
TECHNICAL BID (PART-I)



**Notice Inviting Tender (PART-I)
TECHNICAL CUM COMMERCIAL BID
FOR**

**"Supplying, Installation, Testing and Commissioning of 125 KVA Silent Type
DG set with AMF Panel at CRRRI Staff Colony, Maharani Bagh, New Delhi-
110065"**

Name of the Firm:

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Time and Date of Opening: At 02.30 P.M. on
28th March, 2017

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**CENTRAL ROAD RESEARCH INSTITUTE,
DELHI-MATHURA ROAD, NEW DELHI-110025**

(Council of Scientific & Industrial Research)

Notice Inviting Tender (Part-I), Technical BID

(To be submitted in separate envelope marked 'I', written as 'Technical Bid, Earnest Money Deposit and eligibility criteria'.)

1. Tenderer's Particulars

NAME OF WORK: Supplying, Installation, Testing and Commissioning of 125 KVA Silent Type DG set with AMF Panel at CRRI Staff Colony , Maharani Bagh, New Delhi-110065.

Sr. No.	Description	To be Filed by Tenderer
1.	Name of the Tenderer	
2.	Physical address with Phone No	
3.	Registration for TIN with Sales Tax Department of GNCTD/Service Tax Registration No. (Attach copy)	
4.	Permanent Account No.	
5.	EMD details(To be attached along with)	
6.	Status of Firm (Sole proprietor/ in Partnership)	
7.	Work Experience of the Firm (As per Proforma given at Annexure – 'A') (Attach copy of completion certificates showing completion dates & value of similar works as required under NIT conditions)	
8.	List of Clients for the last seven (07) years (Attach)	
9.	Enclosures (No. of Pages enclosed)	
10.	Whether the firm is OEA/OEM or their Authorized Dealers/ Authorized Firms (Attached proof copy of Certificate)	
11.	Valid electrical license or an undertaking confirming that electrical works shall be got done through a licensed electrical contractor (Attached proof copy of Certificate/Undertaking)	
12.	Written commitment from OEM/OEA to supply the DG Set within the period of	

	two months from the date of issue of award letter.	
13.	Certificate from OEM/OEA or authorized service provider of engine manufacturer for satisfactory installation and commissioning of DG Set after completion of the work (Attach).	
14.	Required guarantee of DG Set from OEM/OEA in favor of Employer to cover defect liabilities of one year (Attach).	
15.	An undertaking that mandatory free service shall be carried out during the guarantee period by the authorized service provider of engine manufacturer.	

**SIGNATURE OF THE TENDERER
WITH RUBBER STAMP**

2. Proforma Showing the Details of Completed Works

Sr. No.	Name of the Work	Department / Client	Total Value of Work Done (Rs.)	Capacity of Installed Individual D.G. set	Completion Date of Contract
1					
2					
3					
4					
5					

Note: Please attach the Additional Sheet(s) of the Same Format (if required)

**SIGNATURE OF THE TENDERER
WITH RUBBER STAMP**

Schedule of Technical Particulars
(To be filled by Tenderer)

Sl. No.	Description	Nomenclature
I	Engine	
1	Make	
2	Model / ISS reference	
3	No. of Cylinders	
4	Rated R.P.M	
5	Method of Starting	
6	Aspiration Method	
7	BHP	
8	Specific fuel oil consumption	
9	Lubricating Oil recommended	
10	Lubricating Oil Pressure	
11	Qty. of Lubricating Oil required	
12	Time required for starting	
13	Lubricating. Oil pump capacity	
14	Nos. of exhaust pipes required	
15	Dia. of exhaust pipe	
16	Whether it meets CPCB norms for Emission	
17	Fuel Consumption at full load	
18	Any other data	

II.	Alternator	
1	Make	
2	Enclosure details	
3	Full Load output in KVA	
4	Full Load output in KW at 0.8 PF	
5	Designed overload capacity at max. ambient temp.	
6	Efficiency at full load	
7	Class of Insulation of Rotor	
8	Class of Insulation Stator	

III.	General	
1	Overall Length of DG Set (LxWxH)	
2	Overall Weight of DG set	
3	Noise Level of DG Set at one meter with Acoustic Enclosure	

IV.	AMF Panels	
1	Make	
2	Type (Floor/Wall Mounted)	
3	Overall dimensions (LxBxH)	
4	Finish	

V.	Acoustic Enclosure	
1	Make	
2	Size	
3	Details of Acoustic Lining Material and Make	

Signature of Tenderer

3. Commercial and Additional Terms & Conditions

(To be submitted in separate envelope marked 'I', written as 'Technical Bid, Earnest Money Deposit and eligibility criteria'.)

1. The scope of work for “Supplying/Installation/Testing/Commissioning of 125 KVA Silent Type DG Set with AMF Panel at CRRRI Staff Colony Maharani Bagh, New Delhi-110065” involves supplying, laying and termination of XLPE power cables and undertaking of related civil works in this regard under civil works such as preparation of foundation for installation of D.G. Set, as recommended by manufacturer.
2. The work shall be carried out as per CPWD General Specifications for Electrical Works Part-VII (DG sets) 2013 as amended up to date along with the following changes; CPWD General Specifications for Electrical Works Part-I, II & IV, as amended up to date, relevant IE rules, and as per directions of Engineer -in- Charge. For electrical panels, CPWD General Specifications for Electrical Works (Part-IV) shall be applicable.
3. Approval / clearance of the complete installation shall be obtained by the contractor from relevant and competent authorities such as CPCB / State Pollution Control Boards / Local Urban Bodies / Central Electricity Authority (CEA) and other licensing authorities, wherever required. In this connection, applications shall be made by the Department and any statutory fees, as applicable, shall be paid by Department directly to the concerned Govt. Bodies/ Authorities.
4. The brief description of items has been mentioned in the Schedule of Quantity. Any omission in the description of items shall not absolve the contractor from his responsibility to complete the work in a satisfactory manner. The work shall be executed in accordance with the relevant CPWD specifications and the firms shall quote their rates after taking all activities/ aspects into consideration. In case if some discrepancy / omission is observed in the tender, which will obstruct/ hinder completion of the job in a satisfactory manner, the tenderer must bring out such items with rates, quantities and specifications in a separate letter while submitting their tender.
5. The contractor shall carry out routine, preventive and periodical maintenance or checks (A/B/C checks) as per manufacturer’s standards for a period of 12 months from the date of handing over the installation. **All consumables viz. lubricants oil, coolant and changing of filters etc. will be supplied by the contractor during the maintenance period free of cost to Department.**
6. **Activities and Works to be Done by the Contractor**
Unless otherwise mentioned in the tender document, the following shall be done by the contractor. Therefore, the cost of following works shall be deemed to have been included in the tendered cost-whether specifically indicated in the scope/ schedule of work or not:
 - i) Construction of suitable Cement Concrete foundation for equipment as per manufacturer’s recommendation including vibration isolation springs/pads.
 - ii) Any minor building works in respect of installation of DG set, such as cutting and making good the damages.
 - iii) Provision of all accessories required for the installation of pipe work for fuel , lubricant, oil, exhaust etc.

- iv) Making available the Tools and Tackles required for handling and installation of equipments.
 - v) Protection required for the equipments from rain, dust and storm etc. during the transportation i.e. covering of the equipments with polythene cover/tarpaulin.
 - vi) Certificate from OEM/OEA or authorized service provider of engine manufacturer for satisfactory installation and commissioning of DG Set after completion of the work.
 - vii) Required guarantee of DG Set from OEM/OEA in favor of Employer to cover defect liabilities.
 - viii) Supplying and laying control cable from DG set to AMF panel.
7. The contractor shall submit the following drawings within a fortnight of award of the work for the approval of Engineer-in-Charge, before the installation of DG Set is commenced.
- I. Layout plan in respect of the arrangement of equipment at site with actual dimensions.
 - II. Complete details of foundation for the equipment and weights of assembled equipment.
 - III. Layout plan in respect of plumbing work as well as accessories of the equipments.
 - IV. Electrical layout, schematic and physical arrangement, drawings of equipments including sizes and capacities of equipments/ cables to be used.
 - V. Any other drawing(s) necessary for the work.
 - VI. The successful tenderer should furnish well in advance three copies of detailed introductions and manuals of manufactures for all items/ equipments regarding installation adjustment, operation and maintenance together with all the relevant data sheets, spare parts catalogue and workshop procedures for repairs, assemblies and adjustment etc.

8. Inspection and Testing and Trial Run

- i) The Test Certificate of the particular DG Set on full load as per CPWD General Specification for Electrical Works Part-VII (DG Set- 2013) shall be submitted at the time of delivery of DG Set at site.
- ii) After completion the work of installation in all respect, the contractor shall offer the DG Set for the purpose of its testing. The testing of DG Set shall be carried out at available load for one twenty (120) hours or fifteen (15) days whichever is earlier. The DG Set will be operated and a log of all relevant parameters will be maintained during this period. The arrangement of staff for trial run / running-in period will be made by the successful tenderer. However, only Diesel shall be provided by department. The contractor will be free to carry out necessary adjustment. The DG Set will be said to have successfully completed the trial run, if no break-down or abnormal / unsatisfactory operation of any component of the entire installation included in the Scope of Work of Contract, occurs during this period. After this, the DG Set will be made available for beneficial use. After the DG Set has operated without any major break-down/ trouble, it shall be taken over by the Department subject to guarantee clause of the contract. This date of taking over of the DG Set, after trouble free operation during the trial run/ running-in period shall be the date of acceptance/taking over.

List of Acceptable Makes

Names of Items	Acceptable Makes
Diesel Engine	Cummins / KOEL Green /Caterpillar
Alternator	Stamford/ KOEL Green /Leroy Somer
MCB, MCCB, Isolator, MCB DB, ACB	Hager/ Legrand Merlin Gerin or as per OEM
Fuse Switches Unit	L &T/ Siemens/ GE or as per OEM
Power Cable	Gloster / Grandlay / Havells / CCI/Polycab
Contactora	L & T / Siemens / GE or as per OEM
On load changeover switch	Control & Switchgear / Standard/ HPL Socomec/ Havells

Notes:

1. The above makes are indicative only. In case, the contractor would like to use other makes, he/ she must submit the relevant literature/ documents about the technical merits/capabilities of these items and get the approval of Engineer-in- charge prior to using the same.
2. The items for which no makes are specified, makes approved by Engineer-in-charge only shall be used.
3. The DG Set, AMF Panel & Acoustic enclosures shall be from OEM of diesel engine & alternator only.

Annexure-‘D’

7. List of Technical Literatures, References and Catalogues
(The tenderer should furnish the list of technical literatures, references and catalogues for the Equipments being offered)

SI. NO.	Data/Information	Remarks
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Date:

(Signature of Tenderer)

SCHEDULE OF QUANTITY

Name of Work: - Supplying, Installation, Testing and Commissioning of 125 KVA Silent Type DG Set with AMF Panel at CRRRI Staff Colony , Maharani Bagh, New Delhi-65

S.NO	Description of Items	QTY	UNIT	RATE (Rs.)	AMOUNT (Rs.)
	125 KVA/100 KW Silent Diesel Generator Set				
	SUB-Head 'A'				
1.	Supplying, Installation, Testing and Commissioning of 'Silent Type' Diesel Generator Set of 125 KVA, 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system with 0.85 Load Factor and Automatic Mains Failure (AMF) control panel including auto by- pass panel along with Prime Power Rating from Original Equipment Manufacturer (OEM) Rating which shall consist of the following:				
a)	Diesel Engine: Diesel engine 4 stroke water cooled, electric start of suitable BHP at 1500 RPM suitable for above output of alternator at 40 Degree C, 50% RH & at 1000 Meter MSL and conforming to BS 5514, BS 649, IS 10000, capable of taking 10% over loading for one hour after 10 hours of continuous operation. The engine will be fitted complete with all the required accessories.				
b)	Engine Mounted Instrument panel fitted with and having digital display for following:				
I.	Start-Stop switch with key				
II.	Water temperature indication				
III.	Lubrication oil pressure indication				
IV.	Lubrication oil temperature indication				
V.	Battery charging indication				
VI.	RPM indication				
VII.	Over speed indication				
VIII.	Low lubricating Oil trip indication				
IX.	Engine Hours indication				
c)	Alternator: Synchronous alternator rated at 125KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at 40 Degree C, 50% RH & at 1000 Meter MSL. The alternator shall have SPDP enclosure, brushless, continuous duty, self-excited and self-regulated through AVR confirming to IS:4722/BS 2633 suitable tropical conditions and with class-F/H insulation.				

Not to be filled by the Tenderer

d)	Base Frame & Foundation Base Frame & Foundation: Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on suitable cement concrete foundation and vibration isolation arrangement as per recommendations of manufacturer.			Not to be filled by the Tenderer
e)	Fuel Tank: Fuel Tank provided at the base of silent DG set shall have required capacity with air breather, drain plug and all standard accessories complete with valves, level indications with the help of fuel gauge meter and accessories as per OEM.			
f)	Exhaust System As per OEM			
g)	Starting System: 12V/24V DC starting system comprising of starter motors, voltage regulator and arrangement for initial excitation complete with suitable nos. of batteries as per OEM (Maintenance free) as required in terms of specifications.			
h)	Acoustic and weather proof enclosure with arrangement for fresh air intake for cooling of the engine & alternator, extraction, discharging hot air in to the atmosphere as per specifications.			
	Note: (1) DG set shall be as per the latest norms of Central Pollution Control Board (CPCB). (2) The DG Set, AMF Panel & Acoustic enclosures shall be from OEM of diesel engine & alternator only.			
		01	Set	
Total of SUB-Head 'A'				
SUB- Head 'B'				
2	Supplying of 4 x 120 sqmm PVC insulated and PVC sheathed / XLPE aluminium conductor armoured power cable of 1.1 KV grade with testing report all complete as required and direction of the Engineer-in-Charge.	80	meter	Not to be filled by the Tenderer
3	Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 11 KV grade upto 120 Sqmm size direct in ground in the	40	meter	

	same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench etc as required			
4	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of upto 120 Sqmm in the existing RCC/ HUME/ METAL pipe as required.	40	meter	Not to be filled by the Tenderer
5	Supplying and making end termination with brass compression gland and aluminium lugs for 3.5 x 120 sqmm PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.	12	each	
Total of Sub-Head 'B'				
Sub-Head 'C'				
6	Earthing with copper earth plate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required.	02	set	
7	Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. with charcoal/ coke and salt as required.	04	set	
8	Providing and fixing 25 mm x 5 mm G.I. strip on surface or in recess for connections etc. as required.	40	meter	
9	Providing and fixing 25 mm x 5 mm copper strip on surface or in recess for connections etc. as required.	40	meter	Not to be filled by the Tenderer
10	Providing and fixing M.V. danger notice plate of 200 mm x 150 mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	02	each	
11	Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I. nut, bolt, spring, washer excavation and re-filling etc. as required.	10	meter	
12	Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.	10	meter	

13	Providing and fixing following rating and breaking capacity and pole MCCB with thermo magnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required. (a) 250 A, 36kA, FPMCCB	02	each	Not to be filled by the Tenderer
Total of Sub-Head 'C'				
Sub-Head 'D'				
14	Steel work, as per the following details, in built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete. Hot finished welded type tubes (100 mm dia)	610	kg	Not to be filled by the Tenderer
15	Structural steel work, as per the following requirements, riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. Strips (40x6)	40	kg	
16	Providing and fixing precoated galvanised iron profile sheets (size, shape and pitch of corrugation as approved by Engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. Sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation and should be supplied in single length upto 12 metre or as desired by Engineer-in-charge. The sheet shall be fixed using self drilling /self tapping screws of size (5.5x 55 mm) with EPDM seal, complete upto any pitch in horizontal/ vertical or curved surfaces, excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required.	26	sqm	
17	Finishing with Epoxy paint (two or more coats) at all locations, On steel work, prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete.	35	sqm	
Total of SUB-Head 'D'				

	<u>Sub-Head 'E':</u> <u>Salvage Value of 45 KVA & 12.5 KVA</u> <u>DG Set</u>				
18	Salvage value of Existing Old DG set capacity 45 KVA, 415 V, 3-phase, 50Hz, along-with electrical panel, fuel tank only located at CRRI Staff Colony, Maharani Bagh, New Delhi.	01	set		
19	Salvage value of Existing Old DG set capacity 12.5 KVA, 415 V, 3-phase, 50Hz, along-with electrical panel, fuel tank only located at CRRI Staff Colony, Maharani Bagh, New Delhi.	01	set		Not to be filled by the Tenderer
	NOTE:- Firm will be allowed to take away the above DG sets only after satisfactory S/I/T/C of new 125 KVA Silent Type DG set with AMF panel (Sub-Head 'A') .				
Total of Sub-Head 'E'					
Total of Sub-Heads (A+B+C+D)					
Net Tendered Value(After deducting the salvage value of old DG sets) (A+B+C+D-E)					