# भारतीय लोक प्रशासन संस्थान

इन्द्रप्रस्थ एस्टेट, रिंग रोड, नई दिल्ली-110002

# INDIAN INSTITUTE OF PUBLIC ADMINISTRATION

INDRAPRASTHA ESTATE, RING ROAD, NEW DELHI-110002 (INDIA)


Dated: 22.07.2021

**Corrigendum**

With reference to the NOTICE INVITING TENDER Ref. No: J-2014/2/2021-MAINT Dated 08/07/2021 advertized on https://www.iipa.org.in/cms/public/page/tender for SITC of silent type D.G. Set (750 KVA) with AMF (Auto Mains Failure) Panel and with Acoustic Enclosure and buy back of old (250 KVA) DG Set with AMF Panel presently in working condition after dismantling the same.

The following corrigendum is hereby issued for the notice of interested bidders.

1. The Institute has extended the last date of bid submission as follows:

| Particulars | Original date | Revised date |
|---|---|---|
| Bid submission | 3.00 PM on 23/07/2021 | 3.00 PM on 30/07/2021 |
| Technical Bid opening date | 11.00 AM on 26/07/2021 | 11.00 AM on 02/08/2021 |

2. List of Approved Makes has been increased as follows:

| Details of materials | Original list of Approved makes (Manufacturer's name) | Revised list of Approved makes ( Manufacturer's name) |
|---|---|---|
| Diesel engine | Cummins/Kirloskar Oil Engines Limited/ Greaves Cotton | Cummins/Kirloskar Oil Engines Limited/ Greaves Cotton/ Perkins/Baudouin/ Caterpillar |
| Alternator | Cummins /Kirloskar Oil Engines Limited/ Greaves Cotton | Cummins/Kirloskar Oil Engines Limited/ Greaves Cotton/ Perkins/Baudouin/ Caterpillar |

3. The SITC of the new 750 KVA DG set shall be completed within 2 months from issuance of order.
4. The controller considered should be suitable for synchronization with any make of DG purchased in future.
5. Cabling, DG neutral & other earthings shall be done as per revised BOQ.

The other contents remain unchanged.

Yours faithfully

Ashok Sharma 22/07/2021
Electrical Supervisor

Revised BOQ attached

| BILL OF QUANTITIES | | | | | |
|---|---|---|---|---|---|
| S.No | ITEMS/ SCOPE Description | Unit | Qty | Rate in Rs. | Amount in Rs. |
| 1 | Supply, installation, testing and commissioning of 750 KVA DG set with CRDI Diesel engine, complete with base frame, lube oil systems, Radiator, required batteries, electronic, Governor, instrumentation, 990 liters day service fuel tank in sound attenuated enclosure as per CPCB norms, fuel piping as required, residential type exhaust silencers, alarms, engine control panel, utility piping, Resist flex make anti vibration pads. Alternators direct coupled to engine along with static excitation system and AVR panel all accessories complete as required and as per specifications of respective manufacturer standard and as per direction of Engineer-in-charge and taking NOC/ Clearances for various departments as applicable. | No. | 1 | | |
| 2 | PCC type foundation with the ratio of 4:2:1.The length and breadth of the foundation shall be 300 mm more from the respective length and breadth of the DG set. The height of the foundation shall be 650 mm i.e. 200 mm below and 450 mm above the ground level. | No. | 1 | | |
| **3** | **Earthing Pit (Chemical) with chemical power , chamber cover etc. The complete earthing system shall be in accordance with IS 3043 with the following:-** | | | | |
| **3A** | **Copper Pipe Chemical earthing electrode size 40mm x3000mm with back filled compound** | **Nos.** | **2** | | |



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|---|---|---|---|---|---|
| **3B** | **GI Pipe Chemical earthing electrode size 80mm x3000mm with back filled compound** | **Nos.** | **3** | | |
| **4** | **Earthing Strip** | | | | |
| **4A** | **Copper Earthing Strip 50x6mm** | **mtrs** | **12** | | |
| **4A** | **GI Earthing Strip 50x6mm** | **mtrs** | **40** | | |
| 5 | **1100 volt grade XLPE insulated PVC sheathed Aluminium conductor armoured cable with end termination and fixing of bimetallic crimping lugs, Single compression glands with earthing testing and commissioning complete in all respect as required as per site conditions: 4 runs of 3.5 C X 240 Sq.mm (15 meters each run)** | **mtrs** | **60** | | |
| 6 | Control Cable : 12 C X 2.5 sq. mm | mtrs | 30 | | |
| 7 | Exhaust pipe with insulation , cladding , MS Bends , Flanges , other accessories and suitable MS support structure **(one Lightning arrester on top of structure)** | mtrs | 18 | | |
| 8 | Supply, installation, testing and commissioning of AMF Panel complete as per specifications of tender document and direction of the EIC. LT CUM PLC BASED AMF Panel suitable for 1 x 750KVA DG Sets (DG WITH PC 3.3 OR EQV) AND TRANSFORMER INCOMER TRF no.1, 1X1000KVA AND TRF 2 no.2,1X400KVA [THE PLC SHALL PERFORM AMF AS OF NOW AND SHALL HAVE CONTROLLER SUITABLE FOR AMF CUM LOAD MANAGEMENT FOR 2 NUMBER FUTURE DG SETS , VENDOR TO SELECT PLC ACCORDINGLY ] Supply, Installation, Testing and Commissioning of DG Set panel Extendable type fabricated out of 2mm Sheet steel, dust tight, vermin proof, totally enclosed and fully interlocked, IP54 degree of | No. | 1 set | | |



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| | | | | | |
|---|---|---|---|---|---|
| | protection, cubicle type, floor mounting, extensible on both sides, suitable for indoor operation complete with DG controller based Synchronizing or equivalent Module, PLC, switches, plugs & sockets and all required accessories, 8 windows annuciation panel, hooters, selector switches , Control / Power terminals for power / control cable terminations , Bus Bar of Aluminium (E91 ) , internal copper control wiring, KW Transducer,Power supply, Temperature scanner, Push Button/ switches, earth terminal, painting complete as required as per specification & SLD enclosed with the following equipped switchgears and accessories. | | | | |
| 8 A i | DG Synchronizing PC3.3 module or EQV. **The controller considered should be suitable for synchronization with any make of DG purchased in future** | | | | |
| 8A ii | Earth fault protection relay (CDG 11 ALSTOM MAKE of Electro-mechanical / Electronics type), . Alternator protections through Dg controller PC 3.3/equivalent, having inbuilt protection like - Under Voltage Relay, Over Voltage Relay , Under Frequency Relay, Over Frequency Relay, AmpSentry (Alternator thermal protection) protection , Field overload-shutdown ,Overcurrent warning/shutdown ,Loss of sensing voltage shutdown ,Short circuit protection, Reverse power shutdown (32A) ,Reverse Var shutdown (32R,.Breaker fail to close Warning:,Breaker fail to open warning:,Breaker position contact warning: ,Breaker tripped warning: ,Fail to disconnect warning:,Fail to synchronize warning:,Phase sequence sensing warning.Maximum parallel | | | | |



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|---|---|---|---|---|---|
| | time warning protection or All Above Protecitons shall be given by using MICOM 346 of ALSTOM make relay for each DG SET . | | | | |
| 8A iii | Provision of auto load transfer, AMF circuit including interlocking, auto start/stop of DG set, transfer of power from mains and dg , interconnection of control cabling from incoming Mains supply and DG supply control panel, metering protections, transducer & PLC (Compact logic of SIEMENS/SCHNEIDER or equivalent) complete. | | | | |
| 8A iv | ON, OFF & TRIP & RYB phases LED indicating lamp protected by MCB for all Incoming, Outgoing Feeders & Bus couplers complete as required. | | | | |
| 8 A v | Provision of manual Synchronizing in future complete with dual voltmeter, dual frequency meter & check Synchronizing relay , Syncroscope, dark lamp Or inbuilt in PC3.3/equivalent. Therefore above components not applicable / not required. | | | | |
| 8A vi | Intelligent multi function digital meter to read V,A,kVA, KW, kVAR, PF, Hz etc with communication facility (RS485 port) LED display -SCHNEIDER EM6400NG /EQV with required Nos CTs, 2500/5A/15 VA, class 1.0 and control circuit wiring with 2 Amp MCB for controlling for each Mains & DG incoming. | | | | |
| 8 A vii | Battery Charger Single Phase / 25 Amp / 24 Volt DC system of Max Power for each DG Set suitable for charging of engine starting battery with DC Ammeter & DC Voltmeter having in-built trickle / boost facility and interconnecting copper cabling etc complete as required with following INCOMING DG | | | | |



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| B | **INCOMER BREAKER DG 1X750KVA** | | | | |
| 1 | 1No Air Circuit Breaker, 1250Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |
| 2 | Phase indicating light protected by 2 amps MCB's. - 3 nos | | | | |
| 3 | Breaker ON / OFF / TRIP/ Trip circuit healthy indicating lights with control MCB's. - 1set | | | | |
| 4 | 0-500V voltmeter with volt meter selector switch and frequency meter including control fuses. | | | | |
| 5 | 1 no 630/5A, 5p10VA FOR EARTH FAULT RELAY | | | | |
| 6 | 3 nos.1250/5A, 15VA FOR METERING | | | | |
| 7 | Grid supply voltage sensing relay - 2 NUMBERS | | | | |



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| 8 | Battery charger voltmeter of range 0-50V and | | | | |
| 9 | ammeter of range 0-50A for trickle and boost charging | | | | |
| 10 | Exciter field DC voltmeter and ammeter | | | | |
| 11 | Three indicating lamps "load on set', 'Load on Mains' and " Set fail to start'. | | | | |
| 12 | 8 Window alarm annunicator panel with hooter, push buttons, aux. Contactors etc as required as per specification. | | | | |
| 13 | Battery charger as described in Specifications and described below: | | | | |
| 14 | Earth fault relay (51G) | | | | |
| C | **INCOMER BREAKER MAINS 1X1000KVA** | | | | |
| 1 | 1No Air Circuit Breaker, 1600Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |



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| 2 | Phase indicating light protected by 2 amps MCB's. - 3 nos | | | | |
| 3 | Breaker ON / OFF / TRIP/ Trip circuit healthy indicating lights with control MCB's. - 1set | | | | |
| 4 | 0-500V voltmeter with volt meter selector switch and frequency meter including control fuses. | | | | |
| 5 | 3 nos.1600/5A, 15VA FOR METERING | | | | |
| 6 | OVER VOLTAGE RELAY | | | | |
| 7 | UNDER VOLTAGE RELAY | | | | |
| D | **INCOMER BREAKER MAINS 1X400KVA** | | | | |
| 1 | 1No Air Circuit Breaker, 1000Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |
| 2 | Phase indicating light protected by 2 amps MCB's. - 3 nos | | | | |



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| | | | | | |
|---|---|---|---|---|---|
| 3 | Breaker ON / OFF / TRIP/ Trip circuit healthy indicating lights with control MCB's. - 1set | | | | |
| 4 | 0-500V voltmeter with volt meter selector switch and frequency meter including control fuses. | | | | |
| 5 | 3 nos.1000/5A, 15VA FOR METERING | | | | |
| 6 | OVER VOLTAGE RELAY | | | | |
| 7 | UNDER VOLTAGE RELAY | | | | |
| E | **Bus Bars** | | | | |
| | 3200 Amps Rating with Current density 0.8A/Sqmm . Aluminium bus bars with heat shrinkable coloured sleeves and i/c DMC / SMC bus bars supports at required intervals complete for cross section, size supports & their spacing etc. for withstanding fault level of minimum 50kA capacity for one second (1Sets) | | | | |
| F | **OUTGOING BREAKERS** | | | | |
| i | 1No Air Circuit Breaker, 1600Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Manually Operated drawout type (MDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent with all protection L&T /ABB Make | | | | |



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| ii | 1No Air Circuit Breaker, 1250Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Manually Operated drawout type (MDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent with all protection L&T /ABB Make | | | | |
| iii | 1No Air Circuit Breaker, 800Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Manually Operated drawout type (MDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent with all protection L&T /ABB Make | | | | |



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| G | **BUS COUPLER BREAKERS** | | | | |
| | 1No Air Circuit Breaker, 1600Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |
| | LOGIC OF OPERATION | | | | |
| | 1) Condition 1 : Initially the load shall be taken by transformer 1x1000KVA and 1X400kva transformer which shall charge the individual bus, bus coupler shall be in open position . | | | | |
| | 2) Condition 2 : In case transformer fails same shall be sensed via VMRT and dg set shall be started , bus coupler shall be closed and dg shall feed the whole bus . | | | | |
| | 3) Condition 3 : In case transformer are back in line the dg shall be closed after cooling off time | | | | |



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| | NOTE : The PLC shall currently run for amf only . 2 more dg sets shall be added in future which will synchronize with the existing 750KVA DG . **The controller considered should be suitable for synchronization with any make of DG purchased in future.** Vendor shall select plc for upgradation for amf cum load management of total 3 dg sets in future | | | | |
| | **** Note The protection/relay etc. already provided in the DG controller itself shall not be repeated/provided in the AMF panel** | | | | |
| | Total | | | | |
| | GST | | | | |
| "A" | Grand Total | | | | |
| | | | | | |
| "B" | Description | Unit | Qty | Rate | Amount |
| | Dismantling of old 250 KVA DG with AMF Panel and Buy Back | Each | 1 | | |
| | Net Amount after subtracting the cost of old DG "A"-"B" | Rs._____ | | | |

Net Amount In words:



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# Indian Institute of Public Administration

## Indraprastha Estate, Ring Road, New Delhi-110002.

## Invites tender for

**FOR**

# Supply, Installation, Testing and Commissioning of silent type D.G. Set (750 KVA) with AMF (Auto Mains Failure) Panel and with Acoustic and buy back of old (250 KVA) DG Set with AMF Panel



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**INDEX**




(Ashok Sharma)
Electrical Supervisor



Bidder's Seal and Signature

# PART-1 (TECHNICAL BID)



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**Indian Institute of Public Administration**
**Indraprastha Estate, Ring Road, New Delhi-110002**

Ref. **No:** J-2014/2/2021-MAINT Dated: 08/07/2021

**NOTICE INVITING TENDER**

Indian Institute of Public Administration New Delhi invites sealed tender for SITC of DG set works from original Equipment manufacturer (O.E.M.) along with buy back of old DG set with AMF Panel.

Name of Work: **SITC of silent type D.G. Set (750 KVA) with AMF (Auto Mains Failure) Panel and with Acoustic Enclosure and buy back of old (250 KVA) DG Set with AMF Panel presently in working condition after dismantling the same.**

| | |
|---|---|
| Earnest Money Deposit | Rs. 2,00,000/- (Exempted for firm registered with MSME +NSIC). |
| Time Period | 3 months |
| Cost of Tender Document | Nil. |
| Last date for submission of tender document | **23/07/2021 up to 3.00 PM** |
| Date of Opening of Technical Bid | **26/07/2021 at 11 A.M.** |

- Separate envelope(s) should be superscribed as "EMD", "Technical Bid" and "Price Bid".
- Tender document may be downloaded from IIPA website from **08/07/2021.**
- Tender without requisite EMD shall be rejected.
- The date of opening of Price Bid will be intimated to the qualified agencies separately if not opened on the same day.
- Please submit the documents as specified in the Tender
- A pre-bid meeting will be held at **IIPA at 11.00 am** on **14/07/ 2021** with the prospective bidders, to clarify any issues pertaining to the tender and to inspect the site of installation of the DG. The bidders are advised to thoroughly read the tender document before being present for the pre-bid meeting.

08/07/2021

(Ashok Sharma)
Electrical Supervisor



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**INDIAN INSTITUTE OF PUBLIC ADMINISTRATION**

**INDRAPRASTHA ESTATE, RING ROAD, NEW DELHI-110002.**

Ref. **No:** J-2014/2/2021-MAINT Dated:0 8 / 0 7 / 2 0 2 1

## TENDER NOTICE

Sealed offers are invited by **23/07/2021 up to 3.00 PM** for and on behalf of Director General, IIPA for **SITC of silent type D.G. Set (750 KVA) with AMF (Auto Mains Failure ) Panel and with Acoustic Enclosure and buy back of old (250 KVA) DG Set with AMF Panel presently in working condition, after dismantling the same**. Tender document can be downloaded from IIPA website from 08/07/2021.

**Corrigendum/Addendum if any would be to this NIT would be loaded in our website after pre-bid meeting. However, the IIPA reserves the right to cancel the tender without assigning any reason thereof.**

08/07/2021

(Ashok Sharma)
Electrical Supervisor



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## INFORMATION AND INSTRUCTIONS FOR TENDERERS :

1. The details of work to be carried out and its scope is given in the "Notice Inviting Tender" which also indicate a brief description of the project where work is to be executed. The tenderers are advised to study the same carefully before tendering and they shall be deemed to have fully acquainted themselves with the same.

2. The tenderers, in their own interest, are also advised to inspect and examine the site and its surroundings and satisfy themselves, before submitting their tenders, in respect of the site conditions including, but not restricting to, the following which may influence or effect the work or cost thereof under the contract.

a) Site conditions including access to the site, existing and other means of transport/communication for use by him in connection with the work.

b) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or affect the work or the cost hereof under this contract.

3. The offer should be valid for 75 (seventy-five) days from the date of opening of the tender.

4. The tender should be submitted in the prescribed form and the same should be signed properly as laid down hereunder :-

   a) If the tender is submitted by an individual, it shall be signed by the proprietor above his full name and full name of his firm with its current business address, subject to verification as required.

   b) If the tender is submitted by a firm in partnership, it shall be signed by all the partners of the firm above their full name and current business addresses, or by a partner holding the power of attorney of the firm or the person authorized to sign the specific tender authorized by any of the partner. A copy of the partnership deed and authorization letter for person signing the tender must be enclosed with the bid.

   c) If the tender is submitted by a limited company or a limited Corporation, it shall be signed by a duly authorized person holding the power of attorney for signing the tender in which case a certified copy of the power of attorney shall accompany the tender. Such limited companyor corporation may be required to furnish satisfactory evidence of its existence.

5. a) If during the tender validity period, the tenderer withdraws his tender, the earnest money deposit shall be forfeited.

   (b) The earnest money deposit will be returned to the unsuccessful tenderers after expiryof validity period or on finalization of tender whichever is earlier.

6. The rates shall be written both in words and in figures. Tenderer shall also show the total of each item, the total of each schedule and the grand total of the whole contract, corrections, if any, shall be made by crossing out, initialing, dating and rewriting. In



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case of conflict between the figures and words in the rates, the later shall prevail.

7. IIPA shall have the right of rejecting all or any of the tenders without any notice and also will not be bound toaccept the lowest or any other tender and the IIPA's decision in this regard shall be final and binding on all tenderers.

8. Tenders will be opened in the presence of tenderers who may be present at the time of opening of tender. IIPA's Officers will open the tender of the absentee tenderer, prepares a statement of the attested and unattested corrections in the tender over their signatures. Such a list shall then be binding on the absentee tenderer.

9. The tenderers shall not be entitled during the period of validity of their offers, to revoke or withdraw their tenders or vary any terms in regard thereof without the consent of the IIPA. in writing. tenderer shall get his earnest money paid alongwith the tender forfeited for any violation of this clause.

10. If the tenderer fails to commence the work given in the scope of work within 3 weeks from the date of issue of written order to commence the work, IIPA shall have a right toforfeit the earnest money deposited by the tenderer absolutely without prejudice to other rights and remedies available with IIPA.

11. The "Notice Inviting Tender" and this "Information and Instructions for Tenderer" shall form part of the Tender Documents.

12. Any addendum/corrigendum issued before the date of opening of tender will form part of tender documents.

13. Intending tenderers should visit the site, satisfy themselves regarding the site conditions, location of site, access roads to the site and collect all relevant information required before tendering for the work, tenderer shall be deemed to have full knowledge of the site, specifications and no excuse as regard to want of information or clarification shall be considered after the tender has been received.

14. Complete tender document duly signed and stamped should be submitted by bidder before the due date of tender submission. There should be Three separate envelopes for EMD, Technical bid and Financial Bid. All the envelopes should be submitted in a single envelope marked as "EMD-Techno-Commercial Bid" for "Name of Work" and other details.

Ashok Sharma 08/07/2021

(Ashok Sharma)
Electrical Supervisor



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# DECLARATION

To,

Indian Institute of Public Administration
Indraprastha Estate, Ring Road,
New Delhi - 110002

**Dear Sir,**

I/We have read and examined the following tender documents relating to the work of SITC of silent type D.G. Set (750 KVA) with AMF (Auto Mains Failure ) Panel and with Acoustic Enclosure and buy back of old (250 KVA) DG set with AMF Panel after dismantling the same at IIPA, New Delhi.

1. Notice inviting tender
2. Information & instructions for tenderers
3. Declaration form & warranty form
4. General conditions of contract
5. Special conditions of contract
6. Criteria for technical and financial qualification
7. Bill of Quantities

I/We hereby, tender for the works referred to the documents mentioned above upon the terms and conditions contained or referred to in the aforesaid documents and in accordance with the details given therein and at the rates contained in Bill of Quantities within the period(s) of completion as given in Notice Inviting Tenders and subject to such terms and conditions as stipulated.

I/We agree to keep this tender open for acceptance for 75 days from the date of opening thereof and also agree not to make any modifications in its terms and conditions of our own accord.

A sum of “Rs. 2,00,000/-“ is hereby forwarded in form of Demand draft “ OR “MSME registration certificate alongwith NSIC registration certificate for exemption to deposit EMD.

I/We agree if I/We fail to keep the validity of tender open, as aforesaid, or make any modification in the terms and conditions of my/our tender of our own accord and/or after the acceptance of our tender if I/We fail to commence the work within the stipulated time, as provided in the document referred to in paragraph 1 above, I/We shall become liable for forfeiture of my/our earnest money, as aforesaid, and IIPA shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Should this tender be accepted, I/We agree to abide by and fulfill all the terms and conditions and provisions of the above mentioned tender documents.

I/We certify that the tender submitted by me/is strictly in accordance with the terms, conditions, specifications, etc. as contained in your tender documents, referred to in paragraph above, and it is further certified that it does not contain any deviations to the aforesaid document.

Witness

Signature in the capacity of:

_____

Duly authorized to sign the tender
On behalf of the (in block letter)

_____
_____
_____

Date _____



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## WARRANTY FORM

M/s. _____ **(O.E.M.)** having its registered office at _____(hereinafter referred to as the Contractor) having carefully studied all the documents, specifications, drawings etc. pertaining to the contract for work of **SITC of silent type D.G. Set (750 KVA) with AMF (Auto Mains Failure ) Panel and with Acoustic Enclosure and buy back of old (250 KVA) DG set with AMF panel after dismantling the same, at IIPA New Delhi**.

DO HEREBY WARRANTY THAT

1. The Contractor is familiar with all the requirements of the contract.
2. The Contractor has investigated the site and satisfied himself regarding the character of the work and local conditions that may affect the work or its performance.
3. The Contractor is satisfied that the work can be performed and completed as required in the contract.
4. The Contractor has had no collusion with other contract.
5. The Contractor has had no collusion with other contractors, with any of the men of the Engineer- in-charge or with any other person in Department execute the said works according to the terms and conditions of the contract.
6. The Contractor has not been influenced by any statement or promise of the Department of Engineer-in-charge but only the contract, documents.
7. The Contractor is financially solvent.
8. The Contractor is experienced and competent to perform the contract to the satisfaction of the Engineer-in-charge.
9. The statement submitted by the Contractor is true.
10. The Contractor is familiar with all general and special laws, acts, ordinance, rules and regulations of the municipalities, district, state and central govt. that may affect the work, its performance or personnel employed therein.
11. The contractor/vendor is not associated with IIPA staff in any formal & informal relations.

Dated_____ For & behalf of the O.E.M.



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**General Terms and Conditions for SITC of silent type D.G. Set (750 KVA) with AMF (Auto Mains Failure) Panel and with Acoustic Enclosure and buy back of old (250 KVA ) DG Set with AMF Panel after dismantling.**

## 1. GENERAL

These conditions related to the supply, delivery, installation, testing and commissioning of new DG Set and buy back of old 250 KV for IIPA, New Delhi**.**

## 2. SCOPE

The scope under this contract includes supply and delivery, installation, testing and commissioning of the equipment listed in the specification, clearances as required for SITC and running of new DG as required from various Departments accompanied with these conditions in accordance with the requirements laid down in the specifications and relevant Indian Standards and buy back of old DG set with AMF panel presently in working condition after dismantling of the old DG set

## 3. PRICE

The price should be quoted at FOR destination and shall include all packing, freight, handling and all other charges for delivering the equipment at the above site including all taxes and duties applicable at the time of supply installation, testing and commissioning, load trial and handing over to the owner.

## 4. a) DELIVERY SCHEDULE

The SITC shall be completed within 3 months from issuance of order

### b) PLACE OF DELIVERY

The DG set shall be installed at **IIPA, New Delhi** at the place where the old DG set is installed or any adjacent location. The contractor should acquaint himself above the place of delivery before quoting offer.

## 5. INSPECTION

Inspection of equipment shall be carried out at manufacturer's work in the presence of the representative of IIPA's if required by IIPA.

## 6. DEFECT LIABILITY PERIOD

The contractor shall guarantee the equipment against all defects of materials and workmanship for a period of 24 months from the date of commissioning of the equipment, as certified by the Engineer-in-charge. Any defects arising during the Guarantee period shall be rectified and made good by the contractor at his own expenses to the satisfaction of the EIC.



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## 7. PAYMENT TERMS

i) 80% of the total cost of DG set shall be released to the contractor at the time of supply 10% after installation and 5% after commissioning at site.
ii) Balance 5% of the total cost shall only be released 2 years after successful testing and commissioning of the DG set or against Bank Guarantee. The Bank Guarantee shall be released after liability period e.i. 2 years.

## 8. WARRANTEE / GUARANTEE

24 months from the date of commissioning of the equipment.

## 9. TRAINING OF OWNER`S PERSONNEL

The contractor shall train Owner's Personnel to become proficient in operating the equipment installed. Training shall be done during the Installation and Commissioning/ as required by IIPA .

The period of training shall be adequate and mutually agreed upon by IIPA and Contractor.

Nothing extra shall be paid to the contractor for training Owner's Personnel.

## 10. COMPENSATION FOR DELAY (LIQUIDATED DAMAGES)

If the contractor fails to maintain the required progress in terms of clauses or to complete the work and clear the site on or before the contract or extended date period of completion, he shall, without prejudice to any other right or remedy of IIPA on account of such breach, pay as agreed compensation amount calculated as stipulated below or such smaller amount as be fixed by the authority on the contract value of the work of every week that the progress incomplete. This will also apply to items or group of items for which separate period of completion has been specified. For this purpose the term 'Contract Value' shall be the value at contract rates of the work as ordered. The Liquidated Damages and penalty shall be @ 0.5% (half percent) of the cost of every incomplete work per week of delay subject to a maximum of 5% of the total cost. The amount of compensation/ liquidity damage may be adjusted or set-off against any sum payable to the contractor under this or any other contract with IIPA.



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**TECHNICAL SPECIFICATION ALONGWITH SCOPE**

- 750 KVA Diesel Generator.
- Sound proof, weather proof enclosure.
- Small footprint while meeting the performance & CPCB II Norms
- Confirms to noise level norms declared by CPCB.
- The Enclosure is of modular construction with the provision to assemble and dismantle easily.
- The Enclosure is fabricated in 16 SWG-CRCA- sheet.
- The sheet metal components are seven tank pretreated and is Polyster based powder coated (inside as well as outside) for long life.
- All nuts-bolts, hardware are of stainless steel.
- Battery is provided inside the Enclosure.
- Doors are gasketed with high quality EPDN gaskets to avoid leakage of sound.
- Sound proofing of enclosure is done with high quality rock wool of suitable thickness and density.
- A special Residential grade silences is provided to control exhaust noise.
- Specially designed sound attenuators are provided to control sound at air entry& exit points inside the enclosure.
- To make the system vibration free, engine and alternator are mounted on specially designed anti-vibration pads mounted on Base frame.
- The enclosure is designed and layout of the equipment is such that there is easy access to serviceable parts.
- Adequate ventilation is provided to meet air requirement for combustion & heat removal.
- Arrangement of illumination inside the closure.
- The Silent DG set has the following safeties:
  - o High water temperature.
  - o Low lub oil pressure.
  - o High enclosure temperature.
  - o Emergency stop push button outside the Enclosure.

- Engine/ Alternator used for maximum silent DG set carries a warranty for their respective model.
- Noise level is ≤75 dB(A) at distance of 1mtr. In open free field environment as per ISO 8528 part 10.

System Conditions. The DG set shall be designed to be operated under following system parameters:-

| | | | |
|---|---|---|---|
| (a) | System Voltage | - | 415 V |
| (b) | Number of Phases | - | 3 Ph. |
| (c) | Frequency | - | 50 Hz. |
| (d) | Neutral Point | - | Solidly Earthed. |
| (e) | Power Factor | - | Maximum 0.8 lagging. |
| (f) | Overload Capacity | - | 10 % for one hour, every 12 hours. |



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**DIESEL ENGINE:**

Diesel Engine, 12 cylinders, 4 stroke cycle, Turbo Charger, after cooled, developing minimum 898 BHP at 1500 RPM under NTP conditions of BS:5514. The engine shall be provided with 24 V electrical starting arrangement & shall give the electrical output of 750KVA/600KW at 0.8 power factor, 415 V at the alternator terminal. Only CRDI type Engine is acceptable and engine should be able to bear 10% overload for one hour in any 12 hours duration and be in accordance with ISO 3046.

Other accessories of the engine should be as under:

**COOLING SYSTEM**

- Radiator Cooled
- Engine mounted Water pump
- Thermostats
- Corrosion Inhibitor(if applicable)
- Self contained piping

**FUEL SYSTEM**

- Fuel pump
- Injectors
- Fuel filters – Paper element type
- Self contained piping

**LUBRICATING SYSTEM**

- Oil pump
- Strainer
- Lub oil cooler
- Oil filter – Paper element type
- Self contained piping

**AIR INTAKE SYSTEM**

- Dry type Paper Element filters
- Air intake manifold with necessary connections
- Turbo charged after cooled
- Restriction Indicator

**EXHAUST SYSTEM**

- Exhaust manifold
- Connections suitably optimized to reduce noise.
- Silencers –Residential grade

**GOVERNING SYSTEM**

- Electronic Digital Governor :The engine shall be fitted with an Electric Governor suitable for class A1 as per IS 10000 / BS 5514. The governor is to be directly mounted on the engine to enable the speed variation from idling speed to the maximum load speed and fitted with speed control facilities



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**STARTING SYSTEM**

- Starter, 24V, DC,
- Battery Charging Alternator
- With in-built Regulator

**SAFTY SYSTEM (Engine Protection – Trip)**

- Low lub oil pressure
- High water temperature
- Over speed

**OTHER SYSTEM**

- Flywheel
- Flywheel housing

**MICROPROCESSOR BASED CONTROLLER**

The micro processor based controller for monitoring, metering, protection and control system and with advanced levels of functions for reliability and optimum genset performance. An extensive array of integrated standard control and digital display features eliminate the need for discrete component devices such as the voltage regulator, governor control and protective relays.

The microprocessor contained within the module shall allows for incorporation of a range of complex features like :

- Text based LCD display
- True RMS Voltage
- Current and Power monitoring
- USB Communications
- Engine parameter monitoring.
- Fully configurable inputs for use as alarms or a range of different functions.
- Engine ECU interface to electronic engines.
- Data Logging

**ALTERNATOR:**

| | | |
|---|---|---|
| Manufacturer | : | Preferred of same make as specified for engine |
| Output | : | 750 KVA |
| Power factor | : | 0.8 |
| Rated Generating Voltage | : | 415 Volts |
| Voltage regulation | : | +/-1% all load between no load to full load & factor 0.8 to unity |
| Frequency | : | 50Hz |
| Speed | : | 1500RPM |
| Class of insulation | : | H |
| Winding connection | : | Star connection (all six leads will be brought out of stator frame) |
| Bearings | : | Single Bearing |
| Enclosures | : | Drip proof & screen protected IP-23 |



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Type test report of Alternator must be enclosed with the Bid by Tenderer

The alternator shall be brushless type, drip proof, screen protected, self-exciting, self-regulating type and shall comply with the relevant requirements of specification IEC 60034 or an equivalent Indian standard. The alternator shall be rated for IP-23 protection. The insulation of the winding shall be class H. The insulation shall be suitably impregnated to withstand the site ambient conditions and conform to IS:4722/IS-13364. The alternator should be self-cooling type and shall be complete with all necessary cooling fans, excitation and voltage regulating equipment. Other aspects essential in the Alternator are:-

(a) Voltage Regulation. The alternator shall be capable of maintaining its continuous maximum rated output when operating within +/- 1% of rated voltage and at rated power factor.

(b) Overload Capability. The alternator shall be designed for operation of 10% engine overload at any power factor between unity and rated power factor for a maximum period of one hour in any 12 hour period.

(c) Terminal Box. Terminal Box – Six (06) output terminals to be provided in Alternator Terminal Box. The Generator Terminal Box to be suitable to house necessary cables and should be of non-magnetic material.

(d) Enclosure for Accessories. - All accessories to be enclosed in an enclosure to make it work silently.

(e) Earth Fault Protection.- The Alternator to be provided with Earth Fault Protection

**ESSENTIAL ACCESSORIES:**

One set of essential accessories shall be supplied with each D.G. Set. This set of accessories shall comprise of the following.

**BASE FRAME:**

One no. MS Fabricated Base Frame with lifting facility, suitable to receive the offered engine and alternator duly coupled through a closed coupling.

**FUEL TANK:**

One no. Daily fuel tank of 990 LITRES capacity for each DG set made out of minimum 1.6 mm thick MS sheet complete with standard accessories and fuel piping between fuel tank and diesel engine with pipes of suitable dia complete with valves, level indications and accessories as required as per specifications.



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**BATTERIES:**

For electrical control circuit of 24 volt DC, 2 Nos. batteries of 12 volts 180 Ah each with battery leads for electrical starting of each DG Set.

**SOUND ATTENUATED SYSTEM (THICKNESS OF SHEET – 16 G)**

High class sheet metal fabricated enclosure for reducing the noise level of DG set & also acts as a weather proof housing. Genset will be a integral part of acoustic enclosure and whole construction will be on multi-fold sheet channels. Enclosure construction is fully bolted keeping in view the major service requirements all doors are provided with specially designed hinges and lockable handles. Battery, Fuel tank is housed inside the enclosure.

**ACOUSTIC MATERIALS**

Rock wool in the form of slabs of 50 mm + 50 MM(Canopy) thickness and 64 KG/Metric cube density(Specification ofRock wool conforms to IS 8183).

**VENTILATION**

Acoustic enclosure is designed in such a way that there are no hot pockets around engine and it is provided with suitable designed engine radiator which does not allow the temperature to rise morethan 7 degree Celsius above ambient temperature.

To achieve optimal output and minimum sound level from the DG set, suitable openings with acoustic hoods are provide for increasing the inflow of air required for combustion & forced ventilation. Air intake system as per the recommendations and engine requirement are provided.

The sound control system designed to suppress the sound level to $\leq$75 db maximum at 1 metres distance in open free field environment as per ISO 8528 part 10.

**SILENCER**

Specially designed Residential silencer is to be provided. Silencer & engine exhaust outlet Connected with flexible SS below. Exhaust piping should be M.S. with Aluminium cladding properly clamped and supported on wall /M.S. Structure.

**VIBRATION ISOLATION**

To avoid transfer of vibration from genset to enclosure & surrounding specially designed vibrationisolators are used.
AVM Pads as per engine manufacturer standard are also acceptable



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**CONTROL PANEL (AMF PANEL) FOR DG SET :**

As mentioned in Schedule of items

**Engine metering :**

- Engine Speed
- Oil Pressure
- Coolant Temperature
- Engine Battery Volts
- Engine Run Time
- Engine Fuel Level (in percentage)
- Engine Maintenance Alarm

**Generator metering:**

- Generator Voltage (ph-N)
- Generator Voltage (ph-ph)
- Generator Frequency
- Generator Current (A)
- Generator Load ph-N (kW)
- Generator Total Load (kW)
- Generator Load ph-N (kVA)
- Generator Total Load (kVA)
- Generator Single Phase Power Factors
- Generator Power Factor Average
- Generator Load ph-N (kvar)
- Generator Total Load (kvar)
- Generator Accumulated Load (kWh, kVAh, kvarh)
- Generator Loading Scheme
- Generator Phase Rotation
- Generator Nominal
- Generator Active Configuration

a. Following minimum Protections/Warnings shall be provided :

- Charge Alt Failure,
- Coolant Temp High,
- DC Battery high Voltage,
- DC Battery low voltage,
- Engine Overspeed,
- Engine Overspeed delayed,
- Engine underspeed,
- Fuel Level low,
- Fuel level low switch,
- Gen over current,
- Gen over frequency,



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- Gen over voltage,
- Gen reverse power,
- Gen short circuit,
- Gen under frequency,
- Gen under voltage
- KW Overload,
- Low coolant warning,
- Maintenance due,
- Negative kvar,
- Negative phase sequence,
- Oil pressure low,
- High water temperature,
- Emergency stop

**PACKING**

The materials shall be property packed before dispatch to avoid damage during transport, storage and handling.

Proper arrangement shall be provided to handle the equipment.

**INSPECTION , INSTALLATION ,ERECTION, TESTING AND COMMISSIONING**

**(a) Inspection :**

IIPA reserve the right to carry out the inspection of DG Set at manufacturer works. Supplier shall do all the arrangements accordingly.

**INSTALLATION , TESTING AND COMMISSIONING :**

**a- PCC Foundation :**The Contractor shall provide PCC type foundation with the ratio of 4:2:1.The length and breadth of the foundation shall be 300 mm more from the respective length and breadth of the DG set. The height of the foundation shall be 650 mm i.e. 200 mm below and 450 mm above the ground level.

**b- Earthing :**The generator set, control panel, as well as the neutral of the generator shall be effectively earthed.The Contractor shall provide 4 Nos. Earthing Pits (Chemical) with chemical powder , chamber cover etc along with total 24 mtrs of GI Strip/as required as per site condition (6 mtr. with each Pit/as required as per site condition)

**c- Cabling :**Power cabling upto 40 mtrs distance/as required shall be done by the contractor. Necessary aluminium power cable of suitable cable glands, cable end lugs, PVC numbering ferrules, tapes etc. shall be supplied and installed by the contractor.



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**d- Exhaust Piping :** Emission of the exhaust gas should be in accordance with the norms of CPCB-II. Exhaust pipe as required as per norms above nearest building should be provided with DG Set . The supporting structure for exhaust pipe shall be provided by the firm. Exhaust gas pipe of suitable size shall be provided for DG Set so as to discharge the exhaust gas. The material of construction for interconnecting pipes, pipe fittings, exhaust pipes, bolts and nuts along with support structure shall be as per relevant standards and suitable to withstand the temperature of the gas/liquid within the pipes and the environmental conditions. Exhaust pipes shall be cladded with rockwool insulation for 50mm thickness and covered with aluminum sheet



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**(a) Testing and Commissioning :**

The Contractor shall carry out erection, testing and commissioning of the diesel generator set with Standard Control Panel. The DG set shall be installed on AVM pads. The complete work shall be carried out as per manufacturer's manuals, drawings etc.

The Diesel Generator set shall run at maximum available load up to the rated load as per prevailed ambient condition at site for minimum 2 hours. During this test, operation of all safety devices and overall operation of electrical system are to be tested at site. This test will be witnessed by the Representative of the Contractor/Supplier.

The contractor will provide free of cost all consumable items like diesel, mobile oil, grease, water, electricity, cotton waste etc. for testing the DG set.

**OTHER SPECIFIC TERMS**

1. Warranty : 24 months from date of commissioning.
2. Engine and Alternator must be of same make.
3. Panel and Acoustic Enclosure make must be of same manufacturer.
4. Design of Acoustic Enclosure must be as per Engine Manufacturer's design only.
5. SFC should not be more than 196.57 gm/kw-hr.
6. Shelf life of the DG Set should be 15 years.
7. Any type of statutory approval required for installation, commissioning and running of DG will be in the scope of the Contractor.
8. Any type of Civil or electrical work not given in specifications is necessary for SITC DG and is not included elsewhere in the document shall deemed to be in the scope of the contractor.



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**DATA SHEET**

Diesel Generator

1.0 ENGINE

| | |
|---|---|
| 1.1 Rating | |
| i. Minimum Engine rating | Matching |
| ii. Altitude (m) | Less than 1000 m above mean sea level |
| iii. Air humidity | 30% min. 95% max. |
| iv. Air temperature (*C) | Average 40 deg C |
| v. Duty | Prime Continuous rating duty at specified ambient airTemperature of 40 º C |
| 1.2 Overload capacity for one hour | 10% over the continuous rating. In 12w hours of continuous running. |
| 1.3 Governor | Electronic Type |
| 1.4 Starting | |
| i. Method | Electric |
| ii. No. of auto starts | 3 (three) |
| iii. Selectivity | Auto/Manual/Test |
| 1.5 Cooling system | |
| i) Radiator | Yes |
| 1.6 Exhaust system | |
| i) Silencer | 2 Nos. as required for Residential duty |
| ii) Flexible connection | 1 No. for each exhaust pipe near the engine |
| iii) Fuel level indicator (low) | Audible as well as visual alarm |
| iv) Oil pressure gauge | Yes |
| 1.7 Sundry fittings | |
| i. Vibration mounts | Yes, AVM Pads shall be provided |

2.0 ALTERNATOR

| | |
|---|---|
| 2.1 Rating at 40 Degree C (Ambient air temp.) | 750 KVA (600 KW) |
| Emergency duty | 10% over load for 1 hour in 12 hours |
| 2.2 Minimum efficiency % | 94.00 % @ 100% load |
| 2.3 Excitation system | Brush less self excited |
| 2.4 Over speed | 1.2 times rated speed for 2 min |
| 2.5 Terminal box | Suitable for cables as specified |

3.0 FUEL OIL FACILITY



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| | |
|---|---|
| 3.1 Day tank (14/16 SWG l) | 990 liters complete with over flow, drain, filter etc. within enclosure |
| 4.0 Acoustic enclosure cooling | Radiator cooled |

5.0 Battery Charger

| | | | |
|---|---|---|---|
| i) | Type | : | SMPS based |
| ii) | Charging System | : | Automatic float and boost charging |
| iii) | Input voltage | : | 230V 1 phase, 50 Hz. Or<br>415V , 3 phase, 50 Hz. |
| iv) | Capacity | : | Adequate to restore discharged battery in 12 hours. |

Notes- Deviation if any, from the data sheet shall be specifically brought out by the tenderer.



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**LIST OF APPROVED MAKES**

| Item no. | Details of materials | Manufacturer's name |
|---|---|---|
| 1. | Diesel engine | Cummins/Kirloskar Oil Engines Limited/ Greaves Cotton |
| 2. | Alternator | Cummins /Kirloskar Oil Engines Limited/ Greaves Cotton |
| 3. | Make of Contractor | Kirloskar, L&T/Siemens/Andrew Yule or equivalent. |
| 4. | Make of Meter | AE/IMP or equivalent |
| 5. | Make of HRC Fuses | L&T/Standard/EE or equivalent |
| 6. | Battery | Amron /Exide/ equivalent |
| 7. | Controller | Should be of engine manufacture make |
| 8. | Battery Charger | Should be of engine manufacture make |
| 9. | Complete AMF Panel | DG Set manufacturer make |



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## SPECIAL CONDITIONS OF CONTRACT

1. The bill of quantities are as per the detail enclosed with this tender documents.

2. **Price variation**:

   Quantities given in the tender document may increase or decrease. No extra payment shall be made for variation in quantities, whatever may to the percentage of increase or decrease in the quantities of any item.

3. **Mobilization advance**:

   No mobilization advance will be paid.

4. **Taxes, duties, levies etc.:**

   The contractor shall be responsible for the payment of all taxes, duties, levies, octroi etc. all materials articles that may be used in this work. Any increase in the aforesaid taxes, duties and levies etc. that may arise during the currency of the contract shall not be paid to the contractor by IIPA.

5. All the materials to be incorporated in the works under this contract must be of reputed makes and /or as approved by the Engineer-in-charge and as given in approved makes list.

6. **Payment Terms :**

   80% of the total cost of DG set shall be released to the contractor at the time of supply 10% after installation 5% after commissioning at site. Balance 5% of the total cost shall only be released 2 years after successful testing and commissioning of the DG set or against Performance Bank Guarantee (PBG). The Bank Guarantee shall be released after liability period e.i 2 years.

   Payment for exhaust pipe with support, Control cable and power cable etc. shall be made on actual measurement basis.

7. **Delivery :**

   Entire work shall be completed with 3 months from date of release of work Order

8. Contractor shall be responsible for any damage to the equipment, machinery or system on account of negligence/ fault of the contractor's authorized staff and the same will have to be made good at his risk and cost.

9. The operating staff will maintain daily log book and get it duly verified from the Engineer-in-Charge or any person authorized by Registrar IIPA.



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## CRITERIA FOR TECHNICAL & FINANCIAL QUALIFICATIONS:-

1. The yearly turnover of the agency should not be less than **Rupees 20 Crores** during the last three years ending 31st March of the previous year. Copy of balance sheet needs to be enclosed.
2. The agency who has earlier worked with govt. department/ PSU's would be preferred.
3. The agency should have independent EPF / ESI code No. or should demonstrate its willingness to obtain the same after the award of work.
4. The agency should have a valid GST registration No.
5. The agency should have sufficient & qualified/ experienced technical man power resources.List of such personal be supplied along with the details of their qualification & experience.
6. The agency should have solvency limit more than Rupees **One crore** .
7. The agency must have successfully completed/executed single work for an amount not lessthan **Rupees 1crore,** two works for an amount not less than **Rupees 40 lakh** and three works for an amount not less than **Rupees 30 lakh** of similar nature.
8. Performance certificate of at least 01 nos. of 750 KVA DG Set (which is counted for the purpose of meeting qualifying criteria) supplied in the last 05 years (to be reckoned from the original date of date of closing of bid.) and working satisfactorily for at least two years shall be enclosed with clear signature and address of the purchaser/firm using the machine where it is installed and commissioned. The certificate shall not be older than one year from the original date of closing of bid.
9. Earnest money must accompany with the tender and the same should only be deposited in the form of a DD from any nationalized bank/ Scheduled bank in favour of Indian Institution of Public Administration, Payable at Delhi. Tender not accompanied by earnest money shall be rejected. Earnest money in any other form is not acceptable. MSME registered firms alongwith NSIC certified firms are exempted from EMD submission. However, if a MSME comes out to be the lowest bidder same has to deposit an amount of Rupees 2,00,000/- as performance guarantee.
10. The rates shall be written both in words and in figures. The tenderer shall also show the total of each item, the total of each schedule and the grand total of the whole contract. Corrections, if any, shall be made by crossing out, initialing, dating and rewriting. In case ofconflict between the figures and words in the rates, the later shall prevail.
11. **Only the Original Equipment Manufacturing (O.E.M)** having suitable infrastructure may apply giving Company's detailed profile, latest ITCC or Copies of latest Income Tax Return and proof of having done the work and giving address, telephone numbers along with performance certificate from their clients, copy of GST Registration Certificate and works Contract Tax Certificate 1985 (Form II, Rule 4(1), Financial statements for the last three financial years and latest solvency certificate of any Nationalized Bank/ Schedule Bank

(Ashok Sharma)
Electrical Supervisor



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# PART-2 (PRICE BID)



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| BILL OF QUANTITIES | | | | | |
|---|---|---|---|---|---|
| S.No | ITEMS/ SCOPE Description | Unit | Qty | Rate in Rs. | Amount in Rs. |
| 1 | Supply, installation, testing and commissioning of 750 KVA DG set with CRDI Diesel engine, complete with base frame, lube oil systems, Radiator, required batteries, electronic, Governor, instrumentation, 990 liters day service fuel tank in sound attenuated enclosure as per CPCB norms, fuel piping as required, residential type exhaust silencers, alarms, engine control panel, utility piping, Resist flex make anti vibration pads. Alternators direct coupled to engine along with static excitation system and AVR panel all accessories complete as required and as per specifications of respective manufacturer standard and as per direction of Engineer-in-charge and taking NOC/ Clearances for various departments as applicable. | No. | 1 | | |
| 2 | PCC type foundation with the ratio of 4:2:1.The length and breadth of the foundation shall be 300 mm more from the respective length and breadth of the DG set. The height of the foundation shall be 650 mm i.e. 200 mm below and 450 mm above the ground level. | No. | 1 | | |
| 3 | Earthing Pit (Chemical) with chemical power , chamber cover etc | No. | 4 | | |
| 4 | Earthing Strip | mtrs | 24 | | |
| 5 | Aluminium Power Cable : 4 runs of 3.5 C X 240 Sq.mm | mtrs | 30 | | |
| 6 | Control Cable : 12 C X 2.5 sq. mm | mtrs | 30 | | |
| 7 | Exhaust pipe with insulation , cladding , MS Bends , Flanges , other accessories and suitable MS support structure | mtrs | 18 | | |



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| | | | | | |
|---|---|---|---|---|---|
| 8 | Supply, installation, testing and commissioning of AMF Panel complete as per specifications of tender document and direction of the EIC. LT CUM PLC BASED AMF Panel suitable for 1 x 750KVA DG Sets (DG WITH PC 3.3 OR EQV) AND TRANSFORMER INCOMER TRF no.1, 1X1000KVA AND TRF 2 no.2,1X400KVA [THE PLC SHALL PERFORM AMF AS OF NOW AND SHALL HAVE CONTROLLER SUITABLE FOR AMF CUM LOAD MANAGEMENT FOR 2 NUMBER FUTURE DG SETS , VENDOR TO SELECT PLC ACCORDINGLY ] Supply, Installation, Testing and Commissioning of DG Set panel Extendable type fabricated out of 2mm Sheet steel, dust tight, vermin proof, totally enclosed and fully interlocked, IP54 degree of protection, cubicle type, floor mounting, extensible on both sides, suitable for indoor operation complete with DG controller based Synchronizing or equivalent Module, PLC, switches, plugs & sockets and all required accessories, 8 windows annuciation panel, hooters, selector switches , Control / Power terminals for power / control cable terminations , Bus Bar of Aluminium (E91 ) , internal copper control wiring, KW Transducer,Power supply, Temperature scanner, Push Button/ switches, earth terminal, painting complete as required as per specification & SLD enclosed with the following equipped switchgears and accessories. | No. | 1 set | | |



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| | | | | | |
|---|---|---|---|---|---|
| 8 A i | DG Synchronizing PC3.3 module or EQV | | | | |
| 8A ii | Earth fault protection relay (CDG 11 ALSTOM MAKE of Electro-mechanical / Electronics type), . Alternator protections through Dg controller PC 3.3, having inbuilt protection like - Under Voltage Relay, Over Voltage Relay , Under Frequency Relay, Over Frequency Relay, AmpSentry (Alternator thermal protection) protection , Field overload-shutdown ,Overcurrent warning/shutdown ,Loss of sensing voltage shutdown ,Short circuit protection, Reverse power shutdown (32A) ,Reverse Var shutdown (32R,.Breaker fail to close Warning:,Breaker fail to open warning:,Breaker position contact warning: ,Breaker tripped warning: ,Fail to disconnect warning:,Fail to synchronize warning:,Phase sequence sensing warning.Maximum parallel time warning protection or All Above Protecitons shall be given by using MICOM 346 of ALSTOM make relay for each DG SET . | | | | |
| 8A iii | Provision of auto load transfer, AMF circuit including interlocking, auto start/stop of DG set, transfer of power from mains and dg , interconnection of control cabling from incoming Mains supply and DG supply control panel, metering protections, transducer & PLC (Compact logic of SIEMENS/SCHNEIDER or equivalent) complete. | | | | |
| 8A iv | ON, OFF & TRIP & RYB phases LED indicating lamp protected by MCB for all Incoming, Outgoing Feeders & Bus couplers complete as required. | | | | |
| 8 A v | Provision of manual Synchronizing in future complete with dual voltmeter, dual frequency meter & check Synchronizing relay , Syncroscope, dark lamp Or inbuilt in PC3.3 . Therefore above components not applicable ./ not required . | | | | |



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| 8A vi | Intelligent multi function digital meter to read V,A,kVA, KW, kVAR, PF, Hz etc with communication facility (RS485 port) LED display - SCHNEIDER EM6400NG /EQV with required Nos CTs, 2500/5A/15 VA, class 1.0 and control circuit wiring with 2 Amp MCB for controlling for each Mains & DG incoming. | | | | |
| 8 A vii | Battery Charger Single Phase / 25 Amp / 24 Volt DC systemof Max Power for each DG Set suitable for charging of engine starting battery with DC Ammeter & DC Voltmeter having in-built trickle / boost facility and interconnecting copper cabling etc complete as required with following INCOMING DG | | | | |
| B | **INCOMER BREAKER DG 1X750KVA** | | | | |
| 1 | 1No Air Circuit Breaker, 1250Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |
| 2 | Phase indicating light protected by 2 amps MCB's. - 3 nos | | | | |
| 3 | Breaker ON / OFF / TRIP/ Trip circuit healthy indicating lights with control MCB's. - 1set | | | | |
| 4 | 0-500V voltmeter with volt meter selector switch and frequency meter including control fuses. | | | | |
| 5 | 1 no 630/5A, 5p10VA FOR EARTH FAULT RELAY | | | | |
| 6 | 3 nos.1250/5A, 15VA FOR METERING | | | | |
| 7 | Grid supply voltage sensing relay - 2 NUMBERS | | | | |
| 8 | Battery charger voltmeter of range 0-50V and | | | | |
| 9 | ammeter of range 0-50A for trickle and boost charging | | | | |
| 10 | Excitor field DC voltmeter and ammeter | | | | |



Bidder's Seal and Signature

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| 11 | Three indicating lamps "load on set', 'Load on Mains' and " Set fail to start'. | | | | |
| 12 | 8 Window alarm annunicator panel with hooter, push buttons, aux. Contactors etc as required as per specification. | | | | |
| 13 | Battery charger as described in Specifications and described below: | | | | |
| 14 | Earth fault relay (51G) | | | | |
| C | **INCOMER BREAKER MAINS 1X1000KVA** | | | | |
| 1 | 1No Air Circuit Breaker, 1600Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |
| 2 | Phase indicating light protected by 2 amps MCB's. - 3 nos | | | | |
| 3 | Breaker ON / OFF / TRIP/ Trip circuit healthy indicating lights with control MCB's. - 1set | | | | |
| 4 | 0-500V voltmeter with volt meter selector switch and frequency meter including control fuses. | | | | |
| 5 | 3 nos.1600/5A, 15VA FOR METERING | | | | |
| 6 | OVER VOLTAGE RELAY | | | | |
| 7 | UNDER VOLTAGE RELAY | | | | |
| D | **INCOMER BREAKER MAINS 1X400KVA** | | | | |



Bidder's Seal and Signature

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|---|---|---|---|---|---|
| 1 | 1No Air Circuit Breaker, 1000Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |
| 2 | Phase indicating light protected by 2 amps MCB's. - 3 nos | | | | |
| 3 | Breaker ON / OFF / TRIP/ Trip circuit healthy indicating lights with control MCB's. - 1set | | | | |
| 4 | 0-500V voltmeter with volt meter selector switch and frequency meter including control fuses. | | | | |
| 5 | 3 nos.1000/5A, 15VA FOR METERING | | | | |
| 6 | OVER VOLTAGE RELAY | | | | |
| 7 | UNDER VOLTAGE RELAY | | | | |
| E | **Bus Bars** | | | | |
| | 3200 Amps Rating with Current density 0.8A/Sqmm . Aluminium bus bars with heat shrinkable coloured sleeves and i/c DMC / SMC bus bars supports at required intervals complete for cross section, size supports & their spacing etc. for withstanding fault level of minimum 50kA capacity for one second (1Sets) | | | | |
| F | **OUTGOING BREAKERS** | | | | |



Bidder's Seal and Signature

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|---|---|---|---|---|---|
| i | 1No Air Circuit Breaker, 1600Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Manually Operated drawout type (MDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent with all protection L&T /ABB Make | | | | |
| ii | 1No Air Circuit Breaker, 1250Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Manually Operated drawout type (MDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent with all protection L&T /ABB Make | | | | |
| iii | 1No Air Circuit Breaker, 800Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Manually Operated drawout type (MDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent with all protection L&T /ABB Make | | | | |



Bidder's Seal and Signature

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| G | **BUS COUPLER BREAKERS** | | | | |
| | 1No Air Circuit Breaker, 1600Amps, 4 Pole, Microprocessor release for O/C S/C E/F releases Horizontal draw out type of minimum fault breaking capacity 50KA (Ics=lcu=Icw for 1.0 sec) Electrically Operated drawout type (EDO), fitted with interlocked door, automatic safety shutters, mechanical ON / OFF and service/ test/ isolated position indicators and frame earthing contact, conforming to IS-60947-2 1993 as amended up-to-date complete with Independent Electrical & manual spring closing mechanism, , Shunt trip coil 24V D.C , U/V release -230V AC Breaker Control Switch - 25A, Test terminal block set, circuits as per standard practice, auxiliary contactors with contacts (minimum 4NO+4NC) for positive interlocking of the breakers, necessary interlocking with PLC auto controls with all protection L&T /ABB Make | | | | |
| | LOGIC OF OPERATION | | | | |
| | 1) Condition 1 : Initially the load shall be taken by transformer 1x1000KVA and 1X400kva transformer which shall charge the individual bus bus coupler shall be in open positiion . | | | | |
| | 2) Condition 2 : In case transformer fails same shall be sensed via VMRT and dg set shall be started , bus coupler shall be closed and dg shall feed the whole bus . | | | | |
| | 3) Condition 3 : In case transformer are back in line the dg shall be closed after cooling off time | | | | |
| | NOTE : The PLC shall currently run for amf only .2 more dg sets shall be added in future which will synchronize with the existing 750KVA DG .The future dg sets shall be procured with PC 3.3 controller only. Vendor shall select plc for upgradation for amf cum load management of total 3 dg sets in future | | | | |
| | **** Note The protection/relay etc. already provided in the DG controller itself shall not be repeated/provided in the AMF panel** | | | | |
| | Total | | | | |
| | GST | | | | |
| "A" | Grand Total | | | | |
| | | | | | |
| "B" | Description | Unit | Qty | Rate | Amount |
| | Dismantling of old 250 KVA DG with AMF Panel and Buy Back | Each | 1 | | |
| | Net Amount after subtracting the cost of old DG | | | | |

Net Amount In words:



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