

Schedule B1 : Plant and Equipment Supplied from Outside the Employer's Country

New 400/230/132 kV Substation at Purbachal

(For detailed description of the technical requirements please refer to clause 1.2.1: Technical Requirements for 400/230/132KV GIS Substation at Purbachal, Schedule A: Scope of Works, volume 3 of 3 of the bidding document)

Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
1A	420 kV switchgear, equipment connection and steel structures						
1A1	420kV GIS Line Feeder Bays	Set	4				
1A2	420kV GIS Auto Transformer Feeder Bays	Set	3				
1A3	420kV Bus Coupler Bays	Set	2				
1A4	420kV GIS Bus Section Bays	Set	2				
1A5	420 kV GIS type three phase LA	Set	4				
1A6	420kV GIS type Bus FES and Bus VT	Set	4				

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					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
1A7	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2				
1A8	Standalone Partial Discharge measurement and analyzer system for Complete GIS	Lot	1				
AIS Switchgear, Equipment & Structure							
1A9	390kV rated voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	21				
1A10	420kV CVT, Single-phase, 50Hz, 1425kVp BIL, 3 windings	No.	12				
1A11	420kV, 4000A, single phase Wavetrap	No.	4				
1A12	400kV Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 400kV Switchyard including LA, CVT and WT connction						
	i. Tubular Conductor and/or Flexible Conductor	Lot	1				
1A13	Insulator and fittings including all necessary clamps and connectors as required for completing 400kV GIS Switchyard						
	i. Insulator	Lot	1				
	ii. Fittings & Clamps, Connector	Lot	1				
	iii. Nut-bolt	Lot	1				







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					Unit Price	Total Price	
					CIP	CIP	
					(2)	(3) = (1) x (2)	
1A14	Steel gantry each circuit of 400kV Transmission Line, Transformer & Equipment support structure including all necessary accessories required for completing 400kV GIS Switchyard						
	i. Steel Structure for T/L with Nut & Bolts						
	a) Gantry Column	No.	5				
	b) Beam	No.	4				
	ii Equipment Structure						
	a) LA	No.	21				
	b) 420kV CVT	No.	12				
	iii. Nut-Bolt	Lot	1				
	iv. LV power & control cable tray including fitting, fixing accessories	Lot	1				
1B	245 kV switchgear, equipment connection and steel structures						
1B1	245kV GIS Line Feeder Bays	Set	2				
1B2	245kV GIS Auto Transformer Feeder Bays	Set	6				
1B3	245kV Bus Coupler Bays	Set	2				

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					Unit Price	Total Price	
					CIP	CIP	
					(2)	(3) = (1) x (2)	
1B4	245kV Bus Section Bays	Set	2				
1B5	245kV GIS type Bus FES and Bus VT	Set	4				
1B6	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2				
AIS Switchgear, Equipment & Structure							
1B7	198kV rated voltage, 158 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	24				
1B8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 230kV Switchyard						
	i.	Tubular Conductor and/or Flexible Conductor	Lot	1			
1B9	Insulator and fittings including all necessary clamps and connectors as required for completing 230kV Switchyard						
	i.	Insulator	Lot	1			
	ii.	Fittings & Clamps, Connector	Lot	1			
	iii.	Nut-bolt	Lot	1			

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			(1)		(2)	(3) = (1) x (2)	
1B10	Steel gantry for each circuit of 245kV Transmission Line, Transformer & Equipment support Structure including all necessary accessories required for completing 230kV Switchyard						
	i. Steel Structure for T/L with Nut & Bolts						
	a) Gantry Column	No.	3				
	b) Beam	No.	2				
	ii. Steel Structure for 400/230kV & 230/132kV Transformers with Nut & Bolts						
	a) Gantry Column	No.	14				
	b) Beam	No.	12				
	iii. Equipment structure						
	a) LA	No.	24				
	iv. Nut & Bolts	Lot	1				
	v. LV power & control cable tray including fitting, fixing accessories	Lot	1				
1C	145 kV switchgear, equipment connection and steel structures						

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					Unit Price	Total Price	
					CIP	CIP	
					(2)	(3) = (1) x (2)	
1C1	145kV GIS Line Feeder Bays	Set	6				
1C2	145kV GIS Auto Transformer Feeder Bays	Set	2				
1C3	145kV Bus Coupler Bays	Set	2				
1C4	145kV Bus Section Bays	Set	2				
1C5	145kV GIS type Bus FES and Bus VT	Set	4				
1C6	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2				
AIS Switchgear, Equipment & Structure							
1C7	120kV rated voltage, 102 kV(rms) continuous operating voltage at 50oC, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	24				
1C8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 132kV Switchyard						
	i. Tubular Conductor and/or Flexible Conductor	Lot	1				
1C9	Insulator and fittings including all necessary clamps and connectors as required for completing 132kV Switchyard						
	i. Insulator, Post & Disk	Lot	1				

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						Unit Price	Total Price	
						CIP	CIP	
						(2)	(3) = (1) x (2)	
1C7	ii	Fittings & Clamp, Connector	Lot	1				
	iii.	Nut-bolt	Lot	1				
1C10	Steel gantry for each circuit of 145kV Transmission Line, Transformer & Equipment support Structure including all necessary accessories required for completing 132kV Switchyard							
	i.	Steel Structure for T/Lwith Nut & Bolts						
	a)	Gantry Column	No.	8				
	b)	Beam	No.	6				
	ii.	Equipment Structure						
	a)	LA	No.	24				
	iii.	Nut & Bolts	Lot	1				
	iv.	LV power & control Cable tray including fitting, fixing accessories	Lot	1				
	v.	HV power Cable tray including fitting, fixing accessories	Lot	1				
1D	36kV Switchgears, equipment connection and steel structures							
	36kV AIS Switchgears for Aux. Power Bays, comprises with:							

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Item No.	Description of Equipment Requirement		Unit	Quantity	Code	Foreign Currency (in.....)		Remark
						Unit Price	Total Price	
						CIP	CIP	
						(2)	(3) = (1) x (2)	
1D1	i)	36kV, 630A, 31.5kA/3sec, 50Hz, 170kVp BIL, VCB with spring operating mechanism	Set	2				
	ii)	36kV, 630A, 31.5kA/3sec, 50Hz, 170kVp BIL, single vertical/horizontal break, post type, motor operated Disconnecter with Earth Switch	Set	4				
	iii)	36kV, single-phase, 31.5kA/3sec, 50Hz, 170kVp BIL, Current Transformers	No.	6				
	iv)	36kV, 31.5kA/3sec, single-phase 50Hz, 170kVp BIL, inductive Voltage Transformers	No.	6				
	v)	30kV rated voltage, 24 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	6				
1D1.x	36kV AIS Switchgears for Unloaded tertiary Auto-Transformer Bays, comprises with:							
	i)	36kV, 31.5kA/3sec, single-phase 50Hz, 170kVp BIL, inductive Voltage Transformers	No.	9				
	ii)	30kV rated voltage, 24 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	9				
1D2	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 36kV Switchyard							
	i)	Tubular Conductor and/or Flexible Conductor	Lot	1				

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					Unit Price	Total Price	
					CIP	CIP	
					(2)	(3) = (1) x (2)	
1D3	Insulator and fittings including all necessary clamps and connectors as required for completing 36kV Switchyard						
	i) Insulator, Post & Disk	Lot	1				
	ii) Fittings & Clamps, Connector	Lot	1				
	iii) Nut-bolt	Lot	1				
1D4	Steel structure for each circuit of Aux. power TR and Auto.TR tertiary side connection including all necessary accessories required for completing 36kV Switchyard						
	i) Equipment Structure with Nut & Bolts	Lot	1				
	ii) LV power & control cable tray including fitting, fixing accessories	Lot	1				
1D5	33kV Power Cable with associated material						
	i) 33kV, single phase, 300 sqmm XLPE cable	meter	50				
	ii) 33kV, single phase, outdoor cable termination with accessories	No.	12				
1E	Power Transformers and Auxiliary Transformer						
1E1	400/235/34.5 kV, 520/750 MVA (ONAN/ONAF), threephase outdoor type auto transformer equipped with delta connected 33 kV tertiary winding (brought out to terminal bushings) and Remote Tap Changer Control (RTCC) Panel. Direct Hot Spot Temperature measurement facility using fiber optic shall be available.	Set	3				
1E2	On-line Dissolved Gas (multi-gas) & Moisture Analyzer system for 400/235/34.5 kV auto transformers.	Set	3				
1E3	230/135/34.5 kV, 350/450 MVA (ONAN/ONAF), three phase outdoor type auto transformer equipped with delta connected 33 kV tertiary winding (brought out to terminal bushings) and RTCC Panel. Direct Hot Spot Temperature measurement facility using fiber optic shall be available.	Set	2				

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					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
1E3	230/135/34.5 kV, 350/450 MVA (ONAN/ONAF), three phase outdoor type auto transformer equipped with delta connected 33 kV tertiary winding (brought out to terminal bushings) and RTCC Panel. Direct Hot Spot Temperature measurement facility using fiber optic shall be available.	Set	2				
1E4	Potable dissolved gas monitoring system for transformer	Set	1				
1E5	33/0.415 kV, 500kVA, three phase outdoor type earthing/auxiliary Zig-Zag transformer and BCT with off-load tap changer, associated outdoor neutral CTs and steel support structures including all necessary connections.	Set	2				
1E6	CAFS of Fire Fighting system for transformer with water feeding equipment						
	i) 400/235/34.5 kV Auto-transformer	set	3				
	ii) 230/135/34.5 kV Auto-transformer	set	2				
1F	Control, Protection, Substation Automation & Metering						
400kV Circuit							
1F1	Control, protection and Monitoring including SAS Function for Overhead Line circuits, along with Control & Protection Cubicles	Set	4				
1F2	Control, protection and Monitoring including SAS Function for Auto transformer circuits, along with Control & Protection Cubicles	Set	3				
1F3	Control, Protection, Monitoring including SAS Function for Bus Coupler circuits, along with Control & Protection Cubicles	Set	2				
1F4	Control, Protection, Monitoring including SAS Function for Bus section circuits, along with Control & Protection Cubicles	Set	2				
1F5	Busbar Protection including SAS Function (400kV Circuit) [Main-1 & Mian-2]	Set	2				

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Item No.	Description of Equipment Requirement		Unit	Quantity	Code	Foreign Currency (in.....)		Remark
						Unit Price	Total Price	
						CIP	CIP	
						(2)	(3) = (1) x (2)	
	ii.	Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1				
230kV Circuits								
1F7		Control, Protection, Monitoring including SAS Function for overhead line circuits, along with Control & Protection Cubicles	Set	2				
1F8		Control, Protection, Monitoring including SAS Function for Auto transformer (750MVA) circuits, along with Control & Protection Cubicles	Set	3				
1F9		Control, protection and Monitoring including SAS Function for Auto transformer (450MVA) circuits, along with Control & Protection Cubicles	Set	3				
1F10		Control, Protection, Monitoring including SAS Function for Bus Coupler circuits, along with Control & Protection Cubicles	Set	2				
1F11		Control, Protection, Monitoring including SAS Function for Bus section circuits, along with Control & Protection Cubicles	Set	2				
1F12		Busbar Protection including SAS Function (230kV Circuit)	Set	1				
1F13	Tariff metering comprises with :		Lot	1				
	i.	Meters (Main & Check)	set	8				
	ii.	Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1				
132kV Circuits								

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Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
1F14	Control, Protection, Monitoring including SAS Function for overhead line circuits, along with Control & Protection Cubicles	set	6				
1F15	Control, Protection, Monitoring including SAS Function for Auto transformer circuits, along with Control & Protection Cubicles	set	2				
1F16	Control, Protection, Monitoring & SAS for Bus Coupler circuits, including Control & Protection Cubicles	set	2				
1F17	Control, Protection, Monitoring & SAS Function for Bus section circuits, including Control & Protection Cubicles	set	2				
1F18	Busbar Protection including SAS Function (132kV Circuit)	set	1				
1F19	Tariff metering comprises with :	Lot	1				
	i) Meters (Main & Check)	Set	8				
	ii) Complete Panel including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1				
36kV Circuit							
1F20	Control, Monitoring, Protection & SAS function for 33kV station power system, including Control & Protection Cubicles	Set	2				
1F21	Control, Monitoring, Protection & SAS function for Unloaded tertiary side of Auto-transformer, including Control & Protection Cubicles (can be merged with TR main/backup protection)	Set	3				
1F22	Tariff metering comprises with :	Lot	1				
	i) Meters (Main & Check)	set	2				

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						(2)	(3) = (1) x (2)	
1F22	ii)	Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1				
1F23	Substation Automation system		Lot	1				
1G	Digital Fault & Disturbance Recorder		Lot	1				
1H	Power Cable & GIL							
1H1	420kV Gas Insulated Line (GIL) for seven (7) feeders, single phase encloser, which consist of four (4) T/L & three (3) T/R, terminating chambers complete with support structure, etc. The Length of GIL maybe different from each bay as per actual design (25 - 140 meter). Actual payment shall be as per final design. The Length given here is as single phase length.		m	1800				
1H2	245kV Gas Insulated Line (GIL) for eight (8) feeders, single phase encloser, which consist of two (2) T/L & six (6) T/R, terminating chambers complete with support structure, etc. The Length of GIL maybe different from each bay as per actual design (30 - 135 meter). Actual payment shall be as per final design. The Length given here is as single phase length		m	1800				
1H3	132kV, 2000sqmm (minimum), XLPE Power cable & termination							
	i.	XLPE HV Power cable (Cable shall be laid in cable trench with flat formation arrangement)	m	1900				
	ii.	Outdoor type Cable Sealing End per phase with required necessary accessories for line & transformer bays	Nos.	24				
1H4	Steel structure for each circuit of 132kV cable connection							
	i.	Equipment Structure with Nut & Bolts						

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						Unit Price	Total Price	
						CIP	CIP	
						(2)	(3) = (1) x (2)	
	a)	Outdoor type Cable Sealing End	Nos.	24				
II	Multicore Cables for control, protection, metering & power circuits							
	i.	LV Control Cable	Lot	1				
	ii.	LV Power Cable	Lot	1				
1J	Earthing and Lightning Protection system Design, supply and installation of earthing system and lightning protection screen including connections, connectors and clamps, to suit the substation overall arrangement and provide supporting design calculations.							
1J1	Earthing system for complete substation (grounding mesh, grounding rod/ needle type grounding rod) including GIS Building		Lot	1				
1J2	Lightning Protection System for complete substation (overhead, mast type)		Lot	1				
1J3	3-phase Portable earthing devices (for maintenance) with connectors and telescopic glass fibre operating pole suitable for plant shall be supplied (for each voltage level, respectively)		Set	2				
1K	Batteries, Chargers & DC distribution board							
1K1	110V Ni-cad Batteries with chargers & distribution board							
	i.	for 400kV system						
	a)	110V Battery Banks, minimum 400Ah at the 5-hours rate of discharge	Set	2				
	b)	Charger (IGBT Type), each float charge shall not be less than 150A rating	Set	2				
	c)	110V DC Distribution panel, MCC type (LV S.W room, SPR, control Room) with Digital Display & Controller	Lot	1				
	d)	Inverter, Input- AC & DC, output -AC 230V 5kVA 60min	set	2				

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						(2)	(3) = (1) x (2)	
	ii.	for 230kV & 132kV system						
	a)	_110V Battery Banks, minimum 400Ah at the 5-hours rate of discharge	Set	2				
	b)	_Charger (IGBT Type), each float charge shall not be less than 150A rating	Set	2				
	c)	_110V DC Distribution panel, MCC type (Panel Room) with Digital Display & Controller	Lot	1				
1K2	48V Ni-cad Batteries with chargers & distribution board							
	i.	48V battery Banks, minimum 200Ah at the 5-hours rate of discharge	Set	2				
	ii.	Charger (IGBT Type) each float charge shall not be less than 120A rating	Set	2				
	iii.	48V DC Distribution Panel with Digital Display & Controller	Lot	1				
1L	LVAC Distribution							
1L1	AC 415V / 230V Distribution panels (MCC type, LV S.W room, Each Panel & Control room, Generator room etc) with Digital Display & Controller		Lot	1				
1L2	Tariff metering at LV side		Lot	1				
1M	Civil Works, Building and Foundation (Details in Schedule B4)							
1M1	Complete land development		Refer to Schedule B4					
1M2	Complete civil items required for outdoor works		Refer to Schedule B4					
	i.	Complete civil works for 400kV Indoor GIS Building including Protection & Metering Room, Control Room, 110V Battery Room, 48 Battery Room, Warehouse etc.						
	a)	_Foundation works	Refer to Schedule B4					
	b)	_Super structures	Refer to Schedule B4					
	c)	_All finish works like rendering, painting, water supply, sanitary, floor finish, furniture etc.	Refer to Schedule B4					
	d)	_10 ton EOT crane (price for supply of EOT crane)	No.	1				

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				(2)		(3) = (1) x (2)		
1M3	e)	Elevator system (price for supply of lift Capacity: 6 People)	No.	1				
	f)	Warehouse separate spare materials by installing shelves and labels.	Refer to Schedule B4					
	ii.	Complete civil works for 230kV Indoor GIS Building including Protection & Metering Room, 110V Battery Room etc.	Refer to Schedule B4					
	a)	Foundation works	Refer to Schedule B4					
	b)	Super structures	Refer to Schedule B4					
	c)	All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	Refer to Schedule B4					
	d)	10 ton EOT crane (price for supply of EOT crane)	No.	1				
	e)	Elevator system (price for supply of lift Capacity: 6 People)	No.	1				
	iii.	Complete civil works for 132kV Indoor GIS Building	Refer to Schedule B4					
	a)	Foundation works	Refer to Schedule B4					
	b)	Super structures	Refer to Schedule B4					
	c)	All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	Refer to Schedule B4					
	d)	5 ton EOT crane (price for supply of EOT crane)	No.	1				
	iii.	Emergency auxiliary power room & water feeding room	Refer to Schedule B4					
	a)	Foundation works	Refer to Schedule B4					
	b)	Super structures	Refer to Schedule B4					
	c)	All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	Refer to Schedule B4					
	d)	Complete civil work for CAF system including pipe network	Refer to Schedule B4					
	v.	Single storied ansar barrack with foundation for two storied	Refer to Schedule B4					
1M4	Testing of Foundation		Refer to Schedule B4					
1N	Lighting, small power, air conditioning and Ventilation, Fire Fighting System & CCTV							









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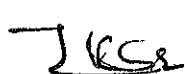
Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
1N1	Indoor Lighting (LED type), small power, air conditioning (except GIS Hall) and Ventilation (GIS hall, Batterys Rooms, other rooms, etc.) and emergency DC lighting for Indoor.	Lot	1				
1N2	Lighting (LED type) for outside building for security, roadway, switchyard	Lot	1				
1N3	Fire Fighting system for GIS Hall & Control Room						
	i) Fire Fighting system For 230kV cum 132kV GIS Hall & Panel Room	Lot	1				
	ii) Fire Fighting system For 400kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				
1N4	Complete CCTV with motion sensor	Lot	1				
1O	Fibre Optic Multiplexer Equipment & PLC Equipment and System for Communication and Protection at Local & Remote end substations - 87 or 21 relay for each transmission line protection (through fibre cores) - 21 relay carrier signal (main and back-up) - SCADA data from switchgear and control system - IP and Analog telephone system - Hot-line telephone system All PLC terminal equipment at remote end substations are ABB make						
1O1	Indoor Fibre Optic Multiplexer, at Local end SS, Equipment each comprising						
	i. ADM with TP unit without booster with Panels (Front opening, Swing Frame type) & accessories	Set	1				
	ii. IDF/SDF	Set	1				
	iii. Cables	Lot	1				

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						(2)	(3) = (1) x (2)	
	iv.	EOW telephone with board	Set	1				
	v.	Panel including wiring, lighting, filtering fan, humidity controller, heater, power socket & other accessories	Lot	1				
	vi.	All other Accessories not included above	Lot	1				
	Other Indoor equipment, at Local end SS							
102	i.	PABX Card (FXO)	Set	1				
	ii.	Primary phone (IP phone)	No.	2				
	iii.	Secondary phone (2W phone)	No.	10				
	iv.	Indoor MDF	Set	1				
	Outdoor equipment, at Local end SS							
103	i.	Underground optical fiber cable, armoured, 48 core	Lot	1				
	ii.	Pigtail cables	Lot	1				
	iii.	Outdoor termination box	Set	1				
	Extension/Adaptation of Indoor Fibre Optic Multiplexer Equipment & system at remote end substations each comprising							
	i.	Optical STM-16 Card for each 400 kV line at remote end	Lot	1				





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						Unit Price	Total Price	
						CIP	CIP	
						(2)	(3) = (1) x (2)	
104	ii.	Optical STM-4 Card for each 230 kV line at remote end	Lot	1				
	iii.	Optical STM-4 Card for each 132 kV line at remote end	Lot	1				
	iv.	Required no. of cards with 4 commands for distance protection after detail design	Lot	1				
	v.	Optical Booster, if required	Lot	1				
	vi.	Outdoor termination box	Set	1				
	vii.	Cables, ODF, MDF, panels as required	Lot	1				
105	PLC equipment at Local end SS							
	i.	Indoor PLC Equipment with all accessories & Panels (Front opening, Swing Frame type)	Set	4				
	ii.	Line matching unit	No.	8				
	iii.	Cables & other accessories for complete PLCC system	Lot	1				
	iv.	Indoor PLC Equipment & accessories as complete system for Remote end station	Lot	1				
106	Installation, testing & commissioning		Lot	1				
IP	SCADA system for Telecontrol and Telemetry							
1P1	i.	Equipment at Substation						
	a)	Gateway (server, engineering software)	Set	2				
	b)	Ethernet Switch	Set	2				
	c)	Hardware Firewall	Set	1				
	d)	Complete Panel (Swing Frame type) including wiring, lighting, heater, humidity controller & other accessories	Lot	1				
	e)	Cables	Lot	1				
	f)	All Other Accessories	Lot	1				









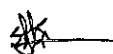
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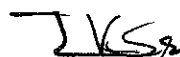
Signature of Bidder:

Item No.	Description of Equipment Requirement		Unit	Quantity	Code	Foreign Currency (in.....)		Remark
						Unit Price	Total Price	
						CIP	CIP	
						(2)	(3) = (1) x (2)	
	ii.	Integration work with Master & Backup NLDC including Engineering & Commissioning	Lot	1				
1R	Generator for Emergency Aux. Power (with smoke reduction device)							
1R1	250kW 0.415kV, 50Hz Diesel generator • Expected Operation Time 24h • Noise level Less than 55dB at a distance of 10m • Fuel Tank Capacity: Adequate capacity for three days' continuous operation • With Smoke reduction device		Set	1				
1S	Other equipment							
1S1	Scissor Lift : Battery type for one person / Minimum working height greater than 10m		Set	1				
1S2	Emergency Interphone (each room)		Lot	1				

Total Price(for New Purbachal 400/230/132kV SS) carried to Summary of Price Schedule

Total Price in words (for New Purbachal 400/230/132kV SS).....









Name of Bidder:

Signature of Bidder:

Schedule B1 : Mandatory Spare, Maintenance & Test Equipement Supplied from Outside the Employer's Country

New 400/230/132 kV Substation at Purbachal

Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
					(1)	(2) = (1) x (2)	
AS	420kV Switchgear, equipment and connection						
AS1	Complete CB module for GIS	phase	2				
AS2	Complete Operation Mechanism with accessories of CB for GIS	set	1				
AS3	Tripping coil for GIS	no	6				
AS4	Closing coil for GIS	no	3				
AS5	Complete DS/ES module for GIS	phase	2				
AS6	Complete Operation Mechanism with accessories of DS/ES for GIS	set	1				
AS7	Complete HSES module for GIS	phase	2				
AS8	Complete Operation Mechanism with accessories of HSES for GIS	set	1				
AS9	Complete CT module for GIS	phase	2				
AS10	Complete VT module for GIS	phase	2				
AS11	Complete LA module for GIS	phase	2				
AS12	Gas pressure gauge	no	6				
AS13	Pressure Relief Device	no	6				
AS14	Rubber gaskets "O" rings and seals for SF6 gas	lot	1				
AS15	All types of control valves for SF6 gas	lot	1				
AS16	GIS-to-Air Bushing	phase	2				
AS17	Each type of Supporting insulator for GIS	set	3				
AS18	Each type of Spacer for GIS	set	4				
AS19	Set of special tools, gauges and instruments for operation and maintenance of GIS	set	2				
AS20	SF6 gas cylinders - 45 kg	no	10				
AS21	420kV CVT, Single-phase, 50Hz, 1425kVp BIL, 3 windings	No.	9				

Name of Bidder:

Signature of Bidder:



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Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
					(1)	(2)	
AS22	390kV rated voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide	No.	9				
AS23	Each type of Clamps and Fittings (Minimum 2 nos. or 10% of supplied quantity, whichever is the highest)	lot	1				
BS	245kV Switchgear, equipment and connection						
BS1	Complete CB module for GIS	phase	2				
BS2	Complete Operation Mechanism with accessories of CB for GIS	set	1				
BS3	Tripping coil for GIS	no	6				
BS4	Closing coil for GIS	no	3				
BS5	Complete DS/ES module for GIS	phase	2				
BS6	Complete Operation Mechanism with accessories of DS/ES for GIS	set	1				
BS7	Complete HSES module for GIS	phase	2				
BS8	Complete Operation Mechanism with accessories of HSES for GIS	set	1				
BS9	Complete CT module for GIS	phase	2				
BS10	Complete VT module for GIS	phase	2				
BS11	Gas pressure gauge	no	6				
BS12	Pressure Relief Device	no	6				
BS13	Rubber gaskets "O" rings and seals for SF6 gas	lot	1				
BS14	All types of control valves for SF6 gas	lot	1				
BS15	GIS-to-Air Bushing	phase	2				
BS16	Each type of Supporting insulator for GIS	set	3				
BS17	Each type of Spacer for GIS	set	4				
BS18	Set of special tools, gauges and instruments for operation and maintenance of GIS	set	2				
BS19	SF6 gas cylinders - 45 kg	no	10				
BS20	198kV rated voltage, 158 kV(rms) continuous operating voltage at 50oC, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	no	4				
BS21	Each type of Clamps and Fittings (Minimum 2 nos. or 10% of supplied quantity, whichever is the highest)	lot	1				
CS	145kV Switchgear, equipment and connection						
CS1	Complete CB module for GIS	phase	3				

Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
CS2	Complete Operation Mechanism with accessories of CB for GIS	set	1				
CS3	Tripping coil for GIS	no	6				
CS4	Closing coil for GIS	no	3				
CS5	Complete DS/ES module for GIS	phase	3				
CS6	Complete Operation Mechanism with accessories of DS/ES for GIS	set	1				
CS7	Complete HSES module for GIS	phase	3				
CS8	Complete Operation Mechanism with accessories of HSES for GIS	set	1				
CS9	Complete CT module for GIS	phase	3				
CS10	Complete VT module for GIS	phase	3				
CS11	Gas pressure gauge	no	6				
CS12	Pressure Relief Device	no	6				
CS13	Rubber gaskets "O" rings and seals for SF6 gas	lot	1				
CS14	All types of control valves for SF6 gas	lot	1				
CS15	Each type of Supporting insulator for GIS	set	3				
CS16	Each type of Spacer for GIS	set	4				
CS17	Set of special tools, gauges and instruments for operation and maintenance of GIS	set	2				
CS18	SF6 gas cylinders - 45 kg	no	10				
CS19	120kV rated voltage, 102 kV(rms) continuous operating voltage at 50oC, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	no	4				
CS20	Each type of Clamps and Fittings (Minimum 2 nos. or 10% of supplied quantity, whichever is the highest)	lot	1				
CS21	132kV XLPE Power Cable	m	500				
CS22	132kV Outdoor type Cable Sealing End	no.	3				
ES	Power Transformers						
	400/235/34.5kV Auto Transformer						
ES1	Each type of Bushings						
a	420kV	no	3				

Name of Bidder:

Signature of Bidder:









Item No.	Description of Equipment Requirement		Unit	Quantity	Code	Foreign Currency (in.....)		Remark
						Unit Price	Total Price	
				CIP		CIP		
				(2)		(3) = (1) x (2)		
	b	245kV	no	3				
	c	36kV	no	3				
	d	Neutral	no	1				
ES2	Buchholz Relay		Set	1				
ES3	Pressure Relief Device		Set	1				
ES4	WTI		Set	2				
ES5	OTI		Set	1				
ES6	Oil level monitor		Set	1				
ES7	Complete Cooling Fan module with Motor		Set	2				
ES8	Each type of Breathers module with Silicagel		Set	2				
ES9	Set of O-rings and Gaskets with cutting tools		Set	2				
ES10	Transformer oil 200 litter barrel		nos.	20				
ES11	Oil Insulation Tester		No	1				
ES12	Each type of Clamps and Fittings (Minimum 2 nos. or 10% of supplied quantity, whichever is the highest)		lot	1				
ES13	Set of special tools, gauges and instruments for operation and maintenance of Transformer and OLTC (To be listed up by Bidder)		Set	2				
230/135/34.5kV Auto Transformer								
ES1	Each type of Bushings							
	a	245kV	no	3				
	b	145kV	no	3				
	c	36kV	no	3				
	d	Neutral	no	1				
ES2	Buchholz Relay		Set	1				
ES3	Pressure Relief Device		Set	1				
ES4	WTI		Set	2				
ES5	OTI		Set	1				
ES6	Oil level monitor		Set	1				
ES7	Complete Cooling Fan module with Motor		Set	2				
ES8	Each type of Breathers module with Silicagel		Set	2				

Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
ES9	Set of O-rings and Gaskets with cutting tools	Set	2				
ES10	Transformer oil 200 litter barrel	nos.	20				
ES11	Each type of Clamps and Fittings (Minimum 2 nos. or 10% of supplied quantity, whichever is the highest)	lot	1				
ES12	Set of special tools, gauges and instruments for operation and maintenance of Transformer and OLTC (To be listed up by Bidder)	Set	2				
FS	Control, Protection, SAS and Metering						
FS1	Each type of Protection Relays						
	a Line Differential Protection Relay with backup Distance Protection & Directional Earth Fault Protection Functions	no.	14				
	b Transformer Differential Relay	no.	3				
	c Directional & Non-directional Overcurrent and Directional & Non-directional Earth Fault Protection Relay	no.	4				
	d BCU	no.	4				
FS2	Heater	set	6				
FS3	Humidity Sensors	set	6				
FS4	Thermostat	set	6				
FS5	Tripping relays	set	8				
FS6	Each type of Trip circuit supervision relays (Bidder to list)	set	8				
FS7	Each type of MCB	set	2				
FS8	Ethernet Switches	nos.	2				
FS9	Relay Test Block & socket	no.	1				
GS	DFDR						
GS1	Each type MCBs	set	1				
GS2	Each type of Ethernet switches	set	1				
KS	Battery, Charger & DC distribution						
KS1	Each type of Fuses	set	1				

Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Code	Foreign Currency (in.....)		Remark
					Unit Price	Total Price	
					CIP	CIP	
			(1)		(2)	(3) = (1) x (2)	
KS2	Each type of MCB for battery	no.	2				
KS3	Each type of MCB for charger	no.	2				
LS	LVAC distribution						
LS1	3-phase set LVAC board incoming MCCB	set	1				
LS2	3-phase sets outgoing MCCBs	set	2				
LS3	1-phase sets outgoing MCBs	set	6				
SS	Test Equipment						
SS1	SF6 Multi-Analyser for measurement of % SF6, Moisture and SO2 concentration (DILO)	No.	1				
SS2	SF6 Gas leakage detector (infrared type)	No.	1				
MS	Maintenance Equipment						
MS1	SF6 Gas Treatment Plant for Gas Filling, Recovery, Evacuation, Filtering, Drying and Storage (DILO)	No.	1				
MS2	Portable vacuum pump suitable for SF6 circuit breaker	No.	1				
MS3	3-phase Portable earthing devices (for maintenance) with connectors and telescopic glass fibre operating pole suitable for plant shall be supplied (for each voltage level, respectively)	Set	2				

Total Price carried to Summary of Price Schedule (Spare, Maintenance & Test Equipement of S/S)



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Name of Bidder:

Signature of Bidder:

Schedule B2 : Plant and Equipment Supplied from within the Employer's Country

New 400/230/132 kV Substation at Purbachal

(For detailed description of the technical requirements please refer to clause 1.2.1: Technical Requirements for 400/230/132KV GIS Substation at Purbachal, Schedule A: Scope of Works, volume 3 of 3 of the bidding document)

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1A	420 kV switchgear, equipment connection and steel structures					
1A1	420kV GIS Line Feeder Bays	Set	4			
1A2	420kV GIS Auto Transformer Feeder Bays	Set	3			
1A3	420kV Bus Coupler Bays	Set	2			
1A4	420kV GIS Bus Section Bays	Set	2			
1A5	420 kV GIS type three phase LA	Set	4			
1A6	420kV GIS type Bus FES and Bus VT	Set	4			

Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1A7	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2			
1A8	Standalone Partial Discharge measurement and analyzer system for Complete GIS	Lot	1			
AIS Switchgear, Equipment & Structure						
1A9	390kV rated voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	21			
1A10	420kV CVT, Single-phase, 50Hz, 1425kVp BIL, 3 windings	No.	12			
1A11	420kV, 4000A, single phase Wavetrap	No.	4			
1A12	400kV Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 400kV Switchyard including LA, CVT and WT connection					
	i. Tubular Conductor and/or Flexible Conductor	Lot	1			
1A13	Insulator and fittings including all necessary clamps and connectors as required for completing 400kV GIS Switchyard					
	i. Insulator	Lot	1			
	ii. Fittings & Clamps, Connector	Lot	1			
	iii. Nut-bolt	Lot	1			

Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1A14	Steel gantry each circuit of 400kV Transmission Line, Transformer & Equipment support structure including all necessary accessories required for completing 400kV GIS Switchyard					
	i. Steel Structure for T/L with Nut & Bolts					
	a) Gantry Column	No.	5			
	b) Beam	No.	4			
	ii Equipment Structure					
	a) LA	No.	21			
	b) 420kV CVT	No.	12			
	iii. Nut-Bolt	Lot	1			
	iv. LV power & control cable tray including fitting, fixing accessories	Lot	1			
1B	245 kV switchgear, equipment connection and steel structures					
1B1	245kV GIS Line Feeder Bays	Set	2			
1B2	245kV GIS Auto Transformer Feeder Bays	Set	6			

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Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
				(1)	(2)	(3) = (1) x (2)
1B3	245kV Bus Coupler Bays	Set	2			
1B4	245kV Bus Section Bays	Set	2			
1B5	245kV GIS type Bus FES and Bus VT	Set	4			
1B6	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2			
AIS Switchgear, Equipment & Structure						
1B7	198kV rated voltage, 158 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	24			
1B8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 230kV Switchyard					
i.	Tubular Conductor and/or Flexible Conductor	Lot	1			
1B9	Insulator and fittings including all necessary clamps and connectors as required for completing 230kV Switchyard					
i.	Insulator	Lot	1			
ii.	Fittings & Clamps, Connector	Lot	1			





Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
					(1)	(2) = (1) x (2)	
	iii.	Nut-bolt	Lot	1			
1B10	Steel gantry for each circuit of 245kV Transmission Line, Transformer & Equipment support Structure including all necessary accessories required for completing 230kV Switchyard						
	i.	Steel Structure for T/L with Nut & Bolts					
	a)	Gantry Column	No.	3			
	b)	Beam	No.	2			
	ii.	Steel Structure for 400/230kV & 230/132kV Transformers with Nut & Bolts					
	a)	Gantry Column	No.	14			
	b)	Beam	No.	12			
	iii.	Equipment structure					
	a)	LA	No.	24			
	iv.	Nut & Bolts	Lot	1			






Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
					(1)	(2) = (1) x (2)	
	v.	LV power & control cable tray including fitting, fixing accessories	Lot	1			
1C	145 kV switchgear, equipment connection and steel structures						
1C1	145kV GIS Line Feeder Bays		Set	6			
1C2	145kV GIS Auto Transformer Feeder Bays		Set	2			
1C3	145kV Bus Coupler Bays		Set	2			
1C4	145kV Bus Section Bays		Set	2			
1C5	145kV GIS type Bus FES and Bus VT		Set	4			
1C6	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities		Set	2			
AIS Switchgear, Equipment & Structure							
1C7	120kV rated voltage, 102 kV(rms) continuous operating voltage at 50oC, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type		No.	24			
1C8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 132kV Switchyard						





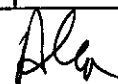
Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
					(1)	(2) = (1) x (2)	
	i.	Tubular Conductor and/or Flexible Conductor	Lot	1			
1C9	Insulator and fittings including all necessary clamps and connectors as required for completing 132kV Switchyard						
	i	Insulator, Post & Disk	Lot	1			
	ii	Fittings & Clamp, Connector	Lot	1			
	iii.	Nut-bolt	Lot	1			
1C10	Steel gantry for each circuit of 145kV Transmission Line, Transformer & Equipment support Structure including all necessary accessories required for completing 132kV Switchyard						
	i.	Steel Structure for T/Lwith Nut & Bolts					
	a)	Gantry Column	No.	8			
	b)	Beam	No.	6			
	ii.	Equipment Structure					
	a)	LA	No.	24			
	iii.	Nut & Bolts	Lot	1			



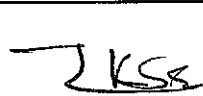



Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
					(1)	(2) = (1) x (2)	
	iv.	LV power & control Cable tray including fitting, fixing accessories	Lot	1			
	v.	HV power Cable tray including fitting, fixing accessories	Lot	1			
1D	36kV Switchgears, equipment connection and steel structures						
1D1	36kV AIS Switchgears for Aux. Power Bays, comprises with:						
	i)	36kV, 630A, 31.5kA/3sec, 50Hz, 170kVp BIL, VCB with spring operating mechanism	Set	2			
	ii)	36kV, 630A, 31.5kA/3sec, 50Hz, 170kVp BIL, single vertical/horizontal break, post type, motor operated Disconnecter with Earth Switch	Set	4			
	iii)	36kV, single-phase, 31.5kA/3sec, 50Hz, 170kVp BIL, Current Transformers	No.	6			
	iv)	36kV, 31.5kA/3sec, single-phase 50Hz, 170kVp BIL, inductive Voltage Transformers	No.	6			
	v)	30kV rated voltage, 24 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	6			
	36kV AIS Switchgears for Unloaded tertiary Auto-Transformer Bays, comprises with:						



Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
				(1)	(2)	(3) = (1) x (2)	
1D1.x	i)	36kV, 31.5kA/3sec, single-phase 50Hz, 170kVp BIL, inductive Voltage Transformers	No.	9			
	ii)	30kV rated voltage, 24 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	9			
1D2	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 36kV Switchyard						
	i)	Tubular Conductor and/or Flexible Conductor	Lot	1			
1D3	Insulator and fittings including all necessary clamps and connectors as required for completing 36kV Switchyard						
	i)	Insulator, Post & Disk	Lot	1			
	ii)	Fittings & Clamps, Connector	Lot	1			
	iii)	Nut-bolt	Lot	1			
1D4	Steel structure for each circuit of Aux. power TR and Auto.TR tertiary side connection including all necessary accessories required for completing 36kV Switchyard						
	i)	Equipment Structure with Nut & Bolts	Lot	1			
	ii)	LV power & control cable tray including fitting, fixing accessories	Lot	1			
1D5	33kV Power Cable with associated material						
	i)	33kV, single phase, 300 sqmm XLPE cable	meter	50			
	ii)	33kV, single phase, outdoor cable termination with accessories	No.	12			
1E	Power Transformers and Auxiliary Transformer						

Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1E1	400/235/34.5 kV, 520/750 MVA (ONAN/ONAF), threephase outdoor type auto transformer equipped with delta connected 33 kV tertiary winding (brought out to terminal bushings) and Remote Tap Changer Control (RTCC) Panel. Direct Hot Spot Temperature measurement facility using fiber optic shall be available.	Set	3			
1E2	On-line Dissolved Gas (multi-gas) & Moisture Analyzer system for 400/235/34.5 kV auto transformers.	Set	3			
1E3	230/135/34.5 kV, 350/450 MVA (ONAN/ONAF), three phase outdoor type auto transformer equipped with delta connected 33 kV tertiary winding (brought out to terminal bushings) and RTCC Panel. Direct Hot Spot Temperature measurement facility using fiber optic shall be available.	Set	2			
1E4	Potable dissolved gas monitoring system for transformer	Set	1			
1E5	33/0.415 kV, 500kVA, three phase outdoor type earthing/auxiliary Zig-Zag transformer and BCT with off-load tap changer, associated outdoor neutral CTs and steel support structures including all necessary connections.	Set	2			
1E6	CAFS of Fire Fighting system for transformer with water feeding equipment					
	i) 400/235/34.5 kV Auto-transformer	set	3			
	ii) 230/135/34.5 kV Auto-transformer	set	2			
1F	Control, Protection, Substation Automation & Metering					
400kV Circuit						

Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1F1	Control, protection and Monitoring including SAS Function for Overhead Line circuits, along with Control & Protection Cubicles	Set	4			
1F2	Control, protection and Monitoring including SAS Function for Auto transformer circuits, along with Control & Protection Cubicles	Set	3			
1F3	Control, Protection, Monitoring including SAS Function for Bus Coupler circuits, along with Control & Protection Cubicles	Set	2			
1F4	Control, Protection, Monitoring including SAS Function for Bus section circuits, along with Control & Protection Cubicles	Set	2			
1F5	Busbar Protection including SAS Function (400kV Circuit) [Main-1 & Mian-2]	Set	2			
1F6	Tariff metering comprises with :	Lot	1			
	i. Meters (Main meter & Check meter in one set)	Set	7			
	ii. Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1			
230kV Circuits						
1F7	Control, Protection, Monitoring including SAS Function for overhead line circuits, along with Control & Protection Cubicles	Set	2			
1F8	Control, Protection, Monitoring including SAS Function for Auto transformer (750MVA) circuits, along with Control & Protection Cubicles	Set	3			
1F9	Control, protection and Monitoring including SAS Function for Auto transformer (450MVA) circuits, along with Control & Protection Cubicles	Set	3			

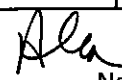
Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
				(1)	(2)	(3) = (1) x (2)
1F10	Control, Protection, Monitoring including SAS Function for Bus Coupler circuits, along with Control & Protection Cubicles	Set	2			
1F11	Control, Protection, Monitoring including SAS Function for Bus section circuits, along with Control & Protection Cubicles	Set	2			
1F12	Busbar Protection including SAS Function (230kV Circuit)	Set	1			
1F13	Tariff metering comprises with :	Lot	1			
	i. Meters (Main & Check)	set	8			
	ii. Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1			
132kV Circuits						
1F14	Control, Protection, Monitoring including SAS Function for overhead line circuits, along with Control & Protection Cubicles	set	6			
1F15	Control, Protection, Monitoring including SAS Function for Auto transformer circuits, along with Control & Protection Cubicles	set	2			
1F16	Control, Protection, Monitoring & SAS for Bus Coupler circuits, including Control & Protection Cubicles	set	2			
1F17	Control, Protection, Monitoring & SAS Function for Bus section circuits, including Control & Protection Cubicles	set	2			



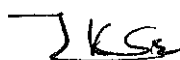



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Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
				(1)	(2) = (1) x (2)	
1F18	Busbar Protection including SAS Function (132kV Circuit)	set	1			
1F19	Tariff metering comprises with :	Lot	1			
	i) Meters (Main & Check)	Set	8			
	ii) Complete Panel including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1			
36kV Circuit						
1F20	Control, Monitoring, Protection & SAS function for 33kV station power system, including Control & Protection Cubicles	Set	2			
1F21	Control, Monitoring, Protection & SAS function for Unloaded tertiary side of Auto-transformer, including Control & Protection Cubicles (can be merged with TR main/backup protection)	Set	3			
1F22	Tariff metering comprises with :	Lot	1			
	i) Meters (Main & Check)	set	2			
	ii) Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Lot	1			
1F23	Substation Automation system	Lot	1			
1G	Digital Fault & Disturbance Recorder	Lot	1			
1H	Power Cable & GIL					



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Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1H1	420kV Gas Insulated Line (GIL) for seven (7) feeders, single phase encloser, which consist of four (4) T/L & three (3) T/R, terminating chambers complete with support structure, etc. The Length of GIL maybe different from each bay as per actual design (25 - 140 meter). Actual payment shall be as per final design. The Length given here is as single phase length.	m	1800			
1H2	245kV Gas Insulated Line (GIL) for eight (8) feeders, single phase encloser, which consist of two (2) T/L & six (6) T/R, terminating chambers complete with support structure, etc. The Length of GIL maybe different from each bay as per actual design (30 - 135 meter). Actual payment shall be as per final design. The Length given here is as single phase length	m	1800			
1H3	132kV, 2000sqmm (minimum), XLPE Power cable & termination					
	i. XLPE HV Power cable (Cable shall be laid in cable trench with flat formation arrangement)	m	1900			
	ii. Outdoor type Cable Sealing End per phase with required necessary accessories for line & transformer bays	Nos.	24			
1H4	Steel structure for each circuit of 132kV cable connection					
	i. Equipment Structure with Nut & Bolts					
	a) Outdoor type Cable Sealing End	Nos.	24			
II	Multicore Cables for control, protection, metering & power circuits					
	i. LV Control Cable	Lot	1			
	ii. LV Power Cable	Lot	1			

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Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1J	Earthing and Lightning Protection system Design, supply and installation of earthing system and lightning protection screen including connections, connectors and clamps, to suit the substation overall arrangement and provide supporting design calculations.					
1J1	Earthing system for complete substation (grounding mesh, grounding rod/ needle type grounding rod) including GIS Building	Lot	1			
1J2	Lightning Protection System for complete substation (overhead, mast type)	Lot	1			
1J3	3-phase Portable earthing devices (for maintenance) with connectors and telescopic glass fibre operating pole suitable for plant shall be supplied (for each voltage level, respectively)	Set	2			
1K	Batteries, Chargers & DC distribution board					
1K1	110V Ni-cad Batteries with chargers & distribution board					
	i. for 400kV system					
	a) 110V Battery Banks, minimum 400Ah at the 5-hours rate of discharge	Set	2			
	b) Charger (IGBT Type), each float charge shall not be less than 150A rating	Set	2			
	c) 110V DC Distribution panel, MCC type (LV S.W room, SPR, control Room) with Digital Display & Controller	Lot	1			
	d) Inverter, Input- AC & DC, output -AC 230V 5kVA 60min	set	2			
	ii. for 230kV & 132kV system					
	a) 110V Battery Banks, minimum 400Ah at the 5-hours rate of discharge	Set	2			

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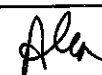
Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
				(1)	(2)	(3) = (1) x (2)	
	b)	Charger (IGBT Type), each float charge shall not be less than 150A rating	Set	2			
	c)	110V DC Distribution panel, MCC type (Panel Room) with Digital Display & Controller	Lot	1			
1K2	48V Ni-cad Batteries with chargers & distribution board						
	i.	48V battery Banks, minimum 200Ah at the 5-hours rate of discharge	Set	2			
	ii.	Charger (IGBT Type) each float charge shall not be less than 120A rating	Set	2			
	iii.	48V DC Distribution Panel with Digital Display & Controller	Lot	1			
1L	LVAC Distribution						
1L1	AC 415V / 230V Distribution panels (MCC type, LV S.W room, Each Panel & Control room, Generator room etc) with Digital Display & Controller		Lot	1			
1L2	Tariff metering at LV side		Lot	1			
1M	Civil Works, Building and Foundation (Details in Schedule B4)						
1M1	Complete land development		Refer to Schedule B4				
1M2	Complete civil items required for outdoor works		Refer to Schedule B4				
	i.	Complete civil works for 400kV Indoor GIS Building including Protection & Metering Room, Control Room, 110V Battery Room, 48 Battery Room, Warehouse etc.					
	a)	Foundation works	Refer to Schedule B4				
	b)	Super structures	Refer to Schedule B4				
	c)	All finish works like rendering, painting, water supply, sanitary, floor finish, furniture etc.	Refer to Schedule B4				
	d)	10 ton EOT crane (price for supply of EOT crane)	No.	1			
	e)	Elevator system (price for supply of lift Capacity: 6 People)	No.	1			



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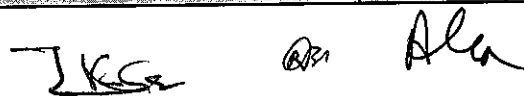


Name of Bidder:

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Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
				(1)	(2)	(3) = (1) x (2)	
1M3	f)	Warehouse separate spare materials by installing shelves and labels.			Refer to Schedule B4		
	ii.	Complete civil works for 230kV Indoor GIS Building including Protection & Metering Room, 110V Battery Room etc.			Refer to Schedule B4		
	a)	Foundation works			Refer to Schedule B4		
	b)	Super structures			Refer to Schedule B4		
	c)	All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.			Refer to Schedule B4		
	d)	10 ton EOT crane (price for supply of EOT crane)	No.	1			
	e)	Elevator system (price for supply of lift Capacity: 6 People)	No.	1			
	iii.	Complete civil works for 132kV Indoor GIS Building			Refer to Schedule B4		
	a)	Foundation works			Refer to Schedule B4		
	b)	Super structures			Refer to Schedule B4		
	c)	All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.			Refer to Schedule B4		
	d)	5 ton EOT crane (price for supply of EOT crane)	No.	1			
	iv.	Emergency auxiliary power room & water feeding room			Refer to Schedule B4		
	a)	Foundation works			Refer to Schedule B4		
	b)	Super structures			Refer to Schedule B4		
	c)	All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.			Refer to Schedule B4		
	d)	Complete civil work for CAF system including pipe network			Refer to Schedule B4		
	v.	Single storied ansar barrack with foundation for two storied			Refer to Schedule B4		
1M4	Testing of Foundation				Refer to Schedule B4		
1N	Lighting, small power, air conditioning and Ventilation, Fire Fighting System & CCTV						

Name of Bidder:

Signature of Bidder:

Price Schedule

Item No.	Description of Equipment Requirement	Unit	Quantity	Local Currency (in BDT)		Remark
				Unit Price	Total Price	
				EXW	EXW	
			(1)	(2)	(3) = (1) x (2)	
1N1	Indoor Lighting (LED type), small power, air conditioning (except GIS Hall) and Ventilation (GIS hall, Batterys Rooms, other rooms, etc.) and emergency DC lighting for Indoor.	Lot	1			
1N2	Lighting (LED type) for outside building for security, roadway, switchyard	Lot	1			
1N3	Fire Fighting system for GIS Hall & Control Room					
	i) Fire Fighting system For 230kV cum 132kV GIS Hall & Panel Room	Lot	1			
	ii) Fire Fighting system For 400kV GIS Hall & Panel Room	Lot	1			
	iii) Fire Fighting system For Control Room	Lot	1			
1N4	Complete CCTV with motion sensor	Lot	1			
1O	Fibre Optic Multiplexer Equipment & PLC Equipment and System for Communication and Protection at Local & Remote end substations - 87 or 21 relay for each transmission line protection (through fibre cores) - 21 relay carrier signal (main and back-up) - SCADA data from switchgear and control system - IP and Analog telephone system - Hot-line telephone system All PLC terminal equipment at remote end substations are ABB make					
1O1	Indoor Fibre Optic Multiplexer, at Local end SS, Equipment each comprising					
	i. ADM with TP unit without booster with Panels (Front opening, Swing Frame type) & accessories	Set	1			
	ii. IDF/SDF	Set	1			
	iii. Cables	Lot	1			

Name of Bidder:

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Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
				(1)	(2)	(3) = (1) x (2)	
	iv.	EOW telephone with board	Set	1			
	v.	Panel including wiring, lighting, filtering fan, humidity controller, heater, power socket & other accessories	Lot	1			
	vi.	All other Accessories not included above	Lot	1			
		Other Indoor equipment, at Local end SS					
102	i.	PABX Card (FXO)	Set	1			
	ii.	Primary phone (IP phone)	No.	2			
	iii.	Secondary phone (2W phone)	No.	10			
	iv.	Indoor MDF	Set	1			
		Outdoor equipment, at Local end SS					
103	i.	Underground optical fiber cable, armoured, 48 core	Lot	1			
	ii.	Pigtail cables	Lot	1			
	iii.	Outdoor termination box	Set	1			
		Extension/Adaptation of Indoor Fibre Optic Multiplexer Equipment & system at remote end substations each comprising					






Name of Bidder:

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Price Schedule

Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
				(1)	(2)	(3) = (1) x (2)	
104	i.	Optical STM-16 Card for each 400 kV line at remote end	Lot	1			
	ii.	Optical STM-4 Card for each 230 kV line at remote end	Lot	1			
	iii.	Optical STM-4 Card for each 132 kV line at remote end	Lot	1			
	iv.	Required no. of cards with 4 commands for distance protection after detail design	Lot	1			
	v.	Optical Booster, if required	Lot	1			
	vi.	Outdoor termination box	Set	1			
	vii.	Cables, ODF, MDF, panels as required	Lot	1			
105	PLC equipment at Local end SS						
	i.	Indoor PLC Equipment with all accessories & Panels (Front opening, Swing Frame type)	Set	4			
	ii.	Line matching unit	No.	8			
	iii.	Cables & other accessories for complete PLCC system	Lot	1			
	iv.	Indoor PLC Equipment & accessories as complete system for Remote end station	Lot	1			
106	Installation, testing & commissioning		Lot	1			
1P	SCADA system for Telecontrol and Telemetry						
	i.	Equipment at Substation					
	a)	Gateway (server, engineering software)	Set	2			
	b)	Ethernet Switch	Set	2			
	c)	Hardware Firewall	Set	1			

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Item No.	Description of Equipment Requirement		Unit	Quantity	Local Currency (in BDT)		Remark
					Unit Price	Total Price	
					EXW	EXW	
				(1)	(2)	(3) = (1) x (2)	
1P1	d)	Complete Panel (Swing Frame type) including wiring, lighting, heater, humidity controller & other accessories	Lot	1			
	e)	Cables	Lot	1			
	f)	All Other Accessories	Lot	1			
	ii.	Integration work with Master & Backup NLDC including Engineering & Commissioning	Lot	1			
1R	Generator for Emergency Aux. Power (with smoke reduction device)						
1R1	250kW 0.415kV, 50Hz Diesel generator • Expected Operation Time 24h • Noise level Less than 55dB at a distance of 10m • Fuel Tank Capacity: Adequate capacity for three days' continuous operation • With Smoke reduction device		Set	1			
1S	Other equipment						
1S1	Scissor Lift : Battery type for one person / Minimum working height greater than 10m		Set	1			
1S2	Emergency Interphone (each room)		Lot	1			

Total Price(for New Purbachal 400/230/132kV SS) carried to Summary of Price Schedule

Total Price in words (for New Purbachal 400/230/132kV SS).....







Name of Bidder:

Signature of Bidder:

Schedule B3: Design Services

New 400/230/132 kV Substation at PURBACHAL

Item No	Description of Required Services	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
				foreign portion	foreign portion	local portion	local portion
				(1)	(2) = (1) x (2)	(4)	(5) = (1) x (4)
1	Design and engineering services of the whole substation, local and foreign part	Lump sum	1				
2	Overvoltage and Insulation Co-ordination study for 400kV Substaion	Lump sum	1				
3	Relay Co-ordination study for the Substation with software	Lump sum	1				
New 400/230/132 kV Substation at Purbachal							
Subtotal - to Schedule B5 - Grand Total							






Name of Bidder:

Signature of Bidder

Schedule B4.1 : Installation and Other Services

New 400/230/132 kV Substation at Purbachal

(For detailed description of the technical requirements please refer to clause 1.2.1: Technical Requirements for 400/230/132KV GIS Substation at Purbachal, Schedule A: Scope of Works, volume 3 of 3 of the bidding document)

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
1A	420 kV switchgear, equipment connection and steel structures						
1A1	420kV GIS Line Feeder Bays	Set	4				
1A2	420kV GIS Auto Transformer Feeder Bays	Set	3				
1A3	420kV Bus Coupler Bays	Set	2				
1A4	420kV GIS Bus Section Bays	Set	2				
1A5	420 kV GIS type three phase LA	Set	4				
1A6	420kV GIS type Bus FES and Bus VT	Set	4				
1A7	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2				
1A8	Standalone Partial Discharge measurement and analyzer system for Complete GIS	Lot	1				
AIS Switchgear, Equipment & Structure							
1A9	390kV rated voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	21				
1A10	420kV CVT, Single-phase, 50Hz, 1425kVp BIL, 3 windings	No.	12				
1A11	420kV, 4000A, single phase Wavetrap	No.	4				
1A12	400kV Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 400kV Switchyard including LA, CVT and WT connection						
	i. Tubular Conductor and/or Flexible Conductor	Lot	1				
1A13	Insulator and fittings including all necessary clamps and connectors as required for completing 400kV GIS Switchyard						
	i. Insulator	Lot	1				
	ii. Fittings & Clamps, Connector	Lot	1				
	iii. Nut-bolt	Lot	1				
1A14	Steel gantry each circuit of 400kV Transmission Line, Transformer & Equipment support structure including all necessary accessories required for completing 400kV GIS Switchyard						
	i. Steel Structure for T/L with Nut & Bolts						
	a) Gantry Column	No.	5				
	b) Beam	No.	4				
	ii Equipment Structure						
	a) LA	No.	21				

Name of Bidder:

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Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
	b) 420kV CVT	No.	12				
	iii. Nut-Bolt	Lot	1				
	iv. LV power & control cable tray including fitting, fixing accessories	Lot	1				
1B	245 kV switchgear, equipment connection and steel structures						
1B1	245kV GIS Line Feeder Bays	Set	2				
1B2	245kV GIS Auto Transformer Feeder Bays	Set	6				
1B3	245kV Bus Coupler Bays	Set	2				
1B4	245kV Bus Section Bays	Set	2				
1B5	245kV GIS type Bus FES and Bus VT	Set	4				
1B6	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2				
AIS Switchgear, Equipment & Structure							
1B7	198kV rated voltage, 158 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	24				
1B8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 230kV Switchyard						
	i. Tubular Conductor and/or Flexible Conductor	Lot	1				
1B9	Insulator and fittings including all necessary clamps and connectors as required for completing 230kV Switchyard						
	i. Insulator	Lot	1				
	ii. Fittings & Clamps, Connector	Lot	1				
	iii. Nut-bolt	Lot	1				
1B10	Steel gantry for each circuit of 245kV Transmission Line, Transformer & Equipment support Structure including all necessary accessories required for completing 230kV Switchyard						
	i. Steel Structure for T/L with Nut & Bolts						
	a) Gantry Column	No.	3				
	b) Beam	No.	2				
	ii. Steel Structure for 400/230kV & 230/132kV Transformers with Nut & Bolts						
	a) Gantry Column	No.	14				
	b) Beam	No.	12				
	iii. Equipment structure						
	a) LA	No.	24				
	iv. Nut & Bolts	Lot	1				
	v. LV power & control cable tray including fitting, fixing accessories	Lot	1				

Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
				(1)	(2) = (1) x (2)	(4)	(5) = (1) x (4)
IC	145 kV switchgear, equipment connection and steel structures						
IC1	145kV GIS Line Feeder Bays	Set	6				
IC2	145kV GIS Auto Transformer Feeder Bays	Set	2				
IC3	145kV Bus Coupler Bays	Set	2				
IC4	145kV Bus Section Bays	Set	2				
IC5	145kV GIS type Bus FES and Bus VT	Set	4				
IC6	Busbar extension module, each set comprises with sufficient buffer gas compartments and appropriate disconnect facilities	Set	2				
	AIS Switchgear, Equipment & Structure						
IC7	120kV rated voltage, 102 kV(rms) continuous operating voltage at 50oC, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	24				
IC8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 132kV Switchyard						
	i. Tubular Conductor and/or Flexible Conductor	Lot	1				
IC9	Insulator and fittings including all necessary clamps and connectors as required for completing 132kV Switchyard						
	i. Insulator, Post & Disk	Lot	1				
	ii. Fittings & Clamp, Connector	Lot	1				
	iii. Nut-bolt	Lot	1				
IC10	Steel gantry for each circuit of 145kV Transmission Line, Transformer & Equipment support Structure including all necessary accessories required for completing 132kV Switchyard						
	i. Steel Structure for T/L with Nut & Bolts						
	a) Gantry Column	No.	8				
	b) Beam	No.	6				
	ii. Equipment Structure						
	a) LA	No.	24				
	iii. Nut & Bolts	Lot	1				
	iv. LV power & control Cable tray including fitting, fixing accessories	Lot	1				
	v. HV power Cable tray including fitting, fixing accessories	Lot	1				
1D	36kV Switchgears, equipment connection and steel structures						
	36kV AIS Switchgears for Aux. Power Bays, comprises with:						
	i) 36kV, 630A, 31.5kA/3sec, 50Hz, 170kVp BIL, VCB with spring operating mechanism	Set	2				
	ii) 36kV, 630A, 31.5kA/3sec, 50Hz, 170kVp BIL, single vertical/horizontal break, post type, motor operated Disconnecter with Earth Switch	Set	4				
1D1	iii) 36kV, single-phase, 31.5kA/3sec, 50Hz, 170kVp BIL, Current Transformers	No.	6				

Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
	iv) 36kV, 31.5kA/3sec, single-phase 50Hz, 170kVp BIL, inductive Voltage Transformers	No.	6				
	v) 30kV rated voltage, 24 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	6				
1D1.x	36kV AIS Switchgears for Unloaded tertiary Auto-Transformer Bays, comprises with:						
	i) 36kV, 31.5kA/3sec, single-phase 50Hz, 170kVp BIL, inductive Voltage Transformers	No.	9				
	ii) 30kV rated voltage, 24 kV(rms) continuous operating voltage at 50°C, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase Surge Arresters, outdoor type	No.	9				
1D2	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 36kV Switchyard						
	i) Tubular Conductor and/or Flexible Conductor	Lot	1				
1D3	Insulator and fittings including all necessary clamps and connectors as required for completing 36kV Switchyard						
	i) Insulator, Post & Disk	Lot	1				
	ii) Fittings & Clamps, Connector	Lot	1				
	iii) Nut-bolt	Lot	1				
1D4	Steel structure for each circuit of Aux. power TR and Auto. TR tertiary side connection including all necessary accessories required for completing 36kV Switchyard						
	i) Equipment Structure with Nut & Bolts	Lot	1				
	ii) LV power & control cable tray including fitting, fixing accessories	Lot	1				
1D5	33kV Power Cable with associated material						
	i) 33kV, single phase, 300 sqmm XLPE cable	meter	50				
	ii) 33kV, single phase, outdoor cable termination with accessories	No.	12				
1E	Power Transformers and Auxiliary Transformer						
1E1	400/235/34.5 kV, 520/750 MVA (ONAN/ONAF), threephase outdoor type auto transformer equipped with delta connected 33 kV tertiary winding (brought out to terminal bushings) and Remote Tap Changer Control (RTCC) Panel. Direct Hot Spot Temperature measurement facility using fiber optic shall be available.	Set	3				
1E2	On-line Dissolved Gas (multi-gas) & Moisture Analyzer system for 400/235/34.5 kV auto transformers.	Set	3				
1E3	230/135/34.5 kV, 350/450 MVA (ONAN/ONAF), three phase outdoor type auto transformer equipped with delta connected 33 kV tertiary winding (brought out to terminal bushings) and RTCC Panel. Direct Hot Spot Temperature measurement facility using fiber optic shall be available.	Set	2				
1E4	Potable dissolved gas monitoring system for transformer	Set	1				
1E5	33/0.415 kV, 500kVA, three phase outdoor type earthing/auxiliary Zig-Zag transformer and BCT with off-load tap changer, associated outdoor neutral CTs and steel support structures including all necessary connections.	Set	2				
1E6	CAFS of Fire Fighting system for transformer with water feeding equipment						
	i) 400/235/34.5 kV Auto-transformer	set	3				
	ii) 230/135/34.5 kV Auto-transformer	set	2				
1F	Control, Protection, Substation Automation & Metering						
400kV Circuit							
1F1	Control, protection and Monitoring including SAS Function for Overhead Line circuits, along with Control & Protection Cubicles	Set	4				
1F2	Control, protection and Monitoring including SAS Function for Auto transformer circuits, along with Control & Protection Cubicles	Set	3				

Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
1F3	Control, Protection, Monitoring including SAS Function for Bus Coupler circuits, along with Control & Protection Cubicles	Set	2				
1F4	Control, Protection, Monitoring including SAS Function for Bus section circuits, along with Control & Protection Cubicles	Set	2				
1F5	Busbar Protection including SAS Function (400kV Circuit) [Main-1 & Main-2]	Set	2				
1F6	Tariff metering comprises with :						
	i. Meters (Main meter & Check meter in one set)	Lot	1				
	ii. Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Set	7				
230kV Circuits							
1F7	Control, Protection, Monitoring including SAS Function for overhead line circuits, along with Control & Protection Cubicles	Set	2				
1F8	Control, Protection, Monitoring including SAS Function for Auto transformer (750MVA) circuits, along with Control & Protection Cubicles	Set	3				
1F9	Control, protection and Monitoring including SAS Function for Auto transformer (450MVA) circuits, along with Control & Protection Cubicles	Set	3				
1F10	Control, Protection, Monitoring including SAS Function for Bus Coupler circuits, along with Control & Protection Cubicles	Set	2				
1F11	Control, Protection, Monitoring including SAS Function for Bus section circuits, along with Control & Protection Cubicles	Set	2				
1F12	Busbar Protection including SAS Function (230kV Circuit)	Set	1				
1F13	Tariff metering comprises with :						
	i. Meters (Main & Check)	Lot	1				
	ii. Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Set	8				
132kV Circuits							
1F14	Control, Protection, Monitoring including SAS Function for overhead line circuits, along with Control & Protection Cubicles	set	6				
1F15	Control, Protection, Monitoring including SAS Function for Auto transformer circuits, along with Control & Protection Cubicles	set	2				
1F16	Control, Protection, Monitoring & SAS for Bus Coupler circuits, including Control & Protection Cubicles	set	2				
1F17	Control, Protection, Monitoring & SAS Function for Bus section circuits, including Control & Protection Cubicles	set	2				
1F18	Busbar Protection including SAS Function (132kV Circuit)	set	1				
1F19	Tariff metering comprises with :						
	i) Meters (Main & Check)	Lot	1				
	ii) Complete Panel including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Set	8				
36kV Circuit							
1F20	Control, Monitoring, Protection & SAS function for 33kV station power system, including Control & Protection Cubicles	Set	2				
1F21	Control, Monitoring, Protection & SAS function for Unloaded tertiary side of Auto-transformer, including Control & Protection Cubicles (can be merged with TR main/backup protection)	Set	3				
1F22	Tariff metering comprises with :						
	i) Meters (Main & Check)	Lot	1				
	ii) Complete Panel (Front opening, Swing frame type) including wiring, lighting, heater, humidity controller, TTB, MCBs & other accessories	Set	2				

Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
1F23	Substation Automation system	Lot	1				
1G	Digital Fault & Disturbance Recorder	Lot	1				
1H	Power Cable & GIL						
1H1	420kV Gas Insulated Line (GIL) for seven (7) feeders, single phase encloser, which consist of four (4) T/L & three (3) T/R, terminating chambers complete with support structure, etc. The Length of GIL maybe different from each bay as per actual design (25 - 140 meter). Actual payment shall be as per final design. The Length given here is as single phase length.	m	1800				
1H2	245kV Gas Insulated Line (GIL) for eight (8) feeders, single phase encloser, which consist of two (2) T/L & six (6) T/R, terminating chambers complete with support structure, etc. The Length of GIL maybe different from each bay as per actual design (30 - 135 meter). Actual payment shall be as per final design. The Length given here is as single phase length	m	1800				
1H3	132kV, 2000sqmm (minimum), XLPE Power cable & termination						
	i. XLPE HV Power cable (Cable shall be laid in cable trench with flat formation arrangement)	m	1900				
	ii. Outdoor type Cable Sealing End per phase with required necessary accessories for line & transformer bays	Nos.	24				
1H4	Steel structure for each circuit of 132kV cable connection						
	i. Equipment Structure with Nut & Bolts						
	a) Outdoor type Cable Sealing End	Nos.	24				
1I	Multicore Cables for control, protection, metering & power circuits						
	i. LV Control Cable	Lot	1				
	ii. LV Power Cable	Lot	1				
1J	Earthing and Lightning Protection system Design, supply and installation of earthing system and lightning protection screen including connections, connectors and clamps, to suit the substation overall arrangement and provide supporting design calculations.						
1J1	Earthing system for complete substation (grounding mesh, grounding rod/ needle type grounding rod) including GIS Building	Lot	1				
1J2	Lightning Protection System for complete substation (overhead, mast type)	Lot	1				
1J3	3-phase Portable earthing devices (for maintenance) with connectors and telescopic glass fibre operating pole suitable for plant shall be supplied (for each voltage level, respectively)	Set	2				
1K	Batteries, Chargers & DC distribution board						
1K1	110V Ni-cad Batteries with chargers & distribution board						
	i. for 400kV system						
	a) 110V Battery Banks, minimum 400Ah at the 5-hours rate of discharge	Set	2				
	b) Charger (IGBT Type), each float charge shall not be less than 150A rating	Set	2				
	c) 110V DC Distribution panel, MCC type (LV S.W room, SPR, control Room) with Digital Display & Controller	Lot	1				
	d) Inverter, Input- AC & DC, output -AC 230V 5kVA 60min	set	2				
	ii. for 230kV & 132kV system						
	a) 110V Battery Banks, minimum 400Ah at the 5-hours rate of discharge	Set	2				
1K2	48V Ni-cad Batteries with chargers & distribution board						
	i. 48V battery Banks, minimum 200Ah at the 5-hours rate of discharge	Set	2				
	ii. Charger (IGBT Type) each float charge shall not be less than 120A rating	Set	2				
	iii. 48V DC Distribution Panel with Digital Display & Controller	Lot	1				
1L	LVAC Distribution						

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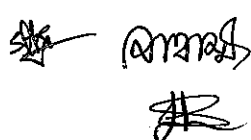
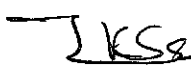
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Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
				(1)	(2) = (1) x (2)	(4)	(5) = (1) x (4)
1L1	AC 415V / 230V Distribution panels (MCC type, LV S.W room, Each Panel & Control room, Generator room etc) with Digital Display & Controller	Lot	1				
1L2	Tariff metering at LV side	Lot	1				
1M	Civil Works, Building and Foundation						
	Complete land development						
1M1*	i. Complete compacted land development with carried/dredged earthfilling including approach road	CuM	406843				
	ii. Slope protection						
	a) Slope (1V:2H) protection with hurfing	sqm	550				
	Complete civil items required for outdoor works						
	i Outdoor gantry foundation in 400kV switchyard						
	a) Gantry column	Nos	5				
	ii Outdoor equipment foundation in 400kV switchyard						
	a) SA/LA	Nos	21				
	b) CVT	Nos	12				
	c) Busduct support	Lot	1				
	iii. Outdoor gantry foundation in 230kV switchyard						
	a) Gantry column	Nos	17				
	iv. Outdoor equipment foundation in 230kV switchyard						
	a) SA/LA	Nos	24				
	v. Outdoor gantry foundation in 132kV switchyard						
	a) Gantry column	Nos	8				
	vi. Outdoor equipment foundation in 132kV switchyard						
	a) SA/LA	Nos	24				
	vii. Outdoor equipment foundation 33kV switchyard						
	a) CB	Set**	2				
	b) DS	Set**	4				
	c) CT	Nos	6				
	d) IVT	Nos	15				
	e) SA/LA	Nos	15				
	f) Zigzag/auxiliary transformer	Nos	2				
	g) Tertiary bus connection	Nos	2				
1M2*	viii. Transformer foundation	Nos	5				
	ix. Blast wall with foundation	Nos	5				
	x. Property line demarkation	Meter	230				
	xi. Security Boundary Wall						
	a) Boundary Wall with Retaining wall	Meter	675				
	b) Boundary Wall without Retaining wall	Meter	230				
	xii. Substation main gate	Nos	2				
	xiii. Approach road (pavement width 6m)	Meter	40				
	xiv. Internal road						
	a) 6m wide road	Meter	550				
	b) 4.5m wide road	Meter	600				
	c) 3m wide road	Meter	50				
	xv. Surface drain	Meter	900				
	xvi. Cable trench/tunnel with soakpit						
	a) For LV control, communication, relay etc. cables	Lot	1				
	b) For HV power cables	Meter	280				
	xvii. Whole substation surface finishing with drainage system including outlet (excluding surface drain)	Lot	1				
	xviii. Gravelling in switchyard area	Lot	1				
	xix. Septic tank (capacity: 25users for 5 years) and soakpit	Nos	4				
	xx. Pump shed including deep tubewell, motor, pump, water reservoir, water pipe line, electrical connction etc.	Nos	4				
	xxi. Guard house	Nos	1				
	xxii. Sentry post	Nos	4				
	xxiii. Car port	Nos	1				
	xxiv. RCC box culvert	Nos	1				
	i. Complete civil works for 400kV Indoor GIS Building including Protection & Metering Room, Control Room, 110V Battery Room, 48 Battery Room, Warehouse etc.						
	a) Foundation works	Lot	1				
	b) Super structures	Lot	1				


Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
IM3	c) All finish works like rendering, painting, water supply, sanitary, floor finish, furniture etc.	Lot	1				
	d) 10 ton EOT crane installation arrangement (excluding price for supply of EOT crane)	Lot	1				
	e) Elevator system (Capacity: 6 People)	Lot	1				
	f) Warehouse separate spare materials by installing shelves and labels.	Lot	1				
	ii. Complete civil works for 230kV Indoor GIS Building including Protection & Metering Room, 110V Battery Room etc.						
	a) Foundation works	Lot	1				
	b) Super structures	Lot	1				
	c) All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	Lot	1				
	d) 10 ton EOT crane installation arrangement (excluding price for supply of EOT crane)	Lot	1				
	e) Elevator system (Capacity: 6 People)	Lot	1				
	iii. Complete civil works for 132kV Indoor GIS Building						
	a) Foundation works	Lot	1				
	b) Super structures	Lot	1				
	c) All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	Lot	1				
	d) 5 ton EOT crane installation arrangement (excluding price for supply of EOT crane)	Lot	1				
	iv. Emergency auxiliary power room & water feeding room						
	a) Foundation works	Lot	1				
	b) Super structures	Lot	1				
	c) All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	Lot	1				
	d) Complete civil work for CAF system including pipe network	Lot	1				
	v. Single storied ansar barrack with foundation for two storied	Lot	1				
IM4*	Testing of foundation						
	i. Compression test of pile	No	6				
	ii. Uplift test of pile	No	3				
	iii. Pile Integrity Test	No	125				
* actual payment shall be as per actual work at site							
** set means three phase							
IN	Lighting, small power, air conditioning and Ventilation, Fire Fighting System						
IN1	Indoor Lighting (LED type), small power, air conditioning (except GIS Hall) and	Lot	1				
IN2	Lighting (LED type) for outside building for security, roadway, switchyard	Lot	1				
IN3	Fire Fighting system for GIS Hall & Control Room						
	i) Fire Fighting system For 230kV cum 132kV GIS Hall & Panel Room	Lot	1				
	ii) Fire Fighting system For 400kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				
IN4	Complete CCTV with motion sensor	Lot	1				
IO	Fibre Optic Multiplexer Equipment & PLC Equipment and System for						
IO1	Indoor Fibre Optic Multiplexer, at Local end SS, Equipment each comprising						
	i. ADM with TP unit without booster with Panels (Front opening, Swing Frame type) & accessories	Set	1				
	ii. IDF/SDF	Set	1				
	iii. Cables	Lot	1				
	iv. EOW telephone with board	Set	1				
	v. Panel including wiring, lighting, filtering fan, humidity controller, heater, power socket & other accessories	Lot	1				
	vi. All other Accessories not included above	Lot	1				
IO2	Other Indoor equipment, at Local end SS						
	i. FIBX Card (FXO)	Set	1				
	ii. Primary phone (IP phone)	No.	2				
	iii. Secondary phone (2W phone)	No.	10				
IO3	Outdoor equipment, at Local end SS						
	i. Underground optical fiber cable, armoured, 48 core	Lot	1				
	ii. Pigtail cables	Lot	1				
	iii. Outdoor termination box	Set	1				
	Extension/Adaptation of Indoor Fibre Optic Multiplexer Equipment & system at						
	i. Optical STM-16 Card for each 400 kV line at remote end	Lot	1				
	ii. Optical STM-4 Card for each 230 kV line at remote end	Lot	1				







Name of Bidder:

Signature of Bidder:

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(4)	(5) = (1) x (4)
IO4	iii. Optical STM-4 Card for each 132 kV line at remote end	Lot	1				
	iv. Required no. of cards with commands for distance protection and alarm	Lot	1				
	v. Optical Booster, if required	Lot	1				
	vi. Outdoor termination box	Set	1				
	vii. Cables, ODF, MDF, panels as required	Lot	1				
IO5	PLC equipment at Local end SS						
	i. Indoor PLC Equipment with all accessories & Panels (Front opening, Swing Frame type)	Set	4				
	ii. Line matching unit	No.	8				
	iii. Cables & other accessories for complete PLCC system	Lot	1				
	iv. Indoor PLC Equipment & accessories as complete system for Remote end station	Lot	1				
IO6	Installation, testing & commissioning	Lot	1				
IP	SCADA system for Telecontrol and Telemetry						
IP1	i. Equipment at Substation						
	a) Gateway (server, engineering software)	Set	2				
	b) Ethernet Switch	Set	2				
	c) Hardware Firewall	Set	1				
	d) Complete Panel (Swing Frame type) including wiring, lighting, heater,	Lot	1				
	e) Cables	Lot	1				
	f) All Other Accessories	Lot	1				
	ii. Integration work with Master & Backup NLDC including Engineering &	Lot	1				
IR	Generator for Emergency Aux. Power (with smoke reduction device)						
IR1	250kW 0.415kV, 50Hz Diesel generator	Set	1				
IS	Other equipment						
IS1	Scissor Lift : Battery type for one person / Minimum working height greater than	Set	1				
IS2	Emergency Interphone (each room)	Lot	1				

Total Price (for New Purbachal 400/230/132kV SS) carried to Summary of Price Schedule

Total Price in words (for New Purbachal 400/230/132kV SS).....

Name of Bidder:

Signature of Bidder:

Schedule B4.2: Installation and Other Services

Item No.	Description of Required Services	Unit	Quantity	Foreign Currency (in USD)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)		
2	Additional Services (Provisional Sum)*						
2.1	Employer's Factory Acceptance Tests Witness (refer to clause 1.3 (b), Scope of Works, Volume 2 of the bidding document)	Lot	1	115500	115500	-	-
2.2	International Training (refer to clause 1.3 (a), Scope of Works, Volume 2 of the bidding document)	Lot	1	66000	66000	-	-
2.3	Local O&M Training (refer to clause 1.3 (c), Scope of Works, Volume 2 of the bidding document)	Lot	1	33000	33000	-	-
Total Price for Additional Services					214500		
(carried to Schedule-5 : Grand Summary)							

**These costs are fixed ceiling and will be included in total price. But the payment shall be at actual.*









Schedule B5: Grand Summary			
		Total price	
		Foreign Currency (in.....)	Local Currency (in BDT)
New 400/230/132 kV Substation at PURBACHAL			
Schedule No. B1:	Plant and Equipment Supplied from Outside the Employer's Country		
Schedule No.B2:	Plant & Equipment Supplied from within the Employer's Country		
Schedule No. B3:	Design Services		
Schedule No. B4.1:	Installation and Other Services		
New 400/230/132 kV Substation at PURBACHAL			
Grand Total			
Mandatory Spare, Maintenance & Test Equipement			
Schedule No. B1:	Mandatory Spare, Maintenance & Test Equipement Supplied from Outside the Employer's Country		
Mandatory Spare, Maintenance & Test Equipement			
Grand Total			
Additional Services			
Schedule No. B4.2:	Installation and Other Services : Additional Services (Provisional Sum)	USD 214,500.00	
Additional Services		USD 214,500.00	
Grand Total			
Grand Grand Total			

Name of Bidder:

Signature of Bidder:

Schedule B6: Recommended Spare Parts

No	Description	Unit	Quantity	Foreign Currency (in.....)		Local Currency (in BDT)	
				Unit Price	Total Price	Unit Price	Total Price
				CIP	CIP	EXW	EXW
			(1)	(2)	(3)=(1)x(2)	(4)	(5)=(1)x(4)





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Name of Bidder:

Signature of Bidder:

Country of Origin		
Item	Country	Code

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