



## Institute Works Department

Ref. No.: IIT(BHU)/IWD/ET/37/2018-19/2265

Dated: 13 November, 2018

### QUOTATION NOTICE

1. Quotations are invited from manufactures or their authorized dealers, who submit/letter /certificate in originals from the manufactures that they have been authorized to bid in response to this NIT for **supplying, installing, testing and commissioning of Silent DG set for Director Residence IIT(BHU) Varanasi** as per description below. The sealed envelope containing quotation shall be superscribed with the name of the work, tender enquiry ref. no. & date. The quotations will be received up to **3:00 P.M on or before 23.11.2018** in the office of Chairman, Institute Works Department, IIT(BHU), Varanasi.

Sl. No.	Description of Item	Qty	Unit	Rate	Amount
	<b>Sub Head-1 (DG Set)</b>				
1	Supplying, Installing, Testing and Commissioning of 'Silent Type' 40KVA Diesel Generating set 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50Hz, 3 phase system at NTP conditions and consisting of the followings: <b>Make-Kirloskar/Cummins/Greaves Cotton/ Ashok Lyland/Eicher</b>				
(a)	<b>Diesel Engine:</b>				
	Diesel engine 4 stroke natural Air/Radiator Water/Coolant cooled, electric start, of suitable BHP at 1500 RPM suitable for above output of alternator at NTP conditions and conforming to BS 5514,ISO-3046, BS 649, IS 10000, capable of taking 10% over loading for one hour after 12 hour of continuous operation. The engine will be fitted complete with all the required accessories.				
(b)	<b>Engine mounted Instrument Panel fitted with and having digital display for following:</b>				
	(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				



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	(viii) Low lub. Oil trip indication				
	(ix) Engine Hours indication				
(c)	<b>Alternator:</b>				
	Synchronous alternator rated at 40 KVA, 415 volts at 1500 RPM, 3 phase 50 Hz, AC supply with 0.8 lagging power factor at NTP conditions. The alternator shall be having SPDP enclosure, brushless, continuous duty, self-excited and self-regulated through AVR conforming to IS: 4722/BS 2613 suitable for tropical conditions and with class-F/H insulation. <b>Make:</b> Stamford/Jyoti/Crompton/ Kirloskar				
(d)	<b>Base Frame</b>				
	Both the engine and alternator shall be mounted on suitable base frame made of MS channel with necessary reinforcement which shall be installed on existing cement concrete foundation and i/c supplying & fixing of suitable vibration isolation arrangement as per recommendations of manufacturer.				
(e)	<b>Exhaust System:</b>				
	Dry exhaust manifold with exhaust silencer and catalytic convertor i/c all supporting structure.				
(f)	<b>Starting System</b>				
	12V DC starting system comprising of starter motors voltage regulator and arrangement for initial excitation complete with suitable nos of batteries (25 plate 180 AH capacity lead acid type) as reqd as per specifications.				
(g)	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.				
(h)	Fabricating, installing testing and commissioning of automatic mains failure control including by-pass panel, suitable for 40 KVA silent type DG Set complete with relays, timers, set of CTs of metering & protection and energy analyzer to frequency power factor, KWH, KVARH & provision for overload, short circuit, restricted earth				



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	fault, under frequency, control cabling from AMF panel to diesel engine and elsewhere if require all complete and inter locking including the following:				
(i)	1 No.100 Amps 4 P MCCB 50 KA (Ics=100%Icu) with accessories.				
(ii)	2 Nos.100 amp 4 Pole power contactor				
(iii)	Auto/ Manual/ Test/ Off Selector switch				
(iv)	2 Nos. over voltage relay, 2 Nos. reverse power relay and 2 Nos. under voltage relay.				
(v)	1 Set of 3 Nos. current transformers.				
(vi)	Energy analyzer unit to indicate current voltage frequency power factor and KWH				
(vii)	Indicating lamps for load on mains and load on set				
(viii)	Suitable MCB for instruments				
(ix)	Battery charger, complete with transformer / rectifier DC voltmeter and ammeter selector switch for trickle off and boost and current adjustment				
(x)	Main supply failure monitor				
(xi)	Supply failure timer				
(xii)	Restoration timer				
(xiii)	Control unit with three impulse automatic engine start / stop and failure to start lockout.				
(xiv)	Impulse counter with locking and reset facility				
(xv)	ON/ OFF / Control circuit switch with indicator				
(xvi)	Audio/ Video annunciation for				
a	Low lubricating oil pressure				
b	Engine over speed				
c	Engine fails to start				
d	Full load/ maximum load warning				
e	High water temperature	1	Sets		
	<b>Sub Head:-2 (Earthing )</b>				
1	Earthing with G.I. earth pipe 4.5 meter long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/ coke and salt as required.	1	Set		
3	Providing & fixing 25 mm x 5 mm GI strip on surface or in recess for connections etc. as required.	15	Mtrs.		



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**INCLUSIVE OF GST AND ALL OTHER TAXES TOTAL ₹**

Amount in words Rs.

### Note:-

- 1.0 Work completion Period – **56 days from the date of award.**
  - 2.0 Amount and quantity variation: Quantity may vary as per actual work execution/site requirement/end user suggested changes during execution but the final bill value shall not exceed more than 5% of order value.
  - 3.0 Due Date-1week and Commercial terms & condition as per standard
  - 4.0 Taxation included as per applicable rule of GST.
  - 5.0 Warranty period: 01 year for all above works after handing over of user certificate.
  - 6.0 All electrical works shall comply to applicable IS electrical safety norms.
  - 7.0 Any loss of material/ manpower during the execution of works shall be responsibility of the contractor.
  - 8.0 For execution of above works all accessories shall be arranged by contractor at their end.
  - 9.0 Contractor must have valid Electrical Safety Certificate issued by The D.G. Electrical Safety.
  - 10.0 Any other losses occurring during the execution of above work shall also be the responsibility of the contractor.
  - 11.0 All works shall be executed by skilled electrician under the supervision of qualified supervisor.
  - 12.0 Quality of work must comply with CPWD norms.
2. The bidders should submit self certified order copies of similar type of works executed during last three financial years alongwith self certified copies of satisfactory work completion certificates.
  3. Those bidders who have already executed similar type of works in IWD, IIT(BHU) need not submit satisfactory work completion certificates. They should submit only the self certified copies of earlier work orders.
  4. The amount of similar work order executed during preceding last three financial years should be at least:
    - (i) 1 order of 80% of estimated cost of this work.  
OR
    - (ii) 2 order of 60% of estimated cost of this work.  
OR
    - (iii) 3 order of 40% of estimated cost of this work.
  5. (a) Intending bidder should have average annual financial turnover of at least at least 30% of the estimated cost of this work during preceding last three financial years. **Self certified photocopies of certificate from CA to be submitted with bid.**





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- (b) Should not have incurred any loss in more than three years during the preceding three financial years ending 31<sup>st</sup> March, 2018. **Self Certified photocopy of certificate from CA to be submitted alongwith last five years Profit & Loss Account to be submitted with bid.**
- (c) Should have a solvency certificate of **40%** of the estimated cost issued by Bank during the last six months. **Certified copy of original solvency certificate to be submitted with bid.**
6. Any bid submitted without the above mentioned documents in support of criteria laid down from Sl. No. 2 to 5 above shall be treated as unresponsive and may not be considered for further evaluation by the tender opening committee.
  7. The quotation forms complete in all aspects along with all required documents should be submitted in sealed envelope along with **tender fee of 500/-** in the form of demand draft drawn in favour of the Registrar, IIT (BHU), payable at Varanasi
  8. The estimated cost of this work is **4,65,607.00** inclusive of applicable GST. The **earnest money deposit of 9,500/-** shall be submitted in the form of FDR or DD in favour of the Registrar, IIT (BHU), payable at Varanasi. The **EMD** of successful bidder will be retained till the completion of work and shall be returned after the payment of final bill & deduction of security. The EMD of unsuccessful bidders shall be returned after the final award of work.
  9. In case one or more eligible bidders are found lowest that is the L-1 prices are same then all L-1 bidders will be asked to resubmit their bids in sealed envelop with the objective to break the tie cases and determine a single L-1 bidder.
  10. The works will be executed on Agreement/work order basis.
  11. Institute reserves the right to reject any quotation or all quotation without prejudice, assigning any reason or giving any explanation.
  12. If quotations are submitted without clearly writing the rates and total amount then quotation shall be rejected.
  13. Quotation not stamped & signed by the contractor or his legally authorized agent will be considered invalid.
  14. **Security deposit @ 5%** shall be deducted from each bill. The security deposit of 5% deducted from all the bills will be refunded after completion of the warranty period of the DG set from the date of satisfactory installation. The date of issue of work completion certificate will be treated as the work completion date.
  15. 1% water tax will be deducted from each bill if applicable.
  16. Electricity charge will deducted as per actual consumption.
  17. 2% Income Tax and other applicable taxes such as GST etc. shall be deducted as per applicable Govt. rules.
  18. **Amount and quantity variation:** Quantity may vary as per actual work execution/site requirement/end user suggested changes during execution but the final bill value shall not exceed more than 5% of order value.
  19. All the materials/equipments provided by the vendor will be checked by IWD before installation.





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20. **Work completion period:** Within **56 days** from the date of issue of Letter of Award/Work order. Work completion certificate shall be issued by the IWD after obtaining a satisfactory work done report from the user. A period of 10 days will be added to the work completion period for completion of above procedure.
21. **Late work completion penalty:** If work is not completed within the given time, penalty will be deducted as per institute norms.
22. Any damage caused to the building shall have to be made good by contractor at no extra cost & without any delay.
23. **TECHNICAL SPECIFICATION OF 40 KVA DG SET:-**

The DG set of capacity 40 KVA at 0.8 power factor developing 415 Volts, 3 phase, 4 wire A.C supply shall be complete with engine, alternator, base frame, acoustic enclosure, fuel tank, residential silencer, exhaust pipe and duct and inbuilt AMF panel self starter, battery etc. complete in all respect. The DG set shall be factory assembled of the engine manufacture and all components (excluding AMF panel silencer & exhaust pipe) shall be accommodated in enclosure. The DG set components shall be selected for conditions operation at full load and 10% overload for one hour in every 12 hours at site conditions. Brief specification of various components shall be as under and makes as indicated in the list of acceptable makes.

1. **Engine:** The engine shall be water cooled, radiator air to air after cooler, pusher fan & fan drive arrangement, electric starting 1500 RPM, and diesel operated conforming to relevant BS & IS standards. The engine shall be capable of developing desired output (full load) continuously with 10% over load for one hour in any 12 hours duration. The engine shall be complete with all standard accessories and safeties, electric starting with batteries charging alternator etc.

**Alternator:** The alternator shall be synchronous, brush less developing 40KVA continuously at 1500 RPM generating 415 volts, 0.8 power factor, 3 phase, 4 wire, 50 Hz AC supply. The alternator shall be self excited, self regulated and foot mounted directly coupled to the engine with flexible coupling with IP23 protection. The alternator shall conform to relevant BS/IS standards. The alternator winding shall have class 'H' insulation and bearing shall be ball and roller type permanently lubricated. The alternator excitation system shall be complete with automatic voltage regulator having fast response to load changes.

2. **Bed Plate:** Both engine & alternator shall be mounted on common bed plate and coupled with flexible coupling with guard.
3. **AMF Panel:** The AMF panel shall be manufacturing by the DG set supplier and shall be designed to provide complete protection to engine, alternator and starting and stopping DG set automatically on mains failure / resumption. The panel shall be accessible through a separate door. Brief specification of AMF panel shall be as under.
  - a) **General Specification:** The panel shall be cubicle type, dust, damp & vermin proof, compartmentised with bolted construction. The panel shall be fabricated with 2 mm thick CRCA/M.S sheet for load bearing members and 1.6 mm thick CRCA/M.S sheet for covers and doors. The panel shall be powder coated after 7 tank treatment process.



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- b) **Accessories:** The panel shall be provided with following accessories.
- 2 Nos. 4 pole contactors 100 Amps with HRC fuses for alternator & main supply for load transfer.
  - Ammeter, voltmeter, selector switch, Frequency Meter for alternator supply.
  - Set of relay for AMF logic with facility for operation on manual mode and test mode.
  - Three attempts starting facility.
  - Push button & indicating lamp.
  - Battery charger from mains along with DC voltmeter & Ammeter with battery low indication.
  - Engine protection i.e High water/ Coolent Temperature low lubricating oil pressure & over speeding.
  - Alternator protection-under voltage/over voltage short circuit and earth fault relay.ix). Power and control cable between AMF panel, Alternator & Engine.
  - Fuel minimum indication/alarm on balance of 15 liters capacity, other indications/alarms shall be provided as per standard scope of manufacturer.
4. **Acoustic Enclosure:** The enclosure shall be fabricated out of 16 SWG CRCA/M.S sheet and shall be of bolted construction type. The enclosure shall be powder coated after 7 tank treatment process. The enclosure shall accommodate complete DG set including fuel tank batteries etc. the insulation inside the enclosure will be provided with fiber glass / mineral wool/ foam type and sound level shall be not more 75 db at a distance of 1 meter from the enclosure. The insulation shall be finished with perforated CRCA/M.S sheet duly powder coated. Adequate number of doors with handle & locking arrangement shall be provided for access to various components of the DG set. Blower shall be provided for ventilation so that DG set can deliver desires output. The blower shall be connected with load side of the AMF panel and shall continue to operate for 5 Minutes after stopping the engine for discharging heat. The manufacturing shall be as per CPCB norms.
5. **Fuel Tank:** Fuel tank shall be provided inside the enclosure and its capacity shall be not less than as per the standard design. Suitable for the running of DG set minimum 8 hours continuously. Fuel gauge for monitoring fuel level shall be provided. Fuel measuring indication & alarm to be provided on AMF panel on balance quantity of 30 Litrs oil on the tank.
6. **Silencer & Exhaust Pipe:** The silencer shall be residential type and may be installed out side the enclosure. The exhaust pipe shall extended from the DG set 2 Mtrs. Above the top most point of the building (the sub- station building is single storied) where DG set has been installed. Fibre glass insulation 50 mm thick with aluminium cladding 1 mm thick shall be provided on the entire length of exhaust pipe. Metallic bellows shall be provided for vibration isolation.



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7. **Exhaust Duct:** The DG set is to be installed in door for hot air discharge, G.I. duct will be provided upto the front wall of the building necessary opening will be made by the contractor in the wall expanded metal shall be provided on the ends of the duct for preventing entry of birds into the duct. The ends shall be bended downwards for avoiding entry of rain water. The arrangement shall be got approved from Engineer-In-Charge.
8. **Testing of DG Set:** The DG set shall be tested in the works of the manufacturer and necessary test certificate shall be furnished. The DG set shall be operated for 12 hours at full load including 10% over load for one hour. The department may witness the testing after installation of DG set at site, the DG set shall be operated for 4 hours continuously at available load and all function shall be verified. POL for site testing shall be arranged by the contractor within the quoted rates.
9. **Installation of DG Set:** The DG set will be installed on suitable existing RCC foundation, vibration, Isolation pads shall be provided to prevent transmission of vibration to the building structure.
10. **DG Set:**

	:	Engine manufacture
(i) Engine	:	Kirloskar/Cummins/Greaves Cotton/Ashok Lyland/Eicher
(ii) Alternator	:	Stamford/Jyoti/Crompton/ Kirloskar
(iii) Accoustic Enclosure	:	Designed & Manufactured by DG Set
(iv) AMF Panel	:	Designed & manufactured by DG set supplier Milestone Switch Gear Pvt. Ltd./Neptune System Pvt. Ltd./ Tricolite Electrical Industries
24. The bids submitted after the last date & time will not be considered for opening. The bids received within the last date & time will be opened on **23.11.2018 at 3:30 P.M.** in the Committee room (Ground Floor) of the Administrative Building, IIT (BHU), Varanasi.

Sd-

**Assistant Registrar & Member Secretary**  
Institute Works Department,  
IIT(BHU), Varanasi





# QUOTATION FORM

Tender Ref. No. IIT(BHU)/IWD/ET/37/2018-19/2265

Dated: 13 November, 2018

**The Chairman (IWC),**  
Institute Works Department,  
Indian Institute of Technology(BHU),  
Varanasi-221005

**Subject: Quotation for** .....  
.....  
.....  
.....

Dear Sir,

With reference to the Quotation invited by you for the captioned work. I/We do hereby offer to perform, provide, execute, complete and maintain work in conformity with the drawing, conditions of tender, articles of agreement conditions of contract, specification and quantities of the sum of Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_) at the respective rates mentioned in the quotations.

My/Our quotation will remain open for acceptance for 12 months from the date of its opening.

I have submitting tender fee of Rs. 500/- vide DD No. \_\_\_\_\_ dated \_\_\_\_\_ drawn on \_\_\_\_\_ (Name of Bank).

I have submitted EMD of Rs. \_\_\_\_\_ Vide FDR/DD No. \_\_\_\_\_ dated \_\_\_\_\_ issued by \_\_\_\_\_ (Name of Bank)

I have enclosed self attached copy of PAN No. and GSTIN alongwith the bid.

My email id for all future correspondence regarding this bid including communication of work order is \_\_\_\_\_ and mobile no. is \_\_\_\_\_

**(Note: Any information left black such as email id, mobile number, PAN & GSTIN etc. may lead to rejection of bid as non-responsive)**

Yours faithfully,

Date: \_\_\_\_\_

**(Signature of contractor with seal)**

