of Substation auto including hardware and software for the substation alongwith associated eq the following Main bays to be automated as per Technical Specification:					
a	400 kV System	9	Nos.		-	
b	220 kV System	3	Nos.		-	
c	33 kV System	1	Nos.		-	
d	For Auxilliary system	1	Set		-	
2	Augumentations/Intregations of Operator Workstations (HMI) and all necessa and software. <i>The existing 220 kV substation shall be equipped with substation Automation on IEC 61850 . In the present scope, bidder shall include BCUs required fo including all necessary hardware and software to integrate with the exist Automation System including up-dation of system database, displays, and de additional displays and reports as per requirement.</i>	1	Lot		-	
3	Integration of all 400/220kV Bays under present scope with the SCADA of S Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware accessories etc. complete as per Technical Specification.	1	Lot		-	
Sub Total (L)					-	
M	Digital Protection Coupler& PBAX					
a)	Digital Protection Coupler as per TS	4	Nos.		-	
b)	PBAX as per TS	1	Sets		-	
c)	VOIP telephone instrument with one common switch (min. 4 port) including software as per specification	1	Sets		-	
Sub Total (M)					-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
N	Visual monitoring system (VMS) system					
a)	Visual monitoring system (VMS) as specified/required complete in all resp HF Cable, Other necessary cabling and power supply system	1	Lot		-	
	Sub Total (N)				-	
O	LT Switchgear					
a	400V Main switchboard Augumentation works as per technical Specification	1	Set		-	
b	400V ACDB	1	Set		-	
c	400V MLDB	1	Set		-	
d	400V Emergency LDB	1	Set		-	
e	220V DCDB	1	Sets		-	
f	48/50V DCDB	1	Sets		-	
	Sub Total (O)				-	
P	Batteries & Battery Chargers					
P.1	Batteries (The Rating of the batteries shall be decided as per requirement of the sp shall be worked out by Bidder)					
a	220V	2	Nos		-	
b	48V	2	Nos		-	
P.2	Float Cum Boost Battery Charger (The rating of the battery shall be decided as per the specification and shall be worked out by bidder)					
a	220 V Float Cum Boost Batter Charger	2	Nos		-	
b	48 V Float Cum Boost Battery Charger	2	Nos		-	
	Sub Total (P)				-	
Q	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 C ₂ type	8	Nos		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
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 H 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 pump house for Transformer / Reactor :				-	
i	315 MVA , 400/220 KV, 3-phase Autotransformer	3	Sets		-	
ii	50 MVAR , 420 KV, Bus Reactor	1	Set		-	
Sub Total (Q)					-	
R	Air conditioning & Ventilation System					
a	High wall type split AC unit of 2 TR capacity for Air conditioning (AC) for LCC room Room, Panel room cum administrative building	20	Nos.		-	
b	Ventillation system for 400 kV GIS Hall Building	1	Lot		-	
Sub Total (R)					-	
S	Fabrication, galvanising and supply of following Steel Structures including nuts, bolts, all types of washers, packplates, step bolts and gusset plates including foundation bolts.					
a	Lattice Structure including Foundation Bolts	360	MT		-	
b	Pipe Structure including Foundation Bolts .	40	MT		-	
c	Fastners and step bolts.(Nuts,Bolts & Washers)	10	MT		-	
Sub Total (S)					-	
T	Earthing and lightning protection including necessary connectors/connections, risers complete in all respect					
i	Earth Conductor (copper)	1	LS		-	
ii	Earth Rod (copper clad steel)	1	LS		-	
iii	Equipment for lightning protection	1	LS		-	

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	Sub Total (T)				-	
U	Illumination System					
a	Illumination System for GIS Hall Building Complete as per Specification	1	LS		-	
b	Illumination System for DG and Battery Room 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	Telecommunication & Associated System					
a	Fiber Optics Based Communication Panel, PMU panel equipment including equipment such as Transmission Equipment (SDH- STM 4/STM-16), Termination Equipment (# u U V Equipments), Synchronization Equipment, MDF, FODP etc. complete in all respect per technical specifications complete all respect	1	Lot		-	
b	48 Pair Fibre (DWSM -G.652D), Fibre Optic Approach Cable	0.5	Km.		-	
c	Installation hardware set for above 48 Fibre, Fibre Optic Approach Cable	1	Lot		-	
	Sub Total (W)				-	
X	EOT Crane					

Item No.	Description	Quantity	Unit	Installation Charges		Remarks
				Unit Rate(NRs.)	Total Amount (NRs.)	
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	EOT crane with capacity suitable double Runway rails including trolley run conductors, fixtures, insulations size suitable to operate as and when complete with all accessories and slings as detailed in the specifications.	1	Set		-	
Sub Total (X)					-	
Y	Pre-Engineered GIS Building					
a	Supply,fabrication of M.S Structural steel as per TS to complete the works	300	MT		-	
b	Other Miscellaneous item such as roof panels/wall panels etc. as per TS to c works	1	LS		-	
Sub Total (Y)					-	
Total of Part B					-	
Grand Total: Schedule 4B (Part A+Part B)					-	

Signature of Bidder _____

Name of Bidder _____

Nepal Electricity Authority
Transmission Directorate
Hetauda- Dhalkebar 400 kV Substation Expansion Project
(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation
Price Schedule No 4. Installation Services
Part - C: Civil Works

Item No.	Description	Quantity	Unit	Unit Rate(NRs.)	Total Amount (NRs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
A	Part A: Hetauda Substation					
	SECTION: A : NEA ASSESSED QUANTITIES					
1	Excavation in all types of soil and rock including backfilling disposal leads and lifts	12500	Mtr.			-
2	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)	800	Cu.Mtr.			
3	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)	75	Cu.Mtr.			
4	Providing and laying of Reinforced Cement Concrete Design Mix including pre cast, shuttering, Grouting of pockets & underpinning excluding steel reinforcement.	3850	Cu.Mtr.			
5	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 Stone aggregate)	550	Cu.Mtr.			
6	Steel Reinforcement (Fe 500)	350	MT			
7	Miscellaneous Structural steel used for gratings, gratings support transformer /reactor foundation,cable support stand earthing cable,chequered plates, embedments, edge protection angles for cable but excluding the reinforcement steel and steel for lattice and p structures,structural steel used for rails and plate for rail fixing transformer/reactor which shall be paid seperately.	50	MT			
8	Stone filling (40mm) over grating of Transformer /reactor Foundation	700	Cu.Mtr.			
9	Stone spreading including antiweed treatment in switchyard but PCC.	7000	Sq. Mtr.			
10	Supplying & laying hume pipe with collarsof grade (NP-3) but excluding reinforcement steel & concrete of bed/support/encasing of hume pipe which shall be paid seperately					
i)	250mm dia	25	RM			
ii)	300mm dia	50	RM			
iii)	450mm dia	25	RM			

Item No.	Description	Quantity	Unit	Unit Rate(NRs.)	Total Amount (NRs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
	iv) 600mm dia	25	RM			
11	Concrete road (including all crossings) as per technical specifications approved drawing but excluding reinforcement & concrete					
	a. Concrete Road	1875	Sq. m.			
12	Construction of rail-cum-road as per technical specification and approved drawing including all items such as excavation, compaction, rolling, etc but excluding concrete, reinforcement and structural steel which shall be paid separately					
	a. Section having two rails	280	Sq. m.			
13	Chain link fencing as per technical specification and approved drawing excluding concrete which shall be paid separately	760	RM			
14	Switch yard Gate excluding concrete	2	No			
15	Dismantling & reerection of existing fence including sorting and stacking of serviceable & non-serviceable materials and disposal of debris as per direction of engineer-in-charge	50	RM			
16	Removal of existing RCC hume pipe from drain and stacking the same as per direction of Engineer-in-charge but earth filling in drain is saperately	140	RM			
17	Dismantling of existing RCC drain including sorting and stacking of serviceable & non-serviceable materials and disposal of debris as per direction of engineer-in-charge but earth filling in drain is paid saperately	140	RM			
18	Supplying and erecting dewatering pumps					
	a. 5 HP	3	Nos.			
	b. 0.5 HP	4	Nos.			
19	Drain including culverts but excluding concrete ,hume pipes & reinforcement steel which shall be paid separately					
	a. Type AA	1000	RM			
	b. Type BB	200	RM			
	c. Type CC	25	RM			
	d. Type DD	25	RM			

Item No.	Description	Quantity	Unit	Unit Rate(NRs.)	Total Amount (NRs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
20	Water supply as per technical from borewell to Buildings including excavation, pipes, fittings, jointings, valves, chambers/manhole pump etc. and water supply system inside the building all complete	1	LS			
21	Digging of Bore well shall be measured in running meter starting from ground level including PVC pipe, GI pipe, 3 HP submersible pump, necessary cables, control boards, protective devices etc. all complete	50	RM			
22	Sewerage system including all items such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber, septic tank, soak pit etc.	1	LS			
23	Stone soling below foundations wherever specified in approved drawings during detailed engineering	150	Cu.Mtr.			
25	Site levelling					
a)	Earth work in cutting & Filling and in filling with borrowed earth, site clearing and contour survey work	3500	Cu.Mtr.			
SECTION: B : CONTRACTOR ASSESSED QUANTITIES						
1	PEB - 400kV GIS - Civil Works. All civil works as per drawing and specifications complete, including - brickwork, finishing (external and internal), windows etc. However, excavation, PCC, RCC and reinforcement shall be paid separately as per BPS."	1	LS			
2	RCC Control Building 400kV GIS - Civil Works. All civil works as per drawing and specifications complete, including - brickwork, finishing (external and internal), windows etc. However, excavation, PCC, RCC and reinforcement shall be paid separately as per BPS."	1	LS			
3	DG Set Enclosure: Civil Works. All civil works as per drawing and specifications complete including galls and filling around and under DG set foundation as per technical Specification Complete.	1	LS			
4	Geotechnical /Soil Investigation	1	LS			
Grand Total of Part-A						
B	Part B: Inaruwa Substation					
SECTION: A : NEA ASSESSED QUANTITIES						

Item No.	Description	Quantity	Unit	Unit Rate(NRs.)	Total Amount (NRs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	Excavation in all types of soil and rock including backfilling disposal leads and lifts	17	500Mtr.			
2	Providing and laying of Plain Cement Concrete (PCC) (1:4:8)		9200tr.			
3	Providing and laying of Plain Cement Concrete (PCC) (1:2:4)		1200tr.			
4	Providing and laying of Reinforced Cement Concrete Design Mix including pre cast, shuttering, Grouting of pockets & underpinning excluding steel reinforcement.	6	100Mtr.			
5	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 Stone aggregate)		550tr.			
6	Steel Reinforcement (Fe 500)		1530			
7	Miscellaneous Structural steel used for gratings, gratings support transformer /reactor foundation,cable supportstand earthing cle ,chequered plates, embedments, edge protection angles for cable but excluding the reinforcement steel and steel for lattice and p structures,structural steel used for rails and plate for rail fixing transformer/reactor which shall be paid seperately.		MT40			
8	Stone filling (40mm) over grating of Transformer /reactor Foundation		780tr.			
9	Stone spreading including antiweed treatment in switchyard but PCC.	8	500Mtr.			
10	Supplying & laying hume pipe with collarsof grade (NP-3) but excluding reinforcement steel & concrete of bed/support/encasing of hum which shall be paid seperately		-			
	i) 250mm dia		RM25			
	ii) 300mm dia		RM50			
	iii) 450mm dia		RM25			
	iv) 600mm dia	25	RM			
11	Concrete road (including all crossings) as per technical specifica approved drawing but excluding reinforcement & concrete	-				
	a. Concrete Road	2	3625.			

Item No.	Description	Quantity	Unit	Unit Rate(NRs.)	Total Amount (NRs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
12	Construction of rail-cum-road as per technical specification and drawing including all items such as excavation, compaction, rolling WBM, etc but excluding concrete, reinforcement and structural steel shall be paid seperately		-			
	a. Section having two rails		Sq. 30.			
13	Chain link fencing as per technical specification and approved drawing excluding concrete which shall be paid seperately		RM 100			
14	switch yard Gate excluding concrete		No 2			
15	Dismantling & rerection of existing fence including sorting and serviceable & non-serviceable materials and disposal of debris as per direction of engineer-in-charge		RM 50			
16	Supplying and erecting dewatering pumps		-			
	a. 5 HP		Nos. 3			
	b. 0.5 HP	4	Nos.			
17	Drain including culverts but excluding concrete ,hume pipes & reinforcement steel which shall be paid seperately	-				
	a. Type AA	1,500	RM			
	b. Type BB	300	RM			
	c. Type CC	50	RM			
	d. Type DD		RM 50			
18	Water supply as per technical from borewell to Buildings including like excavation, pipes, fittings, jointings, valves, chambers/manholes		-			
	a. GIS Building		LS 1			
19	Sewerage system including all items such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber, septic tank ,soak pit		-			
	a. GIS Building		LS 1			
20	Digging of Bore well shall be measured in running meter starting from ground level including PVC pipe, GI pipe, 3 HP submersible pump, necessary cables, control boards, protective devices etc. all as per specification.		RM 50			
21	Stone soling below foundations wherever specified in approved drawings during detailed engineering but not the soling on flooring of buildings		Cumtr.			

Item No.	Description	Quantity	Unit	Unit Rate(NRs.)	Total Amount (NRs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
22	Site levelling		-			
23	Earth work in cutting & Filling and in filling with borrowed earth site clearing and contour survey work.	50000	tr.			
24	Pile Work		-			
24.1	Boring or drilling of 700mm dia bore for stone column as per IS:15284 (pt-1):2003 by means of auger or bailer casing method either mechanically or manually, including labour T&P, bentonite or temporary casing all materials etc complete as per site condition upto a depth of 7.0m from NGL.		410			
24.3	Providing and charging of the stone column bore by using 50mm down graded granular crushed material as per specification. The granular material shall be compacted by using percussion machine with 300 kg or above hammering arrangements as per specification. The rate includes all above operations, supply of all materials, labour, T&P transportation, royalty etc. The compacted layer with original dia 700mm only shall be measured for the payment purpose.		2470			
24.4	Granular blanket of 300mm thick		1820			
24.5	Initial vertical load testing of single stone column of 700mm dia. for design load intensity as per IS:15284 (pt-1):2003, complete with all labour, equipment, kentledge, material etc.	1	Nos			
24.6	Initial vertical load testing of group of three stone column of 700mm dia each for design load intensity as per IS:15284 (pt-1):2003, complete with all labour, equipment, kentledge, material etc.	1	Nos			
24.7	Routine vertical load testing of single stone column of 700mm dia for design load intensity as per IS:15284 (pt-1):2003, complete with all labour, equipment, kentledge, material etc.	20	Nos			
25	Slope protection on filling earth		-			
a	Stone pitching on slope by filling the space between stone by 1:3 cement sand mortar as per technical specification.	750	Sq. M			
b	Bio engineering work, grass plantation on sloped surface as per specification.	1,500	Sq. M			
SECTION: B : CONTRACTOR ASSESSED QUANTITIES						

Item No.	Description	Quantity	Unit	Unit Rate(NRs.)	Total Amount (NRs.)	Remarks
(1)	(2)	(3)	(4)	(5)	(6)=(3)x(5)	(7)
1	PEB - 400kV GIS - Civil Works. All civil works as per drawing and specifications complete, including - brickwork, finishing (external and internal), window etc. However, excavation, PCC, RCC and reinforcement shall be paid separately as per BPS."		LS 1			
2	DG Set Enclosure: Civil Works. All civil works as per drawing and specifications complete including local sand filling around and under DG set foundation as per technical Specification Complete.		LS 1			
3	Geotechnical /Soil Investigation		LS 1			
Total of Part B						
Grand Total: Schedule 4C (Part A+Part B)						

NOTE

- 1 Employer assessed quantities are those which are clearly quantifiable as per the scope of the work and are given under this heading above
- 2 Contractor assessed quantities are those which bidders are required to estimate for the entire execution of the work and shall incorporate

Signature of Bidder _____

Name of Bidder _____

Nepal Electricity Authority
Transmission Directorate
Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project
(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation

Price Schedule No. 4. Installation Services

Part-D(I): Training Charges for Training to be imparted abroad

Sl. No.	Description	Item for which training is to imparted.	Nos. of Trainee	Training duration in days	Training charge per Trainee per day (NRs)	Total Training Charges (NRs.)
(1)	(2)	(3)	(4)	(5)	(6)	(7)=(4)x(5)x(6)
A	Training to Owners personnel on Design, testing and Maintenance aspect as per Technical Specifications at manufacturer's works	i) GIS Equipments and System	3	10		
		ii) Control & Protection and Substation Automation System	3	10		
		iii) EHV GIS/AIS Substation Design	3	10		
Grand Total: Schedule 4D (I)						-

NOTE

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Signature of Bidder _____

Name of Bidder _____

Nepal Electricity Authority
Transmission Directorate
Hetauda- Dhalkebar-Inaruwa 400 kV Substation Expansion Project
(Schedules of Rates and Prices)

400 kV(GIS)/220kV (AIS) Hetauda-Inaruwa Substation

Price Schedule No. 4. Installation Services

Part-D(II): Training Charges for Training to be imparted within the Employer's country

Sl. No.	Description	Item for which training is to be imparted.	Training duration in days	Per Day Training Charges for Contractors Trainers (NRs.)	Total Training Charges (NRs.)
(1)	(2)	(3)	(4)	(5)	(6)=(4)x(5)
a)	On Job training on operation, maintenance and testing & commissioning aspect 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 supplied SINAUT Spectrum Software) at Load Center	5		
		iii) Indoor GIS and Outdoor Switchyard Equipment (CT, CVT, Isolator and Circuit Breaker)	5		
		iv) Operation and Maintenance of Transformer Reactors	5		
Grand Total: Schedule 4D (II)					

NOTE

Please Quote Rate of the above training inline with requirement of Clause 7.2 On Job Training in Nepal, Chapter 1-PSR of Technical Specifications

Signature of Bidder _____

Name of Bidder _____

