



भारतीय विमानपत्तन प्राधिकरण
AIRPORTS AUTHORITY OF INDIA

सं.सं.: ए.ए.आई./सी.एच.क्यू./आई.एम.यू./सं.महा.(अभि.-वि.)/डबल्यू.ओ.-01/2024-25/9-12
Ref. No. AAI/CHQ/IMU/Jt.GM(E-E) /W.O.-01/2024-25/

दिनांक: 16.05.2024
Date: 16.05.2024

सेवा में,

To,

मेसर्स विजयपावर जेनरेटर लिमिटेड,
12 भारती आर्टिस्ट कॉलोनी,
विकास मार्ग, नई दिल्ली - 110092

M/s Vijaypower Generators Limited,
12 Bharti Aartist Colony,
Vikas Marg,
New Delhi - 110092

विषय: नए कार्यालय परिसर, सफदरजंग हवाई अड्डे, नई दिल्ली में डीजी सेट, एलटी पैनल और संबंधित कार्यों की आपूर्ति, स्थापना, परीक्षण और कमीशनिंग।

SUB: SITC of DG Sets, LT.Panels and associated works at New Office Complex, Safdarjung Airport, New Delhi.

संदर्भ: क) निविदा क्रमांक: 2023_AAI_178695_1

ख) निविदा खोलने की तारीख: 06.03.2024

Ref: i) Tender ID: 2023_AAI_178695_1

ii) Tender Opening Date: 06.03.2024

महोदय,

Dear Sir,

1. उपरोक्त उल्लेखित कार्य के लिए ई-निविदा के आपके प्रस्ताव को भारतीय विमानपत्तन प्राधिकरण के अध्यक्ष की तरफ से रु. 2,56,82,250/- (जीएसटी अतिरिक्त) (रुपये दो करोड़ छप्पन लाख बयासी हजार दो सौ पचास रुपये केवल) की राशि के लिए स्वीकृत किया गया है, जो कि निविदा में दी गई उचित लागत राशि रु.2,85,60,134/- (जीएसटी अतिरिक्त) से 10.08% कम है।

Your e-tender for the work mentioned above is hereby accepted on behalf of Chairman, Airports Authority of India, for the work mentioned above at the item rates quoted by you, totaling to Rs. 2,56,82,250/- (excluding GST) (Rupees Two Crore Fifty-Six Lakhs Eighty-Two Thousand Two Hundred Fifty Only) which is 10.08% below the estimated cost put to the tender of Rs. 2,85,60,134/- (excluding GST).

2. संयुक्त मेहाप्रबंधक, आई.एम.यू. ए.ए.आई, राजीव गांधी भवन इस कार्य के प्रभारी अभियंता होंगे। आपसे अनुरोध है कि आप 31.05.2024 तक वरिष्ठ प्रबंधक, आई.एम.यू. ए.ए.आई, राजीव गांधी भवन के कार्यालय में संविदा करार पर हस्ताक्षर करने और उसे पूरा करने हेतु उपस्थित हों। संविदा करार रु. 100/- (मात्र सौ रुपये) मूल्य के गैर-न्यायिक स्टाम्प कागज पर निष्पादित किया जाएगा तथा स्टाम्प कागज की लागत आपके द्वारा वहन की जाएगी।

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Joint General Manager Engg. (E)-IMU, AAI, R.G. Bhawan, shall be the Engineer-in-charge of the work. You are requested to attend the office of Jt.GM Engg. (E)-IMU, by **31.05.2024** to sign and complete the contract agreement. The contract agreement shall be executed on a non-judicial stamp paper of value **Rs.100/- (Rupees One Hundred only)** and the cost of the stamp paper shall be borne by you.

3. आपसे अनुरोध है कि आप 25,68,225.00 रुपये (केवल पच्चीस लाख अड़सठ हजार दो सौ पच्चीस रुपये) की सुरक्षा जमा राशि के लिए बैंक गारंटी जमा करें। इसलिए, कृपया इस पत्र के जारी होने की तारीख से 15 दिनों के भीतर इसे जमा करें, ऐसा न करने पर जीसीसी के खंड 1ए की शर्त के अनुसार कटौती की जाएगी। बैंक गारंटी जमा करने के बाद 5,71,203.00 रुपये की ईएमडी वापस कर दी जाएगी।

You are requested to submit bank guarantee towards Security Deposit of **Rs.25,68,225.00 (Rupees Twenty-Five Lac Sixty-Eight Thousand Two Hundred Twenty-Five Only)**. Hence, request to kindly submit the same within 15 days from the date of issue of this letter, failing which, the same will be deducted as per condition of clause 1A of GCC. After submission of bank guarantee, EMD of **Rs.5,71,203.00** will be returned.

4. आपसे अनुरोध है कि केंद्रीय सरकार और राज्य सरकार द्वारा बनये गए श्रम अनुबंध (विनियमन और उन्मूलन) अधिनियम 1970, श्रम अनुबंध (विनियमन और उन्मूलन) केंद्रीय नियमों 1971 और न्यूनतम मजदूरी अधिनियम के प्रावधान का अनुपालन किया जाए।

You are requested to comply with the provision of contract labour (Regulation and abolition) Act 1970 and contract labour (Regulation and Abolition) central rules 1971 and minimum wages act and rules thereof central and state Governments.

5. आपको निर्देशित भी किया जाता है कि आप प्रबंधक (अभि.-वि.), आई.एम.यू, ए.ए.आई, राजीव गांधी भवन से तुरंत संपर्क करे जो आपको साइट को सौंपने की व्यवस्था करेंगे।

You are also directed to contact Manager (Engg. -E)-IMU, AAI, Rajiv Gandhi Bhawan immediately who will arrange to hand over the site to you.

6. कृपया ध्यान रहे कि कार्य निष्पादन के लिए प्रदत्त समय तीन (09) महीने है तथा उसकी गणना 01.06.2024 से होगी ।

Please note that the time allowed for carrying out the work shall be **09 months** and same shall be reckoned from **01.06.2024**.

7. अनुबंध के संबंध में कोई और पत्राचार सामान्यतः संयुक्त महाप्रबंधक, आई.एम.यू, ए.ए.आई, राजीव गांधी भवन को संबोधित किया जाना चाहिए।

Any further correspondence in connection with the contract should normally be addressed to the **Joint General Manager Engg. (E)-IMU**.

8. कृपया पत्र की प्राप्ति की पावती भेजे।

Please acknowledge the receipt of the letter.

9. दोष देयता अवधि 01 वर्ष है।

Defect liability period is 01 Year.

Encl.: - Schedule of Quantities (SOQ).

भवदीय,
Yours Faithfully,



संयुक्त महाप्रबंधक (अभि.-वि.)- आई.एम.यू,
Joint General Manager (Engg.-E)-IMU,
अध्यक्ष भारतीय विमानपत्तन प्राधिकरण के लिए

व उनकी तरफ से,
For and on behalf of the CHAIRMAN,
AIRPORTS AUTHORITY OF INDIA

Name of Work: SITC of DG Sets, LT Panels and associated works at New Office Complex, Safdarjung Airport, New Delhi.

Tender ID: 2023 AAI 178695 1

SCHEDULE OF WORK / ITEM(S)

S.No.	Item Description	UoM	Qty	Rate	Amount
	DG SET				
1	DG SET (500KVA) : Design & Supply, installation, testing & commissioning of 'Silent Type' Diesel Generating set along with having Prime Power Rating of 500KVA, 415 volts at 1500 RPM, 0.8 lagging power factor at 415V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor, power command control system or equivalent), first fill of lubricating oil and diesel for testing and commissioning complete as required DG Set should be type tested for Noise and Emission norms/standards as per latest CPCB 4+ norms.	Job	3	44,85,000.00	1,34,55,000.00
	(a) Diesel Engine:				
	Diesel engine 4 stroke radiator with fan cooled, floor mounted, electric start, of suitable BHP at 1500 RPM suitable for above output of alternator at 40 Degree C, 50% RH & at 1000 Meter MSL and conforming to BS 5514, BS 649, IS 10000, capable of taking 10% over loading for one hour after 12 hours of continuous operation. The engine will be fitted complete with all required accessories.				
	(b) Engine mounted Instrument Panel fitted with and having digital display for following:				
	(i) Start-stop switch with key.				
	(ii) Water temperature indication.				
	(iii) Lubrication oil pressure indication.				
	(iv) Lubrication oil temperature indication.				
	(v) Battery charging indication.				
	(vi) RPM indication.				
	(vii) Over speed indication.				
	(viii) Low lub. Oil trip indication.				
	(ix) Engine Hours indication.				
	(x) High water temp. indication				
	(c) Alternator:				
	Synchronous alternator rated at 500 KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC Supply with 0.8 lagging power factor at 40 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall be having IP-23 degree of protection, SPDP enclosure, brushless, continuous duty, self-excited and self regulated through AVR suitable for parallel operation in synchronising mode conforming to IS: 4722/BS 2613, IEC:34 as amended upto date suitable for tropical conditions and with class F/ H insulation.				
	(d) Base Frame & Foundation:				
	Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete (1:2:4 ,M20 grade) foundation and vibration isolation arrangement as per recommendations of manufacturer. Foundation shall be designed considering safe bearing capacity of soil and approved structural engineers. Vibration isolators (AVMs) should be provided to reduce vibration transmission to the surrounding structure.				

S.No.	Item Description	UoM	Qty	Rate	Amount
	(e) Fuel Tank:				
	Daily service fuel tank of 990 ltr capacity or as per OEM standards fabricated out of 3 mm thick M.S. Sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications with calibrated scale, provision for electronic level sensor, flange connection for inlet with float valve and over flow for automatic fuel filling system and other accessories etc. as required as per specifications.				
	(f) Exhaust System:				
	Dry exhaust manifold with suitable exhaust hospital grade silencer and catalytic convertor. The exhaust piping including silencer inside and outside acoustic enclosure shall be thermal insulated. The exhaust shall be minimum 05 mtr above building height. The complete exhaust piping and structure shall be included in the quoted rate.				
	(g) Starting System:				
	24V DC starting system comprising of starter motors: voltage regulator and arrangement for initial excitation complete with 2 nos. of batteries (25 Plate, 180 Amp. Hour capacity lead acid type) as required as per specifications.				
	Acoustic and weather proof enclosure with built in Anti Vibration Mountings (AVMs) with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere as per specifications. Acoustic enclosure should be type tested for Noise at the climatic conditions as per latest CPCB norms through authorized laboratory.				
	The work shall be executed as per Central Electrical Authority and Central Pollution Control Board - IV+ or latest norms as specified in tender specifications.				
	DG command control panel (PCC 3.3 or equivalent as per OEM design) suitable for synchronization with RS 485.				
	Necessary control cable shall be provided between DG Sets and DG Panel as approved by OEM manufacturer.				
	Note:- Please note DG Sets and Grid Power shall be synchronised separately. All necessary required items, Controllers, Softwares shall be provided to synchronise DG sets and Grid power deemed to be included in quoted item / rate.				



S.No.	Item Description	UoM	Qty	Rate	Amount
	MAIN LT CUM SYNCHRONISATION PANEL				
2	Supply, installation, testing & commissioning of TTA type indoor cubical LT panel as per IEC 61439, IS 8623:1993, IP42, suitable for 415 volts (nominal) 3 phase 4 wire, 50 Hz, A.C. Supply. Main LT Panel shall be totally enclosed and extensible type with free standing floor mounted dust and vermin proof indoor type fabricated in compartmentalized (preferably) design from CRCA sheet steel of 2 mm thick for frame work and covers, 3mm thick for gland plates, i/c cleaning & finishing complete with 7 tank process for Power coating in approved shade, having capacity extensible type TPN Aluminium alloy bus bar of high conductivity SMC bus bar supports with short circuit with stand capacity of minimum 50KA for 1 sec, bottom base channel of MS section not less than 100mm x 50mm x 5mm thick, fabrication shall be done in transportable sections, entire panel shall have a common copper earth bar of size 25 mm x 5 mm at the rear with 2 Nos. earth stud, solid connections from main bus bar to switch gears with required size of Al. bus bars and control wiring with 2.5 sq. mm. PVC insulated copper conductor S/C cable, cable alleys, cable gland plates in two half, complete with busbars, ammeter, ammeter selector switch, voltmeter, voltmeter selector switch,	Job	1	49,32,000.00	49,32,000.00
	indicating lamps, protection relays, PLC, CT's protection mcb, interconnections with suitable size of copper leads/solid aluminium strips/rod & control circuit including breaker control switch, auto /manual selector switch, auto / manual circuit, anti pumping relay, spring charging indications, trip indication etc. PLC / Power Command Controller, mounted in the panel shall ensure, Auto / Manual synchronizing of DG set, Auto / Manual synchronizing of Grid Power, Load sharing, Auto Changeover of Grid / DG supply breakers in Main LT Panel, interlocking and having following incoming and outgoing Air Circuit Breaker (ACB). Moulded case circuit breaker (MCCB) and metering, complete as per the drawing and specifications. Main L.T. Panel shall conform to form 4b construction. Main LT Cum Synchronizing panel shall be suitable for Synchronizing of 3 Nos DG Sets and & Synchronizing of 3 Nos of Grid Power Supply, all hardware & software required deemed to be included in this item. Power command controller shall be part of DG Set supply.				
	1) All MCCBs of current rating 250 Amps and above shall be provided with microprocessor based releases and those of rating below 250 Amps shall be provided with thermal magnetic releases or as specified in BOQ. Breaker Release shall provide protection against O/L, S/C & E/F.				
	2) All MCCBs shall be having $I_{cs} = 100\% I_{cu}$				
	3) All MCCBs shall be provided with front rotary handle and spreader links.				
	4) All outgoing Breaker shall be have ON/OFF indicating lamp.				

S.No.	Item Description	UoM	Qty	Rate	Amount
	<u>(A) INCOMERS</u>				
	800 Amp FP EDO Air Circuit Breaker (50kA Ics Value) with microprocessor release for O/L, S/C & E/F protection with RS 485 port and complete as required. (D.G Incomer) - 3 Nos.				
	800 Amp FP EDO Air Circuit Breaker (50kA Ics Value) with microprocessor release for O/L, S/C & E/F protection with RS 485 port and complete as required. (Grid Power Incomer) - 3 Nos.				
	<u>(B) INSTRUMENTS ON EACH INCOMER</u>				
	0 to 500 Volt digital voltmeter 96mm x 96mm with selector switch.				
	Suitable Size digital ammeter 96mm x 96mm with selector switch & CT's. of suitable ratio.				
	1 Set of Phase indicating lamps with Single Pole MCB.				
	1 Set of ON / OFF indicating lamps with Single Pole MCB.				
	Intelligent digital multi function meter of class 0.5 to read V, A, F, KVA, KW, KVAR, KWH, KVAH, PF, Hz etc. with communication facility (RS 485 port), THD and Individual order harmonics upto 31st Order. LED/ LCD display with required Nos CTs of suitable ratio of 15 VA & class 0.5 including control circuit wiring with 2 Amp protection MCB.				
	<u>(C) BUS COUPLER</u>				
	800 Amp FP EDO Air Circuit Breaker (50kA Ics Value) with microprocessor release for O/L, S/C & E/F protection with RS 485 port and 1 Set of ON / OFF indicating lamps with Single Pole MCB. complete as required. - 2 Nos.				
	<u>(D) BUSBARS</u>				
	TPN Aluminium busbars of minimum of 2400 Amps capacity having 100% neutral bus as that of phase with heat shrinkable coloured sleeves and DMC/ SMC busbars supports at required intervals. the bus bar shall be extensible type on both sides.				
	<u>(E) OUTGOING</u>				
	Each following out going feeder shall be with Neutral links, 96mm x 96mm Square type digital Multifunction Meter & set of CT's w.r.t. feeder rating and LED ON /OFF Indication lamp protected by MCB:				
	630Amp FP EDO Air Circuit Breaker (35kA Ics Value) with microprocessor release for O/L, S/C & E/F protection with RS 485 port and complete as required. - 5 Nos.				
	400Amp FP Moulded Case Circuit Breaker of (35kA Ics Value) complete with microprocessor release for O/L, S/C protection with Neutral link - 8Nos.				
	200Amp FP Moulded Case Circuit Breaker of (25kA Ics Value) complete with Thermal Magnetic release for O/L, S/C protection with Neutral link -2Nos.				
	100 Amp FP Moulded Case Circuit Breaker type of (25kA Ics Value) complete with thermal magnetic release for O/L & S/C protection with Neutral link -2Nos.				

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S.No.	Item Description	UoM	Qty	Rate	Amount
	Intelligent digital multi function meter of class 0.5 to read V, A, F, KVA, KW, KVAR, KWH, KVAH, PF, Hz etc. with communication facility (RS 485 port), THD and Individual order harmonics upto 31st Order. LED/ LCD display with required Nos CTs of suitable ratio of 15 VA & class 0.5 including control circuit wiring with 2 Amp protection MCB (one in each outgoing).				
	AUTOMATIC TRANSFER SWITCH (ATS)				
3	Supply, Installation, testing and commissioning of TTA (Form 4B) , 415V , 4P, indoor fixed type, wall mounted, metal enclosed Microprocessor based Automatic Transfer Switch (ATS) Panel suitable for operation at indoor site conditions with 1 no. 800A ATS (having two nos. of 800A incomers and 1 Nos. of 800A outgoing). The ATS shall have all the four poles fully rated and simultaneously operating shall be suitable for manual operation and positive interlocking. The ATS shall be supplied with an integrated controller and no external wiring harness shall be acceptable including transport, all labour and materials, as per specifications of this tender and directions of Engineer-in-Charge, complete in all respects. (Panel shall conform to IEC-61439)	Nos.	3	6,24,000.00	18,72,000.00
	(A) Automatic Transfer Switch				
	800 A, FP, 3 phase, 50Hz Automatic Transfer Switch with Complete protection - 1No.				
	(B) INCOMER				
	(I) 800Amp FP Moulded Case Circuit Breaker of (50kA Ics Value) complete with microprocessor release for O/L, S/C protection with Neutral link - 2Nos.				
	(C) OUTGOINGS				
	(I) 800Amp FP Moulded Case Circuit Breaker of (50kA Ics Value) complete with microprocessor release for O/L, S/C protection with Neutral link - 1Nos.				
	(D) Metering/ Indication				
	(I) Ammeter with suitable CT's and selector switch for incomers & outgoing				
	(II) LED indicating lamp-RYB and on/off indication (for I/C & OG)				
	(III) Voltmeter with selector switch for I/C & O/G				
	(IV) Suitable heavy duty strip connector & interconnection With suitable size copper flexible cable.				

S.No.	Item Description	UoM	Qty	Rate	Amount
	SUB DISTRIBUTION BOARD				
4	Supply, installation, testing and commissioning of Sub Distribution Board (IP-54) with TTA (Form-4B) cubicle type panel totally enclosed free standing type, duly compartmentalised, dust free, damp and vermin proof fabricated from 2mm thick CRCA sheet steel duly powder coated painted after metal treatment internally wired, interconnection with copper links / wires, copper busbar and having following incoming & outgoing moulded case circuit breakers, ammeters, voltmeters, selector switch, multi function meter, indicating lamps, internally wired / connected and termination of incoming & outgoing cable complete as per specifications and drawings as required. Note All MCCBs shall be having Ics = 100% Icu (Panel shall conform to IEC-61439)	Job	3	19,20,000.00	57,60,000.00
	(A) INCOMERS				
	400Amp FP Moulded Case Circuit Breaker of (25kA Ics Value) complete with microprocessor release for O/L, S/C protection with Neutral link - 2Nos.				
	(B) INSTRUMENTS ON INCOMER				
	1 No. 0 to 500 Volt digital voltmeter 96mm x 96mm with selector switch.				
	1 No. 0 to 400Amp digital ammeter 96mm x 96mm with selector switch & CT's.				
	1 Set of Phase indicating lamps with Single Pole MCB.				
	1 Set of ON / OFF indicating lamps with Single Pole MCB.				
	Electronic type Digital Multifunction Meter having 30 day memory and parameters of voltage, current, active power (kW), reactive power (KVAR), apparent power (KVA), power factor, phase angle, frequency, power demand, active energy (kWH), reactive energy (KVARH), apparent energy (KVAH), voltage & current harmonic etc. compatible with PC through RS 485 communication cable for incoming breaker.				
	Electrical Interlocking between Incomers & Bus Coupler.				
	(C) BUS COUPLER				
	400Amp FP Moulded Case Circuit Breaker of (25kA Ics Value) complete with microprocessor release for O/L, S/C protection with Neutral link - 1Nos.				
	(D) BUSBARS				
	TPN Aluminium busbars of minimum of 400Amps having 100% neutral bus as that of phase with heat shrinkable coloured sleeves and DMC/ SMC busbars supports at required intervals. the bus bar shall be extensible type on both sides.				
	(E) OUTGOING				
	100Amp FP moulded case circuit breaker of (25 KA Ics value) breaking capacity with Thermal magnetic release for O/L & S/C protection- 6 Nos				

S.No.	Item Description	UoM	Qty	Rate	Amount
	Intelligent digital multi function meter of class 0.5 to read V, A, F, KVA, KW, KVAR, KWH, KVAH, PF, Hz etc. with communication facility (RS 485 port), THD and Individual order harmonics upto 31st Order. LED/ LCD display with required Nos CTs of suitable ratio of 15 VA & class 0.5 including control circuit wiring with 2 Amp protection MCB (one in each outgoing).				
	AHF CUM APFC HYBRID PANEL				
5	250KVAR, IGBT based automatic Hybrid Power Factor Correction panel, 14% de-tuned filter (150Amp Active + 250kVAR Passive) consist of following switch gears and accessories.	Job	3	10,38,000.00	31,14,000.00
	Design, fabrication, assembly, wiring, supply, erection, testing and commissioning of Hybrid Solution consisting of APFC Panel and AHF, to achieve 0.99 Lag and THDI/ THD Voltage within IEEE 519 limits, fabricated of CRCA sheet of thickness 2 mm and 3 mm thick gland plates. The panel shall have bottom base channel of MS section not less than 100 mm x 50 mm x 5 mm thick, fabrication shall be done in transportable sections, entire panel shall have a common Copper earth bus bar of size as per IS 3043 subject to minimum 50 mm x 5 mm at the rear with 2 Nos. earth stud, solid/ flexible connections from main earth bus bar to switchgears with required size of Cooper/ Aluminium conductors/ bus bars. (Panel shall be designed with appropriate heat ventilation).				
	AHF(active) and APFC (passive) section shall be provided and interfaced with a common door-mounted human machine interface (HMI) with touch screen display and communication port RS 485 for Modbus/ Ethernet protocol with necessary hardware, software, CTs etc. HMI shall provide an oscilloscope feature to display specific parameters. In addition, performance trend curves shall be displayed for load - total RMS current, load RMS harmonic current per phase, AHF harmonic current output per phase, AC mains voltage per phase, THDi, TDD, load RMS reactive current, and AHF RMS reactive current output. Bar graphs shall be provided for display of the mains and load harmonic current amplitudes per harmonic order. HMI shall display a flashing warning screen in the event of a fault.				
	The Capacitor Panel (Passive Section) shall comprise of capacitor units rated at 525 volt, 14% de-tuned reactors, PF controllers, circuit breakers etc. and shall be certified as per IS16636 and IEC 61921.				

S.No.	Item Description	UoM	Qty	Rate	Amount
	The AHF shall be 3 Phase, 4 Wire System. The switching device of the active compensation system shall be 3-level IGBT based. The active compensation system should filter harmonics from 2nd to 51st individual harmonic order and shall be selectable for the entire range. The active compensation system shall also have feature to improve PF correction as well as load balancing. The active compensation system shall have a Multi master and Master Slave operation. The active compensation system shall have Auto de-rating feature, if ambient temperature exceeds 45 Deg C. Response time shall be 100 micro Sec or less. The reactor shall be fitted with a temperature sensitive switch to trip circuits in case of high operating temperature.				
	The hybrid panel shall have microprocessor based integrated/ duly interfaced separate DSP controller for Active and Passive section and shall be able to sense the reactive current requirement of the network and shall switch ON/ OFF the required stages of a capacitor bank. The Capacitor Bank shall be of Partially type tested design as per IS 16636/ IEC 61921.				
	The heavy duty capacitor units shall be rated at 525 V. The capacitor and reactor combination represents a series resonant circuit. The circuit should be tuned such that the series resonant frequency should be below the lowest harmonic order expected to be present in the electrical network. If the lowest harmonic order expected to be present in the electrical network is likely to the 150Hz (3rd order harmonics) then the series de-tuning reactors should be of 135Hz (2.7 tuning order) with a relative impedance of 14%.				
	Each stage of the capacitor bank should have suitable rating semiconductor fuse protection. - The Solution should have surge arrestors and over temperature protection. - If The active filter should consists of multiple modules rating and interruption of one module should not impact the performance of other modules connected in parallel. - The de-tuned capacitor bank shall have Integrated/ simultaneously operated DSP controllers which shall control the capacitors and Active Filter. Heavy duty Capacitor shall be as per MPP low loss as per standards IS 13340/ IEC 60831.				
	The system should be compatible with Grid Power as well as D.G. set Power Supply.				
	The capacitor banks should be of type tested design for temperature rise.				
	(A) INCOMING				
	630Amp FP EDO Air Circuit Breaker (50kA Ics Value) with microprocessor release for O/L, S/C & E/F protection with RS 485 port and complete as required. - 1 Nos.				
	(B) BUSBARS				
	1000 Amp TPN bus bar with heat shrinkable coloured sleeves having 50% neutral bus as that of phase i/c DMC/ SMC bus bars supports at required intervals complete as required.				

S.No.	Item Description	UoM	Qty	Rate	Amount
	(C) INSTRUMENTS				
	1 No. 0 to 500 volts digital type voltmeter.				
	1 No. 0 to 630Amp digital type ammeter with suitable ratio CT's.				
	1 set of LED indication lamps for RYB, incoming breaker 'ON/ OFF/ TRIP with 2 Amp control MCBs				
	1 No. Indicating lamp for each 50/25/15/10KVAR capacitor unit to indicate that the unit is 'ON'.				
	Power factor meter.				
	12 stepped Automatic Power Factor Correction relay (APFC relay).				
	(D) OUTGOING				
	150 Amp FP Moulded Case Circuit Breaker type of (35 KA Ics Value) complete with Thermal Magnetic release for O/L & S/C protection with Neutral link -1No				
	100 Amp TP Moulded Case Circuit Breaker type of (35 KA Ics Value) complete with Thermal Magnetic release for O/L & S/C protection with Neutral link -1No				
	63 Amp TP Moulded Case Circuit Breaker type of (35 KA Ics Value) complete with Thermal Magnetic release for O/L & S/C protection with Neutral link -5 Nos				
	32Amp TP Moulded Case Circuit Breaker type of (35 KA Ics Value) complete with Thermal Magnetic release for O/L & S/C protection with Neutral link-6 Nos				
	25 Amp TP Moulded Case Circuit Breaker type of (35 KA Ics Value) complete with Thermal Magnetic release for O/L & S/C protection with Neutral link-1 No				
	14 Nos. capacitor duty contactor (one for each 50/25 /15/10 KVAR capacitor + 150A active power filter unit and 1 Nos. spare contactor for 50/25/15/10 KVAR capacitor + active power filter units).				
	1 No. 100A Active Power Filter.				
	1 No. 50A Active Power Filter.				
	1 No. 50 KVAR Capacitor Bank.				
	4 Nos. 25 KVAR Capacitor Bank.				
	6 Nos 15 KVAR Capacitor Bank.				
	1 No. 10 KVAR Capacitor Bank.				
	14 Sets of push button stations Red and Green for manual operation of capacitor/filter units with auto/manual selector switches with 1 Nos. spare push button station Red & Green.				
	1 No. toggle switch for changing automatic to manual operation of capacitor units.				

S.No.	Item Description	UoM	Qty	Rate	Amount
	(E) Fire Protection				
	Panel should be protected with Aerosol based Fire Suppression System consisting of Aerosol generator having aerosol mass of designed capacity shall be thermally actuated by means of aluminium alloy thermal sensor complying to UL 33 that can be mounted over the generator itself. The housing shall be constructed of stainless steel shell. Housing shall be sealed with a non permeable membrane. Units shall have passed salt spray corrosion testing per BIS / NABL / EN / UL Standard 2127 as part of their listing. Aerosol generated shall be potassium based. Agent shall have no ozone depletion potential and no global warming potential. Agent shall be listed by the US EPA under the SNAP program. Fixed Condensed Aerosol Systems per NFPA 2010. UL approved design density of the aerosol should be less than 100g/cu.mtr for Class A, B & C fires as per NFPA. The Aerosol generator should have self life of 15 years. Aerosol generator shall be supplied with Stainless steel Bracket & Thermal Sensor. Make Stat-X or equivalent.				
	LT CABLE				
6	Supply of following sizes of XLPE insulated PVC sheathed, aluminium conductor, armoured, power cable of 1.1 KV grade conforming to IS 7098 (Part I), 1988 amended up to date.				
6.01	3.5 C x 35 sq. mm	Mtr.	100	198.00	19,800.00
6.02	3.5C x 240 sq. mm	Mtr.	100	1,038.00	1,03,800.00
6.03	3.5 C x 400 sq. mm	Mtr.	1200	1,557.00	18,68,400.00
7	SAFETY ITEMS				
7.01	Supply and fixing of fire retardant electrically insulated synthetic mat of class A, 2mm thick suitable for all voltages not exceeding 3.3 KV AC and 240V DC system meeting requirements of IS 15652:2006 tested for breakdown strength, tensile/elongation, aging properties, insulation resistance, effect to acid, alkaline, diesel, transformer oil & leakage current test, fire test etc. having minimum width of 1000 mm ±20 mm along with all allied materials such as Pu-resin, Chemi bound, special PVC adhesive, liquid primer etc. in what so ever quantity required to complete the job as per site conditions and as per instructions from Engineer-in-Charge.	Mtr.	25	900.00	22,500.00
7.02	Providing & fixing of set of 4 Nos 9.0 Litre capacity GI bucket painted in post office red Colour with prior coat of red - oxide paint and written with white paint 'Fire' and mounted on MS angle iron frame with bracket of appropriate size and capacity including filling sand etc as per specifications of this tender and directions of Engineer-in-Charge.	Set	1	2,100.00	2,100.00
7.03	Providing of set of 2 Nos. 9 Kg capacity ABC type fire extinguisher with mounting MS angle iron stand with bracket and canopy of appropriate size made of 2 mm thick MS sheet duly painted in Red colour etc complete with painting, grouting etc as required.	Set	2	7,500.00	15,000.00

S.No.	Item Description	UoM	Qty	Rate	Amount
7.04	Providing of set of 2 Nos. 4.5Kg capacity CO2 type fire extinguisher with mounting MS angle iron stand with bracket and canopy of appropriate size made of 2 mm thick MS sheet duly painted in Red colour etc complete with painting, grouting etc as required.	Set	2	6,600.00	13,200.00
	DSR ITEMS				
8	Execution of works as per CPWD, Delhi Schedule of Rate (E&M) 2022 and specification as and when required. Percentage above or below on the rates of DSR (E&M) 2022- (CPWD)-Electrical items worth totalling to Rs. 10,00,000.00 as mentioned below. (Note: Rate shall be quoted in the Indian Rupees only payment of DSR item will be released on the basis of percentage calculation of quoted amount and fixed amount of Rs. 10,00,000/- as clarified below: For Example: If desired to quote 5% above on DSR-2022 rates, the rate column shall be filled as Rs.10,50,000/- If desired to quote 5% below on DSR-2022 rates, the rate column shall be filled as Rs.9,50,000/-) (Rates are exclusive of GST and inclusive of Cess@1% on Rs.10,00,000/-)	JOB	1	11,00,000.00	11,00,000.00

TOTAL 3,22,77,800.00
Discount @20.4337% as pre Reverse Auction dated 11.03.2024 65,95,550.00
Net Amount 2,56,82,250
Say (In Rs.) 2,56,82,250.00

Note : Rates are Exclusive of GST


Jt.GM(Enqq.-E), IMU
CHO-AAI, New Delhi