

**TENDER**

**FOR**

**SITC of silent type D.G. Set (750 KVA) with Mitsubhishi/Perkins/  
Cummines/ Engine or equivalent and sound insulated canopy for NRC  
on Plant Biotechnology, LBS building**

**at**

**IARI Pusa, New Delhi**

**OWNER**

**INDIAN AGRICULTURAL RESEARCH INSTITUTE  
New Delhi**

**PROJECT MANAGEMENT CONSULTANT**

**NATIONAL PROJECTS CONSTRUCTION CORPORATION LTD.  
(A GOVT. OF INDIA ENTERPRISE)**

**C.O : PLOT NO. 67-68, SECTOR -25, FARIDABAD, HARYANA**

**SECTOR OFFICE : DZO, SEC-44, PLOT NO. 148, GURGAON**

**UNIT OFFICE: NEW PUSA UNIT, OLD POLICE STATION, IARI PUSA, NEW DELHI**

Name of Contractor \_\_\_\_\_

Date of application & receipt no. \_\_\_\_\_

Tender issued on \_\_\_\_\_

Date of receipt of tender \_\_\_\_\_

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NPCC Limited  
New Pusa Unit,  
Old Police Station,  
IARI, Pusa, New Delhi

**NATIONAL PROJECTS CONSTRUCTION CORPORATION LTD  
( A GOVT. OF INDIA ENTERPRISE )  
NEW PUSA UNIT, TYPE-III QUARTER, OLD POLICE STATION, IARI, PUSA ,NEW DELHI-12**

Ref. no. 407201/NIT/590

Dated: 28.9.2012

**NOTICE INVITING TENDER**

M/s. National Project Construction Corporation Limited (A Govt. of India Enterprise) on behalf of IARI Pusa, New Delhi invites sealed tenders from **OEM/Authorised Distributor/ Dealers/ Experience holder** of DG set works in 3 (three) envelop system:

Name of Work : **SITC of silent type D.G. Set (750 KVA) with Mitsubhishi/ Perkins/ Cummines / Engine or equivalent and sound insulated canopy for NRC on Plant Biotechnology, LBS building at IARI,Pusa, New Delhi.**

Estimated cost : Rs. 79.00 lacs

Earnest Money Deposit : Rs. **197500** /- In the form of DD in Favour of NPCC Ltd. Payable at New Delhi

Time Period : 3 months

Cost of Tender Document : Rs. 5000/- (Non-refundable in cash/DD in favour of NPCC Ltd. New Delhi.

Last date for submission of tender document : **16.10.2012** upto 3.00pm

Date of Opening of Technical Bid : **16.10.2012** 3.30 pm

- Separate envelope(s) should be superscribed as “EMD”, “Technical Bid” and “Price Bid”.
- Tender document may be obtained from the office of the undersigned between 11.00 AM to 4.00 PM **from** 1.10.12 to 15.10.12. The tender document is available at NPCC Website [www.npcc.gov.in](http://www.npcc.gov.in) for viewing only. Tenderer is required to get the tender document issued from the office of the undersigned before submitting document. The document which are issued from the office will only be entertained.
- Tender without requisite EMD shall be rejected out rightly.
- The date of opening of Price Bid will be intimated to the qualified agencies separately if not opened on the same day.
- Please upload the whole documents to Central Government Portal (CPPP)

**Project Manager  
N.P.C.C. Limited  
New Pusa Unit  
Old Police Station  
IARI Pusa, New Delhi**

**NATIONAL PROJECTS CONSTRUCTION CORPORATION LTD  
( A GOVT. OF INDIA ENTERPRISE )  
NEW PUSA UNIT, OLD POLICE STATION, IARI, PUSA, NEW DELHI-12**

Ref. no. 407201/NIT/590

Dated: 28.9.2012

**TENDER NOTICE**

Sealed offers are invited by **16.10.2012** upto 3.00 PM for and on behalf of IARI for **SITC of silent type D.G. Set (750 KVA) with Mitsubishi/Perkins/ Cumines/ Engine or equivalent and sound insulated canopy for NRC on Plant Biotechnology, LBS building at IARI, Pusa, New Delhi from OEM/Authorised Distributor/ Dealers/ Experience holder of DG set works.** Tender document can be purchased from office of undersigned at New Pusa Unit, Old Police Station, IARI, Pusa , New Delhi.

Corrigendum/Addendum if any to this NIT would be loaded in our website & Central Government Portal (CPPP).

For details log on to our website [www.npcc.gov.in](http://www.npcc.gov.in)

PROJECT MANAGER  
Ph. No. 011-25841029

### **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 required roads 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 effect the work or the cost hereof under this contract.
  - c) The tenderers should note and bear in mind that the NPCC Ltd. shall bear no responsibility for the lack of acquaintance of the site and other conditions or any information relating thereto, on their part. The consequences of the lack of any knowledge, as aforesaid, on the part of the tenderer shall be at their risk and cost and no charges or claims whatsoever consequent upon the lack of any information, knowledge of understanding shall be entertained or payable by the NPCC Ltd.
3. The offer should be valid for **90(Ninety )** 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.
  - 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 by signing the tender in which case a certified copy of the power of attorney shall accompany the tender. A certified copy of the partnership deed and current business address of all the partners of the firm shall accompany the tenders.
  - 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 company or corporation may be required to furnish satisfactory evidence of its existence before the existence before signature.
  - d) All witnesses and sureties shall be persons of status and their full names, occupation and addresses shall be stated below their signatures. All signatures affixed on each page in the tender will be dated.
  - e) The tender for the works shall not be witnessed by a tenderer or tenderers who himself/themselves has/have tendered or who may and has/have tendered for the same works. Failure to observe this condition shall render the tender of the tenderer tendering as well as of the witnessing the tender liable to rejection.

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 expiry of 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 case of conflict between the figures and words in the rates, the later shall prevail.
7. The corporation shall have the right of rejecting all or any of the tenders and split the work between two or more parties or may reduce the scope of work and also will not be bound to accept the lowest or any other tender and the Corporation'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. Corporation's Officers will on opening of 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 NPCC Ltd. 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 02 days from the date of issue of written order to commence the work, the NPCC Ltd. shall have a right to forfeit the earnest money deposited by the tenderer absolutely without prejudice to other rights and remedies available with NPCC Ltd.
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.

Dated : \_\_\_\_\_

Signature of the Contractor

Witness : \_\_\_\_\_

- 1.
- 2.

## DECLARATION

To,

Project Manager,  
NPCC Limited  
New Pusa Unit  
Old Police Station, IARI, Pusa  
New Delhi - 110012

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 Mitsubhishi/Perkins/ Cummines / Engine or equivalent and sound insulated canopy for NRC on Plant Biotechnology, LBS building at IARI,Pusa, New Delhi from OEM/Authorised Distributor/ Dealers/ Experience holder of DG set.**

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 90 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.     /-** is hereby forwarded in form of Demand draft as earnest money.

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 the Corporation 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 1 above, and it is further certified that it does not contain any deviations to the aforesaid document.

Witness

Signature in the capacity of :

Date \_\_\_\_\_

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

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## WARRANTY FORM

M/s. \_\_\_\_\_ 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 Mitsubhishi/Perkins/ Cummines / Engine or equivalent and sound insulated canopy for NRC on Plant Biotechnology, LBS building at IARI,Pusa, New Delhi from OEM/Authorised Distributor/ Dealers/ Experience holder of DG set.**

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.

Dated \_\_\_\_\_

For & behalf of the Contractor



# **GENERAL TERMS AND CONDITIONS FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF DG SET**

## **1. GENERAL**

These conditions related to the supply, delivery, installation, testing and commissioning of DG Set for **NRC on Plant Biotechnology, LBS building at IARI,Pusa, New Delhi.**

## **2. SCOPE**

The scope under this contract includes design, supply and delivery, installation, testing and commissioning of the equipment listed in the specification accompanied with these conditions in accordance with the requirements laid down in the specifications and relevant Indian Standards.

## **3. PRICE**

The price should be quoted at FOR destination and shall include all packing, crating, insurance, 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 supplies shall be completed within 2 months from issuance of order

## **b) PLACE OF DELIVERY**

The DG set shall be installed within **NRC on Plant Biotechnology, LBS building at IARI Pusa, New Delhi** at the designated location. The contractor should acquaint himself above the place of delivery before quoted offer.

## **5. INSPECTION**

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

## **6. DEFECT LIABILITY PERIOD**

The contractor shall guarantee the equipment against all defects of materials and workmanship for a period of 2years 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.

## **7. PAYMENT TERMS**

- i) 80% of the total cost of DG set shall be released to the contractor/agency at the time of delivery at site.
- ii) Balance 15% of the total cost shall only be released after successful testing and commissioning of the DG set.
- iii) Balance 5% payment of the total works (security deposit inclusive of EMD), shall be made after 'defect liability period' of 24 (twenty four) months.

## **8. WARRANTEE / GUARANTEE**

Two Years

**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 before the expiry of the defects liability.

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

Owner's Personnel shall also be trained for routine maintenance work adjustment, testing minor repairs and replacement.

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 the Corporation 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 @ 1% (one 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 the Corporation.

**11. Deduction of DVAT**

NPCC Limited shall deduct TDS on DVAT as per prevailing rules or as applicable from time to time .

**12. Deduction of income tax: NPCC Limited shall deduct income tax at source from all the payments to be made to the contractor in accordance with the provisions of India Income Tax Laws as applicable to the contractor from time to time.**

## TECHNICAL SPECIFICATION

- Compact, Sleek, Manual/ Automatic.
- Sound proof, Weather proof enclosure.
- Confirms to statutory Govt. noise level norms.
- 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 eight tank pretreated and is Polyester based powder coated (inside as well as outside) for long life.
- All nuts-bolts, hardware are of stainless steel.
- Battery is provided in a tray inside the Enclosure.
- Doors are gasketed with high quality EPDM gaskets to avoid leakage of sound.
- Sound proofing of enclosure is done with high quality rock wool conforming to IS 8183 to suitable thickness and density.
- Rock wool is further covered with fiberglass sheet and perforated powder coated sheet.
- A special Hospital grade silencer 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.
- There is an arrangement of illumination inside the enclosure.
- The Silent DG set has the following safeties:
  - High water temperature.
  - Low lub oil pressure.
  - High enclosure temperature.
  - 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.

## **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 an integral part of acoustic enclosure and whole construction will be on multi-fold sheet channels & ISMC sections. 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 100 mm thickness and 64 KG/Metric cube density (Specification of Rock wool conforms to IS 8183).

Further to increase the life of Acoustic material resin coated fibre glass cloth is provided on exposed surface of Rock wool slabs and the panels are supported by perforated sheets.

### **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 more than 7 °C above ambient temperature.

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

- Acoustic hoods with noise splitters provided to block and reduce the sound leakage.
- The sound control system designed to suppress the sound level to 75 db maximum at 1 metres distance in open free field environment as per ISO 8528 part 10.

### **SILENCER**

Specially designed Critical Grade silencer is to be provided. Silencer & engine exhaust outlet Connected with flexible SS below. Exhaust piping should be M.S.C. Class 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 vibration isolators are used.

**DIESEL ENGINE:**

Engine 12 cylinder, 4 stroke cycle, Water cooled developing 890BHP at 1500 RPM under NTP conditions of BS:5514. The engine shall be provided with electrical starting arrangement & shall give the electrical output of 750KVA/600KW at 0.8 power factor, 415 V at the alternator terminal. The engine should be prime power suitable for running minimum 4000 hrs. per year. Other accessories of the engine would be as under:

**COOLING SYSTEM**

- Radiator Cooled
- Engine mounted Water pump
- Thermostats
- Corrosion Inhibitor
- Self contained piping
- Outboard after coolers.

**FUEL SYSTEM**

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

**LUBRICATING SYSTEM**

- Oil pump
- Strainer
- Lub oil cooler-Plate type
- Oil filter – Paper element type
- Bypass filter
- 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
- Stainless steel flexible connections suitably optimized to reduce noise.
- Silencers – **Hospital Grade.**

**GOVERNING SYSTEM**

- Electronic Digital Governor

**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
- Low Coolant oil level(alarm)

**OTHER SYSTEM**

- Flywheel
- Flywheel housing

**POWER COMMAN D GENSET CONTROLS**

The Power Command Control, is a micro processor based generator set monitoring, metering, protection and control system. It offers 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 control system has easy servicing capabilities that allow system parameters to be interrogated, monitored and adjusted with a PC.



**Features.**

- Digital Governing
- Digital voltage regulation
- Amp Sentry protection for true alternator O/C protection
- Analog/bargraph/digital AC output metering
- Battery monitoring system to sense and warn against a weak battery condition
- Digital alarm and status message display
- Gemset monitoring : displays status of all critical engine and generator set functions
- Smart starting control system: Integrated fuel ramping to limit black smoke and frequency overshoot
- Advanced serviceability

**ALTERNATOR:**

Manufacturer	: Stamford/ Kirloskar/ Crompton/ Leroysoner
Output	: 750 KVA
Power factor	: 0.8
Rated Generating Voltage	: 415 Volts
Voltage regulation	: +/-0.5% 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)
Overload Capacity	: 10% for one hour in any 12 hours of operation without exceeding temperature rise limits specified in BS:2613 or BS:5000 when corrected to ambient temperature at site.
Bearings	: Single Bearing
Enclosures	: Drip proof & screen protected IP-23

The alternator shall be of self-excited, self regulated, self ventilated in brushless design, provided with suitable automatic voltage regulator and shall conform to BS:2612 or BS:5000 and shall give rated output at NTP conditions.

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**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 adequately machine Channel Common Base Frame with lifting facility, pre-drilled foundation holes suitable for permanent installation on concrete foundation for direct grouting or on anti-vibration mountings which will be suitable to receive the offered engine and alternator duly coupled through a flexible coupling.

**FUEL TANK:**

One no. Daily fuel tank of 990 LITRES capacity for each DG set made out of 2 mm thick MS sheet complete with standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia complete with valves, level indications and accessories as required as per specifications.

**BATTERIES:**

For electrical control circuit of 24 volt DC, 2 Nos. batteries of 12 volts 160 Ah each of CUMMINS Pulse lite make with battery leads for electrical starting of each DG Set.

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

The Generator control shall be indoor type, floor mounted, dust and vermin proof in sheet steel construction. The panel shall have doors at the front and back for proper maintenance. The panel shall have steel channel fabricated kick-plate and bolted type cable gland plate fitted at the bottom. The panel shall be constructed from 2mm thick steel sheet. All the joints shall have proper gaskets.

Monitoring and control devices shall be housed on the front door. Generally the construction of the panel will be such that various equipments for applications will be housed in compartments. All incoming and outgoing power and control cables shall be from the bottom.

Panel will be equipped complete with relays, timers, Set of CTs for metering and protection & energy analyser to indicate current, phase and line voltage, frequency, power factor, KWH, KVARH & provision for overload, short circuit, restricted earth fault, under frequency, protection contactors, IDMT relays control cabling all complete with inter locking including the following:

- a. 2 no. 1250 Amp 50 KA 4 pole motorized electrically operated draw out with cradle type 3 position ACB with microprocessor based release for O/C & E/F and shunt trip
- b. Auto/Manual/ Test/ off selector switch.
- c. Over voltage relay, reverse power relay and under voltage relay.
- d. Set of CT's for metering 15 VA class I and protection 15 P 10 accuracy.
- e. Energy analyser unit to indicate current voltage frequency power factor and KWH.
- f. Indicating lamps for load on mains and load on set.
- g. Battery charger, complete with transformer/ rectifier, D.C. voltmeter and ammeter, selection switch for trickle off and boost etc. as required.
- h. Main supply failure monitor.
- i. Supply failure timer.
- j. Restoration timer.
- k. Control unit with three impulse automatic engine Start/ Stop and failure to start lock out.
- l. Impulse counter with locking and reset facility.
- m. On/ OFF Control circuit switch with indicator.
- n. Audio / Visual annunciation for :
  - i. High water temperature
  - ii. Low lubricating oil pressure
  - iii. Engine over speed.
  - iv. Engine fails to start.
  - v. Full load/ maximum load warranty.
  - vi. Required control cabling from AMF Panel to DG Set and ACB's.
- o Bypass/ 4 pole arrangement with ON LOAD change over Switch of capacity not less than 1250 amp. As required- 2 nos.
- p Fuse for instrument

## DATA SHEET

### Diesel Generator

#### 1.0 ENGINE

##### 1.1 Rating

- |                          |   |
|--------------------------|---|
| i. Minimum Engine rating | Matching  |
| ii. Altitude (m)         | Less than 1000m above mean sea level                                  |
| iii. Air humidity        | 30% min. 95% max.   |
| iv. Air temperature (*C) | Minimum 02  |
|                          | Maximum 50  |
|                          | Average 40  |
| v. Duty                  | Continuous rating duty at specified ambient air Temperature of 45 ° C |
| vi. Standard             | BS 5514 and ISO 3046  |

- |                                    |   |
|------------------------------------|---|
| 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   |
| v) Thermo meters for lub. Oil   | Yes   |
| vi) Hour counter                | Yes   |

##### 1.7 Sundry fittings

- |                     |  |     |
|---------------------|--|-----|
| i. Vibration mounts | Yes, rubber in shear or any other type with minimum static deflection on load. | 6mm |
|---------------------|--|-----|

#### 2.0 ALTERNATOR

##### 2.1 Rating at 45 Degree C

- |                                      |                                      |
|--------------------------------------|--------------------------------------|
| (Ambient air temp.) Continuous duty. | 750 KVA (600 KW)                     |
| Emergency duty                       | 10% over load for 1 hour in 12 hours |

- |                          |      |
|--------------------------|------|
| 2.2 Minimum efficiency % | 91.0 |
|--------------------------|------|

- |                       |   |
|-----------------------|---|
| 2.3 Excitation system | Brush less exciter with rotating diode assembly |
|-----------------------|---|

- |                |     |
|----------------|-----|
| 2.4 Over speed | 120 |
|----------------|-----|

- |                  |                                  |
|------------------|----------------------------------|
| 2.5 Terminal box | Suitable for cables as specified |
|------------------|----------------------------------|

### 3.0 FUEL OIL FACILITY

3.1 Day tank (14 SWG steel)	990 liters complete with over flow, drain, filter etc. within enclosure
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4.0 Acoustic enclosure cooling	Radiator cooled
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### ENCLOSURE DETAILS

Structure	MS Press bent 3mm
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### PANELS

Type	Steel fabricated double wall insulated panels
Panel thickness	75mm thick
Outer sheet	2mm thick CRC sheet
Inner sheet	1.25mm thick CRC perforated sheet
Frame stiffener	2mm thick CRC sheet

### INSULATION

Type	Mineral wool/Rock/Glass wool of reputed make as per IS:8183
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Thickness	75mm thick (50mmx2 slabs)
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Density	48 Kg/m <sup>2</sup>
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### FINISHING

Noise level (min)	As per C PCB Norway
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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	Cummin/Mitsubhishi/ Perkins or equivalent
2.	Alternator	M/s Stamford/ Kirloskar/ Leroy-sonmer/ Crompton greeve or equivalent
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

### **SPECIAL CONDITIONS OF CONTRACT**

1. The bill of quantities are as per the detail enclosed with this tender documents.
2. **Deduction of income tax:** NPCC Limited shall deduct income tax at source from all the payments to be made to the contractor in accordance with the provisions of India Income Tax Laws as applicable to the contractor from time to time.
3. **Liability for EPF deduction:** The contractor shall be responsible for deduction contribution towards Employees Provident Fund from its employees and deposit the same along with its contribution to the concerned Regional Provident Fund commissioner under the Employees Provident Fund and Misc. Act, 1952 as amended from time to time.
4. **Price variation:** Quantities given in the tender document may increase or decrease. No extra payment shall be made for variation in quantities, whatever may be the percentage of increase or decrease in the quantities of any item. Rates shall remain firm even if certain items are required to be deleted.
5. **Mobilization advance:** No mobilization advance will be paid.
6. **Work Contract Tax:** Work contract tax will be recovered from each running account bill as applicable.
7. **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 Corporation.
8. **Security deposit:** The contractor shall permit the corporation at the time of making any payment to him for work done under the contract to deduct towards the security deposit at the rate of 5% (five percent) of gross amount of each account and final payment. The earnest money deposited by the successful tenderer at the time of tender will be treated as part of security deposit.
9. **Refund of security deposit:** The security deposit so deducted shall only be refunded to the contractor after all the defect pointed out during operation and maintenance period gets rectified or after the payment of final bill whichever is later. In case the contractor fails to get the rectification done at his own cost, corporation shall have the right to get the same done at the risk and cost of the contractor.
10. 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.
11. Items for routine maintenance of electrical installation, which could not be specified in above details, will also be covered under this contract.
12. The contractor will provide consumable like cloth, etc. cleaning insulation, electric tubes, bulbs, CFL, Teflon tape, fittings, taps, tower bolt, hinges, M-seal, glass, cleaning material (like phenyl, surf, wipers, etc.), pesticides, fertilizer, etc. for which nothing extra shall be payable.
13. Contractor will be responsible to bring to immediately notice of the Engineer-in-Charge any abnormal functioning or faulty operation of any equipment and take timely steps to avoid breakdown/ disruption.

14. 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.
15. All dismantled materials resulting from replacement shall be returned to the Engineer-in-Charge or the representative appointed by him.
16. The operating staff will maintain daily log book and get it duly verified from the Engineer-in-Charge or his authorized agent.
17. The operating staff will be provided essential operation/ maintenance/ hand tools including multi meter, mugger, openers etc. by the contractor.
18. The contractor has to follow all electricity rules as amended from time to time and contractor shall be responsible for any mishap due to negligence on his part.
19. In the event of break down or major maintenance works, any extra staff required thereof and for cable jointing and for handling heavy equipment shall be your responsibility and no extra charges shall be payable on this account.
20. In case of negligence of part of the contractor for operation and maintenance of electrical, HT/ LT panels and its associated accessories a prorated recovery shall be made from due payments of the contractor for the period and its associated accessories remain non operational.
21. Service Tax : The rates are inclusive of Service tax applicable from time to time. The contractor shall have to furnish the deposit challans to the corporation in token that the service tax for the work has been paid by him.
22. Office Attendant & Inspection vehicle for site visit shall be provided by the Agency till the awarded work is completed for which no extra payment will be made to the agency otherwise, 1% (one percent) will be recovered from every running account bill.

### **CRITERIA FOR TECHNICAL & FINANCIAL QUALIFICATIONS:-**

1. The yearly turnover of the agency should not be less than **Rs. 63.20 lacs**( Rs. Sixty three lacs twenty thousand) during the last three years ending 31<sup>st</sup> March of the previous year. Copy of balance sheet needs to be enclosed.
  2. The agency who have 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 sale tax, service tax, PAN, & DVAT 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 **Rs. 47.40 lacs** (Rs. Forty seven lacs forty thousand )
  7. The agency must have successfully completed/executed single work for an amount not less than **Rs. 63.20 lacs**( Rs. Sixty three lacs twenty thousand), two works for an amount not less than **Rs. 47.40 lacs** (Rs. Forty seven lacs forty thousand ) and three works for an amount not less than **Rs. 31.60 lacs** (Rs. Thirty one lacs sixty thousand) of similar nature. The copy of supporting documents needs to be enclosed.
  8. 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 M/s. NPCC Ltd. Payable at Delhi. Tender not accompanied by earnest money shall be rejected. Earnest money in any other form is not acceptable.
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1. 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 of conflict between the figures and words in the rates, the later shall prevail.
  2. OEM or their authorized dealers.
  3. Only the firms 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 Sales Tax 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-Not more than 12 months old of any Nationalized Bank/ Scheduled Bank.

## **BILL OF QUANTITIES**

Sl. No.	Description	Unit	Qty.	Rate	Amount
1.	Design, manufacturing, testing at works, supply, installation, testing and commissioning of DG set with 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 Norway, 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	Set	01		
	750 KVA				
2.	SITC of AMF Panel complete as per specifications of tender document and direction of the EIC.	Set	01		
3.	Cement Concrete foundation for 750 KVA D.G. set, copper earthing station, copper strip, electrical cabling termination etc. for complete installation & commissioning of 750 KVA D. G. set as per site requirement, specification and direction of Engineer-in-charge.	job	01		
				<b>TOTAL</b>	

(Rs. In words \_\_\_\_\_ only)

Date:

Signature of tenderer



