

NEPAL ELECTRICITY AUTHORITY

(An Undertaking of Government of Nepal)

Project Management Directorate



Hetauda-Parwanipur-Pokhariya 132 kV Transmission Line Project

A Component of

PTDSSP (Power Transmission and Distribution System Strengthening Project)

BIDDING DOCUMENT FOR

**Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS
Substation and Bay Extension Work of Parwanipur Substation**

(Procurement of Plant)

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

Issued on:	18 November, 2022
Invitation for Bids No.:	PMD/PTDSSP/HPP/2079/80-01
OCB No.:	PMD/PTDSSP/HPP/2079/80-01
Employer:	Nepal Electricity Authority
Country:	Nepal

VOLUME:- III OF III

November 2022

**Hetauda-Parwanipur-Pokhariya 132 kV Transmission Line Project
Project Management Directorate
Matatirtha, Kathmandu, Nepal
Telephone: +977-1-5164099, 9851313730
Email address: hpptp@nea.org.np**

Preface

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

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



Table of Contents - Summary Description

PART I BIDDING PROCEDURES

Section 1 - Instructions to Bidders (ITB) ----- 1-1

This section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. 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 lists 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 Facilities 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.



Abbreviations

ADB	Asian Development Bank
BDF	bidding forms
BDS	bid data sheet
COF.....	contract forms
CON.....	historical contract nonperformance
ELC.....	eligible countries
ELI.....	eligibility form
EQC	evaluation and qualification criteria
EQU.....	equipment form
ERQ.....	employer's requirements
EXP.....	experience form
FIN.....	financial data form
GCC.....	general conditions of contract
IFB	invitation for bids
ITB.....	instructions to bidders
OCB	open competitive bidding
PCC.....	particular conditions of contract
PER.....	personnel form
SBD	standard bidding document



NEPAL ELECTRICITY AUTHORITY

Project Management Directorate

Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project

Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
Part I: 132/33/11 kV Pokhariya Substation (AIS)								
1	Materials for Electrical, SAS and Communication Works							
	PART - A : EMPLOYER ASSESSED QUANTITIES							
1.1	Transformers							
1.1.1	Power Transformer							
1.1.1.1	132/33 kV, Three phase, 63 MVA, ONAN/ONAF1/ONAF2 Power Transformer complete with vacuum OLTC & RTCC facility, Tank Mounted LA at LV side and RIP bushing at HV side and Bushing CT on both sides, Oil filled, star/star connected complete with all accessories as specified in technical Specification.		Set	2				
1.1.1.2	33/11 kV, Three phase, 30 MVA, ONAN/ONAF1/ONAF2 Power Transformer complete with On Load Tap Changer (OLTC) & RTCC facility, Tank Mounted LA at LV side and Bushing CT on both sides, Oil filled, delta/star connected complete with all accessories as specified in technical Specification.		Set	2				
1.1.2	Station Supply Transformer							
1.1.2	630 kVA, 33/0.4 kV, Three phase, ONAN, delta/star connected, Off load Tap Changer, Distribution Transformer with all other accessories as specified in technical Specification.		Set	2				
1.2	Circuit Breakers and Switchgears with support structures							
1.2.1	145 kV, 2000 A, 3 phase, SF6 Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for incoming/outgoing 132 kV lines.		Set	4				
1.2.2	145 kV, 2000 A, 3 phase, SF6 Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 2 nos. of 132/33 kV Power Transformers.		Set	2				
1.2.3	145 kV, 2000 A, 3 phase, SF6 Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 132 kV Bus Coupler		Set	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.2.4	36 kV, 2000 A, 3 phase, Vaccum Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 2 incomer 33 kV Lines including bus coupler.		Set	3				
1.2.5	36 kV, 1250 A, 3 phase, Vaccum Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 6 outgoing 33 kV feeder and 2 Power Transformer.		Set	8				
1.2.6	36 kV, 400 A, 3 phase, Vaccum Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 2 nos of station transformer.		Set	2				
1.3	Disconnect Switches/Isolators							
1.3.1	145 kV, 2000 A, 3 phase, Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification for Bus Coupler		Set	2				
1.3.2	145 kV, 2000 A, 3 phase Double Break Disconnect Switch with one Grounding Switch complete with all accessories as per specification for 132 kV incoming/outgoing Lines		Set	4				
1.3.3	145 kV, 2000 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification		Set	22				
1.3.4	36 kV, 2000 A, 3 phase Bus-Sectionalizer Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification		Set	2				
1.3.5	36 kV, 2000 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification for 2 nos of 33 kV incoming lines		Set	2				
1.3.6	36 kV, 1250 A, 3 phase Double Break Disconnect Switch with one Grounding Switch complete with all accessories as per specification for 6 nos. of 33 kV outgoing lines		Set	6				
1.3.7	36 kV, 1250 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification for 6 nos. of 33 kV outgoing lines and 2 nos. of transformers		Set	8				
1.3.8	36 kV, 400 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification for 2 no. of station transformer.		Set	2				
1.4	Instrument Transformers							
1.4.1	145 kV, 50 VA, 132/√3 /110/√3 /110/√3 kV, Class 0.2/3P, Capacitor Voltage Transformer (1-phase) complete with all accessories as per specification		Nos.	18				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.4.2	145 kV, 30 VA, 5 core, Class 0.2, 1600-1200-800/1 A, Current Transformer (1-phase) complete with all accessories as per specification for 132 kV Line bays		Nos.	12				
1.4.3	145 kV, 30 VA, 5 core, Class 0.2, 1600-1200-800/1 A, Current Transformer (1-phase) complete with all accessories as per specification for 132 kV Bus coupler		Nos.	3				
1.4.4	145 kV, 30 VA, 4 core, Class 0.2, 600-300-150/1 A, Current Transformer (1-phase) complete with all accessories as per specification for 132/33 kV Power Transformers		Nos.	6				
1.4.5	36 kV, 30 VA, 33/√3/ 110/√3/ 110/√3 kV, Class 0.2/3P, Voltage Transformer (1-phase) complete with all accessories as per specification		Nos.	12				
1.4.6	36 kV, 30 VA, 2 core, Class 0.2, Multi ratio, Current Transformer (1-phase) complete with all accessories as per specification		Nos.	36				
1.5	Lightening Arrestor							
1.5.1	120 kV, 10 kA Lightening Arrestor (1-phase) including Discharge Counter complete with all accessories as per specification		Nos.	18				
1.5.2	30 kV, 10 kA Lightening Arrestor (1-phase) complete with all accessories as per specification		Nos.	30				
1.5.3	9 kV, 10 kA Lightening Arrestor complete (1-phase) with all accessories as per specification		Nos.	18				
1.6	Control and Relay Panel with Automation							
1.6.1	132 kV Transmission Line Control and Relay Panel complete with all accessories as per specification for incoming/outgoing 132 kV Line		Set	4				
1.6.2	132/33 kV Transformer Control and Relay Panel complete set for HV and LV side with all accessories as per specification		Set	2				
1.6.3	132 kV bus coupler cum bus bar protection control and relay panel complete with all accessories as per specification		Set	1				
1.6.4	33/11 kV Transformer Control and Relay Panel complete set for HV and LV side with all accessories as per specification		Set	2				
1.6.5	33 kV Sub-transmission Line Control and Relay Panel complete with all accessories as per specification for 6 nos. of outgoing 33 kV Line		Set	6				
1.6.6	C/R Panel for Station Transformer		Set	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.6.7	Time Synchronisation Equipment as per specification pertaining to C & R System		No.	1				
1.7	12 KV, 25kA, 3 sec, 3-phase Indoor Switchgear Panel							
1.7.1	12 kV Transformer Incomer Module (2000A) with VCB, CRP, CT and all accessories as per technical specification		Set	2				
1.7.2	12 kV Line Outgoing Module (800A) with VCB, CRP, CT and all accessories as per technical specification		Set	6				
1.7.3	12 kV Bus Coupler Module (2000A) with all accessories as per technical specification		Set	1				
1.7.4	12 kV PT module with all accessories as per technical specification		Set	2				
1.8	Substation Automation System (SAS)							
1.8.1	Complete Substation Automation System (SAS) including hardware and software for the substation & remote control stations alongwith associated equipments for the followings as per Technical Specification.							
i.	132 kV System		Nos.	7				
ii.	33 kV and 11 kV System		LS	1				
ii.	BCU for controlling & monitoring of auxiliary system		Set	1				
1.9	Teleprotection & Communication Equipments							
1.9.1	Digital Protection Coupler with sub Rack as per technical specification		Nos.	8				
1.9.2	IP- PBAX as per TS		Set	1				
1.9.3	SDH Equipment with MPLS - TP facility (STM -4 upto 4 MSP Protected directions as well as 10 G upto 4 MSP Protected directions)							
(i)	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks (Additional Sub Rack if required to accomodate all facilities including SDH and MPLS - TP mentioned above) , patch cord, DDF etc. fully equipped excluding (ii) & (iii) below		Nos.	1				
(ii)	Optical Interface Cards/SFP							

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
(a)	S 4.1 SFP		Nos.	4				
(b)	L 4.1 SFP		Nos.	8				
(c)	10 G SFP		Nos.	4				
(iii)	Tributary cards							
(a)	E1 Interface card (Min. 8 Interfaces per card)		Set	2				
(b)	Fast -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min. 8 Interfaces per card)		Nos.	3				
1.9.4	Equipment Cabinet		No.	1				
1.9.5	VOIP telephone instrument with one common POE+ switch (min. 8 port)		Nos.	2				
1.10	Station Supply, LV Switchgear (As per Technical specification)							
1.10.1	400V AC Main Switch Control Panel including MCB, Cable and accessories for the specified scope of the work.		Set	1				
1.10.2	400V AC Distribution Board (ACDB) including Cable and accessories for the specified scope of the work.		Set	2				
1.10.3	400V AC Main Lighting Distribution Board (MLDB) including Cable and accessories for the specified scope of the work.		Set	1				
1.10.4	400V AC Emergency Distribution Board including Cable and accessories for the specified scope of the work.		Set	1				
1.10.5	220 V DC Distribution Board including cable and accessories to complete the specified scope of work.		Set	1				
1.10.6	48 V DC Distribution Board including cable and accessories to complete the specified scope of work.		Set	1				
1.11	Power Cables with clamps, glands, lugs and straight joints etc.							
1.11.1	12 kV, 800 sq. mm, Single core, XLPE insulated Copper conductor armoured Power Cable including Straight Joints and termination joints for both ends with other required accessories complete as per Drawing and specification from LV sides of both 33/11 kV, 3 phase, Power Transformers upto 2 nos. of Indoor 11 kV Switchgear Module Panels in the switchgear room (2 no. of single core cable/phase).		m	1000				
1.11.2	12 kV, 240 sq.mm, 3 core, XLPE insulated Copper conductor armoured Power Cable including cable termination joints at both ends with other required accessories complete as per Drawing and specification for 5 nos. of Outgoing 11 kV Distribution Feeders .		m	3000				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.11.3	36 kV, 1200 sq. mm, Single core, XLPE insulated Copper conductor armoured Power Cable including Straight Joints and termination joints for both ends with other required accessories complete as per Drawing and specification from LV sides of both 63 MVA, 132/33 kV, 3 phase, Power Transformers to the 33 kV incomer.		m	1750				
1.12	Battery / Battery Charger							
1.12.1	Dual Mode Float Cum Boost Battery charger for 220 V battery complete with all accessories to complete the specified scope of work (One for 132kV & One for 33kV).		Set	2				
1.12.2	220 V, 800 AH maintenance free lead acid sealed type battery complete with all accessories to complete the specified scope of work (One for 132kV & One for 33kV).		Set	2				
1.12.3	Dual Mode Float Cum Boost Battery charger for 48 V battery complete with all accessories to complete the specified scope of work.		Set	1				
1.12.4	48 V, 300 AH maintenance free lead acid sealed type battery complete with all accessories to complete the specified scope of work.		Set	1				
1.13	Fire Detection & Alarm System							
1.13.1	50 litre foam type, Portable/Trolley/Wheel mounted fire extinguishers		Nos.	4				
1.13.2	4.5 kg CO ₂ type, Fire Extinguisher		Nos.	10				
1.13.3	22.5 kg Dry Chemical Power (DCP) type, Trolley/Wheel mounted fire extinguishers		Nos.	3				
1.13.4	Smoke detection system in Control Room cum administrative Building		Set	1				
1.13.5	Fire detection and Alarm System in Control Room cum administrative Building		Set	1				
1.14	Monitoring and Analyzing Equipment							
1.14.1	Online monitoring Equipment of fault gases, air components and moisture in transformer insulating fluids (Dissolved gas Analyzer) of 132/33 kV Power Transformer as per specification		Set	2				
1.14.2	132/33 kV Power Transformer Bushing Online Monitoring Equipment as per specification		Set	2				
1.15	Air Conditioning system as per technical specification							
1.15.1	Ceiling cassette type split AC unit of 3 TR capacities including Ceiling cassette for 132 kV control room		Nos.	4				
1.15.2	High wall type split AC unit of 2 TR capacities for switchgear room		Nos.	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.15.3	High wall type split AC unit of 1.5 TR capacities for Office room, communication room, battery room and Township (Staff Quarters) buildings		Nos.	20				
1.16	Bus Post/Support Insulators including all other accessories required to complete the specified scope of work for							
1.16.1	132 kV Bus		Nos.	86				
1.16.2	33 kV Bus		Nos.	42				
1.17	Diesel Generator with control Panel							
1.17.1	200 kVA Silent type Diesel Generator (400/230 V, 50 Hz) with control Panel & AMF panel as per technical specification.		Set	1				
	Sub-total of Part - A of Electrical, SAS and Communication Works							
	PART - B : CONTRACTOR ASSESSED QUANTITIES							
1.18	Power & Control cables with fitting accessories							
1.18.1	1.1 kV grade PVC/XLPE insulated Power and lighting cable (Copper) for proper connection of electrical works in Control room building, Staff quarters, Security (Guard) room, Store buliding, Pump house, Fire fighting system, Switchyard lighting, Road & Street lighting and other necessary places and circuits to complete the specified scope of work as per Technical specification and approved drawing.		Lot	1				
1.18.2	1.1 kV grade PVC insulated Control cable (Copper) to complete the specified scope of works including that for communication and networking system works as per Technical specification and approved drawing.		Lot	1				
1.18.3	Cable glands, lugs & straight through joints for Power & Control cables		Lot	1				
1.19	Communication / SCADA (Based on IEC 61850)							
1.19.1	Optical Distribution Frame complete in all respects as per technical specification		Lot	1				
1.19.2	Optical Approach Cable -24 pair Fibre (DWSM -G.652D) along with Installation hardware set including outdoor enclosure for above 24 Fibre, Fibre Optic Approach Cable complete in all respects as per technical specification		Lot	1				
1.19.3	Integration of all 132/33/11 kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.		LS	1				
1.19.4	Integration of all 132/33/11 kV Bays under present scope with the SCADA of proposed Main Control Centre (MCC), Hetauda including supply of Hardware, Software, accessories etc. as per TS Section Project.		LS	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.20	Visual Monitoring System							
1.20.1	Visual Monitoring System for watch & ward as per technical specification and approved drawing		Lot	1				
1.21	Fire Protection System as per technical Specification							
1.21.1	Pumping arrangement for HVW system & hydrant system complete with all piping, valves, fittings etc. inside pump house.		Lot	1				
1.21.2	Hydrant system, complete U/G piping and accessories etc. outside the Pump House for all transformers and equipment.		Lot	1				
1.21.3	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for :							
1.21.3.1	63 MVA, 132/33 kV Three Phase Power Transformer and equipment		Sets	2				
1.21.3.2	30 MVA, 33/11 kV Three Phase Power Transformer and equipment		Sets	2				
1.22	Earthing and lightning protection							
1.22.1	Galvanized E.H.S. steel wires of size 7/3.35 for lightning shield wire in take off and internal structures, with accessories to complete the specified scope of works as per technical Specification and approved drawing.		Lot	1				
1.22.2	Earthing system of substation with 120 sq.mm. Copper conductors, copper clad steel Earth Rod with nesaary connectors/connections, risers etc. complete in all respect as per technical Specification and approved drawing.		Lot	1				
1.22.3	Equipment for lightning protection of substation including nesaary connectors/connections, risers etc. complete in all respect (but excluding LM structures for Lightning protection) as per technical Specification and approved drawing.		Lot	1				
1.23	Erection Hardwares and Miscellaneous material as per technical Specification and approved drawing							
1.23.1	145 kV Insulator Strings, Disc Insulators, necessary hardwares, Clamps, spacers, connectors for Transformer, Substation Works and connection between Line Tower, Take Off Gantry and Internal Gantry structure etc. all complete as per the specification to complete the specified scope of works for all bays.		Lot	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.23.2	36 kV Insulator Strings, Disc Insulators, necessary hardwares, Clamps, spacers, connectors for Transformer, Substation Works and connection between Line Tower, Take Off Gantry and Internal Gantry structure etc. all complete as per the specification to complete the specified scope of works for 2 incoming bays, 5 outgoing bays, 2 transformer bays and 1 station transformers.		Lot	1				
1.23.3	132 kV Tubular Bus (Outer Dia 100 mm and thickness 10 mm with current carrying capacity of 2500 A), expansion joint including all other Accessories required to complete 132 kV double bus-bar configuration as per the specified scope of work		Lot	1				
1.23.4	ACSR "CARDINAL" Conductors for 132kV switchyard and substation works with necessary hardwares and accessories to complete the specified scope of works for Line Tower to Take Off and Internal Gantry Structure (including stringing of conductor between tower to gantry for 132kV)		Lot	1				
1.23.5	33 kV Tubular Bus (Dia 75 mm, thickness 8 mm) including branch bus -bars for 33 kV and other accessories required to complete the specified scope of work		Lot	1				
1.23.6	ACSR "PANTHER" conductors for 33 kV switchyard with necessary hardwares and accessories for substation works and for overhead connections to the 33 kV lines at the gantry as required to complete the specified scope of works		Lot	1				
1.23.7	36 kV Horn Gap Fuse along with support insulator (1-phase) and other accessories as required to complete the specified scope of work for primary connection of 33/0.4 kV station service Transformer.		Nos.	6				
1.23.8	H-pole Dead End double arm Steel Telescopic Pole (Fully Galvanized, 13 Meter Structure as per drawing and technical specification) for 33 kV outgoing Feeders		Set	6				
1.23.9	H-pole Dead End double arm Steel Tubular Pole (Fully Galvanized, 11 Meter Structure as per drawing and technical specification) for 11 kV outgoing Feeders		Set	6				
1.24	Illumination System							
1.24.1	Lighting system (Outdoor and Peripheral) for Switchyards, Substation area, Entrance & Internal Roads, outdoor area of Control Room, Township (Staff Quarters), Security room, store and fire fighting pump house buildings, Boundary wall periphery & along main approach roads (with support wherever necessary), occupancy sensor and Street lights etc. to complete the specified scope of works as per technical specification and approved drawing.		Lot	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1.24.2	Emergency DC lighting system with necessary accessories all complete for control room, switchyard and substation gate area as per technical specification		Set	15				
	Sub-total of Part - B of Electrical, SAS and Communication works							
	Total of Electrical, SAS and Communication Works of Pokhariya AIS Substation							
2	CIVIL AND ARCHITECTURAL WORKS (Design and Supply)							
	PART - C : CONTRACTOR ASSESSED QUANTITIES							
2.1	STEEL STRUCTURES (Gantry structures & Equipment support structures)							
	Design, Fabrication, galvanising & supply of Lattice/Pipe Structure for towers, Lightning/Earth Mast, post, beams and equipments including peak plates/pack washers and guest paltes including foundation bolts (nuts, washers, MS plate welded at the bottom) as per approved drawings and technical specifications.							
2.1.1	Lattice structure including Foundation bolts		MT	160				
2.1.2	Pipe Structure including Foundation Bolts		MT	68				
2.1.3	Fastners for towers, beams and equipment support structures		MT	8				
	Total of Part - C of Civil and Architectural Works of Pokhariya Substation							
3	PART - D : Mandatory SPARE PARTS							
3.1	For 132/33 kV Power Transformer							
3.1.1	132 kV and 33 kV Bushing (one of each type) with metal parts, gaskets and lifting tools		Set	1				
3.1.2	Local & Remote WTI and OTI with sensing device & contact (each type)		Set	1				
3.1.3	Oil Level Gauges		Set	1				
3.1.4	Insulating Oil (10% of total supply) to be handed over to NEA after commissioning for O&M requirement including tank separately		Lot	1				
3.1.5	Indicating Lamps (25% of used)		Lot	1				
3.1.6	All types of Fuses (25% of used)		Lot	1				
3.1.7	Complete set of Gaskets of each type		Set	1				
3.1.8	Complete set of Pressure Relief Device		Set	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
3.1.9	All type of Auxiliary, Current, Voltage and Thermal Relays, Contactors and Timers for electrical control, protection and cooling circuit (one of each type)		Set	1				
3.1.10	OLTC Motor with Contactor		Set	1				
3.1.11	Complete set of Buchholz relay with contacts		Set	1				
3.1.12	Cooler Fan with motor		No.	1				
3.1.13	Remote tap position Indicator		No.	1				
3.2	For 33/11 kV Power Transformer							
3.2.1	33 kV and 11 kV Bushing (one of each type) with metal parts and gaskets and lifting tools		Set	1				
3.2.2	Local & Remote WTI and OTI with sensing device & contact (each type)		Set	1				
3.2.3	Oil Level Gauges		Set	1				
3.2.4	Indicating Lamps (25% of used)		Lot	1				
3.2.5	All types of Fuses (25% of used)		Lot	1				
3.2.6	Complete set of Gaskets of each type		Set	1				
3.2.7	Complete set of Pressure Relief Device		Set	1				
3.2.8	All type of Auxiliary, Current, Voltage and Thermal Relays, Contactors and Timers for electrical control, protection and cooling circuit(one of each type)		Set	1				
3.2.9	OLTC Motor with Contactor		Set	1				
3.2.10	Complete set of Buchholz relay with contacts		Set	1				
3.2.11	Cooler Fan with motor		No.	1				
3.3	For 145kV SF6 Circuit Breaker							
3.3.1	Complete set (one chamber) of interrupter		Sets	2				
3.3.2	Tripping Coils assembly with resistor as applicable		Nos.	6				
3.3.3	Closing Coils assembly with resistor as applicable		Nos.	6				
3.3.4	Pressure Switch, Relays, Contactors, push buttons, timers & MCBs etc (one no. of each type & rating)		Sets	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
3.3.5	Motors for mechanism of each type		Nos.	1				
3.3.6	SF6 gas filling equipment, nozzle & adaptor complete with accessories		Set	1				
3.3.7	Rubber gaskets, `O' rings and seals for SF6 gas (1 No. of each type)		Sets	2				
3.3.8	Gas in sealed non returnable bottles, net		kgs	50				
3.4	For 36kV Vaccum Circuit Breaker							
3.4.1	Complete set (one chamber) of interrupter		Sets	1				
3.4.2	Tripping Coils assembly with resistor as applicable		Nos.	3				
3.4.3	Closing Coils assembly with resistor as applicable		Nos.	3				
3.4.4	Relays and Contactors (One of each type)		Sets	2				
3.4.5	Motors for Mechanism of each type		Set	1				
3.4.6	Complete set (one chamber) of Sealing rings and Gaskets		Sets	1				
3.5	For 12kV VCB Switchgear							
3.5.1	Complete set of 12 kV Vaccum Interrupter		Nos.	2				
3.5.2	Tripping Coils assembly with resistor as applicable		Nos.	6				
3.5.3	Closing Coils assembly with resistor as applicable		Nos.	6				
3.5.4	Spring Charging Motor		Set	2				
3.5.5	3 Phase Overcurrent Relay for 11kV Side, one of each type		Sets	1				
3.5.6	Earth Fault Relay for 11kV Side, one of each type		Sets	1				
3.5.7	Ammeter		Nos.	1				
3.5.8	Voltmeter		Nos.	1				
3.5.9	kVA Meter		Nos.	1				
3.5.10	11 kV CTs of each type used (3 Nos)		Sets	1				
3.5.11	Operating Handle		Sets	1				
3.5.12	Indicating Lamps and fuses (100% of used)		Set	1				
3.5.13	12 kV XLPE Cable termination kit (three phase) including all accessories complete		Set	3				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
3.5.14	12 kV XLPE Cable termination kit (single phase) including all accessories complete		Set	9				
3.6	For 145kV Disconnecting Switches/ISOLATORS							
3.6.1	Porcelain insulator		nos.	2				
3.6.2	Main contact assemblies		sets	2				
3.6.3	Auxiliary contacts		sets	2				
3.6.4	Interlocking coil		nos	2				
3.6.5	Motor for driving mechanism		nos	2				
3.6.6	Contactor for the mechanism		nos.	2				
3.7	For 36kV Disconnecting Switches							
3.7.1	Procelain Insulator		nos.	1				
3.7.2	Main Contact Assemblies(one assembly)		sets	1				
3.7.3	Auxiliary Contacts		sets	1				
3.7.4	Interlocking Coil		nos	1				
3.8	For Instrument Transformers of used type							
3.8.1	132 kV Current transformer		nos.	1				
3.8.2	132 kV Capacitive voltage transformer		nos.	1				
3.8.3	33 kV Current Transformer		nos.	1				
3.8.4	33 kV Voltage transformer		nos.	1				
3.9	For Lightning Arrestor of used type with insulating base, terminal connector, Surge counter & accessories (excluding support structure)							
3.9.1	120 kV Single Phase Lightning Arrestor (pedestal-type)		Nos.	6				
3.9.2	30 kV Single Phase Lightning Arrestor (pedestal-type)		Nos.	6				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
3.9.3	9 kV Single phase Lightening Arrestor (Pedestal-type)		Nos.	6				
3.10	132 kV Control and Protection Panel							
3.10.1	Indicating Lamps(50% of used)		Lot	1				
3.10.2	Fuses of each type(50% of used)		Lot	1				
3.10.3	Color Caps of each color for indicating lamps (30% of used)		Lot	1				
3.10.4	One of each type of Switch, Timer and other special devices		Set	1				
3.10.5	Distance Relay for Line Protection		No.	1				
3.10.6	One of each type of Over current and earth fault relays		Lot	1				
3.10.7	Carrier Auxiliary Relay		No.	1				
3.10.8	Synchro Check Relay		No.	1				
3.10.9	Trip-Circuit Supervision Relay		No.	1				
3.10.10	Ammeter		Nos.	2				
3.10.11	Voltmeter		Nos.	2				
3.11	For 33/11 kV Transformer Control and Relay Panel							
3.11.1	Indicating Lamps (50% of used)		Lot	1				
3.11.2	Fuses of each type(50% of used)		Lot	1				
3.11.3	Color Caps of each color for indicating lamps (30% of used)		Lot	1				
3.11.4	One of each type of Switch, Timer and other special devices		Set	1				
3.11.5	3 Phase Over Current Relays with Earthfault Inbuilt		Set	1				
3.11.6	3 Phase Transformer Differential Relays		Set	1				
3.11.7	Each type of Auxiliary Relay		Set	1				
3.11.8	Ammeter		No.	2				
3.11.9	Voltmeter		No.	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
3.12	Communication/SCADA							
3.12.1	Digital Protection Coupler		set	2				
3.12.2	SDH Equipment							
(i)	Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories (each)		Set	1				
(ii)	Optical Interface Cards/SFP							
(a)	S 4.1 SFP		Nos.	1				
(b)	L 4.1 SFP		Nos.	2				
(c)	10 G SFP		Nos.	2				
(iii)	Tributary cards							
(a)	E1 Interface card (Min.8 interfaces per card)		Nos	2				
(b)	Giga -Ethernet Interface 10/100/1000 Mbps Base T with Layer-2 switching (Min 4 Interfaces per card)		Nos.	2				
3.12.3	VOIP telephone instrument with one common switch (min. 8 port)		Nos.	2				
3.13	220 V Battery Charger							
3.13.1	Fuses of each type(50% of used)		Lot	1				
3.13.2	Indicating Lamp (50% of used)		Lot	1				
3.13.3	One of each type of Switch, Timer and other special devices		Lot	1				
3.13.4	Ammeter		No.	1				
3.13.5	Voltmeter		No.	1				
3.14	48V Battery Charger							
3.14.1	Fuses of each type(50% of used)		Lot	1				
3.14.2	Indicating Lamp (50% of used)		Lot	1				
3.14.3	One of each type of Switch, Timer and other special devices		Lot	1				
3.14.4	Ammeter		No.	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
3.14.5	Voltmeter		No.	1				
3.15	Monitoring, Testing and Analyzing Equipments							
3.15.1	Transmission Line Fault Analyzer as per specification		Set	0				
3.15.2	Tower Footing Impedance, Resistance and Inductance measurement kit with GPS		Set	1				
3.15.3	Portable DC Earth Fault Locator		Set	0				
3.15.4	Earthing Resistance Tester		Set	1				
3.15.5	Non-Contact Voltage Detector along with 7 meter Telescopic Fiber Glass rod		Set	1				
3.15.6	Insulator Leakage Detector as per specification		Set	0				
3.16	For Erection Hardware							
3.16.1	3% spares of the actual quantities for Insulator strings & hardware, clamps & connectors (including equipment connectors), spacers, corona bell and welding sleeves.		LS	1				
3.17	For LV Indoor Switchgear							
3.17.1	Each type of MCB, MCCB, ELCB		LS	1				
3.18	For Fire Fighting System							
3.18.1	Recommended Spares		LS	1				
3.19	For DG Set							
3.19.1	Self starter assembly		No.	1				
3.19.2	AVR (Auto Voltage Regulator)/ AVR card		Set	1				
3.20	Bus post Insulators							
3.20.1	132 kV post insulator		Nos.	12				
3.20.2	33 kV post insulator		Nos.	9				
	Sub-Total of Part - D of Mandatory Spares parts							
	Total of Part I : 132/33/11 kV Pokhariya AIS Substation							

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
Part II: Parwanipur Substation (AIS) 132kV Bay Extension								
A.	132 kV Switchgears/Instrument Transformers/DS/LA/CRP Panel etc							
1	145 kV, 1250 A, 3 phase, SF6 circuit breaker (three pole operation type) complete with all accessories		set	4				RPTLP
2	145 kV, 1250 A, 3 phase Double Break disconnecting switch with grounding switch complete with all accessories		set	4				RPTLP
3	145 kV, 1250 A, 3 phase Double Break disconnecting switch without grounding switch complete with all accessories		set	16				RPTLP
4	145kV Single Phase, 4400pf, 3 Core, 132/√3/110/√3, 110/√3, 110/√3 Capacitor voltage transformer complete with all accessories		nos.	12				RPTLP
5	145 kV, 30 VA, 5 core current transformer, complete with all accessories		nos.	12				RPTLP
6	120 kV, 10 kA, single phase lightning arrestor including discharge counter complete with all accessories		nos.	12				RPTLP
7	132 kV line control and relay panel complete with all accessories		set	4				RPTLP
8	132 kV Expansion/Adaptation of busbar protection complete with all accessories as per specification		set	1				RPTLP
	Sub- Total of A							
B.	Miscellaneous Material							
1	132 kV insulator strings with necessary hardware, clamps for substation works and connection between gantry and tower, complete as per the specified scope of works.		lot	1				RPTLP
2	ACSR "Cardinal" conductors for 132 kV with necessary hardware, clamps for connecting with all accessories for substation works and connection between tower and gantry complete as per the specified scope of works.		lot	1				RPTLP
3	Tubular bus and bus support insulators including all other accessories required to complete 132 kV double busbar configuration		lot	1				RPTLP

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
	Sub- Total of B (Miscellaneous Material)							
C.	Power and Control Cables							
	Power and control cables with necessary accessories to complete the specified scope of works							
1	600 V power cable for auxiliary and illumination		lot	1				RPTLP
2	600 V control and instrumentation cable for specified works		lot	1				RPTLP
	Sub- Total of C (Power and Control Cables)							
D.	Grounding							
1	Galvanized E.H.S. steel wires of size 7/3.35 for lightning shield wire in take-off and internal structures complete with all accessories		lot	1				RPTLP
2	Earthing of substation with conductors, electrode, grounding materials complete with all accessories		lot	1				RPTLP
	Sub- Total of D (Grounding)							
E.	Steel Structures							
	Steel structure for post, beam and equipment supporting frame complete with bolts, nuts and all accessories:							
1	132 kV take off gantry structures		bay	4				RPTLP
2	132 kV Internal gantry structures		bay	4				RPTLP
3	145 kV SF6 circuit breaker		set	4				RPTLP
4	145 kV disconnecting switch		set	20				RPTLP
5	145 kV Capacitor voltage transformer		nos.	12				RPTLP
6	145 kV current transformer		nos.	12				RPTLP
7	120 kV lightning arrestor		nos.	12				RPTLP
8	132 kV bus post insulator		lot	1				RPTLP
	Sub- Total of E (Steel Structures)							
F.	Substation Automation System (SAS)							

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
1	Integration of proposed 4 bays and one newly constructed Raxaul Parwanipur bay with SAS system of Parwanipur Substation along with necessary communication equipments, hardware/software accessories as required.		LS	1				
	Sub- Total of F (Substation Automation System)							
G	Spares							
a.	SF6 Circuit Breaker							
1	Complete set of interrupting chamber		set	1				
2	Tripping coils		nos.	1				
3	Closing coils		nos.	1				
4	Pressure switch, relays and contactors (one of each type)		set	1				
5	Motor for mechanism		nos.	1				
6	Gas in sealed non returnable bottles, net		kg	50				
8	Complete set of sealing rings and gaskets		set	1				
9	SF6 gas filling nozzle and adaptor		set	1				
b.	132 kV Disconnecting Switches							
1	Porcelain insulator		no	1				
2	Main contact assemblies		set	1				
3	Auxiliary contacts		set	1				
4	Interlocking coil		no	1				
5	Motor for driving mechanism		no.	1				
6	Contactor for the mechanism		no.	1				
c.	Instrument Transformers							
1	145 kV current tranformer		no	1				
2	145 kV Capacitor voltage transformer		no	1				
d.	Lightning Arrestor							
1	120 kV lightning arrestor		no	1				
e.	132 kV control and relay panel							
1	Indicating lamps (50% of used)		lot	1				
2	Fuses for each type (50% of used)		lot	1				
3	Color caps of each color for indicating lamps (20% of used)		lot	1				
4	One of each type of switch, relay, timer and other special devices		set	1				
5	Each type of auxillulary relays		set	1				
6	Distance relay for line protection		no	1				
7	Three phase directional over current relay for line protection		no	1				
8	3 phase overcurrent protection relay (non directional)		no	1				
9	Tripping circuit supervision relay		no	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

Item No.	Item Description	Country of Origin	Estimated		CIP Project Site including insurance, clearing, forwarding and transportation to site (Excluding Taxes and Duties applicable in Nepal)			Remarks
					FC			
			Unit	Quantity	Currency	Unit Rate	Amount	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)=(5)x(7)	
10	Synchro-Check relay		no	1				
	Sub- Total of G (Spares)							
	Total of Part II: Parwanipur Substation (AIS) 132kV Bay Extension							
	Total of Schedule No. 1 (Total of column 7 to be carried forward to Schedule 5: Grand Summary)							

Note:

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

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

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

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

* Strike-out whichever is not applicable.

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

NEPAL ELECTRICITY AUTHORITY
Project Management Directorate
Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project
Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

LC: Local Currency (All Price in Local Currency)

Item No.	Item Description	Unit	Quantity	Ex Factory Price (Excluding VAT) in LC		Inland transportation to site in LC		Total Amount (Excluding Taxes) LC	Remarks
				Unit Rate	Amount	Unit Rate	Amount		
(1)	(2)	(3)	(4)	(5)	(6)= (4)x (5)	(7)	(8)=(5)x(7)	(9)=(6)+(8)	10
	Part I: 132/33/11 kV Pokhariya Substation (AIS)								
	Part II: Parwanipur Substation (AIS) 132kV Bay Extension								
	Total of Schedule No. 2 (Total of column 8 to be carried forward to Schedule 5: Grand Summary)								

Note:

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

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

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

* Strike-out whichever is not applicable.

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

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

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

NEPAL ELECTRICITY AUTHORITY

Project Management Directorate

Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project

Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule 3: Design Services and Prototype Testing

Item No.	Item Description	Estimated		Unit Price		Total Price		Remarks
		Unit	Quantity	Local Currency Portion (NPR)	Foreign Currency Portion (USD)	Local Currency Portion (NPR)	Foreign Currency Portion (USD)	
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4)x(5)	(8) = (4)x(6)	
	Total of Schedule - 3(Total of column 7 and 8 to be carried forward to Schedule 5(b): Grand Summary)							

NOTE: Design Services and Prototype Testing costs of all other items shall be include in Schedule-1 or in Schedule-2 by the bidder.

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

NEPAL ELECTRICITY AUTHORITY

Project Management Directorate

Hetauda Parwanipur Pokhariya 132 kV Transmission Line ProjectSchedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services**(a): Installation, Testing & Commissioning Services and Civil Works**

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
Part II: 132/33/11 kV Pokhariya Substation (AIS)							
1	Materials for Electrical, SAS and Communication Works						
	PART - A : EMPLOYER ASSESSED QUANTITIES						
1.1	Transformers						
1.1.1	Power Transformer						
1.1.1.1	132/33 kV, Three phase, 63 MVA, ONAN/ONAF1/ONAF2 Power Transformer complete with vacuum OLTC & RTCC facility, Tank Mounted LA at LV side and RIP bushing at HV side and Bushing CT on both sides, Oil filled, star/star connected complete with all accessories as specified in technical Specification.	Set	2				
1.1.1.2	33/11 kV, Three phase, 30 MVA, ONAN/ONAF1/ONAF2 Power Transformer complete with On Load Tap Changer (OLTC) & RTCC facility, Tank Mounted LA at LV side and Bushing CT on both sides, Oil filled, delta/star connected complete with all accessories as specified in technical Specification.	Set	2				
1.1.2	Station Supply Transformer						
1.1.2	630 kVA, 33/0.4 kV, Three phase, ONAN, delta/star connected, Off load Tap Changer, Distribution Transformer with all other accessories as specified in technical Specification.	Set	2				
1.2	Circuit Breakers and Switchgears with support structures						

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.2.1	145 kV, 2000 A, 3 phase, SF6 Circuit Breaker (individual pole operation type) complete with all accessories and support structures as per specification for incoming/outgoing 132 kV lines	Set	4				
1.2.2	145 kV, 2000 A, 3 phase, SF6 Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 2 nos. of 132/33 kV Power Transformers	Set	2				
1.2.3	145 kV, 2000 A, 3 phase, SF6 Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 132 kV Bus Coupler	Set	1				
1.2.4	36 kV, 2000 A, 3 phase, Vacuum Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 3 incoming 33 kV Lines including spare.	Set	3				
1.2.5	36 kV, 1250 A, 3 phase, Vacuum Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 6 outgoing 33 kV feeder and 2 Power Transformer.	Set	8				
1.2.5	36 kV, 400 A, 3 phase, Vacuum Circuit Breaker (three pole operation type) complete with all accessories and support structures as per specification for 2 nos of station transformers.	Set	2				
1.3	Disconnecter Switches/Isolators						
1.3.1	145 kV, 2000 A, 3 phase, Double Break Disconnecter Switch (without Grounding Switch) complete with all accessories as per specification for Bus Coupler	Set	2				
1.3.2	145 kV, 2000 A, 3 phase Double Break Disconnecter Switch with one Grounding Switch complete with all accessories as per specification for 132 kV incoming/outgoing Lines	Set	4				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.3.3	145 kV, 2000 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification	Set	22				
1.3.4	36 kV, 2000 A, 3 phase Bus-Sectionalizer Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification	Set	2				
1.3.5	36 kV, 2000 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification for 2 nos of 33 kV incoming lines	Set	2				
1.3.6	36 kV, 1250 A, 3 phase Double Break Disconnect Switch with one Grounding Switch complete with all accessories as per specification for 6 nos. of 33 kV outgoing lines	Set	6				
1.3.7	36 kV, 1250 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification for 6 nos. of 33 kV outgoing lines and 2 nos. of transformers	Set	8				
1.3.8	36 kV, 400 A, 3 phase Double Break Disconnect Switch (without Grounding Switch) complete with all accessories as per specification for 2 no. of station transformer.	Set	2				
1.4	Instrument Transformers						
1.4.1	145 kV, 50 VA, 132/V3 /110/V3/ 110/V3 kV, Class 0.2/3P, Capacitor Voltage Transformer (1-phase) complete with all accessories as per specification	Nos.	18				
1.4.2	145 kV, 30 VA, 5 core, Class 0.2, 1600-1200-800/1 A, Current Transformer (1-phase) complete with all accessories as per specification for 132 kV Line bays	Nos.	12				
1.4.3	145 kV, 30 VA, 5 core, Class 0.2, 1600-1200-800/1 A, Current Transformer (1-phase) complete with all accessories as per specification for 132 kV Bus coupler	Nos.	3				
1.4.4	145 kV, 30 VA, 4 core, Class 0.2, 600-300-150/1 A, Current Transformer (1-phase) complete with all accessories as per specification for 132/33 kV Power Transformers	Nos.	6				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.4.5	36 kV, 30 VA, 33/√3/ 110/√3/ 110/√3 kV, Class 0.2/3P, Voltage Transformer (1-phase) complete with all accessories as per specification	Nos.	12				
1.4.6	36 kV, 30 VA, 2 core, Class 0.2, Multi ratio, Current Transformer (1-phase) complete with all accessories as per specification	Nos.	36				
1.5	Lightening Arrestor						
1.5.1	120 kV, 10 kA Lightening Arrestor (1-phase) including Discharge Counter complete with all accessories as per specification	Nos.	18				
1.5.2	30 kV, 10 kA Lightening Arrestor (1-phase) complete with all accessories as per specification	Nos.	30				
1.5.3	9 kV, 10 kA Lightening Arrestor complete (1-phase) with all accessories as per specification	Nos.	18				
1.6	Control and Relay Panel with Automation						
1.6.1	132 kV Transmission Line Control and Relay Panel complete with all accessories as per specification for incoming/outgoing 132 kV Line	Set	4				
1.6.2	132/33 kV Transformer Control and Relay Panel complete set for HV and LV side with all accessories as per specification	Set	2				
1.6.3	132 kV bus coupler cum bus bar protection control and relay panel complete with all accessories as per specification	Set	1				
1.6.4	33/11 kV Transformer Control and Relay Panel complete set for HV and LV side with all accessories as per specification	Set	2				
1.6.5	33 kV Sub-transmission Line Control and Relay Panel complete with all accessories as per specification for 6 nos. of outgoing 33 kV Line	Set	6				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.6.6	C/R Panel for Station Transformer	Set	2				
1.6.7	Time Synchronisation Equipment as per specification pertaining to C & R System	No.	1				
1.7	12 KV, 25kA, 3 sec, 3-phase Indoor Switchgear Panel						
1.7.1	12 kV Transformer Incomer Module (2000A) with VCB, CRP, CT and all accessories as per technical specification	Set	2				
1.7.2	12 kV Line Outgoing Module (800A) with VCB, CRP, CT and all accessories as per technical specification	Set	6				
1.7.3	12 kV Bus Coupler Module (2000A) with all accessories as per technical specification	Set	1				
1.7.4	12 kV PT module with all accessories as per technical specification	Set	2				
1.8	Substation Automation System (SAS)						
1.8.1	Complete Substation Automation System (SAS) including hardware and software for the substation & remote control stations alongwith associated equipments for the followings as per Technical Specification.						
i.	132 kV System	Nos.	7				
ii.	33 kV and 11 kV System	LS	1				
ii.	BCU for controlling & monitoring of auxiliary system	Set	1				
1.9	Teleprotection & Communication Equipments						
1.9.1	Digital Protection Coupler with sub Rack as per technical specification	Nos.	8				
1.9.2	IP- PBAX as per TS	Set	1				
1.9.3	SDH Equipment with MPLS - TP facility (STM -4 upto 4 MSP Protected directions as well as 10 G upto 4 MSP Protected directions)						

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
(i)	Base Equipment (Common cards, Cross Connect/control cards, optical base cards, power supply cards, power cabling, other hardware and accessories including sub racks (Additional Sub Rack if required to accomodate all facilities including SDH and MPLS - TP mentioned above) , patch cord, DDF etc. fully equiped excluding (ii) & (iii) below	Nos.	1				
(ii)	Optical Interface Cards/SFP						
(a)	S 4.1 SFP	Nos.	4				
(b)	L 4.1 SFP	Nos.	8				
(c)	10 G SFP	Nos.	4				
(iii)	Tributary cards						
(a)	E1 Interface card (Min. 8 Interfaces per card)	Set	2				
(b)	Fast -Ethernet Interface 10/100 Mbps Base T with Layer-2 switching (Min. 8 Interfaces per card)	Nos.	3				
1.9.4	Equipment Cabinet	No.	1				
1.9.5	VOIP telephone instrument with one common POE+ switch (min. 8 port)	Nos.	2				
1.10	Station Supply, LV Switchgear (As per Technical specification)						
1.10.1	400V AC Main Switch Control Panel including MCB, Cable and accessories for the specified scope of the work.	Set	1				
1.10.2	400V AC Distribution Board (ACDB) including Cable and accessories for the specified scope of the work.	Set	2				
1.10.3	400V AC Main Lighting Distribution Board (MLDB) including Cable and accessories for the specified scope of the work.	Set	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.10.4	400V AC Emergency Distribution Board including Cable and accessories for the specified scope of the work.	Set	1				
1.10.5	220 V DC Distribution Board including cable and accessories to complete the specified scope of work.	Set	1				
1.10.6	48 V DC Distribution Board including cable and accessories to complete the specified scope of work.	Set	1				
1.11	Power Cables with clamps, glands, lugs and straight joints etc.						
1.11.1	12 kV, 800 sq. mm, Single core, XLPE insulated Copper conductor armoured Power Cable including Straight Joints and termination joints for both ends with other required accessories complete as per Drawing and specification from LV sides of both 33/11 kV, 3 phase, Power Transformers upto 2 nos. of Indoor 11 kV Switchgear Module Panels in the switchgear room (2 no. of single core cable/phase).	m	1000				
1.11.2	12 kV, 240 sq.mm, 3 core, XLPE insulated Copper conductor armoured Power Cable including cable termination joints at both ends with other required accessories complete as per Drawing and specification for 5 nos. of Outgoing 11 kV Distribution Feeders .	m	3000				
1.11.3	36 kV, 1200 sq. mm, Single core, XLPE insulated Copper conductor armoured Power Cable including Straight Joints and termination joints for both ends with other required accessories complete as per Drawing and specification from LV sides of both 63 MVA, 132/33 kV, 3 phase, Power Transformers to the 33 kV incomer.	m	1750				
1.12	Battery / Battery Charger						
1.12.1	Dual Mode Float Cum Boost Battery charger for 220 V battery complete with all accessories to complete the specified scope of work (One for 132kV & One for 33kV).	Set	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.12.2	220 V, 800 AH maintenance free lead acid sealed type battery complete with all accessories to complete the specified scope of work (One for 132kV & One for 33kV).	Set	2				
1.12.3	Dual Mode Float Cum Boost Battery charger for 48 V battery complete with all accessories to complete the specified scope of work.	Set	1				
1.12.4	48 V, 300 AH maintenance free lead acid sealed type battery complete with all accessories to complete the specified scope of work.	Set	1				
1.13	Fire Detection & Alarm System						
1.13.1	50 litre foam type, Portable/Trolley/Wheel mounted fire extinguishers	Nos.	4				
1.13.2	4.5 kg CO ₂ type, Fire Extinguisher	Nos.	10				
1.13.3	22.5 kg Dry Chemical Power (DCP) type, Trolley/Wheel mounted fire extinguishers	Nos.	3				
1.13.4	Smoke detection system in Control Room cum administrative Building	Set	1				
1.13.5	Fire detection and Alarm System in Control Room cum administrative Building	Set	1				
1.14	Monitoring and Analyzing Equipment						
1.14.1	Online monitoring Equipment of fault gases, air components and moisture in transformer insulating fluids (Dissolved gas Analyzer) of 132/33 kV Power Transformer as per specification	Set	2				
1.14.2	132/33 kV Power Transformer Bushing Online Monitoring Equipment as per specification	Set	2				
1.15	Air Conditioning system as per technical specification						
1.15.1	Ceiling cassette type split AC unit of 3 TR capacities including Ceiling cassette for 132 kV control room	Nos.	4				
1.15.2	High wall type split AC unit of 2 TR capacities for switchgear room	Nos.	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.15.3	High wall type split AC unit of 1.5 TR capacities for Office room, communication room, battery room and Township (Staff Quarters) buildings	Nos.	20				
1.16	Bus Post/Support Insulators including all other accessories required to complete the specified scope of work for						
1.16.1	132 kV Bus	Nos.	86				
1.16.2	33 kV Bus	Nos.	42				
1.17	Diesel Generator with control Panel						
1.17.1	200 kVA Silent type Diesel Generator (400/230 V, 50 Hz) with control Panel & AMF panel as per technical specification for fire fighting system	Set	1				
	Sub-total of Part - A of Electrical, SAS and Communication Works						
	PART - B : CONTRACTOR ASSESSED QUANTITIES						
1.18	Power & Control cables with fitting accessories						
1.18.1	1.1 kV grade PVC/XLPE insulated Power and lighting cable (Copper) for proper connection of electrical works in Control room building, Staff quarters, Security (Guard) room, Store buliding, Pump house, Fire fighting system, Switchyard lighting, Road & Street lighting and other necessary places and circuits to complete the specified scope of work as per Technical specification and approved drawing.	Lot	1				
1.18.2	1.1 kV grade PVC insulated Control cable (Copper) to complete the specified scope of works including that for communication and networking system works as per Technical specification and approved drawing.	Lot	1				
1.18.3	Cable glands, lugs & straight through joints for Power & Control cables	Lot	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.19	Communication / SCADA (Based on IEC 61850)						
1.19.1	Optical Distribution Frame complete in all respects as per technical specification	Lot	1				
1.19.2	Optical Approach Cable -24 pair Fibre (DWDM -G.652D) along with Installation hardware set including outdoor enclosure for above 24 Fibre, Fibre Optic Approach Cable complete in all respects as per technical specification	Lot	1				
1.19.3	Integration of all 132/33/11 kV Bays under present scope with the SCADA of SIEMENS (SINAUT Spectrum) at Load Dispatch Centre, Kathmandu including supply of Hardware, Software, accessories etc. as per TS Section Project.	LS	1				
1.19.4	Integration of all 132/33/11 kV Bays under present scope with the SCADA of proposed Main Control Centre (MCC), Hetauda including supply of Hardware, Software, accessories etc. as per TS Section Project.	LS	1				
1.20	Visual Monitoring System						
1.20.1	Visual Monitoring System for watch & ward as per technical specification and approved drawing	Lot	1				
1.21	Fire Protection System as per technical Specification						
1.21.1	Pumping arrangement for HVW system & hydrant system complete with all piping, valves, fittings etc. inside pump house.	Lot	1				
1.21.2	Hydrant system, complete U/G piping and accessories etc. outside the Pump House for all transformers and equipment.	Lot	1				
1.21.3	HVW spray system, Hydrant system and complete U/G & O/G piping and accessories etc. out side the pump house for :						
1.21.3.1	63 MVA, 132/33 kV Three Phase Power Transformer and equipment	Sets	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.21.3.2	30 MVA, 33/11 kV Three Phase Power Transformer and equipment	Sets	2				
1.22	Earthing and lightning protection						
1.22.1	Galvanized E.H.S. steel wires of size 7/3.35 for lightning shield wire in take off and internal structures, with accessories to complete the specified scope of works as per technical Specification and approved drawing.	Lot	1				
1.22.2	Earthing system of substation with 120 sq.mm. Copper conductors, copper clad steel Earth Rod with necessary connectors/connections, risers etc. complete in all respect as per technical Specification and approved drawing.	Lot	1				
1.22.3	Equipment for lightning protection of substation including necessary connectors/connections, risers etc. complete in all respect (but excluding LM structures for Lightning protection) as per technical Specification and approved drawing.	Lot	1				
1.23	Erection Hardwares and Miscellaneous material as per technical Specification and approved drawing						
1.23.1	145 kV Insulator Strings, Disc Insulators, necessary hardwares, Clamps, spacers, connectors for Transformer, Substation Works and connection between Line Tower, Take Off Gantry and Internal Gantry structure etc. all complete as per the specification to complete the specified scope of works for 7 bays.	Lot	1				
1.23.2	36 kV Insulator Strings, Disc Insulators, necessary hardwares, Clamps, spacers, connectors for Transformer, Substation Works and connection between Line Tower, Take Off Gantry and Internal Gantry structure etc. all complete as per the specification to complete the specified scope of works for 6 bays and 2 station transformers.	Lot	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.23.3	132 kV Tubular Bus (Outer Dia 100 mm and thickness 10 mm with current carrying capacity of 2500 A), expansion joint including all other Accessories required to complete 132 kV double bus-bar configuration as per the specified scope of work	Lot	1				
1.23.4	ACSR "CARDINAL" Conductors for 132kV switchyard and substation works with necessary hardwares and accessories to complete the specified scope of works for Line Tower to Take Off and Internal Gantry Structure (including stringing of conductor between tower to gantry for 132kV)	Lot	1				
1.23.5	33 kV Tubular Bus (Dia 75 mm, thickness 8 mm with current carrying capacity of 2000A) including branch bus -bars for 33 kV and other accessories required to complete the specified scope of work	Lot	1				
1.23.6	ACSR "PANTHER" conductors for 33 kV switchyard with necessary hardwares and accessories for substation works and for overhead connections to the 33 kV lines at the gantry as required to complete the specified scope of works	Lot	1				
1.23.7	36 kV Horn Gap Fuse along with support insulator (1-phase) and other accessories as required to complete the specified scope of work for primary connection of 33/0.4 kV station service Transformer.	Nos.	6				
1.23.8	H-pole Dead End double arm Steel Telescopic Pole (Fully Galvanized, 13 Meter Structure as per drawing and technical specification) for 33 kV outgoing Feeders	Set	6				
1.23.9	H-pole Dead End double arm Steel Tubular Pole (Fully Galvanized, 11 Meter Structure as per drawing and technical specification) for 11 kV outgoing Feeders	Set	6				
1.24	Illumination System						

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1.24.1	Lighting system (Outdoor and Peripheral) for Switchyards, Substation area, Entrance & Internal Roads, outdoor area of Control Room, Township (Staff Quarters), Security room, store and fire fighting pump house buildings, Boundary wall periphery & along main approach roads (with support wherever necessary), occupancy sensor and Street lights etc. to complete the specified scope of works as per technical specification and approved drawing.	Lot	1				
1.24.2	Emergency DC lighting system with necessary accessories all complete for control room, switchyard and substation gate area as per technical specification	Set	15				
	Sub-total of Part - B of Electrical, SAS and Communication works						
	Total of Electrical, SAS and Communication Works of Pokhariya AIS Substation						
2	CIVIL AND ARCHITECTURAL WORKS (Design and Supply)						
	PART - C : EMPLOYER ASSESSED QUANTITIES						
2.1	Installation works of Steel structure for Gantry, post, beam and equipment supporting frame complete with bolts, fastner, pack washer, nuts, gusset plates & accessories (For 132 and 33 kV side) and various electrical equipments as per technical specification and approved drawings						
2.1.1	Rail Structure for 132/33 kV Power Transformer including access from Internal Road	Nos	2				
2.1.2	Rail Structure for 33/11 kV Power Transformer including access from Internal Road	Nos	2				
2.1.3	132 kV Take Off Gantry structure for 4 nos. bays, one no. of bus coupler bay and two nos. of transformer bays including internal gantry, tower & beam structures and bus bar support as per scope of contract	Bays	7				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
2.1.4	132 kV SF6 Circuit Breaker (3-phase)	Sets	7				
2.1.5	132 kV Disconnect Switch/Isolator with Earth Switch (3-phase)	Sets	4				
2.1.6	132 kV Disconnect Switch/Isolator without Earth switch (3-phase)	Sets	24				
2.1.7	132 kV Capacitive Voltage Transformer (1-phase)	Nos.	24				
2.1.8	132 kV Current Transformer (1-phase)	Nos.	21				
2.1.9	120 kV Lightning Arrestor (1-phase)	Nos.	18				
2.1.10	33 kV Gantry structure for 2 nos. of incoming & 6 nos. of outgoing line bays, 2 nos. of transformer bays & 2 nos of station transformer bays including internal gantry, tower & beam structures and bus bar support as per scope of work	Bays	12				
2.1.11	33 kV Vacuum Circuit Breaker (3-phase)	Sets	13				
2.1.12	33 kV Disconnect Switch/Isolator with Earth Switch (3-phase)	Sets	6				
2.1.13	33 kV Disconnect Switch/Isolator without Earth Switch (3-phase)	Set	14				
2.1.14	33 kV Voltage Transformer (1-phase)	Nos.	12				
2.1.15	33 kV Current Transformer (1-phase)	Nos.	36				
2.1.16	30 kV Lightning Arrestor (1-phase)	Nos.	30				
2.1.17	9 kV Lightning Arrestor (3 Nos. per set) with accessories all complete and connection with earthing	Sets	18				
2.2	Installation works of Lattice/Pipe Structure including peak plates/pack washers and gusset plates including foundation bolts (nuts, washers, MS plate welded at the bottom) as per approved drawings and technical specifications for additional items not included in above S.N. 2.1 of Steel structure of Towers, Gantry structures & Equipment support structures.						

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
(a)	Lattice structure including Foundation bolts	MT	160				
(b)	Pipe Structure including Foundation Bolts	MT	68				
(c)	Fasteners for towers, beams and equipment support structures	MT	8				
	Sub-total of Part - C of Installation works of Steel Structures						
2.3	Civil Works (MATERIAL PLUS LABOUR) as per technical specification and approved drawings						
	PART - D: CONTRACTOR ASSESSED QUANTITIES						
2.3.1	Site preparation work	Sq.m	68000				
2.3.2	Geotechnical /Soil Investigation as per technical specification	Loc	5				
2.3.3	Soil Resistivity test	lot	1				
2.3.4	Exploration works for soil strength of foundations including laboratory tests for Substation and Dead End Tower as per specified	lot	1				
2.3.5	Geophysical test for boring as per technical specification	lot	2				
2.3.5	Boring works of 150mm dia including all assesories works and with filtration treatment scheme as per TS	R-m	250				
2.3.6	Site levelling						
(a)	Earth work in Filling with borrowed earth with all leads and lifts including royalty,taxes etc for Site Grading including compaction and leveling etc all complete as per TS	Cu.m	133600				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
(b)	Construction of retaining wall with random Rubble masonry in cement sand mortar (1:4) including levelling up with cement concrete (1:6:12), providing weep holes of PVC pipes (150 mm dia) with necessary filter material at the mouth of weep holes, 50 mm thick cement concrete (1:2:4) copping on the top of wall, 100 mm thick PCC (1:4:8) below RR masonry work, excavation of foundation for all lifts up to 3m above lower level .	Cu.m	3742.2				
2.3.7	Excavation works in all types of soil and rock including backfilling disposal etc. for all leads and lifts for 132kV and 33kV Switchyard, Control Building, Cable trench, Township (Staff Quarters), Store, security room (Guard House), Fire Fighting Pump House, Approach Road, Retaining Wall, underground Water tank etc. and other locations	Cu.m	10,799.07				
2.3.8	Back filling in layers in foundation pits, trenches , etc, with approved soil obtained from the excavation at site and stacked at site or brought from outside in layer including compaction all complete as per specifications.	Cum	7,019.39				
2.3.9	All civil works for Boundary wall including excavation, concrete, reinforcement steel, structural steel, plaster, painting, grill works and concertina coil etc. all complete as per technical specification and approved drawing (2.5 m high brick masonry and 0.5 m high with post and grill works at top of wall) and excluding RRM works below plinth as per TS	R-m	1250				
2.3.10	Providing and laying of Plain Cement Concrete (PCC) (1:2:4; C:S:A)	Cu.m	235.2				
2.3.11	Providing and laying of Plain Cement Concrete (PCC) (1:4:8; C:S:A)	Cu.m	606				
2.3.12	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)	Cu.m	702.4				
2.3.13	Stone filling (40mm) over grating of Transformer /reactor Foundation	Cu.m	100				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
2.3.14	Stone spreading (40 mm size) including antiweed treatment in Switch yard but excluding PCC	Sq.m	8780				
2.3.15	Stone soling below foundations wherever specified in aproved drawings during detailed Engineering	Cu.m	657				
2.3.16	Local Sand filling around and under DG Set Foundation and other foundations as applicable.	Cu.m	5				
2.3.17	Providing and laying of Reinforced Cement Concrete Design Mix of Grade M25 including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement	Cu.m	3629				
2.3.18	Cutting, bending, placing of Steel reinforcement with binding wire for RCC as per drawing, Steel Reinforcement (Fe 500)	MT	484				
2.3.19	Miscellaneous Structural steel used for rails , plates for rail fixing, gratings, gratings supports etc. for transformer /reactor foundation, cable supportst and earthing cleats, chequered plates, embedments, edge protection angles for cable trenches not included in S.No 2.1 but excluding the reinforcement steel and steel for lattice and pipe structures which shall be paid seperately under respective items of BPS	MT	15				
2.3.20	CONTROL ROOM BUILDING						

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
	All Civil works for Control Room cum Administrative Building including external & internal finishing, internal cable trench, electrification, air conditioning, sanitary and plumbing works, water supply, Doors, windows, False ceiling, Painting, Furnitures and miscellaneous work etc. all complete as per technical specification and approved drawings but excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid separately under respective items of BPS (Plinth area measurement)	Sq. m.	750				
2.3.21	Other Buildings and Structures						
	All civil works for following Buildings and structures including external & internal finishing, electrification, sanitary and plumbing works, Doors, windows, Painting, Furnitures and miscellaneous work etc. all complete as per technical specification and approved drawings but excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid separately under respective items of BPS :						
2.3.22	Township (Staff Quarters) as per TS						
(a)	B - Type (three storey, plinth Area 300 Sq.m.) - 1 No.	Sq. m.	990				
b)	store building (one story) as per TS	Sq. m.	160				
c)	Switchyard panel room (SPR) as per TS	Sq. m.	100				
d)	11 kV Switchgear room as per TS	Sq. m.	50				
2.3.23	Fire fighting pump house building as per TS	Sq. m.	100				
2.3.24	Fire fighting Water tank as per TS	LS	1				
2.3.25	Vehicle Parking shed (for 5 Nos. of 4 wheelers/cars) as per TS	LS	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
2.3.26	All civil works for one storey security room (Guard house) as per as per technical specification and approved drawing including septic tank and soak pit, Internal and external finish, sanitary and plumbing works, Doors, windows, Painting, plinth protection etc. to complete the building but excluding excavation, PCC, RCC and reinforcement steel which shall be measured and paid seperately under respective items of BPS.	Ls	1				
2.3.27	Construction of Concrete road as per technical specification and approved drawing including all items such as excavation, cut & fill, extra widening, compaction, rolling, watering and surface preparation with Water Bound Macadam of thickness 100 mm each layer but excluding reinforcement & concrete which shall be paid seperately under respective items of BPS						
a)	3.75 m wide Road (500m)	Sq.m	1900				
b)	5.5 m wide Road (300 m length)	Sq.m	1700				
2.3.28	Construction of 5.5 m wide Approach road (Outside boundary) as per technical specification and approved drawing including all items such as excavation, cut & fill, extra widening, compaction, rolling, watering and surface preparation with Water Bound Macadam of thickness 100 mm each layers but excluding reinforcement & concrete which shall be paid seperately under respective items of BPS	Sq.m	0				
2.3.29	Chain link Fence for Switchyards as per technical specification and approved drawing including Fence and poles but excluding concrete which shall be paid seperately under respective items of BPS						
(a)	For 132 kV switchyard	R-m	435				
(b)	For 33 kV switchyard	R-m	215				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
2.3.30	Switchyard Gate as per technical specification and approved drawing excluding concrete which shall be paid separately under respective items of BPS	Nos.	2				
2.3.31	All civil works for construction of drains including excavation as per technical specification and approved drawing but excluding concrete and PCC works which shall be paid separately under respective items of BPS						
(a)	Type AA (300mm wide x depth up to 600mm)	R-m	375				
(b)	Type BB (450 wide x depth from 600 to 900mm)	R-m	350				
(c)	Type CC (300 wide x depth from 300mm)(Around Building)	R-m	200				
2.3.32	Supplying & laying of hume pipe of grade (NP-3) as per technical specification and approved drawing but excluding concrete of bed/support/encasing of hume pipes which shall be paid separately under respective items of BPS						
a)	150mm dia	R-m	50				
b)	300mm dia	R-m	30				
c)	450mm dia	R-m	50				
d)	600mm dia	R-m	25				
2.3.33	Supplying and Erecting de-watering pumps as per technical specification and approved drawing						
(a)	5 HP	Nos.	2				
(b)	0.5 HP	Nos.	5				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
2.3.34	External water supply as per technical specification from borewell/single point of water supply within substation boundary to Fire Fighting water Tank, Underground tank, Control Room Building and other buildings as applicable including all items like excavation, pipes, fittings, jointings, valves, chambers/manholes etc.						
(a)	80 mm dia. GI Pipe	R-m	300				
(b)	50 mm dia. GI pipe	R-m	250				
(c)	25 mm dia. GI Pipe	R-m	300				
2.3.35	External sewerage system including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc. as per technical specification and approved drawing						
(a)	250 mm dia.	R-m	50				
(b)	150 mm dia.	R-m	100				
2.3.36	Septic tank and soak pit with External sewerage system as per technical specification and approved drawing according to International/British standards including all item such as excavation, piping, pipe fittings, manholes, gali trap, gali chamber etc. complete excluding concrete & reinforcement which shall be measured and paid seperately under respective items of BPS. (At 3 locations for 30 nos. of users each).	Lot	2				
2.3.37	Main Boundary wall Gate (Steel) as per technical specification and approved drawing excluding concrete which shall be paid seperately under respective items of BPS						
(a)	Main Entry Gate for Substation Entrance and exit	Nos.	1				
(b)	Side Entry Gate for Township (Staff Quarters) Buildings	Nos.	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
2.3.38	Construction of underground Water tank (18000 ltr.) excluding excavation, PCC, RCC and reinforcement steel and fitting of overhead tanks with suction motor for water supply, auto cut off switch, required Upvc pipes and fittings for water supply point to tanks, building and waste pipe etc. and all complete accessories as per specifications & instruction of site engineer.	Lot	2				
3	Miscellaneous works as per technical specification						
3.1	Identification plate, danger notice etc. (MATERIAL PLUS LABOUR) in Control room cum administrative building, fire fighting, pump house, entrance & exit, switchyard, substation area and approach road	Lot	1				
3.2	Installation works of Lightning/Earth mast	Lot	1				
4	PileFoundation						
4.1	Boring, providing and installation of bored cast-in-situ RCC vertical piles of specified diameter and of any length below the pile cap with M25 grade of cement concrete, excluding placing the reinforcement steel but including the cost of boring including temporary guide casing (supplying and providing M.S Liner), Betonite solution and the length of pile to be embedded in the pile cap(Length of pile for payment shall be measured from bottom of pile cap), all necessary labour , materials, plants, tools and tackles etc. complete as necessary for proper execution of the job.						
	a. 500mm diameter RCC vertical bored pile	meter	100				
	b. 750 mm diameter RCC vertical bored pile	meter	100				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
4.2	Conducting integrity test on pile using electronic control unit, hand held hammer, accelerometer, computer with required software to assess as-installed pile characteristics including mobilisation of necessary manpower, equipments, materials etc. required for successful completion of the job	No.	13				
4.3	Initial Load Test	Lot	1				
4.4	Routine Test	Lot	1				
	Total of Civil Works						
Total of Part - II (Pokhariya AIS Substation)							

Part III: Parwanipur Substation (AIS) 132kV Bay Extension

A.	132 kV Switchgears/Instrument Transformers/DS/LA/CRP Panel etc						
1	145 kV, 1250 A, 3 phase, SF6 circuit breaker (three pole operation type) complete with all accessories	set	4				
2	145 kV, 1250 A, 3 phase disconnecting switch with grounding switch complete with all accessories	set	4				
3	145 kV, 1250 A, 3 phase disconnecting switch without grounding switch complete with all accessories	set	16				
4	145kV Single Phase, 4400pf, 3 Core, 132/√3/110/√3, 110/√3, 110/√3 Capacitor voltage transformer complete with all accessories	nos.	12				
5	145 kV, 30 VA, 5 core current transformer, complete with all accessories	nos.	12				
6	120 kV, 10 kA, single phase lightning arrestor including discharge counter complete with all accessories	nos.	12				
7	132 kV line control and relay panel complete with all accessories	set	4				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
8	132 kV Expansion/Adaptation of busbar protection complete with all accessories as per specification	set	1				
	Sub- Total of A (132 kV Switchgears)						
B.	Miscellaneous Material						
1	132 kV insulator strings with necessary hardware, clamps for substation works and connection between gantry and tower, complete as per the specified scope of works.	lot	1				
2	ACSR "Cardinal" conductors for 132 kV with necessary hardware, clamps for connecting with all accessories for substation works and connection between tower and gantry complete as per the specified scope of works.	lot	1				
3	Tubular bus and bus support insulators including all other accessories required to complete 132 kV double busbar configuration	lot	1				
	Sub- Total of B (Miscellaneous Material)						
C.	Power and Control Cables						
	Power and control cables with necessary accessories to complete the specified scope of works						
1	600 V power cable for auxiliary and illumination	lot	1				
2	600 V control and instrumentation cable for specified works	lot	1				
	Sub- Total of C (Power and Control Cables)						
D.	Grounding						
1	Galvanized E.H.S. steel wires of size 7/3.35 for lightning shield wire in take-off and internal structures complete with all accessories	lot	1				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
2	Earthing of substation with conductors, electrode, grounding materials complete with all accessories	lot	1				
	Sub- Total of D (Grounding)						
E.	Steel Structures						
	Steel structure for post, beam and equipment supporting frame complete with bolts, nuts and all accessories:						
1	132 kV take off gantry structures	bay	4				
2	132 kV Internal gantry structures	bay	4				
3	145 kV SF6 circuit breaker	set	4				
4	145 kV disconnecting switch	set	20				
5	145 kV Capacitor voltage transformer	nos.	12				
6	145 kV current transformer	nos.	12				
7	120 kV lightning arrestor	nos.	12				
8	132 kV bus post insulator	lot	1				
	Sub- Total of E (Steel Structures)						
F.	Substation Automation System (SAS)						

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
1	Integration of proposed 4 bays and one newly constructed Raxaul Parwanipur bay with SAS system of Parwanipur Substation along with necessary communication equipments, hardware/software accessories as required.	LS	1				
	Sub- Total of F (Substation Automation System)						
G.	Construction						
1	Site levelling						
1a	Earth work in Filling with borrowed earth with all leads and lifts including royalty,taxes etc for Site Grading including compaction and leveling etc all complete as per TS	Cu.m	5400				
1b	Construction of retaining wall with random Rubble masonry in cement sand mortar (1:4) including levelling up with cement concrete (1:6:12), providing weep holes of PVC pipes (150 mm dia) with necessary filter material at the mouth of weep holes, 50 mm thick cement concrete (1:2:4) copping on the top of wall, 100 mm thick PCC (1:4:8) below RR masonry work, excavation of foundation for all lifts up to 3m above lower level .	Cu.m	405				
2	Excavation works in all types of soil and rock including backfilling disposal etc. for all leads and lifts for 132kV and 33kV Switchyard, Control Building, Cable trench, Township (Staff Quarters), Store, security room (Guard House), Fire Fighting Pump House, Approach Road, Retaining Wall, underground Water tank etc. and other locations	Cu.m	1684				
3	Back filling in layers in foundation pits, trenches , etc, with approved soil obtained from the excavation at site and stacked at site or brought from outside in layer including compaction all complete as per specifications.	Cum	1094.6				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
4	Providing and laying of Plain Cement Concrete (PCC) (1:2:4; C:S:A)	Cu.m	50				
5	Providing and laying of Plain Cement Concrete (PCC) (1:4:8; C:S:A)	Cu.m	25				
6	Providing and laying Plain Cement Concrete 1:5:10 (1 cement : 5 sand : 10 Stone aggregate)	Cu.m	44				
7	Stone spreading (40 mm size) including antiweed treatment in Switch yard but excluding PCC	Sq.m	5500				
8	Stone soling below foundations wherever specified in aproved drawings during detailed Engineering	Cu.m	115				
9	Providing and laying of Reinforced Cement Concrete Design Mix of Grade M25 including pre cast, shuttering, Grouting of pockets & underpinning but excluding steel reinforcement	Cu.m	450				
10	Cutting, bending, placing of Steel reinforcement with binding wire for RCC as per drawing, Steel Reinforcement (Fe 500)	MT	60				
11	Miscellaneous Structural steel used for rails , plates for rail fixing, gratings, gratings supports etc. for transformer /reactor foundation, cable supportst and earthing cleats, chequered plates, embedments, edge protection angles for cable trenches not included in S.No 2.1 but excluding the reinforcement steel and steel for lattice and pipe structures which shall be paid seperately under respective items of BPS	MT	2				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
12	Construction of Concrete road as per technical specification and approved drawing including all items such as excavation, cut & fill, extra widening, compaction, rolling, watering and surface preparation with Water Bound Macadam of thickness 100 mm each layer but excluding reinforcement & concrete which shall be paid separately under respective items of BPS						
a)	3.75 m wide Road (500m)	Sq.m	650				
13	Chain link Fence for Switchyards as per technical specification and approved drawing including Fence and poles but excluding concrete which shall be paid separately under respective items of BPS						
a)	For 132 kV switchyard	R-m	435				
14	Switchyard Gate as per technical specification and approved drawing excluding concrete which shall be paid separately under respective items of BPS	Nos.	2				
15	All civil works for construction of drains including excavation as per technical specification and approved drawing but excluding concrete and PCC works which shall be paid separately under respective items of BPS						
a)	Type AA (300mm wide x depth up to 600mm)	R-m	200				
b)	Type BB (450 wide x depth from 600 to 900mm)	R-m	100				
16	Supplying & laying of hume pipe of grade (NP-3) as per technical specification and approved drawing but excluding concrete of bed/support/encasing of hume pipes which shall be paid separately under respective items of BPS						
a)	300mm dia	R-m	10				
b)	450mm dia	R-m	10				

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4: Installation and Other Services

(a): Installation, Testing & Commissioning Services and Civil Works

Item No.	Item Description	Estimated		Portion in Local Currency (LC)		Portion in Foreign Currency (FC)	
				(NPR)			
		Unit	Quantity	Unit Rate	Amount	Unit Rate	Amount
1	2	3	4	5	6=4*5	7	8=4*7
c)	600mm dia	R-m	10				
17	Dismantling of existing buildings at the site as per instruction and specification	Ls	1				
18	site clearing and stripping	Sqm	12600				
19	Identification of plates,danger notice etc	lot	1				
	Sub-total of F (construction)						
	Total of part II (Parwanipur Substation Bay Extension)						
	Total of Schedule 4(a) [Part II + Part III]						
	(Total of column 7 to be carried forward to Schedule 5: Grand Summary)						

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

NEPAL ELECTRICITY AUTHORITY
Project Management Directorate
Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project

Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

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

Sl. No.	Description	Item for which training is to be imparted.	Country where training is to be imparted	Nos. of Trainee	Training duration in days	Total Training Charges	
						Charges (USD)	Total Training Charges (USD)
1	2	3	4	5	6	7	8 = 5 x 7
a)	Training to Owners personnel on Design, testing and Maintenance aspect as per Section Project, Technical Specification at manufacturer's works	i) Substation Control & Protection and Substation Automation System		3	5 days		
		ii) Teleprotection & Communication Equipment (SDH, MUX & NMS (Craft Terminal)) and Visual Monitoring System		3	5 days		
	Total for Training Charges						
Total of Schedule- 4(b)(Total of column 8 to be carried forward to Schedule 5: Grand Summary)							-

REMARKS:

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

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

Date:

NEPAL ELECTRICITY AUTHORITY
Project Management Directorate
Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project
Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 4 : Installation and Other Services (Common for all)**(c): Training Charges for training to be imparted to Employer's Personnel by Bidder's Instructor in Nepal**

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

REMARKS:

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

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

NEPAL ELECTRICITY AUTHORITY
 Project Management Directorate
Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project
Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation

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

(d2): Maintenance Charges

Sl No	Description	Unit	Qty.	Total Maintenance Charges			Remarks
				Currency	Unit Rate (NPR)	Total Maintenance Charges (USD)	
	1	2	3	4		5	
1	Maintenance Charges for Teleprotection & Communication Equipments including SDH & MUX for Six (6) years after Warranty period	Year	0	NPR	0	-	
	<i>Total Maintenance Charges for Communication Equipment Package (Total Schedule- 4d)</i>						
	<u>Total of Schedule- 4 (d2) (Total of column 5 to be carried forward to Schedule 5: Grand Summary)</u>					-	

Name of Bidder:

Date:

Name of Bidder:

Signature of Bidder:

(Printed Name)

(Designation)

(Common Seal)

NEPAL ELECTRICITY AUTHORITY
Project Management Directorate
Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project

Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

Schedule No. 5: Grand Summary

Sl. No.	Description	Total Amount	
		Total Price Foreign (FC)*	Total Price Local (LC)*
1	TOTAL SCHEDULE NO. 1		
	Plant and Equipment including Mandatory Spares to be supplied from abroad, including Type Test Charges for Type Tests to be conducted abroad.		
2	TOTAL SCHEDULE NO. 2		
	Plant and Equipment including Mandatory Spares Parts to be supplied from within Nepal including Type Test Charges		
3	TOTAL SCHEDULE NO. 3		
	Design Services		
4	TOTAL SCHEDULE NO. 4		
	a. Installation Charges and construction charges		
	b. Training Charges for Training to be imparted abroad		
	c. Training Charges for Training to be imparted in Nepal		
	d. Maintenance charges		
	GRAND TOTAL		

Signature: _____

Printed Name: _____

Designation: _____

Common Seal: _____

Date: _____

Place: _____

NEPAL ELECTRICITY AUTHORITY

Project Management Directorate

Hetauda Parwanipur Pokhariya 132 kV Transmission Line Project

Schedule of Rates and Prices

ADB Loan No: 3943- NEP: Power Transmission and Distribution System Strengthening Project

OCB No. : PMD/PTDSSP/HPP/2079/80-01: Design, Supply, Installation, Testing and Commissioning of Pokhariya 132/33/11 kV AIS Substation along with bay extension at Parwanipur Substation.

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

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

Date: _____

Signature: _____

Printed Name: _____

Designation: _____

Common Seal: _____