INVITATION FOR TENDER

AND

INSTRUCTIONS TO TENDERERS

Proposal for Procurement of Cummins 500 KVA (Engine Model: KTAA 19-G10) Diesel Generator Sets

Tender No. AE/DG/IISc/001/2015

Department of Aerospace Engineering
Indian Institute of Science
Bangalore 560012

September 2015
PREAMBLE AND INTRODUCTION

Quotations are invited for the supply and installation of a Diesel Generator set at the Department of Aerospace Engineering, Indian Institute of Science, Bangalore, with the following specifications and work components. Detailed technical specifications are provided below.

PROPOSED SYSTEM AND TECHNICAL SCOPE OF WORK

The proposed system is Cummins 500 KVA, (Engine Model: KTAA 19-G10) BHP 587 at 1500 RPM, 440V, Alternator (Stamford), 3 Phase, not less than 0.8 pf (lag), Cabling (distance : 40 m maximum), AMF panel and integration with BESCOM power supply, Obtaining all required permissions and certificates, Earthing, Civil work and Delivery and installation at CAF, IISc.

The proposed solution is expected to be container based solution for outdoor environment, with acoustic enclosure for noise suppression to ensure noise levels of not more than 70dB(A) at a distance of 1 meter under free field conditions. The diesel engine has to be CPCB (Central Pollution Control Board) approved and certificate to that effect has to be attached to the offer. The scope of work includes supply, installation and commissioning, integration of the engine, alternator and the AMF panel and more importantly understanding of the site conditions and suggesting suitable alternatives along with obtaining necessary approvals from appropriate authorities in the Government.

The DG sets should have the batteries of appropriate capacity to ensure cold start in Bangalore conditions. The main specifications for the engine are 4 stroke, 1500 rpm, multicylinder, turbocharged and conforming to the CPCB emission guidelines. Alternators of the make should be: Stamford.

The exhaust system has to have residential type silencers with stainless steel flexible bellows to work at noise levels of less than 70dB(A) at a distance of 1 m under free field conditions.

In addition the solution has to include the non vibrating civil works of bedding/platform for housing the machines, approximately 12x20 feet size bed, batteries with charging facility, the exhaust system, earthing, cabling of appropriate capacity for connecting the DG to the existing substation panel with appropriate breakers. The Bill of Material (BoM) for the complete solution has to include
Annexure 1

Technical specification for supply and installation of Cummins 500 KVA Diesel generator set with CPCB II Engine, Acoustic Enclosure, AMF Panel and Installation/commissioning

a. Supply for 500 KVA Diesel Generator Set:
b. Acoustic Enclosure: CPCB II Type approved Acoustic Enclosure, as per regular Design & Standards.
c. AMF Panel: Outdoor AMF Panel suitable for Automatic Operation of 500 KVA DG set as per standards with 4 No’s of outgoing MCCB’s with associated electrical systems and cables, including metering, protection and control mechanisms of appropriate capacity conforming to standards and load monitoring facility.
d. Scope of Work: Supply, installation, testing & commissioning of above said & approved make of DG set with all necessary accessories at site, inclusive of all necessary civil works i.e. soil excavation, preparation of necessary bedding for mounting DG set, panel etc. The silencer, exhaust pipes to be fixed/installled as per standards with all necessary accessories & shall be cladded completely. Suitable size cable should be supplied, installed & fixed between alternator, AMF panel & EB incomer.

Supply & Installation of Earthing:

a. Copper Plate Earthing with Copper Strips for DG Neutral Earthing – 02 Nos.
b. GI Earthing with GI Strips for DG Body Earthing – 02 Nos.
c. Scope of Work: Supply, installation and fixing of above said Earthing as per Standards, complete with necessary salt, charcoal & covered chamber

Supply & Installation

a. Fire Extinguishers – 02 Nos.
d. First Aid Box – 01 No.
e. Battery pack for engine start

f. Performance certificate from authorized certification agency for efficiency test

g. Foundation details: RCC (12”x20”) slab/bed in the ratio of 1:2:4 proportions (3” Below ground 3’above ground level)

3
EARTHING SYSTEM GUIDLINES

» An Earthing system is required for the protection of equipment and human being, as per Indian electricity Rules 1956.

» Separate earth should be used for Genset body and neutral earthing body.

» 4 Nos. earthing pits are required for 3 phase DG set, 2 each for neutral & earthing pits are required for single phase DG set, 2 each for neutral & body.

» 4 Nos. of earthing pits are required for single phase DG set, 2 each for neutral & body.

» The min. distance between 2 earthing pits should be 2.0 meters.

» An earth pit cover should be provided.

» A watering pipe of 25mm with a funnel should be provided for each pit, wherever depth of the earthing pit is not at water level.

» Earthing system should be checked with meagre and resistance between 2 earth pits should be less than 1Ω.

» The earthing plate/pipe and strip size should be selected as per the rating of the DG set.

<table>
<thead>
<tr>
<th>SDG Set rating</th>
<th>Recommended Earth Strip/Cable</th>
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<tbody>
<tr>
<td>5-82.5 KVA</td>
<td>8SWG-Copper</td>
</tr>
<tr>
<td>100-250 KVA</td>
<td>25X3mm Copper/25x6mm GI</td>
</tr>
<tr>
<td>320-750 KVA</td>
<td>50X6mm Copper/50x6mm GI 2 runs</td>
</tr>
</tbody>
</table>
FOUNDATION DETAILS AND GUIDELINES

Ground base Foundation (RCC/PCC)

The foundation should be water levelled and at least 3"/4" above the ground level to maintain cleanliness and avoid flooding.

The length and width of the foundation should be at least 600mm to 800 mm more than that of the DG set size i.e. 300mm on each side.

Check the foundation level diagonally as well as across the length and width.

Please refer to the foundation drawing attached herewith

A rigid foundation ensures the least vibration. Sand Filling should be there around the foundation. 18mm rubber matting must be used over the foundation to minimize the vibration effect and noise leakage.

Ensure that the foundation to support 1.5times of the total wet weight of the single generator and 2 times of the total weight for the multiple generators

Please refer to the dimension of DG set for deciding the foundation length, width and depth.

**Note: Please ensure that the foundation should not be made over any basement, water tank or Sewer Line.**
Installation and Acceptance of the Equipment

1. The tenderer should be able to install and commission the equipment at the designated location. Installation charges (payable in Indian Rupees only), if any, should be indicated by the tenderer in the Price Bid.

2. Subsequent to successful installation at AE, IISc, the equipments will be accepted after a successful operation for a period of 30 (thirty) days.

Warranty

1. Warranty on all the hardware components should be valid for a period of at least 2-3 years from the date of acceptance of the equipment at a particular location. Warranty service charges (in Indian rupees) have to be explicitly mentioned as a separate line item in the Price Bid.

2. During the warranty period, the tenderer shall be fully responsible for the manufacturer’s warranty in respect of proper design, quality and workmanship of all the equipment, accessories, etc.

3. During the warranty period, the tenderer shall attend to all the hardware problems on site and shall replace the defective parts at no extra cost to the purchaser.

4. The bidder should also clearly indicate post-warranty comprehensive AMC cost, as a percentage of the equipment cost, for a period of 2 years in the Price bid.
GUIDELINES TO TENDERERS

1. The equipments have to be supplied within 4 weeks after receiving a firm PO from IISc and the installation to be complete within two weeks after supply of the equipment.

2. The bidders have to provide warranty services for a period of three years after acceptance of the solution by IISc. Bidders should also quote post-warranty comprehensive AMC cost as a percentage of the equipment cost.

3. Institute of Science is eligible for customs and excise duty exemption under notification 10/97-ce. Hence please quote the ED component if any separately so as to avail exemption on issue of certificate by us. Bidders planning to quote any imported solution have to give the offer in the respective currency.

4. The bidder should have supplied and implemented similar or higher capacity systems (of the same make proposed in their bid) of similar capacity at least in 2 or 3 different locations in the country. Documentary evidence of the above is to be submitted along with the offer, along with contact details of the purchaser. Please enclose the certificate of respective Chairman of the department within IISc to whom you have supplied the generators. Non-compliance to this condition will result in disqualification.

5. A two-cover system is proposed for the submission of tenders, consisting of

- **Cover A**: Technical Bid: The technical bid should contain
  - i. Executive Summary of the proposal as per Proforma given in this document.
  - ii. Complete Technical Details of the proposed solution.
  - iii. Performance details of the proposed equipments.
  - iv. Specification for the power distribution/control panel.
  - v. Terms and conditions for the offer.
  - vi. Supporting technical material, including brochures.

- **Cover B**: Commercial Price Bid: Prices for individual line items have to be given in the price bid. For example, the engine, alternator, AMF Panel, Batteries, exhaust system, diesel tanks, civil work related to the construction of the bedding, accessories including cables and connectors etc.. Commercial Price bid should be submitted in the format specified below.
7. The individual covers to be sealed and superscribed as
AE/DG/IISc/001/2015 Technical Bid, and
AE/DG/IISc/001/2015 Price Bid respectively.

8. The two sealed covers should be placed in another sealed cover, addressed to The Chairman, Department of Aerospace Engineering, Indian Institute of Science and should be superscribed as
AE/DG/IISc/001/2015.

9. The sealed cover should reach the office of

   The Chairman,
   Department of Aerospace Engineering,
   Indian Institute of Science,
   Bangalore 560 012

   on or before the deadline.

10. No request for any further extension of the above deadline shall be entertained. Delayed and/or incomplete tenders are liable to rejection.

11. All the covers should bear the name and address of the tenderer.

12. The Technical Bid and the Commercial Price Bid should be duly signed by the authorized representative of the tenderer.

13. The Technical Bid and the Commercial Price Bid should be bound separately as complete volumes.

14. The prices should not be mentioned in the Technical Bid.

15. A tender, not complying with any of the above conditions is liable to rejection. Incomplete proposals are liable to be rejected.

16. The Chairman, AE reserves the right to accept or reject any proposal, in full or in part, without assigning any reason.

17. The Chairman, AE, IISc, Bangalore-12 reserves the right to modify the technical specifications or the required quantity at any time. In such case, the tenderers will be notified.

18. The tenderers are requested to go through the Terms and Conditions, detailed in this document, before filling out the tender.
COMMERCIAL TERMS & CONDITIONS

1. The commercial bid should contain among other things, payment terms, warranty, installation and commissioning charges. These charges will be paid only after successful supply, installation and acceptance. AE will enter into a contract with the successful bidder which will detail all contractual obligations during warranty period. Bidders have to quote for AMC charges for 2 years after 3 year warranty period.

2. In case of rupee offer, the component of tax, E.D. and any other statutory levies should be shown separately and not included in the total amount, to enable us to avail exemption.

3. In case of imports, the commercial bid should contain among other things the name and address of the Indian agent, if any and the agency commission payable to him. Agency commission part will be deducted from FOB value, and will be paid to him by us separately in equivalent Indian rupees. Please quote the prices for shipment on ‘FOB’ terms.

4. In respect of imported solution, IISc will arrange for customs clearance, at Bangalore airport, which will be final destination airport. Hence costs related to customs/clearance need not be included in the offer.

5. In CIF offers of imported solutions, insurance should be on “Warehouse to Warehouse” basis and should not terminate at Bangalore airport.

6. IISc is not exempted from any other VAT or other taxes. Hence this component may be shown as separate line item wherever applicable.

7. Proposals should contain name and contact details viz phone, fax, email of designated person to which all future communication will be addressed.

8. Price should be quoted per unit and the total amount for the required quantity.

9. Offer should be valid for 60 days from the date of submission.

10. Among the technically qualified bidder, the successful bidder would be identified using the total cost of ownership (TCO) which includes supply, installation and commissioning of the total turn-key solution, warranty for 3 years, and 2 years post-warranty AMC services.
PAYMENT TERMS

The conditions regarding payment terms are as follows:

a) After satisfactory supply and Installation/Commissioning

Proforma for Executive Summary

1. Name and Address of the Manufacturer:
2. Name and Address of the Tenderer:
3. Tenderer’s Proposal Number and Date:
4. Summary of the solutions proposed:

<table>
<thead>
<tr>
<th>Item</th>
<th>Make and Model No.</th>
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<tbody>
<tr>
<td>A</td>
<td></td>
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<tr>
<td>B</td>
<td></td>
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<td>C</td>
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<td>D</td>
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<td>E</td>
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<td>F</td>
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5. Checklist for documents attached ✓ appropriately

- Technical details of the proposed equipment.
- Performance Details of the proposed Equipment.
- Terms and conditions for offer
- Authorization Letter from Foreign Principal
- Supporting Literatures
- Company’s profile
- Any other documents (please specify)
6. Contact details of the personnel for all future correspondence related to this proposal:

Name & Designation:
Phone No:
Fax No:
Mobile:
Email:
FORMAT FOR COMMERCIAL PRICE BID

Price information should be specified in the following format. Prices should be specified for each line-item separately. Additional lines should can be added as appropriate.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Description</th>
<th>Unit Rate</th>
<th>Qty.</th>
<th>Amount</th>
<th>Taxes, if any</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DG Set</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I/O Panel</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>3</td>
<td>Battery Bank</td>
<td></td>
<td></td>
<td></td>
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<td>4</td>
<td>AMF Panel</td>
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<td></td>
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<tr>
<td>5</td>
<td>Breakers / MCCB (use separate line for each capacity)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>Cables (use separate line for each capacity)</td>
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<tr>
<td>7</td>
<td>Earthing</td>
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<td>8</td>
<td>Exhaust System</td>
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<td>9</td>
<td>Civil Work</td>
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<tr>
<td>10</td>
<td>Other accessories (pls. specify)</td>
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<tr>
<td></td>
<td>Grand Total (including Taxes)</td>
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CHRONOLOGY OF EVENTS

- Release of Request For Proposal: 01.10.2015
- Receipt of vendor queries: 08.10.2015 5.00 p.m.
- Due date for submission of tender: 15.10.2015, 5.00 p.m.