

Bank Asia

LIMITED

LOGISTICS & SUPPORT SERVICES DIVISION (LSSD)

Work Order

Ref: BA/CO/LSSD/Proc. (Kawranbazar)/CapEx/2018/121

October 02, 2018

Managing Director
M/s. Cross-world Power Limited
Plot No.-1/B, Road No. 90, Gulshan-2
Dhaka-1212
Tel: 58816528, 9891442, Fax: 58816205
Web: www.cross-world.com;

Attn: Mr. Engr. Md. Harunor Rashid, COO; Cell: +88-01755514719

Sub: Work Order for Supply, Installation, Testing & Commissioning of 2500 KVA, 11/0.415 KV Sub-station, 2 nos. 650 KVA (Prime Power) Diesel Generators with ATS & Auto Synchronizing panel and 25 Kwp Solution (31.25 Kw) Solar System for 12 storied commercial building with 22 storied foundation + 4 nos. basement at 32 & 34, kazi Nazrul Islam Avenue, Kawran Bazar, Dhaka.

Dear Sir,

Please refer to your offer dated May 28, 2018 and followed by negotiation on September 26, 2018 for supply, installation, testing and commissioning of 2500 KVA 11/0.41KV Sub-station, 2 nos. 650 KVA (Prime Power) Diesel Generator and 25 Kwp Solution (31.25 Kw) Solar system for 12 storied commercial building with 22 storied foundation + 4 nos. basement at 32 & 34, kazi Nazrul Islam Avenue, Kawran Bazar, Dhaka. We are pleased to inform you that Bank has accepted your technical & financial offer and hereby has placed the Work Order for the above as per specifications, and terms & conditions mentioned below:

A. Abstract (Financial):

Sl	Particulars	Amount
A.	Sub-station	Tk.4,21,65,727/- (on unit rate basis)
B.	Solar System	Tk.22,09,273/- (on unit rate basis)
C.	Diesel Generator sets	Tk.2,00,25,000/- (on unit rate basis)
Total amount (A+B+C)		Tk.6,44,00,000/-

- Details of work specification, quantity, unit price, and total amount as per tender schedule at Annexure-A of the tender document and Revised offer dated September 26, 2018 [15 (fifteen) page] is an integral part of this work order.
- Pre shipment Inspection (PSI):-** THIRD party pre-shipment inspection to be carried out by an internationally reputed inspection agency like SGS and a certificate mentioning quality and quantity of each imported items in this regard shall be submitted to the client before shipment. Cross World Power Ltd. shall be borne all expenses in this regards.
- Relevant civil works such as foundation (RCC/ CC), duct cutting, cleaning waste materials, rod cutting, CC cutting, RCC cutting & casting and painting etc. for the shafts & ducts are inclusive of the Quoted prices accordingly.

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Corporate Office : Rangs Tower, 68 Purana Paltan, Dhaka-1000, Bangladesh.
Tel : +88 02 47110062, +88 02 47110147, +88 02 47110173, Fax : +88 02 9577841
e-mail : bankasia@bankasia-bd.com, Web : www.bankasia-bd.com

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B. Scope of Works:

SL	Description	Vendor's Responsibility
01.	<ul style="list-style-type: none"> Supply, Installation, Testing and Commissioning of Genset, Sub-station & Solar System After sale service of the Machine. 	To be installed and commissioned in Bank Asia Limited at "Bank Asia Tower" 32 & 34, kazi Nazrul Islam Avenue, Kawran Bazar, Dhaka; Contact person: Mr. Md. Razu Miah, Project Director; Cell: 01700702485 MEP Consultant: M/s. Techno Consultants, 27/A, Monipuripara (3 rd floor), Sangsad Avenue, Dhaka-1217 and Principle Architect: M/s Vistaara Architects Limited.

C. Technical Specifications:

Short Description of Items	Specification
Supply of 11KV AVR & By-pass Switch	Model:SVR-1; Manufacturer : Howard Inc. USA; Country of Origin; USA
11KV LBS (By-Pass Switch) for Automatic Voltage Regulators	CPLBS-1
SUPPLY OF 11KV SWITCHGEAR:	
630Amps, 11KV, 50Hz Triple Pole VCB-25KA (3 second)	Model: 3AH Series; Manufacturer : Siemens; Country of Origin; Germany
C.T for 11KV	Manufacturer: Siemens; Country of Origin; Germany
P.T for 11KV	Manufacturer: Siemens; Country of Origin; Germany
IDMT relay	Model: 7SR10 ; Manufacturer: Siemens; Country of Origin: India
KWHr	Model: Premier 300; Manufacturer : Secure; Country of Origin; India
2500KVA TRANSFORMER: (Tendered BOQ)	Manufacturer: Tesar; Country of Origin; Italy, Capacity: 2500KVA
LT-1 : (Tendered BOQ)	1x4000A 85KA TP ACB Model: NW40H23F2, Brand & Origin: Schneider, France
LT-2 ATS : (Tendered BOQ)	2x4000A 85KA 4P ACB of Model: NW40H24F2, Brand 7 Origin-Schneider, France
L.T. PANEL-3 & L.T. PANEL-4 : (Tendered BOQ)	1x2000A TP ACB of Model: NW20H13F2, Brand & Origin-Schneider, France
L.T. PANEL-5 : (Tendered BOQ)	1x800A TP MCCB of Model: NS800N, Brand & Origin-Schneider, France.
L.T. PANEL-6 : (Tendered BOQ)	1x630A TP MCCB of Model: NSX630N, Brand & Origin: Schneider, France
L.T. PANEL -7 : (Tendered BOQ)	1x3200A TP ACB of Model: NW32H13F2; Brand & Origin-Schneider, France
SUPPLY OF 1500KVAR AUTOMATIC PFI PLANT:	
Magnetic Contactor	Model-LC1D50A.7, Brand & Origin-Schneider, Italy
Capacitor Bank	Model-Phicap, Brand & Origin- Epcos, India
HRC Fuse	Model-EZC250N3150; Brand & Origin-Schneider, France
SUPPLY OF BUSBAR TRUNKING SYSTEM:	Manufacturer-Legrand (Zucchini), Model- SCP; Origin- Italy
Busbar material (AL with Silver plated & Insulated)	AL, 4 Conductor (Accepted technical evaluation Report)
SUPPLY OF 2NOS. 650KVA DIESEL GENERATOR SET: (Tendered BOQ & Negotiated Specification)	
Brand	Tempest from UK with Imported Canopy of 80 dba @ 01 meter from canopy.

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Prime Capacity of Diesel Gen. set:(Tendered BOQ & Negotiated Specification)	650KVA(Prime Power)
Generating set Model	PS 650
Manufacturer's name	Allam Marine Ltd.
Country of Origin	UK
Base fuel tank: for 8-10 hours operation	1539 Litre as per technical offer
Engine Model	2806A-E18TAG2
Manufacturer of Engine & Origin	Perkins, USA
Offered Alternator Model	HCI544F
Manufacturer of Alternator & Origin	Stamford, UK
SUPPLY OF GENERATOR SYNCHRONIZING PANEL :	
Incoming:	4x1250A TP ACB of Model: NW12H13E2, Brand & Origin-Schneider, France
Outgoing:	1x4000A TP ACB of Model: NW40H23F2, Brand & Origin-Schneider, France
SUPPLY OF 800A TP+N AUTOMATIC CHANGE OVER SWITCH :	1x800A 4P MCCB of Model: NS800N 4P, Brand & Origin-Schneider, France.
Supply and installation of Solar Panel with all necessary fittings. 25KWp solution	Module type: Poly-crystalline, Module size: 250Wp or higher of 125 pcs.

• Details of Generator specification:

Sl.	Description	Details	Specification
01	Generator:		
		Fuel Tank Capacity	1539 Liters
		Fuel Consumption per hour	62 L/H @ 75% load
		Net Weight	4200 KG
		Overall Dimension (mm)	LXWXH= 471X114X279 (cm)
		Speed, RPM	1500 RPM
		Efficiency	93%
		Ambient Temp	50°C
		Capability to run at a stress with full load	Unlimited hours of operation, no overload is permitted
02.	Engine:		
		Brand	Perkins
		Model	2206A-E13TAG3
		Rated voltage	400/230 volts
		Country of Origin	UK
		Cooling/ Starting Method	Water cooled (Radiator cooled with engine driven fan)
03.	Alternator:		
		Brand	Stamford
		Model	HCI444F / S41LDF
		Origin	UK
		Rated voltage	400/230 volts
		Frequency	50Hz

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04.	ATS	Foreign	Foreign (in built with imported DG set)
05.	Canopy	Foreign	Foreign(in built with imported DG set)
06.	Sound Level	80dBA @ 1 meter distance from canopy	Not more than 80dBA(A) at 01 meters
07.	Warranty		1 (one) year for Engine and Alternator from the day of Commissioning.

Control System: Control System is incorporated with manual/ automatic set to manually & automatically start & stop the generator indicating the operation status and fault conditions.

D. **Installation Materials and Diesel:** Power Cable: Installation materials including power cable, earth cable, cable laying, (for electricity connectivity among Diesel Generator to ATS, MDB to ATS and ATS to ELT Panel) PVC Pipe, Diesel: Base full tank gasoline will provide by vendor.

E. **EARTHING:** Earthing work to be done as per direction of the Project Director on the following manner:

1. Earthing the electrical installation with 38.10mm (1.5") dia G.I. Pipe (earth electrode) having 6.35mm dia holes across the dia at 305mm interval securely bonded with 2 SWG HDBC earth lead with washer, nuts, bolts etc. sunk up to under mentioned depth and protection of earth lead by 12.7mm (½") dia G.I. pipe up to plinth level run at a depth of 609.6mm (2ft.) below G.L. up to main board to be earthed including necessary connecting copper sockets, bolts, nuts, including additional vertical run of 12.7mm dia G.I. pipe up to G.L. from 609.6mm (2') depth with blind socket for water pouring facility etc. complete for maintaining earth resistance within 1 ohm and as per direction of the Engineer-in-charge. (Depth of bottom of main electrode at 31242 mm. (102.5 ft) from GL & length of electrode 30480 mm. (100 ft).
2. Construction of Earthing inspection pit inside measurement 600 mm x 600 mm with 250 mm thick brick in cement mortar (1:4) with 100mm thick RCC top slab (1:2:4) with 1% re-enforcement 450 mm dia water sealed CI man-hole cover with locking arrangement including necessary earth works, site filling and one brick flat soling 75 mm thick (1:3:6) base concrete for making inlet channel & 12mm thick (1:2) cement plaster with neat finishing etc. all complete up to a depth of .75 meter.

F. Terms & Conditions:

01. Delivery, installation, testing & commissioning : **Date & Time:** All the deliverables shall be made at the site within 8 weeks after receiving the work order.
Work Completion: Shall be made at the site within 8 (eight) calendar months from the date of signing of contract agreement.
Consultant: Total installation and commissioning job will be executed under supervision of consultant Techno Consultant. Any kind of problem/issue(s) arise at the time of installation; Cross World Power Limited is advised to resolve the issues(s) with the coordination of MEP consultant.
02. Delivery Responsibility : Cross World Power Ltd. shall take the entire responsibility of supply, installation and commissioning. No other third party will be engaged in this job.
03. Warranty : All imported materials like AVR, BBT, GD sets, Transformer components of HT panels, LT & ELT panels, PFI panels etc. to be imported as per tender documents & contract agreement.
04. Service Support : Service Support (In warranty period): Response time within 4 (four) hour. However, the

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problem should be identified and rectified within 24 hours maximum. If any additional time required Bank authority should be informed beforehand.

05. Responsibility : From commencement to completion of work Cross World Power Limited shall be solely and wholly responsible for any damage to property, loss of life or any other damage or accident and the owners shall bear absolutely no responsibility, in case such incidents occur. (Followed insurance coverage on technical specification).
06. Safety measure :
 - Prior to commencement of any work, Cross World shall assess and shall take the safety measure as per requirement of the site.
 - Cross World Power Limited shall strictly follow the rules enacted by the Government of Bangladesh regarding health, safety and environment and treatment of the personnel and staff of the contractor's due to any reason including accidents shall be completely contractor's responsibility.
 - Cross World Power Limited shall supply all tools including safety device like helmets, shoes etc.
07. Personnel information : Cross World Power Ltd. shall have to submit list of Manpower/Technician/Engineers to be engaged at project site with their identity card to the Branch authority before start of work.
08. Handbooks: : The equipment would be supplied with one set of hand books & tools set (Specially for DG sets).
09. Vibration & Smoke Level: : Post Installation Vibration should be zero and additional rubber pad have to be provided. Smoke level has to be environmental friendly.
10. Mode of Payment : Payment shall be made: As per terms & condition of Tender document.
11. Submission of Bill : Bill should be submitted along with the related documents and the work completion certificate (up to supply, installation, testing and commissioning) for payment.
12. Deductions : VAT, Income Tax & other Govt. Taxes (if applicable) will be deducted from the bill as per rule.
13. Liquidity Damage : In the event of any delay in completion of the system or any misshapeness during the work at the site that is caused solely by Contractor, excluding delays caused by circumstances outside contractor's reasonable control, Purchaser may asses against Contractor liquidated damage (LD). Such LD shall include the losses suffered by other Contractor working at site.
14. Submission of Documents : All shipping documents attested by L/C opening bank shall be submitted immediate after delivery of the imported materials at site.
15. Special Conditions :
 - a. The Bank reserves the right to impose penalty or not to take the goods for any type of discrepancy in the product.
 - b. The vendor agrees to indemnify, defend and hold responsibilities from and against loss of Bank's assets and valuables. Any claim, action, proceeding, damage, liability, fine, penalty, cost, and expenses (including, without limitation, the reasonable fees and expenses of repairing) arising out of its act, omission or negligence under this

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agreement.

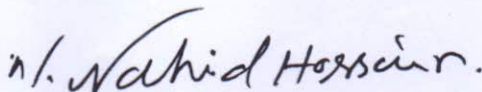
- c. The quality of product is to be maintained as desired standard.
- d. For any type of sub-standard quality found from your end, the Bank reserves the right for outright rejection of the goods, which, you will take back at your own cost and will replace with acceptable quality within fifteen days of the rejection time.
- e. This price includes carrying cost, manual labor charge and any kind of charge thereof.
- f. Bank can ask or request to submit all the relevant documents related with production and import for further clarification and settlement of the bill.
- g. Cross World Power Ltd shall have to provide necessary training as and when required to the people involved with the works of Bank Asia Limited.

Bank has the right to cancel the work order any time for the non-compliance of any terms and conditions mentioned above.

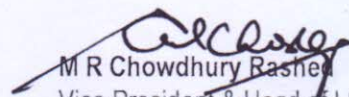
You are, therefore, requested to ensure the supply of the above item as per specifications/standard and terms & conditions mentioned above within stipulated time.

Please sign a "Photocopy Copy or Scanned Copy" of this work order, if you agree to the terms & conditions, and return the same for our records or send us an email against the work order, as an acknowledgement of receipt of the work order.

Yours Sincerely,



Md. Nahid Hossain
AVP & Executive Engineer



M R Chowdhury Rashid
Vice President & Head of LSSD

Signed and accepted

Signature of Contractor

Copy to:

1. M/s. Techno Consultants, 27/A, Monipuripara (3rd floor), Sangsad Avenue, Dhaka-1217- for necessary co-operation and action please.
2. The Head of Accounts Department, Corporate Office, Bank Asia Limited.



LIMITED

Notification of Award

BAL/CO/LSSD/141

Date: 09.10.2018

Managing Director

Cross World Power Ltd.
Plot # 1/B, Road # 90
Gulshan- 2, Dhaka -1212

This is to notify you that your Tender for Supply, Installation, Testing & Commissioning of 2500 KVA, 11/0.415 KV Sub-station, 2 nos. 650 KVA (Prime Power) Diesel Generators with ATS & Auto Synchronizing panel and 25 Kwp Solar (31.25 Kw) System for construction of 12 storied building with 22 – storied foundation + 4-Basement for Bank Asia Ltd 's Tower Building at 32 & 34 , Kazi Nazrul Islam Avenue , Karwan Bazar , Dhaka for the negotiated total Contract price of TK.6,44,00,000.00 (taka six crore forty four lacs) only on unit rate Basis and in accordance with the tender submitted, technical conformation, contract documents and Instructions to Tendered, has been approved by the authority of Bank Asia Limited.

You are therefore, requested to take following actions:

- i. Accept in writing the Notification of Award within seven (7) days of its issuance.
- ii. Upon acceptance of the same , to submit Performance Guarantee @ of 10% of contract value amounting to TK. 64,40,000.00 (taka sixty four lac forty thousand) only from any scheduled bank of Bangladesh as per the format with validity conforming to the terms of the tender document within 14 (fourteen) days of acceptance of the NOA .
- iii. Sign the Contract within fifteen (15) days of issuance of this Notification of Award.
- iv. Time schedule of the imported items & execution work with load sanctioned process to be submitted.

You may proceed with the execution of the supply of Goods and related Services only upon completion of the above tasks. You may also please note that this Notification of Award shall constitute the formation of this Contract, which shall become binding upon you.

We attach the draft Contract for comments / observations and all other documents for your perusal and signature.

Thanking You.

For Bank Asia Limited


Md. Nahid Hossain
AVP & Executive Engineer


M.R. Chowdhury Rashed
Vice President & Head of LSSD

advance against Bank Guarantee from any schedule Bank in similar prescribed approved format shown against Part-5 of the Tender Document, Annexure-1 at the discretion of the Owner which shall be adjusted in a single installment.

4.19.4 Supply of Imported Items:

- i) 70% (Seventy percent) of the cost of imported items delivered at site shall be paid on examination and checking of import documents and materials as secured advance from which the total amount of Mobilization advance shall be realized. The following documents must be submitted by the contractor for payment at this stage.
 - a) Bill of lading
 - b) Warranty & Guarantee Certificate from the manufacturer of the Country of Source of Supply of Origin.
 - c) Certificate of Pre-shipment Inspection (if required by the Owner) confirming quality & quantity shown in the bill of lading and showing conformity of the technical specification of the imported items to contracted specification by the inspection Agency. The factory test & routine reports shall be enclosed with the document.
 - d) Packing list.
 - e) Certificate of Country of Origin from the Chamber of Commerce of country of manufacture.
 - f) Manufacturer's certificate guarantee quality of the materials to the effect that the materials and accessories have been manufactured with Brand New 1st Class materials and workmanship and that the goods conform to contracted specifications.
 - g) Manufacturer's certificate guarantee for trouble free operation and satisfactory performance at full capacity for a period of not less than one year after commissioning. Also certificate from the manufacturers to the effect that the machineries are suitable for use in tropical country like Bangladesh.
- ii) 20%(Twenty) cost of imported supplied items shall be paid after the completion of installation of the imported item as per R/A bills certified by the consultant.
- iii) Remaining 10% (Ten) cost of imported supplied item shall be paid after successful completion of testing and Commissioning of the imported items as per R/A bills certified by the consultant.

4.19.5 Payment against all other items i.e supply, testing & commissioning of local items shall be made as per R/A Bills certified by the Consultant/ Engineer-in-charge after deducting security deposit, VAT, IT & others(if any) etc as per terms & conditions of the Tender Document and NBR rules & regulation.

4.19.6 Security Deposit shall be deducted at the rate 10% (ten percent) from all bills except from mobilization advance as stated against clause no. 6.22 hereafter.

4.19.7 Income Tax and VAT shall be deducted from all bills.

4.19.8 Security Deposit shall be refunded after expiry of the maintenance period of 12(twelve) months.

4.20 ADVANCE MOBILIZATION LOAN:

4.20.1 The Owner will make an interest free loan to the Contractor for the costs of mobilization in respect of the works in a lump sum amount not exceeding 10% (ten Percent) of Contract Price in local currencies on submission of unconditional Bank Guarantee in prescribed from any approved scheduled bank of Bangladesh for an amount equal to the mobilization advance loan.

4.20.2 The Advance Mobilization loan shall be paid within 15(fifteen) days of submission of unconditional Bank Guarantee against mobilization advance loan.

4.20.3 The unconditional Bank Guarantee against mobilization loan shall be valid till the entire advance loan is realized.



BANK ASIA LIMITED

TENDER DOCUMENT

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 2500KVA, 11/0.415KV SUB-STATION & 2NOS. 650KVA DIESEL GENERATORS I/C 2NOS. MORE DIESEL GEN. SETS FOR FUTURE WITH ATS & AUTO SYNCHRONIZING PANEL FOR CONSTRUCTION OF 12-STORIED BUILDING WITH 22-STORIED FOUNDATION + 4-BASEMENT FOR BANK ASIA LTD's TOWER BUILDING AT 32 & 34, KAZI NAZRUL ISLAM AVENUE, KAWRAN BAZAR, DHAKA-1215.

VOLUME-II : FINANCIAL OFFER

APRIL, 2018

Submitted BY
CROSS WORLD POWER LTD

Electro-mechanical Consultant:

TECHNO CONSULTANTS

27/A, MONIPURIPARA (3RD FLOOR),
SANGSAD AVENUE, DHAKA-1215.
Ph: 02-9117536, FAX-88-02-9122844.,
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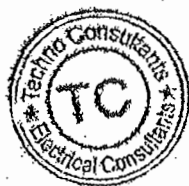


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PHASE- 1

SCHEDULE OF ITEMS OF WORKS
&
BILL OF QUANTITIES



PHASE-1

SCHEDULE OF ITEM OF WORKS, BILL OF QUANTITIES FOR SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF SUB-STATION EQUIPMENTS & 2NOS. 650KVA 400VAC, 50HZ, 1500RPM, 3-PHASE, 4-WIRE DIESEL GENERATOR SETS WITH ATS & SYNCHRONIZING PANEL FOR 12-STORIED BUILDING WITH 22-STORIED FOUNDATION + 4-BASEMENT OF "BANK ASIA TOWER" AT 32 & 34, KAZI NAZRUL ISLAM AVENUE, KARWAN BAZAR, DHAKA-1215.

Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
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1.0 Supply of 11KV AVR & By-pass Switch.

Supply of Type Tested 11KV Automatic Voltage Regulators according to NEMA & ANSI C57.12.31 or equivalent standards and shall meet latest require-ments of BPDB/ DPDC. The auto Voltage Regulators i/c controller & all others shall be from reputed manufacturer's of USA, Japan or European countries (1set = 3nos).

1 Set /Set 4,160,798 4,160,798

Automatic Voltage Regulators shall be Type Tested 150A, 11KV, 3-phase/ 6.35KV, Single Phase in sealed tank design with digital control panel, Ground clamps & standard accessories and as per following technical data/specification.

Rated output : 99KVA

Rated voltage : 11KV, 3-phase/6.35KV, 1-phase

Rated frequency : 50Hz

Rated Load current : 150Amps

Basic Insulation Level (BIL) : 95KV

Rated range of regulation : $\pm 10\%$ in 32-steps of 0.625 % each

Sealed tank design : Yes

Cooling : Self

Surge Protective device: 10KA, 9KV

Temperature rise : Upto 65deg.C without increase the oxidation rate of Oil.

Provision for 240VAC, 50Hz test input voltage for testing of the voltage regulator with external power supply : Yes

Micro-processor based control panel : Yes

Non-PCB oil for the voltage regulator : Yes

Accuracy class of regulator control panel: Class-1

Installation : Indoor/Outdoor

Voltage Regulators shall be supplied with following spares :

6nos. Fuses

2nos. Position Indicator Glass

2nos. Oil Sight Gauge Glass

1no. Digital Control Panel

1.1 Supply of sheet steel clad, dust & vermin proof, free standing, floor mounting, indoor type 11KV By-pass Switch panel boards having self quenching, single phase, two position device 3-sets LBS type with 25KA (3-sec) and isolating or de-energizing of Auto Voltage Regulator as per following technical data/specification: (1set=3nos.) and Surge Arrester.

1 Set /Set 316,456 316,456

Maximum design voltage : 15.5KV

Basic Insulation Level (BIL) : 95KV



Sl No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
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Rated Continuous Current : 630A

Momentary ratings : Disconnect blades 40KA

By-pass blade 30KA

2.0 SUPPLY OF 11KV SWITCHGEAR:

Supply of sheet steel clad (14SWG) dust & vermin proof, free-standing, floor mounting type completely factory assembled with painting 11KV, 25KA, 50Hz, 3-phase indoor type high tension switchgear panel having 800Amps hard-drawn electrolytic copper busbars and comprising of the following components in accordance with NEMA/ IEC/ VDE/ BS/ JIS standards:

2.1 11KV PANEL:

1no. 630Amps, 11KV, 50Hz triple pole, Earth Switch rated at 2.1KA at 3.0second to be interlocked with VCB.

1no. 630A, 11KV, 25KA, rated short time current, 50Hz, electromagnetically operated/spring charged stored energy mechanism totally withdrawable type VCB, manual closing/tripping device for emergency operation, maximum service voltage 12KV, short circuit breaking capacity 25KA, 12/24/48/110V, DC (with out battery) or 110V, AC from PT operated shunt tripping coil, ON/OFF/TRIP indicator.

2nos. 11KV, cast resin insulated double pole potential transformer having ratio 11000/110V(open delta), burden 50VA, class 0.5 for metering & protection.

1no. 6A, TP MCB for PT secondary protection.

3nos. 11KV, cast resin insulated dry type double core current transformer having ratio 150/5/5A, burden 10-15VA, for metering first core of class 0.5M5 and second core protection of class 10 P10.

1no. digital Ammeter having scale 0-150A with 4-way selector switch.

1no. digital Voltmeter having scale 0-15 KV with 7-way selector switch.

1no. Triple pole solid state micro-processor operated self powered IDMT relay with 2(two) over current instantaneous element & short circuit and one earth fault protection element with standard setting.

1no. 3-phase, 3-wire, two-part-time-off-the-day KWH meter with indicating 'PEAK' and 'OFF PEAK' energy with maximum demand indicator in KW with time integrating period of 30 minutes.

Quartz locked a synchronous 24-hour time switch for double tariff operation of KWH meter.

Indicating lamp ON/OFF/TRIP.

Panel heater.

3.0 SUPPLY OF 2500KVA TRANSFORMER :

3.1 Supply of imported 2500KVA dry type, cast resin insulated power transformer shall be complying generally with IEC 60076-1 (2004), VDE 0532 etc. of following specifications:

1 Set /Set TK 744,195 TK 744,195

1 Sets /Set

4,304,912 4,304,912



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
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Voltage ratio: 11000/415V.

Type of cooling : AN

3-Phase, 50Hz, Vector Group DYn-11.

Impedance volt: 4%-6%

Terminal : HT & LT to be brought out-in separate terminals. HT suitable for XLPE/ PVC cable of maximum 300mm² & L.T suitable for BBT connection.

Type of loading: Distribution.

Tapping $\pm 2.5\%$ & $\pm 5\%$, of constant KVA output on H.V. Off-load manually operated tap changer.

Permissible average winding temperature rise 100deg.K on the high voltage side and 100deg.K on the low voltage side.

With noise reduction supporting blocks.

Temperature sensors with alarm & tripping system.

Provision of 15% power rating increase with radial fan facility.

Mounted on wheels and fitted with all necessary accessories.

4.0 SUPPLY OF L.T. PANEL:

- 4.1 Sheet steel clad, free standing, floor mounting Low Tension cubical type switchgear according to IEC 439-1 for 415V, 3-phase, 4-wire, 50Hz operation complete with all wiring accessories, hard drawn

electrolytic copper busbars of appropriate ratings & equipped with the following :

4.1.1 LT-1:

Incoming:

1X4000A, 85KA, TP motorized ACB with micro processor based operated time dependent selectively operating built-in-adjustable overload, adjustable short circuit digital trip unit, ON-OFF & Trip indicating auxiliary contacts having provisions for BBT connection.

3nos. Current Transformer ratio: 4000/5A, with adequate accuracy and burden.

1no. Complete Network Analyzer with RS-485

1-Set Push button "ON & OFF".

3nos. Indicating lamps ON/OFF/TRIP.

3nos. Phase Indicating lamps Red/Blue/Yellow

1 Set /Set 727,998 727,998

4.1.2 LT-2 ATS:

2X4000A, 85KA, 4-Pole motorized & withdrawable type ACB with micro processor based operated time dependent selectively operating with built-in-adjustable overload, adjustable short circuit release, under voltage relays (time delayed), shunt trip & shunt closing coils, digital trip units, ON, OFF & Trip indicating auxiliary contacts with all other accessories to Act as Auto Change Over Switch & both incomer's ACB having provisions for Top entry BBT connections.

1 Set /Set 1,939,538 1,939,538

Each Incomer with By-Pass Panel shall be provide the followings :



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
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3nos. Current Transformer ratio: 4000/5A, with adequate accuracy and burden.

1no. Complete Network Analyzer with RS-485

1-Set Push button "ON & OFF".

3nos. Indicating lamps ON/OFF/TRIP.

3nos. Phase Indicating lamps Red/Blue/Yellow

4.1.3 L.T. PANEL-3 & L.T. PANEL-4 :

Outgoing :

1X2000A, 85KA, TP motorized ACB with micro processor based operated time dependent selectively operating built-in-adjustable overload, adjustable short circuit digital trip unit, ON-OFF & Trip indicating auxiliary contacts having provisions for BBT connection with 3nos. 2000/5A C.T & 1no.digital Ammeter (0-2000A) for current reading of the 3-phases for BBT. (BBT-4 & BBT-5). Each panel having 1no. Complete Network Analyzer with RS-485, rated C.T, digital Ammeter, digital Voltmeter with selector etc.

2 Sets /Set 407,654 815,308

4.1.4 L.T. PANEL-5 :

Outgoing :

1X800A, 50KA, TP MCCB with electronic micro processor based, built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities, provision for data management interface module, diagnostic & parameterization software & box terminal.

2X630A, 50KA, TP MCCB with electronic micro processor based, built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities, provision for data management interface module, diagnostic & parameterization software & box terminal.

2X400A, 50KA, TP MCCB with electronic micro processor based, built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities, provision for data management interface module, diagnostic & parameterization software & box terminal.

2X250A, 36KA, TP MCCB with built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities.

2X200A, 36KA, TP MCCB with built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities.

3X125A, 36KA, TP MCCB with built in adjustable overload & adjustable short circuit protection, rotary handle with padlocking facilities & box terminals.

1X125A TP MCCB with 160KA SPD including Insulated Enclosure as per specification & connect with special Earth Ground

1 Set /Set 1,295,660 1,295,660



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
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4.1.5 L.T. PANEL-6 :

Outgoing :

1X630A, 50KA, TP MCCB with electronic micro processor based, built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities, provision for data management interface module, diagnostic & parameterization software & box terminal.

2X400A, 50KA, TP MCCB with electronic micro processor based, built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities, provision for data management interface module, diagnostic & parameterization software & box terminal.

2X250A, 36KA, TP MCCB with built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities.

2X200A, 36KA, TP MCCB with built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities.

1X160A, 36KA, TP MCCB with built in adjustable overload & adjustable short circuit protection, rotary handle with padlocking facilities & box terminals.

1X125A, 36KA, TP MCCB with built in adjustable overload & adjustable short circuit protection, rotary handle with padlocking facilities & box terminals.

1 Set /Set 431,212 431,212

4.1.6 L.T. PANEL-7 :

Outgoing :

1X3200A, 85KA, TP motorized type ACB with micro processor based operated time dependent selectively operating built-in-adjustable overload, adjustable short circuit digital trip unit, ON-OFF & Trip indicating auxiliary contacts.

1 Set /Set 431,507 431,507

5.0 SUPPLY OF 1500KVAR AUTOMATIC PFI PLANT:

5.1 Supply of 1500KVAR 415volt, 3-phase, 50Hz. automatic power factor improvement plant complete with TP busbars and earth block, automatic micro-processor controlled auto power factor correction relay with digital PF reading display, micro-processor power improvement digital relays, capacitor banks, contactors, fuses, ON indicators for every stage of capacitor bank (except directly connected one) etc. the locally factory assembled in 16SWG sheet steel clad dust & vermin proof, free standing, floor mounting, epoxy resin powder coat painted cabinet,

1 Set /Set 1,521,498 1,521,498

discharge resistor, fuse etc. shall comply NEMA/IEC/ VDE/ BS/JIS standard.

4nos. 415V, 3200A hard drawn electrolytic copper busbar.

1no. 12-steps digital power factor correction relay with in-built power factor meter.



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
	1no. 25KVAR TP Power capacitor bank, rated 415V, 50Hz with built in/separate discharge coil for connection directly with line through fuses.				
	1no. 25KVAR TP Power capacitor bank, rated 415V, 50Hz with built in/separate discharge resistor.				
	1no. 50KVAR TP Power capacitor bank, rated 415V, 50Hz with built in/separate discharge resistor.				
	2nos. 100KVAR TP Power capacitor bank, rated 415V, 50Hz with built in/separate discharge resistor.				
	6nos. 150KVAR TP Power capacitor bank, rated 415V, 50Hz with built in/separate discharge resistor.				
	1no. 300KVAR TP Power capacitor bank, rated 415V, 50Hz with built in/separate discharge resistor.				
	1no. 415V, 50Amps, 50Hz. Auto TP magnetic contactor with AC3 duty for 25KVAR Bank.				
	1no. 415V, 100Amps, 50Hz. Auto TP magnetic contactor with AC3 duty for 50KVAR Bank.				
	2nos. 415V, 200Amps, 50Hz. Auto TP magnetic contactor with AC3 duty for 100KVAR Bank.				
	6nos. 415V, 300Amps, 50Hz. Auto TP magnetic contactor with AC3 duty for 150KVAR Bank.				
	1no. 415V, 500Amps, 50Hz. Auto TP magnetic contactor with AC3 duty for 300KVAR Bank.				
	3nos. 415V, 50Amps HRC fuses with base Box.				
	3nos. 415V, 100Amps HRC fuses with base Box.				
	6nos. 415V, 200Amps HRC fuses with base Boxes				
	18nos. 415V, 300Amps HRC fuses with base Boxes				
	3nos. 415V, 500Amps HRC fuses with base Box				
	1-Auto/Manual selector switch.				

6.0 **SUPPLY OF BUSBAR TRUNKING SYSTEM :**

6.1 Supply of imported busbar trunking system conforming to IEC-439 of following sizes as per specifications and drawing with all distribution board connection unit, necessary bends, elbows, cross, feed unit, reduction unit, end cover, fixing brackets, tap off boxes with rated circuit breakers etc. from reputed manufacturer having ISO:9001.

The contractor must inspect the site for determining the BBT route, technical specification & supply every-thing accordingly to complete the busbar trunking system.

The bidder must submit manufacturer's drawing after taking necessary measurement at site & the catalogue along with the offer. The rate should be quoted inclusive of all required materials for this item as per specifications, drawings & instruction of the Engineer-in-charge.

6.1.1 **Supply of imported Type Tested Assembly (TTA) 4000A TP+N+PE busbar trunking system from as per specification and drawing with all necessary bends, expansion units, closed type transformer connection units, distribution board connection units, fixing brackets etc. for connecting the transformer secondary terminals and the L.T-I panel (BBT-I).**

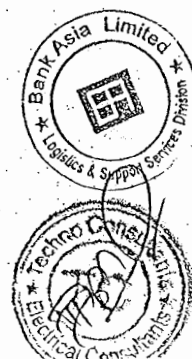
1 Lot /Lot



1,151,880 1,151,880

Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
6.1.2	Supply of imported Type Tested Assembly (TTA) 4000A TP+N+PE busbar trunking system as per specification and drawing with all necessary bends, expansion units, distribution board connection units, fixing brackets etc. for connecting the L.T-1 to LT-2(COS) panel (BBT-2).	1 Lot	/Lot	963,340	963,340
6.1.3	Supply of imported Type Tested Assembly (TTA) 4000A TP+N+PE busbar trunking system as per specification and drawing with all necessary bends, expansion units, distribution board connection units, fixing brackets etc. for connecting the Generator Control Panel and LT-2(COS) panel (BBT-3).	1 Lot	/Lot	1,817,097	1,817,097
6.1.4	2000A TP+N+PE BBT Riser from Busbar Trunking system from sub-station room in 1st basement upto 12th Floor/Lift machine room distribution board connection unit, straight length, bends, elbows, tees, end cap etc & 16nos. TP+N+PE Tap-off-boxes. having 2nos. 630A TP MCCB (50KA), 1no. 315A TP MCCB (45KA), 2nos. 250A TP MCCB (45KA), 13nos. 160A TP MCCB (45KA) with adjustable overload protection & adjustable short circuit releases as per specifications & drawing (BBT-4 of Riser-1 for bldg power)	1 Lot	/Lot	3,603,038	3,603,038
6.1.5	2000A TP+N+PE BBT Riser from Busbar Trunking system from sub-station room in 1st basement upto 12th Floor (A/C-panel/ floor wise VRF A/C) with LT flanges units, end cap & 14nos. TP+N+PE Tap-off-boxes having 1no. 630A TP MCCB (50KA) & 14nos. 200A TP MCCB(45KA) with adjustable overload protection & adjustable short circuit release(BBT-5 of Riser-2 for A/C panel).	1 Lot	/Lot	3,917,671	3,917,671
7.0	Installation of 11 KV Automatic Voltage Regulators and By-pass Switch				
7.1	Installation, testing & commissioning of 11KV automatic Voltage Regulators and By-pass Switch as detailed in item no. 1.0 including carrying the equipment, making necessary civil foundation, supply & fixing of 11KV heat shrink, Lugs, PIB tapes, connectors, cable stand, 11KV cable termination, equipment earthing & all necessary fittings, fixings, accessories as required as per direction of the Engineer-in-charge.	1 Set	/Set	32,051	32,051
8.0	INSTALLATION OF HT PANEL:				
8.1	Installation, testing & commissioning of sheet steel clad, dust and vermin proof floor mounted and free standing type HT switchgear as detailed in item no. 2.0 including carrying the equipment, making the necessary foundation & all necessary fittings, fixings, accessories as required and all direction of the Engineer-in-charge.	1 Set	/Set	32,051	32,051
9.0	INSTALLATION OF 2500KVA TRANSFORMER:				

BST - END



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
9.1	Installation, testing & commissioning of 2500KVA transformer as detailed in item no. 3.0 including carrying the equipment, making the necessary foundation, repair the foundation during carrying and all necessary fittings, fixings, accessories as required and all direction of the Engineer-in-charge.	1 Set	/Set	32,051	32,051

10.0 INSTALLATION OF L.T PANEL & COS :

10.1 Installation, testing & commissioning of Low Tension cubicle type switchgear type metal enclosed detailed in item no. 4.0 suitable for 415V,

3-phase, 4-wire, 50hz, operation complete with all wiring & gutter space for maximum size cable and entrance suitable space for maximum size cable and entrance suitable for both top and bottom entry. All metal parts must be bonded to suitable ground points. The item including carrying the equipment, making the necessary foundation, trench making with cover & all necessary fittings, fixings, accessories per required and all direction of the Engineer-in-charge.

8 Sets /Set 6,410 51,280

11.0 INSTALLATION OF 1500KVAR AUTOMATIC PFI PLANT:

11.1 Installation, testing & commissioning of 1500KVAR Automatic PFI plant as detailed in item no. 5.0 with necessary Interconnections with the L.T panel including carrying the equipment, making the necessary foundation, trench making with cover & all necessary fittings, fixings, accessories required as per drawings, specifications and direction of the Engineer-in-charge.

1 Set /Set 12,821 12,821

12.0 INSTALLATION OF BUSBAR TRUNKING:

12.1 Installation, testing & commissioning of 4000A TP+N+PE Busbar Trunking System with all its accessories as detailed in items no.6.1 & 6.2 as per specifications, manufacturer's drawings & direction of the Engineer-in-charge. The rate should be enclosed of all require installation materials for this item including the cost of connecting cables, necessary civil works line cutting & breaking of walls/ columns/ceiling/ floor, mending the same with plastering & painting (approved colour) as per instruction of the Engineer-in-charge.

3 Lots /Lot 308,120 924,360

2.2 Installation, testing & commissioning of 2000A TP+N+PE (Riser) Busbar Trunking System with all its accessories as detailed in items no.6.3.1 & 6.3.2 as per specifications, manufacturer's drawings & direction of the Engineer-in-charge. The rate should be enclosed of all require installation materials for this item including the cost of connecting cables, necessary civil works line cutting & breaking of walls/ columns/ ceiling/ floor, mending the same with plastering & painting (approved colour) as per instruction of the Engineer-in-charge.

2 Lots /Lot 228,205 456,410

13.0 CABLE WORKS:



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
13.1	Supply & installation of 3C-185mm ² XLPE, 11KV cable from reputed manufacturer's having ISO9001 certified company & BSTI approved in cable trench/ pipes for connecting the 11KV line of DPDC with 11KV switchgears & transformer H.T terminal with H.T switchgear including termination of connection at both ends with heat shrink termination kit as per drawing & specification.	120 M	/M	10,711	1,285,320

This rate is inclusive of trench/ sheet steel cable tray making, heat shrink cables, pit making, brick cable cover, sheet steel trench cover necessary 150mm dia C-class PVC/GI pipes for road crossing etc. as per shown in the drawings.

13.2	Supply & installation of 1C-185mm ² XLPE, 11KV cable from reputed manufacturer's having ISO9001 certified company & BSTI approved in cable trench/ pipes for connecting the 11KV line of DPDC with 11KV switchgears & transformer H.T terminal with H.T switchgear including termination of connection at both ends with heat shrink termination kit as per drawing & specification.	100 M	M	3,629	362,900
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13.3 Supply & installation of L.T. cable from reputed manufacturer's having ISO9001 certified company & BSTI approved of following sizes cable in trench/G.I pipe /PVC pipe/ tray including termination of connection at both ends as per drawing & specification. This rate is inclusive of cable glands etc. as per site requirements & as shown in the drawings.

13.3.1	1C-300mm ² XLPE	800 M	/M	3853	3,082,400
13.3.2	1C-240mm ² XLPE	500 M	/M	3105	1,552,500
13.3.3	1C-185mm ² XLPE	300 M	/M	2400	720,000
13.3.4	1C-150mm ² XLPE	200 M	/M	1965	393,000
13.3.5	1C-120mm ² XLPE	200 M	/M	1240	248,000
13.3.6	1C-95mm ² XLPE	100 M	/M	1275	127,600
13.3.7	1C-70mm ² XLPE	300 M	/M	938	281,400
13.3.8	1C-150mm ² BYA (ECC)	250 M	/M	1853	463,250
13.3.9	1C-120mm ² BYA (ECC)	200 M	/M	1489	297,800
13.3.10	1C-95mm ² BYA (ECC)	100 M	/M	1208	120,800
13.3.11	1C-70mm ² BYA (ECC)	100 M	/M	907	90,700
13.3.12	1C-50mm ² BYA (ECC)	100 M	/M	662	66,200
13.3.13	1C-35mm ² BYA (ECC)	100 M	/M	476	47,600

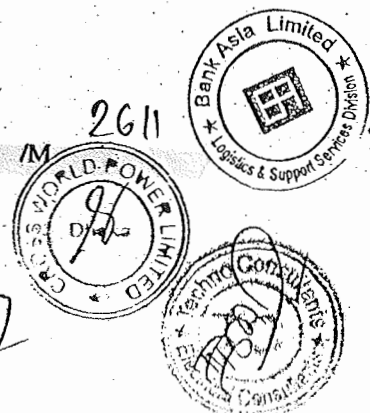
14.0 CABLE TRAY/LADDER:

14.1 Supply and installation of cable tray/ladder made of 18SWG galvanized sheet steel/angle bar, flat bar of approved quality of following sizes complete with necessary hangers, supports, cover junction box, hangers, clamps, bends, nuts, bolts, washer & all other accessories as per drawing, specifications & direction of the Engineer-in-charge.

14.1.1 300mm width

100 M	/M	2611	2,61,100
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15.0 SUPPLY OF 2NOS. 650KVA DIESEL GENERATOR SET:



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
15.1	Supply of 2(two) nos. 650KVA (continuous rating in accordance with ISO 3046/1, ISO 8528/1, BS5514, AS2789 & DIN 6271) 415V, 3-Phase diesel generator sets & another 2(two) sets of 650KVA D.G sets will be procured in future generator control panels & 4000A TP+N auto change over control unit, Auto Paralleling, Auto Synchronizing & Auto Load Sharing panel, automatic load shedding, Master Control Panel for 4nos. DG sets, Radiators, 4nos. to 6nos. Anti-Vibrating Spring to be fitted with base frame & civil foundation of the Diesel Generator sets with 2nos. 1250A	1 Lot	/Lot	15,839,540	15,839,540

50KA TP MCCB, auxiliary relays, hospital type silencer, exhaust pipe up to roof or a level which will be accepted by the Environmental dept, exploration dept., in built daily fuel tank, 3-days storage fuel tank (as per specification exploration dept.) i/c fuel pumping pumps for fuel Inlet & fuel outlet from main 3-days tank & re-filling from fuel truck with all fuel lines i/c solenoid valves and all other accessories. The combined dbA level of Diesel Gen. sets as per drawing, specification & direction of the Engr-in-charge. Necessary Exhaust ducting work made of 16SWG sheet steel & extended Silencer pipes shall be provided so that environment codes ISO:14000 & ISO: 14001 shall be complied in all respect.

with imported canopy

15.2 SUPPLY OF GENERATOR SYNCHRONIZING PANEL :

Sheet steel clad, free standing, floor mounting Low Tension cubical type switchgear with powder coated painting according to IEC 439-1 for 415V, 3-Phase, 4-Wire, 50Hz operation complete with all wiring accessories, hard drawn electrolytic copper Busbars of appropriate ratings & equipped with the following :

1 Lot 1,717,657 1,717,657

Incoming:

4X1250A, 50KA, TP motorized ACB with micro processor based operating built-in-adjustable overload, adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts.

Outgoing:

1X4000A, 85KA, TP motorized ACB with micro processor based operating built-in-adjustable overload, adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts and having provisions for BBT connection.

3-Current Transformer ratio: 4000/5A, with adequate accuracy and burden.

1-Complete Power Network Analyzer with RS485 Port

1-Push button "ON,OFF".

3-Indicating lamps ON/OFF/TRIP.

1X800A, 50KA, TP MCCB with electronic micro processor based, built in adjustable overload & adjustable short circuit protection, ON-OFF & Trip indicating auxiliary contacts, rotary handle with pad lock facilities, provision for data management interface module, diagnostic & parameterization software & box terminal.



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Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
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15.4 SUPPLY OF 800A TP+N AUTOMATIC CHANGE OVER SWITCH :

Supply of 800A TP+N automatic change over switch panel with 800A 4P MCCB, relays, timer & all other accessories i/c the powder coated free standing sheet steel enclosure (14SWG) etc as per specification & direction of the Engineer-in-charge. This COS will be work in the fire mode when there will be no power in the main LT panel.

1 Lot 467054 467054

16.0 SUPPLY & INSTALLATION OF ROOM CANOPY:

Local made whole room sound proof system to housing 2nos. 650KVA Diesel Gen. sets & keep provision for next 2nos. 650KVA diesel Gen. sets with service entrance door, fresh air inlet & hot air discharge outlet louver window to reduce noise level to 80dba@01 meter in free field from room i/c supply of all necessary exhaust /blower fans to provide the necessary fresh air as per recommendation of the manufacturer of DG sets. At present minimum 2nos. DG sets to be installed & in future another 2nos. DG sets to be installed. The bidder shall submit the drawing & the calculation in this regard along with the tender.

1 Lot N/A N/A

17.0 INSTALLATION 2NOS. 650KVA DIESEL GENERATOR SET :

Installation, testing & commissioning of following 2(two) nos. 650KVA Diesel Generator sets including all its necessities i.e. batteries, battery charger, control panel and all control panel units including supplying of all necessary control cables, cable lugs, PIB tapes, PVC tapes, cable glands, radiator ducting works, extension of silencer pipes with aluminium jacking work & isolating anti-vibration rubber mat etc as per site condition

1 Lot 1927221 1927221

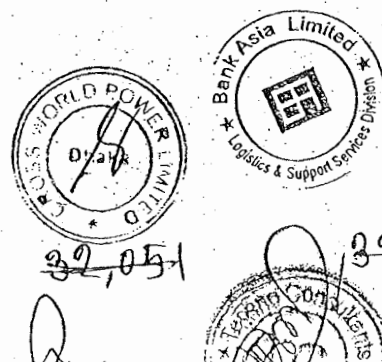
This item shall also included carrying of equipment, necessary foundation works, isolating pad, trench making with cover, supply of control cables & all other necessary accessories for commissioning as per site conditions, as per drawing, specifications and instructions of Engineer-in-charge.

17.1 INSTALLATION OF GENERATOR SYNCHRONIZING PANEL :

Installation, testing & commissioning of Low Tension cubicle type switchgear for 415V, 3-phase, 4-wire, 50Hz, operation complete with all wiring & gutter space for maximum size cable and entrance suitable space for maximum size cable and entrance suitable for both top and bottom entry. All metal parts must be bonded to suitable ground points. The item including carrying the equipment, making the necessary foundation, trench making with cover & all necessary fittings, fixings, supplying of all necessary control cables, cable lugs, PIB tapes, PVC tapes, cable glands, accessories per required & all direction of the Engineer-in-charge.

1 Set 32,051 32,051

17.2 INSTALLATION OF 800A TP+N AUTOMATIC CHANGE OVER SWITCH :



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
	Installation, testing & commissioning of 800A TP+N automatic change over switch panel for 415V, 3-phase, 4-wire, 50hz, operation complete with all wiring & gutter space for maximum size cable and entrance suitable space for maximum size cable and entrance suitable for both top and bottom entry.	1	Set	32,051	32,051
	All metal parts must be bonded to suitable ground points. The item including carrying the equipment, making the necessary foundation, trench making with cover & all necessary fittings, fixings, accessories per required and all direction of the Engineer-in-charge.				
18.0	EARTHING SYSTEM:				
18.1	Supply and installation of 38.10mm dia GI pipe earth electrode having 6.35mm dia holes across the dia at 305mm interval securedly bonded with washer, nuts, bolts etc. sunk upto a depth to attain a earth resistance of minimum 1(one) ohm (for each electrode) including blind socket for water pouring facility etc. complete as per direction of the Engineer-in-charge.	12 Sets	/Set	21,990	263,880
18.2	Construction of 600X600X600mm earth inspection pit with RCC cover as per drawing & instruction of Engineer-in-charge.	12 Sets	/Set	6369	76,428
18.3	Supply & installation of solid copper wire earthing lead 2X2/0 SWG in 38mm dia G.I. pipe and termination of connections at both ends as per drawing & specifications.	750 M	/M	412	309,000
18.4	Supply & installation of following sizes cable from reputed manufacturer's having ISO:9001 certified company & BSTI approved of following sizes cable for grounding the neutral of transformers & generators, equipments to required sizes Equipotential bars including G.I pipe & termination of connection with termination kits at both ends as per direction of the Engineer-in-charge.				
18.4.1	1C-400mm ² NYY for neutral of transformer	60 M	/M	5258	315,480
18.4.2	1C-300mm ² NYY for Equipotential bar to various equipments	50 M	/M	3925	196,250
18.4.3	Equipotential earth bar(100mmX20mmX600mm) with all other facilities for cable connection.	5 Sets	/Set	13018	65,090
19.0	FIRE EXTINGUISHER:				
19.1	Supply and installation of wall mounted fire extinguisher type BCEF complete with charge and fixing accessories at the location shown on the drawing as per specification and direction of the Engineer-in charge.	2 Sets	/Set	4713	9426



Sl. No.	Short Description of Items	Qty.	Unit	Rate(Tk)	Amount(Tk)
20.0	Miscellaneous charges for obtaining HT power from DPDC including supply fittings, fixing of 11KV Lightning arrester & dropout fuse and others accessories as required for bringing 11KV power from DPDC's cable/overhead line with necessary connections with H.T switch gear including taking permission for commissioning from Electrical licensing Board of Bangladesh, Fire Brigade & permission for road cutting from concerned dept./ authority and mending good the damages after laying the cable.	1 Lot	/Lot	1,855,997	1,855,997

The security money & Licencing Board fee, Fire Brigade fees and Dhaka City Corporation charges will be directly paid to Bangladeshi Bank Treasury on submission of deposit slip/city corporation cost memo by the Contractor. The contractor will not include in this item the amount of security deposit, H.T Metering fees & Licencing Board fee.

The contractor shall be responsible for communicating with City Corporation, Fire Brigade department & Licencing Board in time and shall submit application forms for commissioning and complete all other formalities on behalf of Client till the sub-station is commissioning and handed over to the Client.

Total Tk. 62,465,724



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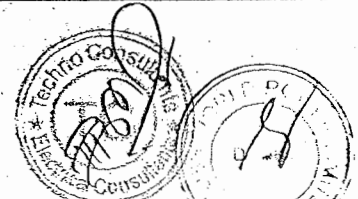
**SCHEDULE OF ITEMS OF WORKS
&
BILL OF QUANTITIES
FOR SOLAR SYSTEM**

CO



Item No.	Description of items	Qty	Unit	Rate (Tk.)	Amount (Tk.)
1	Supply and installation of Solar Panel with all necessary fittings. 25KWp solution Module type: Poly -crystalline Module Size: 250Wp or higher DC System Voltage: to suit inverter specification, Max 1000V dc Certificate: IEC, UL, TUV Warranty: 25 years or higher	125nos. PV panels	01 complete set of panels	12,153	1,519,125
2	Supply and installation of inverter with DC disconnecting switch Type: Grid Tie type Power capacity: 14,400W (minimum) Max. DC Voltage: 1000V DC Nominal Voltage: 230V MPP Voltage range: 445- 850 V AC Nominal Power: 12500W AC Voltage range: 400V, 3-phase, 50Hz±3 Harmonics: <4% Maxm Efficiency ≥ 96% to 98.2% (Bidder may propose alternatively) Distortion factor ≤1.8%	02 Units	Each	17,197.5	343,950
3	Supply & installation of steel structure made of hot dip galvanized MS Angles for panel, including civil work	1 Lot	Lot	137452	137452
4	Supply and installation of DC (XLPE Insulated flexible cable, suitable for solar integration, not less than 2X4mm-2X56/0.30mm) & AC cables and accessories with cable tray, civil works including making necessary changes to the existing power distribution system of the building. Certification required: BSTI, BASEC, ISO 9001:2000, Delivery: Form the factory as per buyer's choice.	1 Lot	Lot	50,306	50,306
5	Supply and installation of DC Isolation Boxes, IP-65 weather proof Galvanized MS Boxes/ poly-carbonate. IP65, suitable for out-door installation, complete with d.c string, circuit breaker, surge protection and capable of breaking full load current.	1 Lot	Lot	10,828	10,828

SOLAR BOQ-1



6	Supply and installation of AC combiner Boxes, IP-65 weather proof Galvanized MS Boxes/ poly-carbonate. IP65, suitable for outdoor installation, complete with ac circuit breaker, surge protection and capable of breaking full load current.	1 Lot	Lot	15,924	15,924
7	Supply and installation of synchronization device, monitoring device, load controlling device etc. for complete functionality of the system.	1 Lot	Lot	15,000	15,000
8	Supply and installation of Galvanized MS Boxes/ polycarbonate distribution board. IP65, suitable for outdoor installation, complete with rated incoming & outgoing circuit breakers, 2nos. KWHr meter, surge protective devices with surge counter recorder & capable of breaking full load current.	1 Lot	Lot	18471	18471
9	Testing and commissioning operation & maintenance manual, system electrical schematic, roof layout design proposal.	1 Lot	Lot	38217	38217



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SOLAR HQQ2



SUMMARY OF BID AMOUNT FOR PHASE-1

SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF SUB-STATION & BBT SYSTEM ATS ETC	TK. 42,165,727.00
SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF DIESEL GEN. SET WITH LOCAL ROOM CANOPY I/C SYNCHRONIZATION ETC.	TK. 20,025,000.00
SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF SOLAR SYSTEM	TK. 2,209,273.00
GRAND TOTAL (PACKAGE-1) =	TK. 64,400,000.00

IN WORDS: Taka six core forty four Lac only

Name of Contractor: CROSS WORLD POWER LTD

Address

Plot 1/B, R #90
Gulshan-2, Dhaka-1212

Seal & Signature of the Contractor:

Date:

M. Aslam



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