ATTACHMENT-1

	• The rating shall be based on battery boost charging rate & continuous DC load. The higher charging rated charger than minimum specified, if required after calculation, shall be supplied within the same price. • One (1) set of DC distribution board. The DC distribution board shall be with 50% spare MCBs for future use. The MCBs shall be from USA/Europe/Japan/Korean origin or other eligible countries with equivalent quality. MCB must have in built NO/NC contacts. All DC status (DC voltage status for each bus including coupling breaker on /off status, fail with alarm) excluding control & protection Panel shall be incorporated in substation automation system. The DC status of control & protection Panel shall be incorporated to SAS by individual IED.

2L	**LVAC Distribution**
2L.1	One (1) lot of LVAC switchboard for 400/230kV substation services to be supplied, installed and commissioned, to provide the 415/240V supplies to all equipment being supplied under this turnkey project. The MCBs shall be from USA/Europe/Japan/Korean origin or other eligible countries with equivalent quality. MCB must have in built NO/NC contacts. All AC status excluding control & protection (AC voltage status for each bus including coupling breaker on/off status, fail with alarm) shall be incorporated in substation automation system. The AC distribution board shall be with 50% overall spare switches for future use

2M	**Civil Works, Building and Foundation**
2M.1	One (01) lot of land development of complete Design, supply and construction of switchyard area by cutting, land filling, compacting up to a suitable level within the property lineincluding slope protection.
	One (1) lot of complete design, supply and construction of outdoor civil works, including 132 kV and 33 kV gantry foundation, 132 kV and 33 kV equipment foundation, power transformer and auxiliary transformer foundations, blast wall, substation main gate and guard house, security boundary wall and internal fencing, access road, internal roads and parking, concrete culvert, surface and switchyard drainage system including outfall, cable trench including soak pit, PVC pipes etc., switchyard surface finishing and gravel surfacing etc.
2M.2	One (1) lot of complete design, supply and construction of all civil items items and facilities including all necessary for one new three storied control building including cable basement including foundation works, super structure works, finishing works like rendering, painting, water supply, sanitary, floor finishing, rain water drainage system, lightning protection, etc. The new 132 kV GIS building has to be with cable basement, but no full cable basement is required. Generally, the cable basement will be only for primary and secondary cables. The height of the cable basement should be 3 (three) meters. On the first floor, 132 kV switchgear shall be installed as well as all necessary facilities, including motorized crane and space for HV testing equipment and SF6 gas treatment plant. The building shall have a inner size of approximately 44.5x 12 meters. The height of the GIS hall & building will be finalized during detail design stage.
2M.3	One (01) Lot of testing of pile Foundation, Compression & uplift on random basis.
2M.4	One (1) lot of complete Civil Works related to CAF system

	One (1) lot of complete design, supply and construction of outdoor civil works, including 132 kV and 33 kV gantry foundation, 132 kV and 33 kV equipment foundation, power transformer and auxiliary transformer foundations, blast wall, substation main gate and guard house, security boundary wall and internal fencing, access road, internal roads and parking, concrete culvert, surface and switchyard drainage system including outfall, cable trench including soak pit, PVC pipes etc., switchyard surface finishing and gravel surfacing etc.
3M.2	One (1) lot of complete design, supply and construction of all civil items items and facilitiesincluding all necessary for one new three storied control building including cable basement including foundation works, super structure works, finishing works like rendering, painting, water supply, sanitary, floor finishing, rain water drainage system, lightning protection, etc. The new 132 kV GIS building has to be with cable basement, but no full cable basement is required. Generally, the cable basement will be only for primary and secondary cables. The height of the cable basement should be 3 (three) meters. On the first floor, 132 kV switchgear shall be installed as well as all necessary facilities, including motorized crane and space for HV testing equipment and SF6 gas treatment plant. The building shall have a inner size of approximately 44.5x 12 meters. The height of the GIS hall & building will be finalized during detail design stage.
3M.3	One (01) Lot of testing of pile Foundation, Compression & uplift on random basis.
3M.4	One (1) lot of complete Civil Works related to CAF system

3N	**Lighting, Small Power, Air Conditioning and Ventilation**
3N.1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the GIS room &control building
3N.2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.
3N.3	One (1) lot of complete design, supply and construction of Fire fighting system GIS & control room.
3N.4	One (01) Lot of Complete CCTV & with motion sensor.

3O	**Fibre Optic Multiplexer Equipment for Communication and Protection**

4M	**Civil Works, Building and Foundation**
4M.1	One (01) lot of land development of complete Design, supply and construction of switchyard area by cutting, land filling, compacting up to a suitable level within the property lineincluding slope protection.
	One (1) lot of complete design, supply and construction of outdoor civil works, including 132 kV and 33 kV gantry foundation, 132 kV and 33 kV equipment foundation, power transformer and auxiliary transformer foundations, blast wall, substation main gate and guard house, security boundary wall and internal fencing, access road, internal roads and parking, concrete culvert, surface and switchyard drainage system including outfall, cable trench including soak pit, PVC pipes etc., switchyard surface finishing and gravel surfacing etc.
4M.2	One (1) lot of complete design, supply and construction of all civil items items and facilities including all necessary for one new three storied control building including cable basement including foundation works, super structure works, finishing works like rendering, painting, water supply, sanitary, floor finishing, rain water drainage system, lightning protection, etc. The new 132 kV GIS building has to be with cable basement, but no full cable basement is required. Generally, the cable basement will be only for primary and secondary cables. The height of the cable basement should be 3 (three) meters. On the first floor, 132 kV switchgear shall be installed as well as all necessary facilities, including motorized crane and space for HV testing equipment and SF6 gas treatment plant. The building shall have a inner size of approximately 44.5x 12 meters. The height of the GIS hall & building will be finalized during detail design stage.
4M.3	One (01) Lot of testing of pile Foundation, Compression & uplift on random basis.
4M.4	One (1) lot of complete Civil Works related to CAF system

4N	**Lighting, Small Power, Air Conditioning and Ventilation**
4N.1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the GIS control building
4N.2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.
4N.3	One (1) lot of complete design, supply and construction of Fire fighting system GIS & control room.
4N.4	One (01) Lot of Complete CCTV & with motion sensor.

4O	**Fibre Optic Multiplexer Equipment for Communication and Protection**
4O.1	The equipment to be supplied, installed and commissioned shall be as shown on bid drawing. One (1) lot of complete set of design, supply, installation and commissioning of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with connecting substations is to be provided with the following minimum services: - 21(or 87 with built-in 21) relay for each transmission line protection (through fibre cores or backup PLC) - 21 or 87 (built in 21) relay carrier signal (main and back-up) - SCADA data from switchgear and control system through SAS - Operator and Administrative telephone system

	All AC status excluding control & protection (AC voltage status for each bus including coupling breaker on/off status, fail with alarm) shall be incorporated in substation automation system. The AC distribution board shall be with 50% overall spare switches for future use

5M	**Civil Works, Building and Foundation**
5M.1	One (01) lot of land development of complete Design, supply and construction of switchyard area by cutting, land filling, compacting up to a suitable level within the property lineincluding slope protection.
	One (1) lot of complete design, supply and construction of outdoor civil works, including 132 kV and 33 kV gantry foundation, 132 kV and 33 kV equipment foundation, power transformer and auxiliary transformer foundations, blast wall, substation main gate and guard house, security boundary wall and internal fencing, access road, internal roads and parking, concrete culvert, surface and switchyard drainage system including outfall, cable trench including soak pit, PVC pipes etc., switchyard surface finishing and gravel surfacing etc.
5M.2	One (1) lot of complete design, supply and construction of all civil items items and facilities including all necessary for one new three storied control building including cable basement including foundation works, super structure works, finishing works like rendering, painting, water supply, sanitary, floor finishing, rain water drainage system, lightning protection, etc. The new 132 kV GIS building has to be with cable basement, but no full cable basement is required. Generally, the cable basement will be only for primary and secondary cables. The height of the cable basement should be 3 (three) meters. On the first floor, 132 kV switchgear shall be installed as well as all necessary facilities, including motorized crane and space for HV testing equipment and SF6 gas treatment plant. The building shall have a inner size of approximately 44.5x 12 meters. The height of the GIS hall & building will be finalized during detail design stage.
5M.3	One (01) Lot of testing of pile Foundation, Compression & uplift on random basis.
5M.4	One (1) lot of complete Civil Works related to CAF system

5N	**Lighting, Small Power, Air Conditioning and Ventilation**
5N.1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the GIS control building
5N.2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.
5N.3	One (1) lot of complete design, supply and construction of Fire fighting system GIS & control room.
5N.4	One (01) Lot of Complete CCTV & with motion sensor.

5O	**Fibre Optic Multiplexer Equipment for Communication and Protection**
5O.1	The equipment to be supplied, installed and commissioned shall be as shown on bid drawing. One (1) lot of complete set of design, supply, installation and commissioning of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with connecting substations is to be provided with the following minimum services: - 21(or 87 with built-in 21) relay for each transmission line protection (through fibre cores or backup PLC)

	water supply, sanitary, floor finishing, rain water drainage system, lightning protection, etc. The new 132 kV GIS building has to be with cable basement, but no full cable basement is required. Generally, the cable basement will be only for primary and secondary cables. The height of the cable basement should be 3 (three) meters. On the first floor, 132 kV switchgear shall be installed as well as all necessary facilities, including motorized crane and space for HV testing equipment and SF6 gas treatment plant. The building shall have a inner size of approximately 44.5x 12 meters. The height of the GIS hall & building will be finalized during detail design stage.
6M.3	One (01) Lot of testing of pile Foundation, Compression & uplift on random basis.
6M.4	One (1) lot of complete Civil Works related to CAF system

6N	**Lighting, Small Power, Air Conditioning and Ventilation**
6N.1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the GIS control building
6N.2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.
6N.3	One (1) lot of complete design, supply and construction of Fire fighting system GIS & control room.
6N.4	One (01) Lot of Complete CCTV & with motion sensor.

6O	**Fibre Optic Multiplexer Equipment for Communication and Protection**
6O.1	The equipment to be supplied, installed and commissioned shall be as shown on bid drawing. One (1) lot of complete set of design, supply, installation and commissioning of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with connecting substations is to be provided with the following minimum services: - 21(or 87 with built-in 21) relay for each transmission line protection (through fibre cores or backup PLC) - 21 or 87 (built in 21) relay carrier signal (main and back-up) - SCADA data from switchgear and control system through SAS - Operator and Administrative telephone system - Substation LAN system The equipment to be supplied, installed and commissioned shall be as shown on bid drawing.Supply of Indoor Fibre Optic Multiplexer Equipment at local and remote end substations each comprising: 1) At Local End Substation a)Modification of ADM with TP unit without booster each comprising i. One (01) set Duplicate CPU ii. One (01) set Duplicate PSU iii. One (01) lot of Optical STM-16 ports for each direcion of 230 kV line-N/A iv. One (01) lot of Optical STM-4 ports for each direction of 132 kV line v. One (01) set of 16x2 Mbps (E1) card vi. One (01) set of card with minimum Eight ports 10/100 Base T LAN vii. One (01) set of card with minimum Eight ports 10/100 Base T Router viii. One (01) set of card with 20x2-w voice for FXS ix. One lot of Required no of cards with 4 commands for distance protection after detail design

	and commissioned, to provide the 415/240V supplies to all equipment being supplied under this turnkey project. The MCBs shall be from USA/Europe/Japan/Korean origin or other eligible countries with equivalent quality. MCB must have in built NO/NC contacts. All AC status excluding control & protection (AC voltage status for each bus including coupling breaker on/off status, fail with alarm) shall be incorporated in substation automation system. The AC distribution board shall be with 50% overall spare switches for future use

7M	**Civil Works, Building and Foundation**
7M.1	One (01) lot of land development of complete Design, supply and construction of switchyard area by cutting, land filling, compacting up to a suitable level within the property lineincluding slope protection.
	One (1) lot of complete design, supply and construction of outdoor civil works, including 132 kV and 33 kV gantry foundation, 132 kV and 33 kV equipment foundation, power transformer and auxiliary transformer foundations, blast wall, substation main gate and guard house, security boundary wall and internal fencing, access road, internal roads and parking, concrete culvert, surface and switchyard drainage system including outfall, cable trench including soak pit, PVC pipes etc., switchyard surface finishing and gravel surfacing etc.
7M.2	One (1) lot of complete design, supply and construction of all civil items items and facilities including all necessary for one new three storied control building including cable basement including foundation works, super structure works, finishing works like rendering, painting, water supply, sanitary, floor finishing, rain water drainage system, lightning protection, etc. The new 132 kV GIS building has to be with cable basement, but no full cable basement is required. Generally, the cable basement will be only for primary and secondary cables. The height of the cable basement should be 3 (three) meters. On the first floor, 132 kV switchgear shall be installed as well as all necessary facilities, including motorized crane and space for HV testing equipment and SF6 gas treatment plant. The building shall have a inner size of approximately 44.5x 12 meters. The height of the GIS hall & building will be finalized during detail design stage.
7M.3	One (01) Lot of testing of pile Foundation, Compression & uplift on random basis.
7M.4	One (1) lot of complete Civil Works related to CAF system

7N	**Lighting, Small Power, Air Conditioning and Ventilation**
7N.1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building
7N.2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.
7N.3	One (1) lot of complete design, supply and construction of Fire fighting system GIS & control room.
7N.4	One (01) Lot of Complete CCTV & with motion sensor.

7O	**Fibre Optic Multiplexer Equipment for Communication and Protection**
7O.1	The equipment to be supplied, installed and commissioned shall be as shown on bid drawing. One (1) lot of complete set of design, supply, installation and commissioning of Fibre optic

8B2	Two (02) sets of 145kV, 1600A, 40kA/1sec, 50Hz, 650kVp BILhorizontal double break, post type, motor operated disconnectors **with** motor-operated **earthing switch**
8B3	Four (04) sets of 145kV, 1600A, 40kA/1sec, 50Hz, 650kVp BIL,horizontal double break, post type, motor operated disconnectors **withoutearthing switch**.
8B4	Six (06) nos. of single-phase, 5-core, 145kV, 40kA/1sec, 50Hz, 650kVp BIL, post type current transformer
8B5	Six (06) nos. of single-phase, 3-core, 145kV, 50Hz, 650kVp BIL inductive type voltage transformers.
8B6	Six (06) nos. of 120kV rated voltage, 102kV(rms) continuous operating voltage at 50oC, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase surge arresters.
8B7	One(1) lot of flexible conductors for busbar, jackbus, jumper, equipment connections[ACSR], including all necessary clamps & connectors required for completing 145kV busbar (3150 Amp bus) and switchgear connection required under the scope of work.
8B8	One(1) lot of insulators and fittings including all necessary accessories required to complete 145kV switchyard
8B9	One(1) lot of steel structures for gantry and equipment supports including nuts & bolts and cable tray including all necessary fitting & fixing accessories required for completing 145kV switchyard.
8B10	145KV post insulator

8C **Deleted**

8D **Deleted**

8E	SCADA system for Telecontrol and Telemetering
8E.1	One (1) lot of complete design, supply, delivery, installation, testing & commissioning of hardware and software to provide the telecontrol & telemetering facilities required at the existing National Load Despatch Center (NLDC) at Rampura and backup station at Biddyut Bhaban for integration of the 132KV bay extension in the existing substation. All required electrical signals shall be transmitted to the NLDC through the Industrial Gateway of the substation automation system. All HV breakers, motorized disconnectors, tap changer, etc. shall be controlled from NLDC through the Gateway of the substation automation system using IEC 60870-5-104 protocol. All necessary modification works in the software of master station of NLDC at Rampura & Biddyut Bhaban are to be carried out. Scope of supply work in Substation shall include Ethernet switch, cables, separate panel with wiring & all other accessories needed for the extension work. Therefore, necessary hardware & software shall be installed here (if required)

8F	**Control, Protection, Substation Automation & Metering**
	132 KV circuits
	The equipment to be supplied, installed and commissioned is shown in bid drawings are comprising of: -
8F1	Control, Monitoring, Protection (Main-1 & backup relay) & Substation Automation Facility including event recording function for two (02) sets of 132KV overhead line circuit bays. Main-1 & backup relay shall from different manufacturer. Each set of complete panel (Front opening, Swing Frame type) shall include control Mimic with all accessories including monitoring, Protection main relays (Main-1 & backup), Auxiliary relays (TCS, Lockout etc) with wiring, lighting, humidity controller, heater, MCBs, TTBs & other accessories as required.

8F2	One (01) lot of Tariff metering to accommodate programmable & recordable digital 3-phase,4wire import and export MWh and MVArh meters (accuracy class 0.2) for each 230 kV line and transformer feeders. For each feeder minimum two meters (main & check) shall be supplied. Substation Automation System shall include the metering for all the bays. Tariff Metering is to be supplied from Europe, Canada, USA or Japan origin. Printed catalogue, operation and service manual are to be provided. Different model/manufacturer shall be considered for main & check tariff meter.
8F3	**Substation Automation system(SAS)**
	Extension of SAS including all required equipment & accessories excluding protection panel & relay for the whole Substation. SAS system shall include BCUs, Ethernet Switches, extension of alarm unit & software, panels, Cables etc. The SAS system shall be equipped with a common alarm unit to incorporate MCB's(DC/AC) status as required.

8G	**DFDR**
8G1	Deleted

8H	**GIL & Power Cable**
8H1	Deleted

8I	**Multicore Cables**
8I1	One (1) lot complete set of multicore low voltage 06/1.1kV, XLPE insulated power and control cables (IEC 60502) shall be supplied, installed, glanded, terminated and have individual cores identified to be used for connection of all equipment supplied under the Contract. The overall substation cable routing and core schedules shall also be provided.

8J	**Earthing and Lightning Protection**
8J1	One (1) lot of design, supply and installation of earthing system for outdoor switchyard equipment & Control Room with necessary connectors and clamps, with design to suit the work under this contract arrangement. If soil resistivity is different for different layer, calculation and GPR shall have to shown using software like CYMGRD.
8J2	One (1) lot of design, supply and installation of lightning protection screen for outdoor switchyard equipment with necessary connectors and clamps, with design to suit the work under this project. Supporting calculation shall have to be shown in Rolling Sphere/ Rez-vig method.

8K	**Batteries, Chargers and DC Distribution**
8K1	One (01) lot of Extension of existing 110V DC distribution board to provide DC connections to all equipment required for bay extension work under this contract. The MCBs shall be from USA/Europe/Japan/Korean origin or other eligible countries with equivalent quality. MCB must have in built NO/NC contacts.
8K2	One (01) lot of Extension of existing 48V DC distribution board to provide DC connection to fibre optic multiplexer equipment for communication, protection to all equipment required for bay extension work under this contract. The MCBs shall be from USA/Europe/Japan/Korean origin or other eligible countries with equivalent quality. MCB must have in built NO/NC contacts.

Civil Works, Building and Foundation:
Complete design, supply and construction of all civil items required for the outdoor works suitable for switchyard gantry & equipment foundations, entrance & internal roads, cable trenches, earth filling, surfacing, drainage, switchyard lighting, etc.
Complete design, supply and construction of all civil items including all necessary architecture & structural requirements; cable trays, fittings and flooring & finishes; air-conditioning and lighting for the extension part including control room. etc.

The equipment to be designed, supplied, installed, tested & commissioned as stipulated in bid specification and shown in bid drawing:

10A Deleted

10B 145KV Air Insulated Switchgear (AIS)

Item No.	Descriptions & Requirements
10B1	Two (02) sets of 145Kv, 1600A, 50Ka/1sec, 50Hz, 650kVp BIL, live tank type, single pole operation, SF6 gas circuit breakers with spring-stored energy operating mechanism with support structure.
10B2	Two (02) sets of 145Kv, 1600A, 50Ka/1sec, 50Hz, 650kVp BILhorizontal double break, post type, motor operated disconnectors **with** motor-operated **earthing switch**
10B3	Four (04) sets of 145Kv, 1600A, 50Ka/1sec, 50Hz, 650kVp BIL,horizontal double break, post type, motor operated disconnectors **withoutearthing switch**.
10B4	Six (06) nos. of single-phase, 5-core, 145Kv, 50Ka/1sec, 50Hz, 650kVp BIL, ,post type current transformer
10B5	Six (06) nos. of single-phase, 3-core, 145Kv, 50Hz, 650kVp BIL, inductive type voltage transformers.
10B6	Twelve (12) nos. of 120KV rated voltage, 102Kv(rms) continuous operating voltage at 50Oc, 10Ka nominal discharge current, 50Hz, gapless metal oxide type, single phase surge arresters.
10B7	One(1) lot of flexible conductors for busbar, jackbus, jumper, equipment connections[ACSR], including all necessary clamps & connectors required for completing 145Kv busbar(3150A busbar) and switchgear connection required under the scope of work.
10B8	One(1) lot of insulators and fittings including all necessary accessories required to complete 145Kv switchyard
10B9	One(1) lot of steel structures for gantry and equipment supports including nuts & bolts and cable tray including all necessary fitting & fixing accessories required for completing 145KV switchyard& 230KV switchyard.
10B10	145KV post insulator

10C Deleted

10D Deleted

10E	SCADA system for Telecontrol and Telemetering
10E.1	One (1) lot of complete design, supply, delivery, installation, testing & commissioning of hardware and software to provide the telecontrol & telemetering facilities required at the existing National Load Despatch Center (NLDC) at Rampura and backup station at Biddyut Bhaban for integration of the 132KV bay extension in the existing substation. All

No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
2.12	Rated power: I core II core III core IV core V core	 VA VA VA VA VA	 10-20 for metering cores 30-60VA for protection cores Calculation is required during design stage	
3.	Current Transformers - Design and Construction			
3.1	Insulator material		Composite/Porcelain	
3.2	Insulating medium		Oil-paper	
3.3	Minimum creepage distance	mm/kV	Min. ≥ 25 mm/kV	
3.4	Max. radio interference voltage at 0.5-2 MHz (acc. to IEC 60694)	µV	Max. 2500	
3.5	Permissible level of partial discharges: Test voltage 1.2*UM/√3 Test voltage UM	 pC pC	 Max. ≤ 5 ≤ 10	
3.7	Min. LV enclosure protection		IP54	
3.8	HV terminals			
3.8.1	Shape		Flat	
3.8.2	Position		Horizontal	
3.8.3	Dimensions	mm x mm	Min 100 x 100	
3.8.4	Number of holes		Min 4	
3.8.5	Dimensions of holes	mm	Ø 14	
3.8.6	Distance between holes	mm	50	
3.8.7	Material suitable for		Al terminal	
3.10	tgδ test terminal		Yes	
3.11	Oil drain cock and sampling device		Yes	
3.13	Secondary reconnection		Yes	
3.14	Outdoor metal part made of aluminium or stainless steel		Yes	
3.15	Mass and dimensions			
3.15.1	Total mass	kg	Insert	
3.15.2	Height	mm	Insert	
	Overall compliance with the requirements (yes/no)			

Voltage Transformer 132 kV

No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
1.	Voltage Transformers - General			
1.1	Manufacturer		Insert	
1.2	Type		Inductive	
1.3	Model designation		Insert	
1.4	Country of origin		Insert	

No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
1.5	Standards		IEC 60044-2 IEC 60273 IEC 60694 IEC 60815	
1.6	Quality control		ISO 9001	
1.7	Type		Outdoor	
1.8	Shape		Insert	
1.9	Sealing		Hermetically closed	
2.	Voltage Transformers – Characteristics			
2.1	Nominal system voltage	kV rms	132	
2.2	Highest voltage for equipment Un	kV rms	145	
2.3	Rated lightning impulse withstand voltage	kV peak	650	
2.4	Rated short duration power frequency voltage	kV	275	
2.5	Rated frequency fr	Hz	50	
2.8	Rated primary voltage	kV	132/√3	
2.9	High frequency capacitance for entire carrier frequency range		N/A	
2.10	Rated Voltage Factor		1.2 continuous; 1.5 for 30 seconds	
2.11	Rated total capacitance(pF)		N/A	
2.12	Standard reference range of frequencies for which the accuracies are valid		N/A	
2.13	Rated secondary voltage I winding II winding III winding	 V V V	 110/√3 110/√3 110/√3	
2.14	Accuracy class: I winding II winding III winding		 0.2 3P 3P	
2.15	Rated power: I winding II winding III winding	 VA VA VA	 10-20 20-50 20-50 Calculation is required during design	
2.16	Load		Simultaneously	
3.	Voltage Transformers - Design and Construction			
3.1	Insulator material		Composite/Porcelain	
3.2	Insulating medium		paper - Mixed dielectric	
3.3	Minimum creepage distance	mm/kV	Min. ≥ 25 mm/kV	
3.4	Max. radio interference voltage at 0.5-2 MHz (acc. IEC 60694)	µV	Max. 2500	

ATTACHMENT-2

4.2.7 HV & LV Cable

230kV Power Cable

Sl No.	Description	Unit	Requirement	Bidder's Data
	General			
	Manufacturer		Insert	
	Type		Insert	
	Model Designation		Insert	
	Country of Origin		Insert	
	Standards		EC 62067	
	Quality Control		ISO 9001 ISO 14001 ISO 18001	
	Type of conductor		Copper	
	Type of Insulation		XLPE	
	Ambient temperature for calculation Average daily temperature maximum daily temperature	 °C °C	 40 50	
	Voltage			
	Rated Voltage	kV	230kV	
	Maximum System Voltage	kV	245kV	
	Impulse withstand voltage	kV	1050	
	Power frequency withstand voltage	kV	460	
	Cores			
	Number of cores		1 (one)	
	Conductor			
	Standard		IEC 60228	
	Nominal Current	A	≥ 1000	
	Cross sectional area	mm2	Insert	
	Nominal Diameter	mm	Insert	
	Material		Annealed Copper	
	Design (standard of segmental)		Milliken (4/5 segment)	
	Conductor Screen			
	Material		Semi conducting tape & Extruded semiconducting compound, cross linked	
	Thickness (approx.)	mm	Insert	
	Nominal Diameter over semi-conducting layer	mm	Insert	
	Insulation			
	Material		XLPE	
	Process		Triple simultaneous extrusion	
	Type of curing (dry)		Dry Curing (VCV)	
	Average Thickness		23-25 mm	
	Minimum Thickness		Insert	

Sl No.	Description	Unit	Requirement	Bidder's Data
	Model Designation		Insert	
	Country of Origin		Insert	
	Standards		EC 62067	
	Quality Control		ISO 9001 ISO 14001 ISO 18001	
	Type of conductor		Copper	
	Type of Insulation		XLPE	
	Ambient temperature for calculation Average daily temperature maximum daily temperature	 °C °C	 30 45	
	Voltage			
	Rated Voltage	kV	132kV	
	Maximum System Voltage	kV	145kV	
	Impulse withstand voltage	kV	650	
	Power frequency withstand voltage	kV	275	
	Cores			
	Number of cores		1 (one)	
	Conductor			
	Standard		IEC 60228	
	Nominal Current	A	≥ 1600	
	Cross sectional area	mm2	Insert	
	Nominal Diameter	mm	Insert	
	Material		Annealed Copper	
	Design (standard of segmental)		Milliken (4/5 segment)	
	Conductor Screen			
	Material		Semi conducting tape & Extruded semiconducting compound, cross linked	
	Thickness (approx.)	mm	Insert	
	Nominal Diameter over semi-conducting layer	mm	Insert	
	Insulation			
	Material		XLPE	
	Process		Triple simultaneous extrusion	
	Type of curing (dry)		Dry Curing (VCV)	
	Average Thickness		23-25 mm	
	Minimum Thickness		Insert	
	Nominal Diameter over insulation		Insert	
	Insulation screen			
	Material		Extruded semi conducting compound, cross linked	

ATTACHMENT-3

11I	**Multicore Cables**
11I1	One (1) lot complete set of multicore low voltage 06/1.1kV, XLPE insulated power and control cables (IEC 60502) shall be supplied, installed, glanded, terminated and have individual cores identified to be used for connection of all equipment supplied under the Contract. The overall substation cable routing and core schedules shall also be provided.

11J	**Earthing and Lightning Protection**
11J1	One (1) lot of design, supply and installation of earthing system for outdoor switchyard equipment & Control Room with necessary connectors and clamps, with design to suit the work under this contract arrangement. If soil resistivity is different for different layer, calculation and GPR shall have to shown using software like CYMGRD.
11J2	One (1) lot of design, supply and installation of lightning protection screen for outdoor switchyard equipment with necessary connectors and clamps, with design to suit the work under this project. Supporting calculation shall have to be shown in Rolling Sphere/ Rez-vig method.

11K	**Batteries, Chargers and DC Distribution**
11K1	One (01) lot of Extension of existing 110V DC distribution board to provide DC connections to all equipment required for bay extension work under this contract. The MCBs shall be from USA/Europe/Japan/Korean origin or other eligible countries with equivalent quality. MCB must have in built NO/NC contacts.
11K2	One (01) lot of Extension of existing 48V DC distribution board to provide DC connection to fibre optic multiplexer equipment for communication, protection to all equipment required for bay extension work under this contract. The MCBs shall be from USA/Europe/Japan/Korean origin or other eligible countries with equivalent quality. MCB must have in built NO/NC contacts.

11L	**LVAC Distribution**
11L1	One (1) lot extension of LVAC switchboard for two (02) new bays at substation to be supplied, installed and commissioned to provide the 415/240V supplies to all equipment being supplied under this turnkey project.
11L2	Deleted

11M	**Civil Works, Building and Foundation**
11M1	One (1) lot of Complete design, supply and construction of all civil items required for extension of bays at 132kV level. The outdoor works shall include necessary land development, filling/cutting of soil and leveling up to finished level and within the property line suitable for switchyard gantry & equipment foundations, Extension of internal roads, cable trenches including soak pit, septic tank, switchyard drainage system including outfall, fences, sentry post, PVC pipes etc., switchyard surface finishing and gravel surfacing etc. shall be included.
11M2	One (01) lot of Complete design, supply and construction of all civil items and facilities required for the extension/ modification of 132kV GIS and control room to incorporate the extension bays.
11M3	One (01) lot of Testing of pile Foundation, Compression & uplift on random basis.
11M4	One (01) lot of dismantling of Capacitor bay equipment & sentry post.

11N	**Lighting, Small Power, Air Conditioning and Ventilation**
11N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type), LV power supply, air conditioning system, ventilation system and emergency DC lighting for extension work
11N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency

ATTACHMENT-4

No.	Description	Minimum Requirements		Guaranteed
		Unit	Data	
1.	Circuit Breaker - General			
1.1.	Manufacturer		Insert	
1.2	Type		Insert	
1.3	Model designation		Insert	
1.4	Country of origin		Insert	
1.5	Standards		IEC 62271-100 IEC 60273 IEC 60694 IEC 60815	
1.6	Quality control		ISO 9001 ISO 14001 ISO 18001	
1.7	Isolating and quenching medium		Vacuum/SF6	
1.8	Type of circuit breaker		Outdoor	
1.9	Design		Single breaking	
1.10	Operating mechanism		Motor-wound spring	
1.11	Number of poles	pcs.	3	
1.12	Number of operating mechanisms per circuit breaker	pcs.	1	
2.	Circuit Breaker - Characteristics			
2.1	Nominal system voltage	kV rms	33	
2.2	Highest voltage for equipment Un	kV rms	36	
2.3	Rated lightning impulse withstand voltage	kV peak	170	
2.4	Rated short duration power frequency voltage	kV	70	
2.5	Rated frequency fr	Hz	50	
2.6	Rated current Ir	A	≥ 2500 (for 120MVA Tr.)	
		A	≥ 3150 (for 140MVA Tr.)	
2.7	Rated short-circuit breaking current Isc	kA rms	≥ 31.5	
2.8	Rated peak withstand current Ip (equal short-circuit making current)	kA	≥ 80	
2.9	D.C. component of the rated short-circuit breaking current	%	> 30	
2.10	First-pole-to-clear factor Terminal fault Short-line fault Out-of-phase	 p.u. p.u. p.u.	 1.3 N.A. N.A.	
2.11	Standard value of transient recovery voltage (T100)	kV	Insert	
2.12	Rate of rise recovery voltage	kV/μs	Insert	
2.13	Rated operating sequence		O-0.3 s-CO-3 min-CO	
2.14	Duration of short-circuit	s	≥ 1	
2.15	Rated out-of-phase breaking current	kA	Insert	

ATTACHMENT-5A

Item No.	Description of Equipment Requirement	Unit	Quantity	Country of Origin	Code	Foreign Currency (in.....)	
						Unit Price	Total Price
						CIP	CIP
			(1)			(2)	(3) = (1) x (2)
8C	**33kV AIS &GIS**	Deleted					
8D	**Power Transformer & Earthing/Auxiliary Transformer**	Deleted					
8E	**SCADA system for Telecontrol and Telemetering**						
8E1	Modification/Extension of SCADA hardware & software						
	Each Comprising						
	a) Equipment at Substation for modification / extension of SCADA system	Lot	1				
	b Integration work with Master & Backup NLDC including Engineering & Commissioning	Refer to Schedule B4					
8F	**Control, Protection, SAS and Metering**						
	132kV Circuits						
8F1	Control, Monitoring, Protection & Substation Automation Facility including event recording function for 132KV overhead line circuits bays	set	2				
8F2	**Tarif metering**						
	a Meters (Main & Check)	Set	4				
	b Complete Panel including wiring, lighting, heater, humidity controller & other accessories (if required)	set	1				
8F3	**Modification / Extension of Substation Automation System**	Lot	1				
8G	**Digital Fault & Disturbance Recorder**	Deleted					
8H	**Power Cable**	Deleted					
8I	**Multicore Cables**						
8I1	Multicore Cables for control, protection, metering & power circuits						
	i) LV Control Cable	lot	1				

Name of Bidder:

Signature of Bidder:_____

Schedule B1:Mandatory Spare Parts supplied from abroad

13. Mandatory Spare, Maintanence & Test Equipement

Item No.		Description of Equipment Requirement	Unit	Quantity	Country of Origin	Code	Foreign Currency (in.....) Unit Price CIP	Foreign Currency (in.....) Total Price CIP
				(1)			(2)	(3) = (1) x (2)
		230KV Gas Insulated Switchgear						
1		Complete bay equipment module with necessary accessories	sets	1				
2		Each type of auxiliary contacts unit	sets	1				
3		surge arrester (AIS)	nos.	2				
4		Complete Voltage transformer module	nos.	1				
5		Closing coils	nos.	2				
6		Tripping coils	nos.	4				
7		Motor for circuit breaker operating mechanism	nos.	1				
8		Motor for disconnector drive	nos.	1				
9		Coils for Blocking magnet in disconnector drive	nos.	1				
10		Gas pressure monitor with gauge and pressure switch	No	3				
11		Pressure Relief Device	No	1				
12		Supporting insulator with barrier	No	1				
13		Rubber gaskets "O" rings and seals for SF6 gas	lot	1				
14		All types of control valves for SF6 gas	lot	1				
		132KV Gas Insulated Switchgear						
15		Complete bay equipment module with necessary accessories	sets	6				
16		Each type of auxiliary contacts unit	sets	6				
17		surge arrester (AIS)	nos.	14				
18		Complete Voltage transformer module	nos.	6				
19		Closing coils	nos.	12				
20		Tripping coils	nos.	18				
21		Motor for circuit breaker operating mechanism	nos.	6				
22		Motor for disconnector drive	nos.	6				
23		Coils for Blocking magnet in disconnector drive	nos.	6				
24		Gas pressure monitor with gauge and pressure switch	nos.	15				
25		Pressure Relief Device	nos.	15				
26		Supporting insulator with barrier	nos.	4				
27		Rubber gaskets "O" rings and seals for SF6 gas	lot/SS	1				
28		All types of control valves for SF6 gas	lot/SS	1				

Name of Bidder:

Signature of Bidder:_____

ATTACHMENT-5B

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price[1]		Total Price[1]	
					Local Currency [In BDT]	Foreign Currency [In ……..]	Local Currency [In BDT]	Foreign Currency [In ……..]
					EXW	Foreign Currency [In ……..]	EXW	EXW
				(1)				
8F	**Control, Protection, SAS and Metering**							
	132kV Circuits							
8F1	Control, Monitoring, Protection & Substation Automation Facility including event recording function for 132KV overhead line circuits bays		set	2				
8F2	**Tarif metering**							
	a	Meters (Main & Check)	Set	4				
	b	Complete Panel including wiring, lighting, heater, humidity controller & other accessories (if required)	set	1				
8F3	**Modification / Extension of Substation Automation System**		Lot	1				
8G	**Digital Fault & Disturbance Recorder**		Deleted					
8H	**Power Cable**		Deleted					
8I	**Multicore Cables**							
8I1	Multicore Cables for control, protection, metering & power circuits							
	i) LV Control Cable		lot	1				
	ii) LV Power Cable		lot	1				
8J	**Earthing and Lightning Protection**							
8J1	_Extension of Earthing system for 132kV Switchyard		lot	1				
8J2	_Extension of Lightning Protection System for 132kV Switchyard		lot	1				

ATTACHMENT-5C

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	iii) GIS Cable Sealing end & accessories	No.	6				
1I	**Multicore Cables**						
	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 and Portable Eathing Equipment**						
1J1	Earthing and Lightning Protection system						
	i. _Earthing system for complete substation	lot	1				
	ii. _Lighting Protection System for complete substation	lot	1				
1J2	Portable(maintenance) earthing equipment device	set	2				
1K	**Batteries, chargers & DC distribution**						
1K1	110V Ni-cad Batteries with chargers & distribution board including others						
	i. _110V Battery Banks, not less than 600Ah or above	set	2				
	ii. _Charger not less than 170A	set	2				
	iii. _3kVA Inverter	set	2				
	iv. _110V DC Distribution panel,	lot	1				
	v. Insulation Monitoring system for complete DC system	lot	1				
1K2	48V Ni-cad Batteries with chargers & distribution board						
	i. _48V battery Banks,not less than 250Ah or above	set	2				
	ii. _Charger not less than 70A	set	2				
	iii. _48V DC Disatribution Panel	lot	1				
1L	**LVAC Distribution**						
1L1	i. _AC 415V or 240V distribution panels	lot	1				
	ii. _Tariff metering at LV side(Main & Check)	No	4				
1M	**Civil Works, Building and Foundation**						
1M1	Complete civil items required for outdoor works including earthfilling, slope protection and boundary wall						



Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In ……..]	Local Currency [In BDT]	Foreign Currency [In ……..]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	a) Complete Compacted Land development with carried/dredged earth/sand filling (paid at actual)	Cubic meter	19424.9				
	b) Slope protection (paid at actual)						
	1) _Slpoe (1V:2H) protection with turfing	Square meter	1933.7				
	2) _Slpoe (1V:2H) protection with CC blocks	Square meter	50				
	c) Complete outdoor civil works						
	i) _Outdoor gantry foundation 230kV switchyard						
	1) Double tier Height	nos.	4				
	2) Single tier Height	nos.	3				
	ii) _Outdoor equipment foundation 230kV switchyard						
	a) LA	nos.	18				
	b) GIL	lot	1				
	c) PI	lot	1				
	iii) _Outdoor equipment foundation 33kV switchyard						
	a) CB	nos.	2				
	b) DS	nos.	4				
	c) CT	nos.	6				
	d) IVT	nos.	6				
	e) LA	nos.	6				
	f) PI	lot	1				
	iv) _Outdoor gantry/tubular busbar foundation 33kV switchyard	lot	1				
	v) _Transformer foundation including rails, oilpit with gravels, carrage way with steel pipe & oil-water separator	lot	1				
	vi) _Auxilary transformer	lot	1				
	vii) _Blast wall with foundation	nos.	3				
	viii) _Property Line Demarkation	meter	720				
	ix) _Security Boundary Wall						

Name of Bidder:

Signature of Bidder:_____

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In ……..]	Local Currency [In BDT]	Foreign Currency [In ……..]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	a) Boundary Wall without Retaining wall	meter	692				
	x) _Substation Main gate	lot	1				
	xi) _Chain linked Fencing	lot	1				
	xii) _Approach raod 6.0m width	lot	1				
	xiii) _Internal road						
	a) 6.0m width	meter	297.6				
	b) 4.5m width	meter	74.4				
	c) 3.0m width	meter	564				
	xiv) _Surface drain	meter	635				
	xv) _Cable Trench/Tunnel with soakpit						
	a) For control, communication, relay etc. cables	meter	187.2				
	b) For power cables	meter	154.8				
	xvi) _Whole substation surface finishing with drainage system	lot	1				
	xvii) _Gravelling in switchyard area	lot	1				
	xviii) _Septic tank, soak well	lot	1				
	xix) _Pump house including deep tubewell, motor, pump, water reservoir, water pipe line etc.	lot	1				
	xx) _Guard house	lot	1				
	xxi) _Sentry post	nos.	4				
	xxii) _Car port (4 nos cars)	lot	1				
	xxiii) _Ansar barac	lot	1				
1M2	Complete civil works for 1 (one) No 230kV GIS Hall and 1 (one) Nos three storied Operation & Panel Room						
	i) _Foundation works	lot	1				
	ii) _Super structures	lot	1				
	iii) _All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	iv) _8 ton EOT Crane	lot	1				
	v) _Passenger lift (4 person)	set	1				
1M3	Testing of Foundation						
	i) _Compression Test	nos.	2				
	ii) _ Uplift Test	nos.	1				
1M4	Civil Works related to CAF system	Lot	1				
1N	**Lighting, small power, air conditioning, Ventilation, fire fighting & CCTV**						
1N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building	Lot	1				
1N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.	Lot	1				
1N3	Fire Fighting system for GIS Hall & Control Room	Lot	1				
	i) Fire Fighting system For 230kV 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 and PLC Equipment for Communication and Protection**						

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
1O1	One (1) lot of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with with existing system	Lot	1				
1O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
1P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price(for New Bhola 230/33kV SS) carried to Summary of Price Schedule							
Total Price in words (for new of BHOLA 230/33kV SS)							

2. New 132/33 kV Substation at Hatiabandha

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
2A	**230 kV switchgear, equipment connection and steel structures**						
	Deleted						
2B	**132 kV switchgear, equipment connection and steel structures**						
2B1	145kV GIS Line Feeder Bays	Set	4				
2B2	145kV GIS Auto Transformer Feeder Bays	Set	2				
2B3	145kV Bus Coupler Bays	set	1				
2B4	145kV Bus Section Bays	Set	1				
2B5	145kV GIS Double Busbar VT	Set	3				
2B6	145kV GIS Busbar HSES	Set	3				
2B7	120kV rated voltage, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase surge arresters	No.	12				
2B8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 132kV GIS Switchyard	Lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
[illegible]	ii. _Charger not less than 70A	set	2				
	iii. _48V DC Disatribution Panel	lot	1				
2L	**LVAC Distribution**						
2L1	_AC 415V or 240V distribution panels	lot	1				
2L2	_Tariff metering at LV side(Main & Check)	No	4				
2M	**Civil Works, Building and Foundation**						
2M1	Complete civil items required for outdoor works including earthfilling, slope protection and boundary wall						
	a) Complete Compacted Land development with carried/dredged earth/sand filling (paid at actual)	cubic meter	25835.15				
	b) Slope protection (paid at actual)						
	1) _Slpoe (1V:2H) protection with turfing	square meter	3609				
	2) _Slpoe (1V:2H) protection with CC blocks	square meter	50				
	c) Complete outdoor civil works						
	i) _Outdoor gantry foundation 132kV switchyard						
	1) Double tier Height	nos.	3				
	2) Single tier Height	nos.	3				
	ii) _Outdoor equipment foundation 132kV switchyard						
	a) LA	nos.	18				
	b) GIL	lot	1				
	c) PI	lot	1				
	iii) _Outdoor equipment foundation 33kV switchyard						
	a) CB	nos.	2				
	b) DS	nos.	4				
	c) CT	nos.	6				
	d) IVT	nos.	6				
	e) LA	nos.	6				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	f) PI	lot	1				
	iv) _Outdoor gantry/tubular busbar foundation 33kV switchyard	lot	1				
	v) _Transformer foundation including rails, oilpit with gravels, carrage way with steel pipe & oil-water separator	lot	1				
	vi) _Auxiliary transformer	lot	1				
	vii) _Blast wall with foundation	nos.	3				
	viii) _Property Line Demarkation	meter	538				
	ix) _Security Boundary Wall						
	a) Boundary Wall without Retaining wall	meter	476				
	x) _Substation Main gate	lot	1				
	xi) _Chain linked Fencing	lot	1				
	xii) _Approach raod 6.0m width	lot	1				
	xiii) _RCC Box Culvert	lot	1				
	xiv) _Internal road						
	a) 6.0m width	meter	183				
	b) 4.5m width	meter	84				
	c) 3.0m width	meter	324				
	xv) _Surface drain	meter	435				
	xvi) _Cable Trench/Tunnel with soakpit	lot	1				
	a) For control, communication, relay etc. cables	meter	162				
	b) For power cables	meter	36				
	xvii) _Whole substation surface finishing with drainage system	lot	1				
	xviii) _Gravelling in switchyard area	lot	1				
	xix) _Septic tank, soak well	lot	1				
	xx) _Pump house including deep tubewell, motor, pump, water reservoir,	lot	1				
	xxi) _Guard house	lot	1				
	xxii) _Sentry post	nos.	4				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	xxiii) _Car port (4 nos cars)	lot	1				
	xiv) _Ansar barac	lot	1				
2M2	Complete civil works for 1 (one) No 132kV GIS Hall and 1 (one) Nos three storied Operation & Panel Room						
	i) _Foundation works	lot	1				
	ii) _Super structures	lot	1				
	iii) _All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	lot	1				
	iv) _5 ton EOT Crane	lot	1				
	v) _Passenger lift (4 person)	set	1				
2M3	Testing of Foundation						
	i) _Compression Test	nos.	2				
	ii) _ Uplift Test	nos.	1				
2M4	Civil Works related to CAF system	Lot	1				
2N	**Lighting, small power, air conditioning, Ventilation, fire fighting & CCTV**						
2N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building	Lot	1				
2N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.	Lot	1				
2N3	Fire Fighting system for GIS Hall & Control Room	Lot	1				
	i) Fire Fighting system For 132kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				
2N4	Complete CCTV & with motion sensor	Lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
2O	**Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
2O1	One (1) lot of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with with existing system	Lot	1				
2O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
2P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price(for New Hatibandha 132/33kV SS) carried to Summary of Price Schedule							
Total Price in words (for new of Hatibandha 132/33kV SS)							

3. New 132/33 kV Substation at Pirojpur

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
3A	**230 kV switchgear, equipment connection and steel structures**						
	Deleted						
3B	**132 kV switchgear, equipment connection and steel structures**						
3B1	145kV GIS Line Feeder Bays	Set	6				
3B2	145kV GIS Auto Transformer Feeder Bays	Set	2				
3B3	145kV Bus Coupler Bays	set	1				
3B4	145kV Bus Section Bays	Set	1				
3B5	145kV GIS Double Busbar VT	Set	3				
3B6	145kV GIS Busbar HSES	Set	3				
3B7	120kV rated voltage, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase surge arresters	No.	18				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
3K2	48V Ni-cad Batteries with chargers & distribution board						
	i. _48V battery Banks,250Ah or above	set	2				
	ii. _Charger 70A	set	2				
	iii. _48V DC Disatribution Panel	lot	1				
3L	**LVAC Distribution**						
3L1	_AC 415V or 240V distribution panels	lot	1				
3L2	_Tariff metering at LV side(Main & Check)	No	4				
3M	**Civil Works, Building and Foundation**						
3M1	Complete civil items required for outdoor works including earthfilling, slope protection and boundary wall						
	a) Complete Compacted Land development with carried/dredged earth/sand filling (paid at actual)	cubic meter	19424.93				
	b) Slope protection (paid at actual)						
	1) Slpoe (1V:2H) protection with turfing	square meter	2458				
	2) Slpoe (1V:2H) protection with CC blocks	square meter	50				
	c) Complete outdoor civil works						
	i) _Outdoor gantry foundation 132kV switchyard						
	1) Double tier Height	nos.	4				
	2) Single tier Height	nos.	3				
	ii) _Outdoor equipment foundation 132kV switchyard						
	a) LA	nos.	24				
	b) GIL	lot	1				
	c) PI	lot	1				
	iii) _Outdoor equipment foundation 33kV switchyard						
	a) CB	nos.	2				
	b) DS	nos.	4				
	c) CT	nos.	6				
	d) IVT	nos.	6				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	e) LA	nos.	6				
	f) PI	lot	1				
	iv) _Outdoor gantry/tubular busbar foundation 33kV switchyard	lot	1				
	v) _Transformer foundation including rails, oilpit with gravels, carrage way with steel pipe & oil-water separator	lot	1				
	vi) _Auxiliary transformer	lot	1				
	vii) _Blast wall with foundation	nos.	3				
	viii) _Property Line Demarkation	meter	549				
	ix) _Security Boundary Wall						
	a) Boundary Wall without Retaining wall	meter	506				
	x) _Substation Main gate	lot	1				
	xi) _Chain linked Fencing	lot	1				
	xii) _Approach raod 6.0m width	lot	1				
	xiii) _RCC Box Culvert	lot	1				
	xiv) _Internal road						
	a) 6.0m width	meter	126				
	b) 4.5m width	meter	98.4				
	c) 3.0m width	meter	372				
	xv) _Surface drain	meter	464				
	xvi) _Cable Trench/Tunnel with soakpit	lot	1				
	a) For control, communication, relay etc. cables	meter	98.4				
	b) For power cables	meter	45.6				
	xvii) _Whole substation surface finishing with drainage system	lot	1				
	xviii) _Gravelling in switchyard area	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In ……..]	Local Currency [In BDT]	Foreign Currency [In ……..]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	xix) _Septic tank, soak well	lot	1				
	xx) _Pump house including deep tubewell, motor, pump, water reservoir,	lot	1				
	xxi) _Guard house	lot	1				
	xxii) _Sentry post	nos.	4				
	xxiii) _Car port (4 nos cars)	lot	1				
	xxiv) _Ansar barac	lot	1				
3M2	Complete civil works for 1 (one) No 132kV GIS Hall and 1 (one) Nos three storied Operation & Panel Room						
	i) _Foundation works	lot	1				
	ii) _Super structures	lot	1				
	iii) _All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	lot	1				
	iv) _5 ton EOT Crane	lot	1				
	v) _Passenger lift (4 person)	set	1				
3M3	Testing of Foundation						
	i) _Compression Test	nos.	2				
	ii) _ Uplift Test	nos.	1				
3M4	Civil Works related to CAF system	Lot	1				
3N	**Lighting, small power, air conditioning, Ventilation, fire fighting & CCTV**						
3N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building	Lot	1				
3N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.	Lot	1				
3N3	Fire Fighting system for GIS Hall & Control Room	Lot	1				
	i) Fire Fighting system For 132kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
3N4	Complete CCTV & with motion sensor	Lot	1				
3O	**Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
3O1	One (1) lot of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with with existing system	Lot	1				
3O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
3P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price (for New PIROJPUR 132/33kV SS) carried to Summary of Price Schedule							
Total Price in words (for new of PIROJPUR 132kV SS)							

4. New 132/33 kV Substation at Bhanga

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
4A	**230 kV switchgear, equipment connection and steel structures**						
	Deleted						
4B	**132 kV switchgear, equipment connection and steel structures**						
4B1	145kV GIS Line Feeder Bays	Set	6				
4B2	145kV GIS Auto Transformer Feeder Bays	Set	3				
4B3	145kV Bus Coupler Bays	set	1				
4B4	145kV Bus Section Bays	Set	1				
4B5	145kV GIS Double Busbar VT	Set	3				
4B6	145kV GIS Busbar HSES	Set	3				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	iii. _3kVA Inverter	set	2				
	iv. _110V DC Distribution panel,	lot	1				
	v. Insulation Monitoring system for complete DC system	lot	1				
4K2	48V Ni-cad Batteries with chargers & distribution board						
	i. _48V battery Banks,250Ah or above	set	2				
	ii. _Charger 70A	set	2				
	iii. _48V DC Disatribution Panel	lot	1				
4L	**LVAC Distribution**						
4L1	_AC 415V or 240V distribution panels	lot	1				
4L2	_Tariff metering at LV side(Main & Check)	No	4				
4M	**Civil Works, Building and Foundation**						
4M1	Complete civil items required for outdoor works including earthfilling, slope protection and boundary wall						
	a) Complete Compacted Land development with carried/dredged earth/sand filling (paid at actual)	cubic meter	7557.9				
	b) Slope protection (paid at actual)						
	1) Slpoe (1V:2H) protection with turfing	square meter	5025				
	2) Slpoe (1V:2H) protection with CC blocks	square meter	50				
	c) Complete outdoor civil works						
	i) _Outdoor gantry foundation 132kV switchyard						
	1) Double tier Height	nos.	4				
	2) Single tier Height	nos.	4				
	ii) _Outdoor equipment foundation 132kV switchyard						
	a) LA	nos.	27				
	b) GIL	lot	1				
	c) PI	lot	1				
	iii) _Outdoor equipment foundation 33kV switchyard						
	a) CB	nos.	3				
	b) DS	nos.	6				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	c) CT	nos.	9				
	d) IVT	nos.	9				
	e) LA	nos.	9				
	f) PI	lot	1				
	iv) _Outdoor gantry/tubular busbar foundation 33kV switchyard	lot	1				
	v) _Transformer foundation including rails, oilpit with gravels, carrage way with steel pipe & oil-water separator	lot	1				
	vi) _Auxiliary transformer	lot	1				
	vii) _Blast wall with foundation	nos.	4				
	viii) _Property Line Demarkation	meter	488				
	ix) _Security Boundary Wall						
	a) Boundary Wall with RCC Retaining wall	meter	395				
	x) _Substation Main gate	lot	1				
	xi) _Chain linked Fencing	lot	1				
	xii) _Approach raod 6.0m width	lot	1				
	xiii) _RCC Box Culvert	lot	1				
	xiv) _Internal road						
	a) 6.0m width	meter	156				
	b) 4.5m width	meter	84				
	c) 3.0m width	meter	171.6				
	xv) _Surface drain	meter	362				
	xvi) _Cable Trench/Tunnel with soakpit						
	a) For control, communication, relay etc. cables	meter	136.8				
	b) For power cables	meter	46.8				
	xvii) _Whole substation surface finishing with drainage system	lot	1				
	xviii) _Gravelling in switchyard area	lot	1				
	xix) _Septic tank, soak well	lot	1				
	xx) _Pump house including deep tubewell, motor, pump, water reservoir,	lot	1				
	xxi) _Guard house	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	xxii) _Sentry post	nos.	4				
	xxiii) _Car port, 4car	lot	1				
	xxiv) _Ansar barac	lot	1				
4M2	Complete civil works for 1 (one) No 132kV GIS Hall and 1 (one) Nos three storied Operation & Panel Room						
	i) _Foundation works	lot	1				
	ii) _Super structures	lot	1				
	iii) _All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	lot	1				
	iv) _5 ton EOT Crane	lot	1				
	v) _Passenger lift(4 person)	set	1				
4M3	Testing of Foundation						
	i) _Compression Test	nos.	2				
	ii) _ Uplift Test	nos.	1				
4M4	Civil Works related to CAF system	Lot	1				
4N	**Lighting, small power, air conditioning, Ventilation, fire fighting & CCTV**						
4N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building	Lot	1				
4N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.	Lot	1				
4N3	Fire Fighting system for GIS Hall & Control Room	Lot	1				
	i) Fire Fighting system For 132kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				
4N4	Complete CCTV & with motion sensor	Lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
4O	**Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
4O1	One (1) lot of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with with existing system	Lot	1				
4O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
4P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price (for New Bhanga 132/33kV SS) carried to Summary of Price Schedule							
Total Price in words (for new of Bhanga 132kV SS)							

5. New 132/33 kV Substation at Jhalkathi

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
5A	**230 kV switchgear, equipment connection and steel structures**						
	Deleted						
5B	**132 kV switchgear, equipment connection and steel structures**						
5B1	145kV GIS Line Feeder Bays	Set	6				
5B2	145kV GIS Auto Transformer Feeder Bays	Set	2				
5B3	145kV Bus Coupler Bays	set	1				
5B4	145kV Bus Section Bays	Set	1				
5B5	145kV GIS Double Busbar VT	Set	3				
5B6	145kV GIS Busbar HSES	Set	3				
5B7	120kV rated voltage, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase surge arresters	No.	18				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
5M1	Complete civil items required for outdoor works including earthfilling, slope protection and boundary wall						
a)	Complete Compacted Land development with carried/dredged earth/sand filling (paid at actual)	cubic meter	30351.45				
b)	Slope protection (paid at actual)						
1)	Slpoe (1V:2H) protection with turfing	square meter	1930.017				
2)	Slpoe (1V:2H) protection with CC blocks	square meter	50				
c)	Complete outdoor civil works						
i)	_Outdoor gantry foundation 132kV switchyard						
1)	Double tier Height	nos.	4				
2)	Single tier Height	nos.	3				
ii)	_Outdoor equipment foundation 132kV switchyard						
a)	LA	nos.	24				
b)	GIL	lot	1				
c)	PI	lot	1				
iii)	_Outdoor equipment foundation 33kV switchyard						
a)	CB	nos.	2				
b)	DS	nos.	4				
c)	CT	nos.	6				
d)	IVT	nos.	6				
e)	LA	nos.	6				
f)	PI	lot	1				
iv)	_Outdoor gantry/tubular busbar foundation 33kV switchyard	lot	1				
v)	_Transformer foundation including rails, oilpit with gravels, carrage way with steel pipe & oil-water separator	lot	1				
vi)	_Auxulary transformer	lot	1				
vii)	_Blast wall with foundation	nos.	3				
viii)	_Property Line Demarkation	meter	690				
ix)	_Security Boundary Wall						

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	a) Boundary Wall without Retaining wall	meter	656				
	x) _Substation Main gate	lot	1				
	xi) _Chain linked Fencing	lot	1				
	xii) _Approach raod 6.0m width	lot	1				
	xiii) _Internal road						
	a) 6.0m width	meter	150				
	b) 4.5m width	meter	180				
	c) 3.0m width	meter	489.6				
	xiv) _Surface drain	meter	602				
	xv) _Cable Trench/Tunnel with soakpit	lot	1				
	a) For control, communication, relay etc. cables	meter	168				
	b) For power cables	meter	45.6				
	xvi) _Whole substation surface finishing with drainage system	lot	1				
	xvii) _Gravelling in switchyard area	lot	1				
	xviii) _Septic tank, soak well	lot	1				
	xix) _Pump house including deep tubewell, motor, pump, water reservoir, water pipe line etc.	lot	1				
	xx) _Guard house	lot	1				
	xxi) _Sentry post	nos.	4				
	xxii) _Car port (4 nos cars)	lot	1				
	xviii) _Ansar barac	lot	1				
5M2	Complete civil works for 1 (one) No 132kV GIS Hall and 1 (one) Nos three storied Operation & Panel Room						
	i) _Foundation works	lot	1				
	ii) _Super structures	lot	1				
	iii) _All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	lot	1				
	iv) _5 ton EOT Crane	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	- Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	v) _Passenger lift(4 person)	set	1				
5M3	Testing of Foundation						
	i) _Compression Test	nos.	2				
	ii) _ Uplift Test	nos.	1				
5M4	Civil Works related to CAF system	Lot	1				
5N	**Lighting, small power, air conditioning, Ventilation, fire fighting & CCTV**						
5N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building	Lot	1				
5N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.	Lot	1				
5N3	Fire Fighting system for GIS Hall & Control Room	Lot	1				
	i) Fire Fighting system For 132kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				
5N4	Complete CCTV & with motion sensor	Lot	1				
5O	**Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
5O1	One (1) lot of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with with existing system	Lot	1				
5O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
5P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price (for New JHALKATHI 132/33kV SS) carried to Summary of Price Schedule							
Total Price in words (for new of JHALKATHI 132kV SS)							

Name of Bidder:

Signature of Bidder:_____

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
6M	**Civil Works, Building and Foundation**						
6M1	Complete civil items required for outdoor works including earthfilling, slope protection and boundary wall						
a)	Complete Compacted Land development with carried/dredged earth/sand filling (paid at actual)	cubic meter	45527.18				
b)	Slope protection (paid at actual)						
1)	Slpoe (1V:2H) protection with turfing	square meter	4462				
2)	Slpoe (1V:2H) protection with CC blocks	square meter	50				
c)	Complete outdoor civil works						
i)	_Outdoor gantry foundation						
1)	Double tier Height 245kV switchyard	nos	2				
2)	Double tier Height 145kV switchyard	nos	2				
3)	Single tier Height 132kV switchyard	nos	4				
ii)	_Outdoor equipment foundation 132kV switchyard						
a)	LA	nos	21				
b)	GIL	lot	1				
c)	PI	lot	1				
iii)	_Outdoor equipment foundation 33kV switchyard						
a)	CB	nos	3				
b)	DS	nos	6				
c)	CT	nos	9				
d)	IVT	nos	9				
e)	LA	nos	9				
f)	PI	lot	1				
iv)	_Outdoor gantry/tubular busbar foundation 33kV switchyard	lot	1				
v)	_Transformer foundation including rails, oilpit with gravels, carrage way with steel pipe & oil-water separator	lot	1				
vi)	_Auxilary transformer	lot	1				
vii)	_Blast wall with foundation	nos	4				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	viii) _Property Line Demarkation	meter	665				
	ix) _Security Boundary Wall						
	a) Boundary Wall with RCC Retaining wall	meter	20				
	b) Boundary Wall without Retaining wall	meter	602				
	x) _Substation Main gate	lot	1				
	xi) _Chain linked Fencing	lot	1				
	xii) _Approach raod 6.0m width	lot	1				
	xiii) _Internal road						
	a) 6.0m width	meter	238.8				
	b) 4.5m width	meter	116.4				
	c) 3.0m width	meter	411.6				
	xiv) _Surface drain	meter	552				
	xv) _Cable Trench/Tunnel with soakpit						
	a) For control, communication, relay etc. cables	meter	219.6				
	b) For power cables	meter	49.2				
	xvi) _Whole substation surface finishing with drainage system	meter	1				
	xvii) _Gravelling in switchyard area	lot	1				
	xviii) _Septic tank, soak well	lot	1				
	xix) _Pump house including deep tubewell, motor, pump, water reservoir, water pipe line etc.	lot	1				
	xx) _Guard house	lot	1				
	xxi) _Sentry post	nos	4				
	xxii) _Car port (4 nos cars)	lot	1				
	xxiii) _Ansar barac	lot	1				
6M2	Complete civil works for 1 (one) No 132kV GIS Hall and 1 (one) Nos three storied Operation & Panel Room						
	i) _Foundation works	lot	1				
	ii) _Super structures	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	iii) _All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	lot	1				
	iv) _5 ton EOT Crane	lot	1				
	v) _Passenger lift (4 person)	set	1				
6M3	Testing of Foundation						
	i) _Compression Test	nos	2				
	ii) _ Uplift Test	nos	1				
6M4	Civil Works related to CAF system	Lot	1				
6N	**Lighting, small power, air conditioning, Ventilation, fire fighting & CCTV**						
6N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building	Lot	1				
6N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.	Lot	1				
6N3	Fire Fighting system for GIS Hall & Control Room	Lot	1				
	i) Fire Fighting system For 132kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				
6N4	Complete CCTV & with motion sensor	Lot	1				
6O	**Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
6O1	One (1) lot of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with with existing system	Lot	1				
6O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
6P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
7J2	Portable(maintenance) earthing equipment device	set	2				
7K	**Batteries, chargers & DC distribution**						
7K1	110V Ni-cad Batteries with chargers & distribution board including others						
	i. _110V Battery Banks, 600Ah or above	set	2				
	ii. _Charger 170A	set	2				
	iii. _3kVA Inverter	set	2				
	iv. _110V DC Distribution panel,	lot	1				
	v. Insulation Monitoring system for complete DC system	lot	1				
7K2	48V Ni-cad Batteries with chargers & distribution board						
	i. _48V battery Banks,250Ah or above	set	2				
	ii. _Charger 70A	set	2				
	iii. _48V DC Disatribution Panel	lot	1				
7L	**LVAC Distribution**						
7L1	_AC 415V or 240V distribution panels	lot	1				
7L2	_Tariff metering at LV side(Main & Check)	No	4				
7M	**Civil Works, Building and Foundation**						
7M1	Complete civil items required for outdoor works including earthfilling, slope protection and boundary wall						
	a) Complete Compacted Land development with carried/dredged earth/sand filling (paid at actual)	cubic meter	30351.45				
	b) Slope protection (paid at actual)						
	1) Slpoe (1V:2H) protection with turfing	square meter	2281				
	2) Slpoe (1V:2H) protection with CC blocks	square meter	50				
	c) Complete outdoor civil works						
	i) _Outdoor gantry foundation 230kV switchyard						
	1) Double tier Height 245kV switchyard	nos	2				
	2) Double tier Height 132kV switchyard	nos	3				
	3) Single tier Height 132kV switchyard	nos	3				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	ii) _Outdoor equipment foundation 132kV switchyard						
	a) LA	nos	24				
	b) GIL	lot	1				
	c) PI	lot	1				
	iii) _Outdoor equipment foundation 33kV switchyard						
	a) CB	nos	2				
	b) DS	nos	4				
	c) CT	nos	6				
	d) IVT	nos	6				
	e) LA	nos	6				
	f) PI	lot	1				
	iv) _Outdoor gantry/tubular busbar foundation 33kV switchyard	lot	1				
	v) _Transformer foundation including rails, oilpit with gravels, carrage way with steel pipe & oil-water separator	lot	1				
	vi) _Auxilary transformer	lot	1				
	vii) _Blast wall with foundation	nos	3				
	viii) _Property Line Demarkation	meter	680				
	ix) _Security Boundary Wall						
	a) Boundary Wall with RCC Retaining wall	meter	20				
	b) Boundary Wall without Retaining wall	meter	646				
	x) _Substation Main gate	lot	1				
	xi) _Chain linked Fencing	lot	1				
	xii) _Approach raod 6.0m width	lot	1				
	xiii) _Internal road						
	a) 6.0m width	meter	194.4				
	b) 4.5m width	meter	122.4				
	c) 3.0m width	meter	490.8				
	xiv) _Surface drain	meter	592				
	xv) _Cable Trench/Tunnel with soakpit						

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	a) For control, communication, relay etc. cables	meter	180				
	b) For power cables	meter	86.4				
	xvi) _Whole substation surface finishing with drainage system	lot	1				
	xvii) _Gravelling in switchyard area	lot	1				
	xxviii _Septic tank, soak well	lot	1				
	xix) _Pump house including deep tubewell, motor, pump, water reservoir, water pipe line etc.	lot	1				
	xx) _Guard house	lot	1				
	xxi) _Sentry post	nos	4				
	xxii) _Car port (4 nos cars)	lot	1				
	xxiii) _Ansar barac	lot	1				
7M2	Complete civil works for 1 (one) No 132kV GIS Hall and 1 (one) Nos three storied Operation & Panel Room						
	i) _Foundation works	lot	1				
	ii) _Super structures	lot	1				
	iii) _All finish works like rendering, painting, water supply, sanitary, floor finish, furniture, etc.	lot	1				
	iv) _5 ton EOT Crane	lot	1				
	v) _Passenger lift (4 person)	set	1				
7M3	Testing of Foundation						
	i) _Compression Test	nos	2				
	ii) _ Uplift Test	nos	1				
7M4	Civil Works related to CAF system	Lot	1				
7N	**Lighting, small power, air conditioning, Ventilation, fire fighting & CCTV**						
7N1	One (1) lot of complete design, supply, installation and commissioning of equipment to provide indoor lighting (LED type) , LV power supply, air conditioning system, ventilation system and emergency DC lighting for the control building	Lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
7N2	One (1) lot of complete set of design, supply, installation and commissioning of equipment to provide lighting (flood light LED type) for security, roadway, switchyard and emergency DC lighting at strategic locations for equipment operations and inspections.	Lot	1				
7N3	Fire Fighting system for GIS Hall & Control Room	Lot	1				
	i) Fire Fighting system For 132kV GIS Hall & Panel Room	Lot	1				
	iii) Fire Fighting system For Control Room	Lot	1				
7N4	Complete CCTV & with motion sensor	Lot	1				
7O	**Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
7O1	One (1) lot of Fibre optic multiplexer equipment at local and remote end substation with necessary works to interface with with existing system	Lot	1				
7O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
7P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price (for New Domar 132/33kV SS) carried to Summary of Price Schedule							
Total Price in words (for new of Domar 132kV SS)							

8. Extension of 132kV AIS bays at 132/33 kV Substation at Patnitola

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
8A	**230 kV AIS &GIS**						

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In ……..]	Local Currency [In BDT]	Foreign Currency [In ……..]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
8F1	Control, Monitoring, Protection & Substation Automation Facility including event recording function for 132KV overhead line circuits bays	set	2				
8F2	**Tarif metering**						
	a Meters (Main & Check)	Set	4				
	b Complete Panel including wiring, lighting, heater, humidity controller & other accessories (if required)	set	1				
8F3	**Modification / Extension of Substation Automation System**	Lot	1				
8G	**Digital Fault & Disturbance Recorder**	Deleted					
8H	**Power Cable**	Deleted					
8I	**Multicore Cables**						
8I1	Multicore Cables for control, protection, metering & power circuits						
	i) LV Control Cable	lot	1				
	ii) LV Power Cable	lot	1				
8J	**Earthing and Lightning Protection**						
8J1	_Extension of Earthing system for 132kV Switchyard	lot	1				
8J2	_Extension of Lightning Protection System for 132kV Switchyard	lot	1				
8K	**Batteries, chargers & DC distribution**						
8K1	110V Ni-cad Batteries with chargers & distribution board						
	a) for 132kV System						

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	i) Extension of 110V DC Distribution panel and board	Lot	1				
8K2	48V Ni-cad Batteries with chargers & distribution board						
	i) Extension of 48V DC Distribution panel and board	Lot	1				
8L	**LVAC Distribution**						
8L1	_Extension of AC 415V or 240V distribution panels	lot	1				
8L2	_Tariff metering at LV side(Main & Check)	Deleted					
8M	**Civil Works, Building and Foundation**						
8M1	Complete civil items required for outdoor works						
	i Outdoor gantry foundation 132kV switchyard	lot	1				
	ii Outdoor equipment foundation 132kV switchyard						
	a) CB	set	2				
	b) DS with ES	set	2				
	c) DS without ES	set	4				
	d) CT	No.	6				
	e) IVT	No.	6				
	f) LA	No.	6				
	g) PI	lot	1				

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	iii	Internal road	lot	1				
	iv	Cable Trench	lot	1				
	v	_Whole scope area necessary land development, surface finishing with drainage system	lot	1				
	vi	_Gravelling in switchyard area	lot	1				
8M2	Complete civil works for Control Room, Operation & Panel Room							
	a)	Modification civil works for Control Room and local control houses	Lot	1				
8M3	Testing of Foundation							
	a)	_ Uplift Test	No.	1				
8N	**Lighting, small power, air conditioning and Ventilation**							
8N1	Extension of indoor small power lighting, air conditioning for extension work		Lot	1				
8N2	Extension of Lighting for ouside building for security, roadway, switchyard and emergency DC lighting		Lot	1				
8O	**Extension of Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**							

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
8O1	One (01) complete lot of equipment for extension of existing fibre optic multiplexer equipment at local and remote end Substation for protection & communication, for required part of substation, shall be designed, supplied, delivered, installed, tested and commissioned and integrated into the existing system, under this contract. Fibre optic multiplexer equipment is to be provided for -	Lot	1				
	21 (or 87 with built-in 21) relay carrier signal for each transmission line protection (through fibre cores or backup PLC)						
	SCADA data from switchgear and control system through SAS						
	Hot-line telephone system						
8O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
8P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price(for Extension of Patnitola 132kV SS) carried to Summary of Price Schedule							
Total Price in words (for Extension of Patnitola 132kV SS)							

9. Extension of 132kV GIS bays at 132/33 kV Substation at Niyamatpur

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
9A	**230 kV switchgear, equipment connection and steel structures**						
	Deleted						
9B	**145 kV Outdoor Type Gas Insulated Switchgear (GIS), equipment connection and steel structures**						
9B1	145kV GIS Line Feeder Bays	Set	2				

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
9L2	_Tariff metering at LV side(Main & Check)		Deleted					
9M	**Civil Works, Building and Foundation**							
9M1	Complete civil items required for outdoor works							
	i	Outdoor gantry foundation 132kV switchyard	lot	1				
	ii	Outdoor equipment foundation 132kV switchyard						
	a)	LA	nos	6				
	b)	PI	lot	1				

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	*(2)*	*(3) = (1) x (2)*	*(2)*	*(3) = (1) x (2)*
	iii	Internal road	lot	1				
	iv	Cable Trench	lot	1				
	v	_Whole scope area necessary land development, surface finishing with drainage system	lot	1				
	vi	_Gravelling in switchyard area	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
9M2	Complete civil works for Control Room, Operation & Panel Room						
	a) Modification civil works for GIS hall and control room and other control houses	Lot	1				
9M3	Testing of Foundation						
	a) _ Uplift Test	No.	1				
9N	**Lighting, small power, air conditioning and Ventilation**						
9N1	Extension of indoor small power lighting, air conditioning for extension work	Lot	1				
9N2	Extension of Lighting for ouside building for security, roadway, switchyard and emergency DC lighting	Lot	1				
9O	**Extension of Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
9O1	One (01) complete lot of equipment for extension of existing fibre optic multiplexer equipment at local and remote end Substation for protection & communication, for required part of substation, shall be designed, supplied, delivered, installed, tested and commissioned and integrated into the existing system, under this contract. Fibre optic multiplexer equipment is to be provided for -	Lot	1				
	21 (or 87 with built-in 21) relay carrier signal for each transmission line protection (through fibre cores or backup PLC)						
	SCADA data from switchgear and control system through SAS						
	Hot-line telephone system						

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In ……..]	Local Currency [In BDT]	Foreign Currency [In ……..]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
9O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
9P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price(for Extension of Niyamatpur 132kV SS) carried to Summary of Price Schedule							
Total Price in words (for Extension of Niyamatpur 132kV SS)							

10. Extension of 132kV AIS bays at 132/33 kV Substation at Gopalganj

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in……..)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
10A	**230 kV AIS &GIS**						
	Deleted						
10B	**132 kV air insulatedswitchgear, equipment connection and steel structures**						
10B1	145kV, 1600A, 50kA/1sec, 50Hz, 650kVp BIL, live tank type, single pole operation, SF6 gas circuit breakers with spring-stored energy operating mechanism with support structure.	set	2				
10B2	145kV, 1600A, 50kA/1sec, 50Hz, 650kVp BIL horizontal double break, post type, motor operated disconnectors with motor-operated earthing switch	set	2				
10B3	145kV, 1600A, 50kA/1sec, 50Hz, 650kVp BIL,horizontal double break, post type, motor operated disconnectors without earthing switch.	Set	4				
10B4	single-phase, 5-core, 145kV, 3150A, 50kA/1sec, 50Hz, 650kVp BIL, ,post type current transformer	No	6				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
10K1	110V Ni-cad Batteries with chargers & distribution board						
	a) for 132kV System						
	i) Extension of 110V DC Distribution panel and board	Lot	1				
10K2	48V Ni-cad Batteries with chargers & distribution board						
	i) Extension of 48V DC Distribution panel and board	Lot	1				
10L	**LVAC Distribution**						
10L1	_Extension of AC 415V or 240V distribution panels	lot	1				
10L2	_Tariff metering at LV side(Main & Check)	Deleted					
10M	**Civil Works, Building and Foundation**						
10M1	Complete civil items required for outdoor works						
	i Outdoor gantry foundation 230kV switchyard	lot	1				
	ii Outdoor equipment foundation 230kV switchyard	lot	1				
	iii Outdoor gantry foundation 132kV switchyard	lot	1				
	iv Outdoor equipment foundation 132kV switchyard						
	a) CB	set	2				
	b) DS with ES	set	2				
	c) DS without ES	set	4				
	d) CT	No.	6				
	e) IVT	No.	6				
	f) LA	No.	12				
	g) PI	lot	1				

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	v	Approach road						
	a)	6m wide road	lot	1				
	b)	Dismantling of road	lot	1				
	vi	Internal road	lot	1				
	vii	Cable Trench						
	a)	LV cable	lot	1				
	b)	Power cable	lot	1				
	viii	_Whole scope area necessary land development, surface finishing with drainage system	lot	1				
	ix	_Gravelling in switchyard area	lot	1				
10M2	Complete civil works for Control Room, Operation & Panel Room							
	a)	Modification civil works for Control Room and local control houses	Lot	1				
10M3	Testing of Foundation							
	a)	_ Uplift Test	No.	1				

Name of Bidder:

Signature of Bidder:_____

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
10N	**Lighting, small power, air conditioning and Ventilation**						
10N1	Extension of indoor small power lighting, air conditioning for extension work	Lot	1				
10N2	Extension of Lighting for ouside building for security, roadway, switchyard and emergency DC lighting	Lot	1				
10O	**Extension of Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
10O1	One (01) complete lot of equipment for extension of existing fibre optic multiplexer equipment at local and remote end Substation for protection & communication, for required part of substation, shall be designed, supplied, delivered, installed, tested and commissioned and integrated into the existing system, under this contract. Fibre optic multiplexer equipment is to be provided for -	Lot	1				
	21 (or 87 with built-in 21) relay carrier signal for each transmission line protection (through fibre cores or backup PLC)						
	SCADA data from switchgear and control system through SAS						
	Hot-line telephone system						
10O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
10P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price(for Extension of Gopalganj 132kV SS) carried to Summary of Price Schedule							
Total Price in words (for Extension of Gopalganj 132kV SS)							

11. Extension of 132kV GIS bays at 132/33 kV Substation at Purbasadipur

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)

Name of Bidder: Signature of Bidder:_____

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
11L2	_Tariff metering at LV side(Main & Check)		Deleted					
11M	**Civil Works, Building and Foundation**							
11M1	Complete civil items required for outdoor works							
	i	Outdoor gantry foundation 230kV switchyard	lot	1				
	ii	Outdoor equipment foundation 132kV switchyard						
	a)	LA	nos	6				
	b)	PI	lot	1				

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	iii	Approach road						
	a)	6m wide road	lot	1				
	b)	Dismantling of road	lot	1				
	iv	Internal road	lot	1				
	v	Cable Trench						
	a)	LV cable	lot	1				
	b)	Power cable	lot	1				
	vi	_Whole scope area necessary land development, surface finishing with drainage system	lot	1				
	vii	_Gravelling in switchyard area	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
11M2	Complete civil works for Control Room, Operation & Panel Room						
	a) Modification civil works for GIS hall and control room and other control houses	Lot	1				
11M3	Testing of Foundation						
	a) _ Uplift Test	No.	1				
11M4	Dismantling of capacitor bay equipment & sentry post	Lot	1				
11N	**Lighting, small power, air conditioning and Ventilation**						
11N1	Extension of indoor small power lighting, air conditioning for extension work	Lot	1				
11N2	Extension of Lighting for ouside building for security, roadway, switchyard and emergency DC lighting	Lot	1				
11O	**Extension of Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
11O1	One (01) complete lot of equipment for extension of existing fibre optic multiplexer equipment at local and remote end Substation for protection & communication, for required part of substation, shall be designed, supplied, delivered, installed, tested and commissioned and integrated into the existing system, under this contract. Fibre optic multiplexer equipment is to be provided for -	Lot	1				
	21 (or 87 with built-in 21) relay carrier signal for each transmission line protection (through fibre cores or backup PLC)						
	SCADA data from switchgear and control system through SAS						
	Hot-line telephone system						

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
11O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
11P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price(for Extension of Purbasadipur 132kV SS) carried to Summary of Price Schedule							
Total Price in words (for Extension of Purbasadipur 132kV SS)							

12. Extension of 132kV GIS bays at 132/33 kV Substation at Bhandaria

Item No.	Description of Equipment Requirement	Unit	Quantity	Foreign Currency (in.....)		Local Currency (BDT)	
				Unit Price	Total Price	Unit Price	Total Price
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
12A	**230 kV switchgear, equipment connection and steel structures**						
	Deleted						
12B	**145 kV Outdoor Type Gas Insulated Switchgear (GIS), equipment connection and steel structures**						
12B1	145kV GIS Line Feeder Bays	Set	2				
	132kV Air Insulated Switchgear						
12B7	120kV rated voltage at 50oC, 10kA nominal discharge current, 50Hz, gapless metal oxide type, single phase surge arrester	No.	6				
12B8	Rigid tubular conductor and/or stranded conductors including accessories for each connection as required for completing 145kV GIS Switchyard	Lot	1				
12B9	insulator and fittings including all necessary clamps and connectors as required for completing 145kV GIS Switchyard						
	i _Insulator	Lot	1				
	ii Fittings & Clamps_Connector	Lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
12J1	_Extension of Earthing system for 132kV Switchyard	lot	1				
12J2	_Extension of Lightning Protection System for 132kV Switchyard	lot	1				
12K	**Batteries, chargers & DC distribution**						
12K1	110V Ni-cad Batteries with chargers & distribution board						
	a) for 132kV System						
	ii) Extension of 110V DC Distribution panel and board	Lot	1				
	ii) Extension of battery	Lot	1				
	ii) Extension of charger	Lot	1				
12K2	48V Ni-cad Batteries with chargers & distribution board						
	i) Extension of 48V DC Distribution panel and board	Lot	1				
	ii) Extension of battery	Lot	1				
	ii) Extension of charger	Lot	1				
12L	**LVAC Distribution**						
12L1	_Extension of AC 415V or 240V distribution panels	lot	1				
12L2	_Tariff metering at LV side(Main & Check)	Deleted					
12M	**Civil Works, Building and Foundation**						
12M1	Complete civil items required for outdoor works						

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	i	Outdoor gantry foundation 132kV switchyard	lot	1				
	ii	Outdoor equipment foundation 132kV switchyard						
	a)	LA	nos	6				
	b)	PI	lot	1				

Name of Bidder:

Signature of Bidder:_____

Item No.	Description of Equipment Requirement		Unit	Quantity	Unit Price		Total Price1	
					Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
				(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
	iii	Internal road	lot	1				
	iv	Cable Trench	lot	1				
	a)	LV cable	lot	1				
	b)	Power cable	lot	1				
	c)	33KV cable relocation & reconnection	lot	1				
	v	_Whole scope area necessary land development, surface finishing with drainage system	lot	1				
	vi	_Gravelling in switchyard area	lot	1				

Item No.	Description of Equipment Requirement	Unit	Quantity	Unit Price		Total Price1	
				Local Currency [In BDT]	Foreign Currency [In .....]	Local Currency [In BDT]	Foreign Currency [In .....]
			(1)	(2)	(3) = (1) x (2)	(2)	(3) = (1) x (2)
12M2	Complete civil works for Control Room, Operation & Panel Room						
	a) Modification civil works for GIS hall and control room and other control houses	Lot	1				
12M3	Testing of Foundation						
	a) _ Uplift Test	No.	1				
12N	**Lighting, small power, air conditioning and Ventilation**						
12N1	Extension of indoor small power lighting, air conditioning for extension work	Lot	1				
12N2	Extension of Lighting for ouside building for security, roadway, switchyard and emergency DC lighting	Lot	1				
12O	**Extension of Fibre Optic Multiplexer Equipment and PLC Equipment for Communication and Protection**						
12O1	One (01) complete lot of equipment for extension of existing fibre optic multiplexer equipment at local and remote end Substation for protection & communication, for required part of substation, shall be designed, supplied, delivered, installed, tested and commissioned and integrated into the existing system, under this contract. Fibre optic multiplexer equipment is to be provided for -	Lot	1				
	21 (or 87 with built-in 21) relay carrier signal for each transmission line protection (through fibre cores)						
	SCADA data from switchgear and control system through SAS						
	Hot-line telephone system						
12O2	One lot of underground optical fibre (48 cores) cables from terminal box at gantry structure to MDF (Main distribution Frame) shall be designed, supplied, delivered, installed, tested and commissioned, including supply and installation of MDF and digital cables	Lot	1				
12P	**One (1) lot of installation of slack span under supervision of master installer with ACCC conductor & OPGW and necessary fiitings supplied by employer**	Lot	1				
Total Price(for Extension of Bhandaria 132kV SS) carried to Summary of Price Schedule							