INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH (IISER) TIRUPATI

NOTICE INVITING "e-TENDER"

NIT No. IISERT/Engg/Elec/02

Name of Work: Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Set at IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

Estimated Cost put to Tender: **Rs 44.33 Lakhs**

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Name of Work: Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Set at IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

NIT NUMBER : IISERT/Engg/Elec/02

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH (IISER) TIRUPATI
(An Autonomous Institution of the Ministry of Education, Govt. of India)
Transit Campus at Sree Rama Engineering College Building,
Karakambadi Road, Mangalam (B.O), Tirupati - 517 507
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www.iisertirupati.ac.in

NOTICE INVITING e-TENDER (e-Procurement mode)

Indian Institute of Science Education and Research, Tirupati invites online bids in open bid system from reputed agencies, found eligible as per the minimum requirements defined in clause 2 & 3 of NIT for the work mentioned below:

Brief Details of Tender:

Sr. No. 1	Description of work in Brief	Estimate cost put to bid (Rs.)	Earnest Money (Rs.)	Period of Completion	Pre bid meeting Date & time	Last date & time of submisson of bid	Time & date of opening of technical bids
1.	**Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati**	Rs 44,33,08/-	Rs 88,662/-	3 Weeks	07-10-2020 11:00 AM	12-10-2020 15:00 PM	13-10-2020 15:30 PM

The Tender Document can be downloaded from Central Public Procurement (CPP) Portal https://eprocure.gov.in/eprocure/app or Institute website www.iisertirupati.ac.in and bid is to be submitted online only through the E-procurement portal up to the last date and time of submission of tender.

Critical Dates of Tender

Sr.No	Particulars	Date	Time in hrs
1	Date of Online Publication	03.10.2020	17:00
2	Bid Submission Start Date	03.10.2020	17:00
3	Pre-Bid Meeting	07.10.2020	11:00
4	Bid Submission Close Date	12.10.2020	15:00
5	Opening of Technical bids	13.10.2020	15:30

No manual bids will be accepted. Bids should be submitted in the E-procurement portal.

Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is 0120-4200462, 0120-4001002.

1) Information & Instructions for Online Bid Submission:

This tender document has been published on the Central Public Procurement Portal (URL:https://eprocure.gov.in/eprocure/app) & Institute website www.iisertirupati.ac.in . The bidders are required to submit soft copies of their bids electronically on the CPP Portal, using valid Digital Signature Certificates. The instructions given below are meant to assist the bidders in registering on the CPP Portal, prepare their bids in accordance with the requirements and submitting their bids online on the CPP Portal.
More information useful for submitting online bids on the CPP Portal may be obtained at:
https://eprocure.gov.in/eprocure/app .

1.1 The intending bidder must read the terms and condition of NIT carefully. Bidder should submit his bid only if he considers himself eligible and he is in possession of all the required documents.

1.2 Bid documents should be submitted online complete in all respect along with requisite amount of tender fee (cost of bid documents). Complete set of tender documents comprising Volume I, II, III has been made available at e-tender portal (URL:https://eprocure.gov.in/eprocure/app)

1.3 The bidder would be required to register at e-tender portal (URL:http://eprocure.gov.in/eprocure/app For submission of the bids, the bidder is required to have Digital Signature Certificate (DSC) from one of the authorized Certifying Authorities.

1.4 Information and instruction for bidders posted on website shall form part of the bid document.

1.5 The bid document consisting of to be complied with and other necessary documents can be seen and downloaded from website (URL:https://eprocure.gov.in/eprocure/app) free of cost.

1.6 But the bid can only be submitted after uploading the mandatory scanned documents such as receipt of online payment towards tender fee, in favour of Director, IISER Tirupati, scan copies of other required documents as specified in the NIT. The tender fee should be

deposited online with IISER Tirupati within the period of bid submission as specified in the bid document.

1.7 Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online tendering process as per details available on the website. The intending bidder must have valid class-III digital signature to submit the bid.

1.8 On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.

1.9 Contractor can upload documents in the form of JPG format and PDF format.

1.10 Certificate of Financial Turn Over: At the time of submission of bid contractor may upload Affidavit/ Certificate from CA mentioning Financial Turnover of last 3 years or for the period as specified in the bid document and further details if required may be asked from the contractor after opening of technical bids. There is no need to upload entire voluminous balance sheet.

1.11 The tender document can be downloaded from http://eprocure.gov.in/eprocure/app and be submitted only through the same website.

2. REGISTRATION of Bidder on e-Procurement Portal

2.1 Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal (URL:http://eprocure.gov.in/eprocure/app) by clicking on the link "Click here to Enroll". Enrolment on the CPP Portal is free of charge.

2.2 As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.

2.3 Bidders are advised to register their valid email address and mobile numbers as part of the registration process. These would be used for any communication from the CPP Portal.

2.4 Upon enrolment, the bidders will be required to register their valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by any Certifying Authority recognized by CCA India (e.g. Sify / TCS / nCode / eMudhra etc.), with their profile.

2.5 Only one valid DSC should be registered by a bidder. Please note that the bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse.

2.6 Bidder then logs in to the site through the secured log-in by entering their user ID / password and the password of the DSC / eToken.

2.7 The CPP Portal also has user manual with detailed guidelines on enrollment and participation in the online bidding process. Any queries related to process of online bids or queries related to CPP Portal may be directed to the 24x7 CPP Portal Helpdesk.

2.8 The Institute will not be responsible for any type of technical issue regarding uploading of tender on website. URL:http://eprocure.gov.in/eprocure/app) and any queries relating to the

process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is **0120-4200462, 0120-4001002, 91-8826246593.**

3. SEARCHING FOR TENDER DOCUMENTS

3.1 There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, organization name, location, date, value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as organization name, form of contract, location, date, other keywords etc. to search for a tender published on the CPP Portal.

3.2 Once the bidders have selected the tenders they are interested in, they may download the required documents / tender schedules. These tenders can be moved to the respective 'My Tenders' folder. This would enable the CPP Portal to intimate the bidders through SMS / e-mail in case there is any corrigendum issued to the tender document.

3.3 The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification / help from the Helpdesk.

4. PREPARATION OF BIDS

4.1 Bidder should take into account any corrigendum published on the tender document before submitting their bids.

4.2 Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid. Please note the number of covers in which the bid documents have to be submitted, the number of documents - including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.

4.3 Bidder, in advance, should get ready the bid documents to be submitted as indicated in the tender document / schedule and generally, they can be in PDF / XLS formats. Bid documents may be scanned with 100 dpi with black and white option.

4.4 To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can use "My Space" area available to them to upload such documents. These documents may be directly submitted from the "My Space" area while submitting a bid, and need not be uploaded again and again. This will lead to a reduction in the time required for bid submission process.

5. SUBMISSION OF BIDS

5.1 Bidder should log into the site well in advance for bid submission so that he/she upload the bid in time i.e. on or before the bid submission time. Bidder will be responsible for any delay due to other issues.

5.2 The bidder has to digitally sign and upload the required bid documents one by one as indicated

in the tender document.

5.3 The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

5.4 The uploaded tender documents become readable only after the tender opening by the authorized bid openers.

5.5 Upon the successful and timely submission of bids, the portal will give a successful bid submission message & a bid summary will be displayed with the bid no. and the date & time of submission of the bid with all other relevant details.

5.6 Kindly add scanned PDF or JPG format files of all relevant documents in a single PDF file of compliance sheet.

6 ASSISTANCE TO BIDDERS

6.1 Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.

6.2 Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24x7 CPP Portal Helpdesk. The contact number for the helpdesk is **0120-4200462, 0120-4001002, 91-8826246593**.

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH(IISER) TIRUPATI

SECTION I -NOTICE INVITING e-TENDERING

1. Indian Institute of Science Education and Research, Tirupati invites online percentage composite bids in open bid system from reputed construction agencies, found eligible as per the minimum requirements defined in clause 2 & 3 of NIT for the work mentioned below:

Name of work & Location	:	**Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati**.
NIT NUMBER	:	IISERT/ENGG/Elec/02
Estimated cost	:	**Rs. 44,33,083 /-**
Period of completion	:	3 weeks.
Cost of tender documents	:	Rs. 1000/- (Rupees One thousand only) (Non – refundable)
Last Dates & time to fill/upload the tender through e-tendering.	:	12/10/2020 up to 15:00 PM
Pre bid meeting date &time	:	07/10/2020 at 11:00 hours Through Online.
Time & date of opening of Technical bids	:	At 15:30 PM on 13/10/2020

2. The applicant should be from Authorized OEM/Supplier of DG sets (or) reputed, eligible and resourceful Contractors who are enlisted in appropriate class in Electrical works or registered in any central/state govt. unit. (or) the firms which are specialized in Electrical works with valid license.

a) Should have experience of having successfully completed works during the last seven years ending previous day of the last date of submission of tenders

(i) 3 similar works each costing not less than Rs. **16 Lakhs** or completed two similar works each costing not less than **Rs 24 Lakhs** or completed one similar work of costing not less than **Rs 32 Lakhs.**

(ii) The vendor must have executed in their own firm name complete SITC of 80% capacity of one work or two works of 60% capacity or three works for 40% capacity for the last Seven years.

b) Components of work executed other than those included in definition of similar work shall be deducted while calculating cost of similar work. Bidder shall submit abstract of cost of work in support of this.

The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum, calculated from the date of completion to the last date of receipt of applications for tender.

Similar work means: Supply, Installation, Testing and Commissioning of Diesel Generator Set of reputed make (approved makes of this tender only are eligible).

This should be certified by an officer not below the rank of Executive Engineer in Govt. Departments and Superintending Engineer/ Chief Project manager or Equivalent in other organizations.

c) Should have had average financial turnover (Gross) of at least **Rs 40 Lakhs** on DG works/Electrical works during the immediate last three consecutive years balance sheets duly audited by Charted Accountant. Year in which no turnover is shown would also be considered for working out the average. No enhancement in the value of turnover for the past years shall be made for bringing them to current turnover level.

d) Should not have incurred any loss (profit after tax should be positive) during the immediate last two consecutive financial years ending 31st March, 2019, duly certified and audited by the Charted Accountant.

e) Should have solvency of **Rs. 16 Lakhs** certified by a Scheduled Bank and obtained not earlier than three months before the date of submission of Bid.

3. CONTRACT ELIGIBILITY CRITERIA

Further, the contract eligibility includes the following.

3.1 Experience in similar type of completed works executed during the last 5 years details like monetary value, clients, proof of satisfactory completion.

Similar work means: Supply, Installation, Testing and Commissioning of Diesel Generator Set of reputed make (approved makes mentioned in this tender only are eligible).

3.2 OEM for DG sets or Enlistment/Registration, if any, in appropriate class of Electrical woks for executing Electrical works with departments (CPWD, State PWDs, MES, Railways, PSUs etc)/ Organizations, class / type of registration.

3.3 Documentary evidence of adequate financial standing, Certified by Bankers, Audited Profit & Loss A/c and Balance Sheet, Annual turnover in **last three years**, access to adequate working capital.

3.4 Information regarding projects in hand, current orders, regarding litigation, exclusion/expulsion or black listing, if any.

3.5 Bidders not meeting the minimum eligibility criteria shall be summarily rejected.

3.6 Copy of the enlistment order and certificates of work experience and other required as specified in the bid documents shall be scanned and uploaded to the e-tendering website within period of bid submission.

3.7 Bidder should not have been blacklisted by any state/Central Departments/PSUs /Autonomous bodies during the last 7 years of its operations. Affidavit shall be made in current date after the date of invitation of the tender as per **Form E** and shall be furnished on a 'Non-Judicial' stamp paper worth Rs.100/-otherwise the tender shall be rejected.

4 The time allowed for carrying out the work will be **3 Weeks** from the date of start as defined in schedule 'C' or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the tender.

5 The bid document is Two stage two Envelope e-tendering system can be seen from the Central Public Procurement Portal (URL:https://eprocure.gov.in/eprocure/app) & Institute website www.iiserTirupati.ac.in The contents of Envelope I & Envelope II are specified in the NIT.

6 Submission of Technical Bid Documents

Information and instruction for bidder for e-tendering forming part of bid document uploaded on website. Last date and time of submission of technical bid, Tender fee and other documents as specified in the NIT.

List of Document to be scanned and uploaded within the period of bid submission:

I. Transaction Receipt of online deposit of tender fee and EMD.

II. Enlistment Order of the Contractor (Attested copy) if required.

III. Certificates of work Experience certificates submitted shall clearly indicate the:

a) Type and nature of work
b) Completion cost
c) Time period, actual completion date.

In case, if any of above details are not included in the work done certificates, then such bids will not be considered for opening.

IV. Complete set of TDS certificate (Form 16) shall be uploaded in case the similar work is executed from a private body which shall form basis for establishing the completion cost of work executed.

V. Certificate of Registration for GST and acknowledgement of up to date filed return if required.

VI. Scanned Copies of all eligibility documents required as per NIT **Annexure –I**

Tender documents should be submitted online complete in all respect along with requisite amount of tender fee (cost of bid document). Complete set of tender documents comprising Volume I, II, III and financial bids has been made available at e-tender portal https://eprocure.gov.in/eprocure/app & www.iiserTirupati.ac.in

7 Director, Indian Institute of Science Education & Research, Tirupati shall be the "Accepting Authority" hereinafter referred to as such for the purpose of this Contract.

8 Bids must be accompanied by tender fee and bid-security/EMD (Earnest Money Deposit) amount specified for the work in clause 10 payable at Tirupati and drawn in favour of The Director; IISER Tirupati Bid Security shall have to be valid for 90 days beyond the validity of the bid.

9 Tender fee shall be Rs. 1000/-(Rupees One thousand only) non-refundable fee required to be deposited in **IISER Tirupati Bank account** through net banking as detailed below failing which the bid will be declared non responsive.

Name-IISER Tirupati Bank-
State Bank of India
Branch- Korlagunta Branch, Tirupati
Current A/c No. 35029946671
IFSC-SBIN0001901

Scanned copy of the net banking transaction receipt towards payment of tender fee shall be uploaded on the e-tendering website within the period of bid submission failing which the bid will be declared non responsive.

10 **10 Bid Security/EMD,**

10.1 Bid security/EMD amounting **to Rs 88, 662/-(Rupees Eighty Eight Thousand Six Hundred and Sixty Two only)** in the following form before the date and time fixed for opening of bid failing which the bid will be declared non responsive.

100% EMD amount can be deposited in **IISER Tirupati Bank account** through net banking as detailed below.

Name-IISER Tirupati
Bank-State Bank of India
Branch- Korlagunta Branch, Tirupati
Current A/c No. 35029946671
IFSC-SBIN0001901

10.2 Bid Security/EMD of unsuccessful Bidders will be returned to them within 90 days from the date of acceptance of bid of the successful Bidder.

10.3 The Bid Security may be forfeited, if

a) The Bidder withdraws / modifies his Bid or any item thereof after opening of bid.

b) The successful Bidder fails within the specified time limit to commence the work.

10.4 Scanned copy of net banking transaction receipt and Bank Guarantee towards security/ EMD shall be uploaded to the e-tendering website within the Period of bid submission Failing which the bid will be declared non responsive.

10.5 The firms registered with DGS&D & NSIC, Govt. public undertakings, central autonomous bodies and with the CSIR labs or institutes, if any, are exempted, from payment of Bid Security/EMD provided such registration includes the item they are offering which are manufactured by them and not for selling products manufactured by other companies.

11. A pre-bid meeting will be held on **07.10.2020 at 11:00** hours through ONLINE Gmeet. The interested bidders can request to join the Pre-Bid meeting through email to pvnrao@iisertirupati.ac.in or srujan@iisertirupati.ac.in . The GMeet link will be shared to the bidders accordingly to join the Online Pre-Bid Meeting.

12 **Pre-bid meeting**

12.1 The Bidder or his officially authorized representative is invited to attend a pre-bid meeting, which will take place as referred in clause 11 of NIT.

12.2 The purpose of the meeting is to clarify issues and to answer questions on matters that may be raised at that stage.

12.3 The Bidder is requested to submit their questions/ queries/ clarifications by email to reach the IISER Tirupati before the meeting. Bidders can send Pre-bid queries on their letter head referring tender number on e-mail address pvnrao@iisertirupati.ac.in or srujan@iisertirupati.ac.in **before 06.10.2020** up to 17:00 Hours.

12.4 Minutes of the meeting (MOM), including the text of the questions raised (without identifying the source of enquiry) and the responses given will be uploaded as corrigendum on website www.iisertirupati.ac.in and (URL:https://eprocure.gov.in/eprocure/app)

13 Any modification of the bidding documents which may become necessary as a result of the pre-bid meeting shall be made by the IISER, Tirupati through pre bid MOM and this shall form part of bidding document.

14 IISER Tirupati reserves the right to reject any prospective applicant without assigning any Reason and to restrict the list of technically qualified bidders to any number deemed suitable by it, if too many bids are received satisfying the laid down criterion.

15 Site visit, availability of site and cost of bidding

15.1 The Bidder shall bear all costs associated with the preparation and submission of his Bid, and the IISER, Tirupati will in no case be responsible and liable for these costs.

15.2 The Bidder should inform the IISER in advance about the proposed site visit.

15.3 The Bidder, at his own responsibility and risk is encouraged to visit, inspect and survey the Site and its surroundings and satisfy himself before submitting his bid as to the form and nature of the Site, the means of access to the Site, the accommodation he may require, etc.

15.4 In general, Bidders shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A Bidder shall be deemed to have full knowledge of the Site, whether he inspects it or not and no extra claims due to any misunderstanding or otherwise shall be allowed.

16 Content of Bidding Documents

16.1 Submission of a bid by a Bidder implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be executed and local conditions and other factors having a bearing on the execution of the works.

16.2 The Bidder shall submit the Bid, which satisfies each and every condition laid down in the bid documents, failing which, the bid is liable to be rejected.

16.3 Notice Inviting e-Tender shall form part of the Contract document.

16.3.1 The documents listed below comprises one set of bid document that are issued to Bidders:

PART – I
Technical Bid
Envelope –I
Volume I

a) Notice Inviting Tender (Including eligibility criteria)

b) Tender Form and General Rules and Directions for the Guidance of the Contractor

c) General Conditions of Contract and Schedules

Volume II

Scope and Technical Specifications of the work.

PART-II

Envelop II – (Financial bid)

Financial bid Schedule of quantity (BOQ).

17 Amendment of Bid Documents

17.1 Before the deadline for submission of bids, the IISER Tirupati may modify the bidding documents by issuing corrigendum.

17.2 Any corrigendum so issued shall be part of the bid documents as well as Contract document and shall be on uploaded website URL:https://eprocure.gov.in/eprocure/app and www.iisertirupati.ac.in Bidders should take note of the uploaded corrigendum and submit the tenders accordingly.

18 Bid Validity

18.1 The bid submitted shall become invalid if:

(i) The bidders is found ineligible.

(ii) The bidder does not deposit Online tender fee and EMD with IISER Tirupati before the date and time fixed for opening of the bids.

(iii) The bidders does not upload all the documents (including GST registration) as stipulated in the bid document.

(iv) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest tenderer in the office of tender opening authority.

18.2 The bids submitted shall remain valid for acceptance for a period of 90 days from the date of opening of the technical bids.

19 Technical bid Bid Opening

19.1 Online bid documents submitted by intending bidders shall be opened only of those bidders, whose tender fee and EMD is deposited online with IISER Tirupati and scanned their scanned copies i/c tender documents scanned and uploaded are found in order.

20 Technical Evaluation of the bids

20.1 The bidder qualifying initial criteria as set out in Para 2 & 3 and the details furnished by bidders in the Proforma 1 and **FORM A to Form E** enclosed as **Annexure-1** of Section II will be evaluated by the IISER Tirupati technical evaluation committee appointed by the competent authority.

Performa's listed are elaborated below,

I) Initial bidding capacity Performa I,

II) Financial Information **FORM "A"**

a) Solvency certificates from a scheduled bank - **Form B**

b) Details of similar works -- **Form C**

c) Performance report of works referred to in **Form D**

d) PROFORMA OF AFFIDAVIT FOR NON - BLACK LISTING- **Form E**

e) The bidders qualifying the initial eligibility criteria as set out in clause no 2 & 3 above will be evaluated based on the information submitted by bidders as per clause no 20.1 after due verification and selection will be made by IISER, TIRUPATI on the basis of the strength of individual applicants. Main consideration will be the ability of the Principal Contractor to fulfill technical, financial, contractual and legal obligations. Special emphasis will be laid on competence to do good quality works within specified time schedule and in close co-ordination with other agencies over and above the rate structure of the items.

f) ISER Tirupati reserves the right to waive off minor deviations in the eligibility, if the technical evaluation committee consider that they do not materially affect the capability of the bidder to perform the contract. IISER Tirupati decision in this regard shall be final and binding & conclusive.

20.2 TECHNICAL EVALUATION:

Evaluation of performance: Evaluation of the performance of the bidders for eligibility shall be done by the committee constituted by the Director, IISER Tirupati. All the eligible similar works executed and submitted by the bidders may be got inspected by a committee which may consists client or any other authority as decided by the competent authority. The evaluation shall be done based on this inspection, if inspection is carried out otherwise on the basis of the performance report given by the client department officer not below the rank of Executive Engineer.

20.3 Even though a bidder may satisfy the above requirements, he would be liable

for dis- qualification if he has:

(a) Made misleading or false representation or deliberately suppressed the information in the forms, statements and enclosures required in the pre-qualification document.

(b) Records of poor performance such as abandoning work, not properly completing the contract, or financial failures / weaknesses etc.

PART II

21 Financial /Price bid

21.1 After technical evaluation of (part I) bids as per clause 2, 3 & 20 above only short listed agencies financial bids shall be opened at the notified date and time.

22. Clarification of Bids

22.1 To assist in the examination and comparison of Bids, the IISER, Tirupati may, at its discretion, ask any Bidder for clarification of his Bid, including breakdown of unit rates. The request for clarification and the response shall be in writing or by email / fax, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the IISER, Tirupati in the evaluation of the bids.

22.2 No, Bidder shall contact the IISER, Tirupati on any matter relating to his bid from the time of the bid opening to the time the contract is awarded.

22.3 Any effort by the Bidder to influence the IISER's bid evaluation, bid comparison or contract award decisions, may result in the rejection of his bid.

23. Indian Institute of Science Education and Research Tirupati, does not bind itself to accept the lowest or any other bid, and reserves the right to reject any or all of the tenders received without assigning any reasons. Bids in which any of the prescribed conditions are not fulfilled or any conditions including that of the conditional rebate put forth by the bidder shall be summarily rejected.

24 If the Bid of the successful Bidder is seriously unbalanced in relation to the Engineer-in-charge or his representative's estimate of the cost of work to be executed under the contract, the IISER, Tirupati may require the Bidder to produce detailed rate analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those rates with the implementation/construction methods and schedule proposed.

25 Award Criteria

25.1 IISER Tirupati reserves the right without being liable for any damages or obligation to inform the bidder to:

a) amend the scope and value of the contract to the bidder

b) Reject any or all applications without assigning any reasons

25.2 IISER, Tirupati shall award the contract to the Bidder whose evaluated offer / bid has been determined to be the technically suitable and financially lowest and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to execute the contract satisfactorily. The Board of Governors of IISER reserves the right to accept or reject any application and to annul the pre-qualification process and reject all applications at any time, without thereby incurring any liability to the affected applicants or specifying the grounds for the Employer's action

26 Contractor whose tender is accepted will be required to furnish Performance guarantee of 5% (Five Percent) of the tendered amount within the period specified in Schedule C. This guarantee shall be in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the period as indicated in Schedule 'C'. including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor and without prejudice to any other right or remedy. The Earnest Money deposited along with tender shall be returned after receiving the aforesaid performance guarantee. The earnest money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.

27. Disclosures

Any change in the constitution of the contractor's firm, where it is a partnership firm, as declared in the prequalification documents submitted by the bidders at the time of submission of pre- qualification documents, should be disclosed to the IISER, Tirupati, at any time between the submission of bids and the signing of the contract.

IISER Tirupati

II) INSTRUCTIONS TO THE TENDERERS/BIDDERS

Name of Work: Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Set at IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

NIT No. : IISERT/ENGG/Elec/02

The Tenderer/bidder submitting the Tender should read the schedule of quantities, Specifications for the works and other terms and conditions given in the NIT and drawings. The following conditions, which shall form part of the Tender documents, are specially brought to the notice for compliance while filling the Tender: -

1. The Tenderer/bidder are advised to quote rates in words and figures for each item and work out the total amount in figures.

2. All taxes as applicable shall be borne by the contractor. The tenderer/bidder shall quote his rates in the BOQ for all items considering all such taxes. However, in respect of service tax, same shall be paid by the contractor to the concerned department on demand and it will be reimbursed to him by the Engineer- in- Charge after satisfying that it has been actually and genuinely paid by the contractor. In case of LBT/Octroi IISER Tirupati will issue exemption certificate and bidder shall co- ordinate with the PMC for getting the goods exempted.

3. The tenderer/bidder are advised to inspect and examine the site, and its surroundings and satisfy themselves before submitting their Tender/bid. The tenderer/bidder shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charges consequent on any misunderstanding or otherwise shall be allowed.

4. Tenderers/bidders who propose any alteration in the work specified in the said form of invitation to Tender, or in the time allowed for carrying out the work, which contain any other condition (s) of any sort including conditional rebate will be summarily rejected. Rates of such Tenders/bids shall neither be read out, not entered in the Tender opening register at the time of opening of Tenders.

5. All the statutory recoveries shall be made from the running bills of the contractor like Security deposit, Income tax, Surcharge, Education cess, etc or any other statutory recovery as per Government of India norms at the prevailing rates and in the manner prescribed by Government of India.

6. Rates quoted by the contractor in item rate tender in figures and words shall be accurately filled in so that there is no discrepancy in the rates written in figures and words. However, if a discrepancy is found, between the rates, figures and words, the rates which correspond

with the amount worked out by the contractor shall be taken as correct. If the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words, then the rates quoted by the contractor in words shall be taken as correct. Where the rates quoted by the contractor in figures and in words tallies, but the amount is not worked out correctly, the rates quoted by the contractor shall taken as correct and not the amount. In the event no rate has been quoted for any item (s) leaving space both in figure(s) word(s) and amount blank in any item, it will be presumed that the contractor has included the cost of this/these item (s) in other items and rate for such item(s) will be considered as zero and work will be required to be executed accordingly.

7. All rates shall be quoted in the Schedule of Quantity available in Financial bid document. The amount for each item should be worked out and requisite totals given. Special care should be taken to write the rates in figures as well as in words and the amount in figures only, in such a way that interpolation is not possible. The total amount should be written both in figures and in words. In case of figures, the word 'Rs. Should be written before the figure of rupees and word 'P' after the decimal figures,
e.g. 'Rs. 2.15 P' and in case of words, the word, Rupees, should precede and the word 'paisa' should be written at the end. Unless the rate is in whole rupees and followed by the word 'Only' it should invariably be up to two decimal places. While quoting the rate in schedule of quantities, the word 'only' should be written closely following the amount and it should not be written in the next line.

8. Rates should be quoted in Indian Rs. Only.

9. The bidders have already been declared technically qualified for the above work and need not to submit technical qualification documents unless there are changes during the course of time between the EOI and the present call of financial bids.

LETTER OF TRANSMITTAL

From

To
THE DIRECTOR,
INDIAN INSTITUTE OF SCIENCE EDUCATION &
RESEARCH (IISER) TIRUPATI

Sub: SUBMISSION OF TENDER DOCUMENTS FOR THE WORK OF NAME OF WORK: Supply,
Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

NIT NUMBER: IISERT/ENGG/Elec/02

Sir,

Having examined the details given in press notification and the tender document for the above work, I/we hereby submit the tender documents and other relevant information.

1. I/We hereby certify that all the statements made and information supplied in the enclosed forms and accompanying statements are true and correct.

2. I/We have furnished all information and details necessary for eligibility criteria and have no further pertinent information to supply.

3. I/We submit the requisite certified solvency certificate and authorize the Director, IISER, Tirupati– 517 507 to approach the Bank issuing the solvency certificate to confirm the correctness thereof. I/We also authorize Project Engineer, Tirupati to approach individuals, employers, firms and corporation to verify our competence and general reputation.

4. I/We submit the following certificates in support of our suitability, technical know- how & capability for having successfully completed the following works

Name of Work:	Certificate from
1.	1.
2.	2.
3.	3.

Enclosures:

Seal of applicant
Date of submission

Signature(s) of applicant(s)

Undertaking to sign the integrity Agreement

To,

……..,
……..,
……..

Sub: SUBMISSION OF TENDER DOCUMENTS FOR THE WORK OF "

Name of work &Location : **Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati**

NIT NUMBER : IISERT/ENGG/Elec/02

Dear Sir,

It is here by declared that IISER is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid documents, failing which the tenderer/bidder will stand disqualified from the tendering process and the bid would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the IISER.

Yours faithfully

Sd/-

Registrar

Forwarding letter for Integrity Agreement

To

INDIAN INSTITUTE OF SCIENCE EDUCATION & RESEARCH (IISER) TIRUPATI
Transit Campus at Sree Rama Engineering College Building,
Karakambadi Road, Mangalam (B.O), Tirupati - 517 507

Sub: SUBMISSION OF TENDER DOCUMENTS FOR THE WORK OF "
Name of work & Location: Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

NIT NUMBER: IISERT/ENGG/Elec/02

Dear Sir,

I/We acknowledge that IISER is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process. I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT.

I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by IISER. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, IISER shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid is accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorized signatory of the Bidder)

To be signed by the bidder and the signatory competent / authorised to sign the relevant contract on behalf of IISER

INTEGRITY AGREEMENT

This Integrity Agreement is made at ..... on this ..... day of20.....

BETWEEN

IISER represented through its Registrar, (Hereinafter referred as the '**Principal/Owner**', which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

AND

.....
(Name and Address of the Individual/firm/Company)

through ..... (Hereinafter referred to as the (Details of duly authorized signatory)

"**Bidder/Contractor**" and which expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)

Preamble

WHEREAS the Principal / Owner has floated the Tender (NIT No. .....) (hereinafter referred to as "**Tender/Bid**") and intends to award, under laid down organizational procedure, contract for .....
(Name of work)
hereinafter referred to as the "**Contract**".

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations, economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement (hereinafter referred to as "**Integrity Pact**" or "**Pact**"), the terms and conditions of which shall also be read as integral part and parcel of the Tender/Bid documents and Contract between the parties.

NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows and this Pact witnesses as under:

Article 1: Commitment of the Principal/Owner

1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the following principles:

(a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

(b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the Tender process or the Contract execution.

(c) The Principal/Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past has been of biased nature.

2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the highest ethical standards, and report to the Government / Department all suspected acts of **fraud or corruption or Coercion or Collusion** of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.

2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner's employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contract(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly, Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participates in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

e) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

3) The Bidder(s)/Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice **means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Government interests.**

5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

Article 3: Consequences of Breach

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/ Contractor accepts and undertakes to respect and uphold the Principal/Owner's absolute right:

1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days' notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. **Such exclusion may be forever or for a limited period as decided by the Principal/Owner.**

2) **Forfeiture of EMD/Performance Guarantee/Security Deposit**: If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.

3) **Criminal Liability:** If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of IPC Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/ Owner.

3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/Subcontractors

1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/ sub- vendors.

2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded.

If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority.

Article 7- Other Provisions

1) This Pact is subject to Indian Law, place of performance and jurisdiction is the **Headquarters of the** Principal/Owner, who has floated the Tender.

2) Changes and supplements need to be made in writing. Side agreements have not been made.

3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.

4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this **Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.**

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

.....
(For and on behalf of Principal/Owner)

.....
(For and on behalf of Bidder/Contractor)

WITNESSES:
1. .....
(signature, name and address)

2. .....
(signature, name and address)
Place:
Dated :

ANNEXURE 1

PERFORMA '1'

INFORMATION REGARDING INITIAL BIDDING CAPACITY

The information to be filled in by the Bidder in the following pages will be used for purposes of Pre- qualification as provided above.

1. For Individual Bidders

1.1 Constitution or legal status of Bidder

(Attach Copy) Place of registration:

Principal place of business:

(Power of attorney of signatory of Bid)

1.2 (A) Value of work Completed during the last five years (in Rs. Lakh)

Particular	***Year***	***Value***
Total value of Work Executed in the last three years**	2016-17	
	2017-18	
	2018-19	

** Immediately preceding the financial year in which bids are received. Attach certificate from Chartered accountant.

(B) Existing commitments and on-going works: (format for **clause 3.7)**

Description Of work	***Place & state***	***Contract No.& Date***	***Name & Address of Client***	***Value of Contract (Rs. Lacs)***	***Stipulated period of completion***	***Value of work remaining To be completed***	***Anticipated date of completion (Rs.)***	***Remarks Information regarding the litigation***

FORM 'A'

FINANCIAL INFORMATION

I. **F**inancial Analysis-Details to be furnished duly supported by figures in balance sheet/profit & loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income tax Department (Copies to be attached.)

Years

Year	**2016-17**	**2017-18**	**2018-19**
Gross annual turn over			
Profit/ Loss			

II. **F**inancial arrangements for carrying out the proposed work.

III. Solvency Certificate from Bankers of the bidder in the prescribed Form"I".

Signature of Chartered Accountant with Seal Signature of Bidder(s)

Form B

FORM OF BANKERS' CERTIFICATE FROM A SCHEDULED BANK

This is to certify that to the best of our knowledge and information that;

_____

(Name of the individual or the firm)

_____

(Name of the proprietor in case of a sole proprietorship concern or names of partners in case of partnership concern as per bank's record, be indicated)

_____

(Address of the customer as per bank record)

is a / are customer(s) of our bank, is/are respectable and can be treated as good for any engagement up to a limit of Rs. _
(Rupees_____only)

This certificate is issued without any guarantee or responsibility on the bank or any of the officers.

Signature of the Manager

Seal of Bank

Note : This certificate should be issued on the letter head and addressed to the DIRECTOR, IISER Tirupati

FORM 'C'

DETAILS OF ELIGIBLE SIMILAR NATURE OF WORKS COMPLETED DURING THE LAST 7 (Seven) YEARS ENDING PREVIOUS DAY OF THE DATE OF SUBMISSION OF TENDER

	Name of work/ project and location	Owner or Sponsoring organization	Cost of work in crores of Rupees	Date of commencement As per contract	Stipulated date of completion	Actual date of completion	Litigation /arbitration cases pending/in progress with details	Name and address/ telephone number of officer to whom reference	Remarks
1	2	3	4	5	6	7	8	9	10

- Indicate gross amount claimed and amount awarded by the Arbitrator.

SIGNATURE OF BIDDER(S)

FORM D

PERFORMANCE REPORT OF WORKS REFERRED TO IN PROFORMA 'C''

1. Name of the work/ Project & Location.

2. Agreement No.

3. Estimated Cost

4. Tendered Cost

5. Date of Start

6. Date of completion

   (a) Stipulated date of completion.

   (b) Actual date of completion.

7. a) Whether case of levy of compensation for Delay has been decided or not ? Yes / No

   d) If decided, amount of compensation levied for Delayed completion if any ?

8. Amount of reduced rate items, if any

9. Performance report

   i) Quality of Work : Outstanding/Very Good / Good / Poor

   ii) Financial soundness : Outstanding/Very Good / Good/ Poor

   iii) Technical Proficiency : Outstanding/Very Good / Good / Poor

   iv) Resourcefulness : Outstanding/Very Good / Good / Poor

   v) General Behaviour : Outstanding/Very Good / Good / Poor

DATED: **Executive Engineer or Equivalent**

(FORM-E)

PROFORMA OF AFFIDAVIT FOR NON - BLACK LISTING

I/we undertake and confirm that our firm/partnership firm has not been blacklisted by any state/Central Departments/PSUs/Autonomous bodies during the last 7 years of its operations. Further that, if such information comes to the notice of the IISER Tirupati then I/we shall be debarred for bidding in IISER TIRUPATI in future forever. Also, if such an information comes to the notice of department on any day before date of start of work, the Engineer-in-charge shall be free to cancel the agreement and to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee (Scanned copy of this notarized affidavit to be uploaded at the time of submission of bid)

Signature of Bidder(s) or an authorized
Officer of the firm with stamp

Signature of Notary with seal

Note:1. The affidavit shall be made in current date after the date of invitation of the tender.

Affidavit shall be furnished on a 'Non-Judicial' stamp paper worth Rs.100/-otherwise the tender shall be rejected

SPECIAL CONDITIONS FOR WORKS

1) DEFINITION:

In the Contract (as hereinafter defined) the following definitions words and expressions shall have the meaning hereby assigned to them except where the context otherwise required.

i) *Institute* shall mean the IISER Tirupati.

ii) The President shall mean the Board of Governors, IISER Tirupati.

iii) *The Engineer- in- charge*, who shall administer the work, shall mean the *Engineer- in- charge*, IISER Tirupati.

iv) *Government or Govt. of India* shall mean the Indian Institute of Science Education and Research Tirupati represented by its Director.

v) The term *Director General of Works* shall mean the Chairman, Building & Works Committee of the Institute.

vi) *Accepting authority* shall mean the Chairman, Building and Works Committee- Director, IISER Tirupati or his authorized representative.

vii) *Site Engineers* shall mean the Project Manager, Assistant Engineer & Jr. Engineer (Civil / Electrical) appointed by Institute works department.

2. DUTIES & POWERS:

2.1 Site Engineers:

The duties of the Site Engineer(s) are to watch and supervise the works and the workmanship in connection with the works, and to test and examine any materials to be used. He shall have no authority to relieve the contractor of any of his duties or obligations under the contract, except as expressly provided here under, nor to order any work involving delay or any extra payment by the Institute and to make any variation in the works.

The Engineer- in- charge, from time to time in writing, delegates to the Site Engineer(s) any of the powers and authorities vested in them. Any written instruction or written approval given by the Site Engineer (s) to the contractor within the terms of such delegation (but not otherwise) shall bind the contractor and the Institute as though it had been given by the Engineer- in- charge provided always as follows :

a) Failure of the Site Engineer (s) to disapprove any work or materials shall not prejudice the power of the Engineer in- charge to

subsequently disapprove such work or materials and to order the pulling down, removal or breaking up thereof.

b) If the contractor is dissatisfied by reason of any decision of the Site Engineer (s), he shall be entitled to refer the matter to the Engineer- in- charge, who shall thereupon confirm reverse or vary such decision.

3. ASSIGNMENT & SUBLETTING:

3.1 The contractor shall not assign the contract or any part thereof or any benefit or interest therein or there under without the written consent of the Engineer in- charge. The whole of the works included in the contract shall be executed by the contractor except where otherwise provided in the contract. The contractor shall not sublet any part of the works without the written consent of the Engineer in- charge and such consent, if given, shall not relieve the contractor from any liability or obligation under the contract, and he shall be responsible for the acts, defaults and neglects of sub- vendors, his agents, servants or workmen, as if they were the acts, defaults or neglects of the contractor provided always that the provision of labour contracts on a piece work basis shall not be deemed to be a subletting under this clause. In case the bidder outsource part of furniture through his authorised vendors then the quality and finish of the product has to be as per original company standard and it shall be the responsibility of the co. to carry out the quality check on the outsourced products.

4. SCOPE OF CONTRACT:

The contract comprises the supply, Installation, completion and Testing of the works and handing over to IISER, Tirupati, and the provision of all labour, materials, equipment and transportation, temporary works and everything, whether of a temporary or permanent nature required in and for such construction, completion so far as the necessity for providing the same is specified in or reasonably to be inferred from the contract. The contractor shall make his own arrangements for the safe storage of materials, accommodation for his staff etc. and no claim for the temporary accommodation from the contractor shall be entertained.

The contractor shall carry out and complete the said work in every respect in accordance with this contract and as per the directions and to the satisfaction of the Engineer in- charge. Issue of further drawings and / or written instructions, detailed directions and explanations which are hereinafter collectively referred to as instructions of the Engineer in- charge in regards to:

A) The variation or modification of the design, quality or quantity of works or the addition or omission or substitution of any work.

B) Any discrepancy in the Drawings or between the Schedule of Quantities and / or Drawings and / or specifications. The materials are to supplied as per approved shop drawings. Any excess material brought to site shall be taken back by the agency and no claim for payment of the same shall be entertained by IISER.

C) The removal from the site of any materials brought thereon by the contractor and the substitution of any other material thereof.

D) The dismissal from the works of any persons employed thereupon.

E) The opening up for inspection of any work covered up.

F) The amending / making good of any defects.

The contractor shall forthwith comply with and duly execute any instructions of work comprised in such Engineer in- charge's instructions, provided always that the verbal instructions and explanations given to the contractor or his representative upon the works shall, if involving a variation, be confirmed in writing by the contractor within seven days and if not dissented in writing within a further seven days by the Engineer in- charge, such shall be deemed to be instructions of the Engineer in- charge within the scope of the contract.

5. CONTRACT DOCUMENT*:*

5.1 The several documents, forming the contract, are to be taken as mutually explanatory of one another and in case of ambiguities or discrepancies the same shall be explained and adjusted by the Engineer- in- charge who shall thereupon issue to the contractor its interpretation directing in what manner the work is to be carried out. In case the contractor feels aggrieved by the interpretation of the Engineer- in- charge then the matter shall be referred to the Superintending Engineer and his decision shall be final, conclusive and binding on both parties to the contract.

The Engineer- in- charge shall have full powers and authority to supply to the contractor from time to time during the progress of the work such drawings and instructions as shall be necessary for proper execution and the contractor shall carry out and be bound by the same.

5.2 **Commercial tax** (GST) @ 2% of the value of work done shall be recovered from the contractor's bill.

6. The contractor(s) shall give to the Municipality, police and other authorities all necessary notices etc. that may be required by law and obtain all requisite licenses for temporary obstructions, enclosures etc. and pay all fee, taxes and charges which may

be levied on account of these operations in executing the contract. He shall make good any damage to the adjoining property whether public or private and shall supply and maintain lights either for illumination or for cautioning the public at night.

7 The Contractor(s) shall take instructions from the Engineer- in- Charge regarding collection and stacking of materials at any place. No excavated earth or building rubbish shall be stacked on areas where other buildings, roads, services and compound walls are to be constructed. However if any change is required, the same shall be done with the approval of Engineer- in- Charge & no extra payment shall be made on this account.

8 Contractor(s) shall provide permanent bench marks, flag tops and other reference points for the proper execution of work and these shall be preserved till the end of the work. All such reference points shall be in relation to the levels and locations, given in the Architectural and other related services drawings.

9 On completion of work, the Contractor(s) shall submit at his own cost four prints of "as built' drawings to the Engineer- in- Charge within 4 weeks of completion of the work failing which a recovery of Rs. 25,000/- for each item as listed below, to be made as reasonable compensation. These drawings shall have the following information.

a. All drawings related to electrical installations and services if any.

10. The contractor shall conduct his work, so as not to interfere with or hinder the progress or completion of the work being performed by other contractor(s) or by the Engineer- in- Charge and shall as far as possible arrange his work and shall place and dispose off the materials being used or removed, so as not to interfere with the operations of other contractor or he shall arrange his work with that of the others in an acceptable and coordinated manner and shall perform it in proper sequence to the complete satisfaction of others.

11. The contractor shall be fully responsible for the safe custody of materials brought by him at site / issued to him even though the materials may be under double lock and key system. The contractor has to make his own arrangement like shed enclosure etc. for keeping the material, providing security etc. The contractor shall be allowed to make temporary structures for stores, offices, sheds, labour huts etc. The contractor shall remove all the structures erected by him necessary for the execution of the work, after completion of the work and clean the site removing all structures and temporary hutments in all respect as per the direction of Engineer- in- charge.

12 QUALITY ASSURANCE:

12.1 The contractor shall establish, document and maintain and effective quality assurance system as outlined in the specifications and various codes and standards.

12.2 The bidder shall understand scope of the work, drawing, specifications and standards etc. attached with the tender or to be followed and shall seek clarification, if any before submission of the tender.

13 TESTING OF MATERIALS

13.1 All the required tests as per Technical Specification have to be got conducted at the risk & cost of the contractor, unless specifically mentioned otherwise.

13.2 All necessary tests as per the Contract/CPWD specifications/relevant BIS codes shall be carried out on all the materials whether ISI marked or otherwise. Wherever Contract /CPWD specifications/relevant BIS codes do not specify the frequency of tests, the same shall be carried out as per the directions of the Engineer- in- Charge. Nothing extra whatsoever shall be payable on this account.

14 Testing at Manufacturer's Place

14.1 Test certificates of the required test carried out at the manufacturer factory shall be submitted to the Engineer in charge from time to time.

***

SECTION- II

ITEM RATE TENDER & CONTRACT FOR WORKS

SECTION- II

Tender Form

Item Rate Tender & Contract for Works

Name of work: Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

NIT No.: IISERT/ENGG/Elec/02

(a). Tender(s) to be submitted by (time) 15:00 PM on 12/10/2020 to Engineering In Charge, Indian Institute of Science Education and Research, Tirupati

TENDER

I/We have read and examined the notice Inviting Tender, Schedule, Specifications applicable, General Rules and Directions, Conditions of Contract, clauses of contract, special conditions, Schedule of Rate & other document and Rules referred to in the conditions of contract and all other contents in the tender document for the work.

I/We hereby tender for the execution of the work specified for the Director of Indian Institute of Science Education and Research Tirupati within the time specified in Schedule 5 (Five) months viz, schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to the Conditions of contract and with such materials as are provided for and in respects in accordance with such conditions so far as applicable.

We agree to keep the tender valid for (90) ninety days from the due date of its opening and not to make any modifications in its terms and conditions.

A sum of Rs (figure)- (in words) -

- -

- -

has been deposited in Deposit at call Receipt of a Schedule bank/demand draft of a scheduled bank/bank guarantee issued by a Schedule Bank as earnest money. If I/we, fail to furnished the prescribed performance guarantee within prescribed period, I/we agree that the said Director Of Indian Institute of Science Education and Research Tirupati (IISER- Tirupati) or his successors in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely, if i/we fail to commence work as specified, I/we agree that Director Of Indian Institute of Science Education and Research Tirupati (IISER- Tirupati) or his successors in office shell without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely, otherwise the said earnest money shall be retained by him towards security deposit to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviations as may be ordered, up
to maximum of the percentage mentioned in Schedule ‘C’ and those in excess of that limit at the rates to be determined in accordance with the provision containing in the clause 12.2 & 12.3 of the condition of contract.

Further, I/We agree that in case of forfeiture of earnest money or both earnest money & performance guarantee as aforesaid, I/We shall be debarred for the participation in the re- tendering process of the work.

I/We hereby declare that I/we shall treat the tender documents drawings and other records connected with the work as secret/ confidential documents and shall not communicate information / derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the state or IISER Tirupati.

Dated …………………………. Signature of Contractor Seal

Postal Address

Witness:
Address:

Occupation:

ACCEPTANCE

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on the Director IISER, Tirupati for sum of Rs…….(Rupees……
……
……..).

The letters referred to below shall form part of this contract

Agreement:- (a)

(b)

(c)

For & on behalf of the Director,

IISER Tirupati

Signature…….

Dated…….. Designation……..

SECTION – III

GENERAL CONDITIONS OF CONTRACT

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH TIRUPATI

(i) General Rules & Directions

1. All work proposed for execution by contract will be notified in a form of invitation to tender prominently displayed in public places and signed by the officer inviting tender or by publication in Newspapers as the case may be.
   This form will state the work to be carried out, as well as the date for submitting and opening tenders and the time allowed for carrying out the work, also the amount of earnest money to be deposited with the application, and the amount of the security deposit and performance guarantee to be deposited by successful tenderer and the percentage, if any, to be deducted from bills. Copies of specification, designs and drawings and any other documents required in connection with the work signed for the purpose of identification by the officer inviting tender shall also be open for inspection by the contractor at the office of officer inviting tender during office hours.

2. In the event of the tender being submitted by a firm, it must be signed separately by each partner thereof or in the event of the absence of any partner, it must be signed on his behalf by a person holding a power of attorney authorizing him to do so, such power of attorney to be produced with the tender, and it must disclose that the firm is duly registered under the Indian Partnership Act' 1952.

3. Receipts for payment made on account of work, when executed by a firm, must also be signed by all the partners, except where contractors are described in their tender as a firm in which case the receipts must be signed in the name of the firm by one of the partners, or by some other person having due authority to give effectual receipts for the firm.

4. Applicable for Item Rate Tender only
   Any person who submits a tender shall fill up the usual printed form, stating at what rate he is willing to undertake each item of the work. Tenders, which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, including conditional rebates will be summarily rejected. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit separate tender for each. Tender shall have the name and number of the works to which they refer, written on the envelopes.(Applicable for Item Rate Tender only)

   The rate(s) must be quoted in decimal coinage. Amounts must be quoted in full rupees by ignoring fifty paise and considering more than fifty paise as rupee one.

   In case the lowest tendered amount (worked out on the basis of quoted rate of Individual items) of two or more contractors is same, the such lowest contractors may be asked to submit sealed revised offer quoting rate of each item of the schedule of quantity for all sub sections/sub heads as the case may be, but the revised quoted rate of each item of schedule of quantity for all sub sections/sub heads should not be higher than their respective origin original rate quoted already at the time of submission of tender. The lowest tender shall be decided on the basis of revised offer.

If the revised retendered amount (worked out on the basis of quote rate of individual items) of two or more contractors received in revised offer is again found to be equal, then the lowest tenderer, among such contractors, shall be decided by draw of lots in the presence of Registrar IISER Tirupati, Engineer in charge lowest contractors those have quoted equal amount of their tenders.

In case of any such lowest contractor in his revised offer quotes rate of any item more than their respective original rate quoted already at the time of submission of tender, then such revised offer shall be treated invalid. Such case of revised offer of the lowestcontractor or case of refusal to submit revised offer by the lowest contractor shall be treated as withdrawal of his tender before acceptance and 50% of his earnest money shall be forfeited.

In case all the lowest contractors those have same tendered amount (as a result of their quoted rate of individual items), refuse to submit revised offers, then tenders are to be recalled after forfeiting 50% of EMD of each lowest contractors.

Contractor, whose earnest money is forfeited because of non- submission of revised offer, or quoting higher revised rate(s) of any item(s) than their respective original rate quoted already at the time of submission of his bid shall not be allowed to participate in the re- tendering process of the work.

5. The officer inviting tender or his duly authorized representative will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amounts of the several tenders in a comparative statement in a suitable form. In the event of a tender being accepted, a receipt for the earnest money shall thereupon be given to the contractor who shall thereupon for the purpose of identification sign copies of the specifications and other documents mentioned in Rule- I. The earnest money of all unsuccessful bidders shall thereupon be returned to the contractor remitting the same, without any interest.

6. The officer inviting tenders shall have the right of rejecting all or any of the tenders and will not be bound to accept the lowest or any other tender.

7. The receipt of an accountant or clerk for any money paid by the contractor will not be considered as any acknowledgement of payment to the officer inviting tender and the contractors shall be responsible for ensuring that he procures a receipt signed by the officer inviting tender or a duly authorized cashier/accounts officer.

8. The memorandum of work tendered for and the schedule of materials to be supplied by the department and their issue- rates, shall be filled and completed in the office of the officer inviting tender before the tender form is issued. If a form is issued to an intending tenderer without having been so filled in and incomplete, he shall request the officer to have this done before he completes and delivers his tender.

9. The tenderers shall sign a declaration under the officials Secret Act 1923, for maintaining secrecy of the tender documents drawings or other records connected with the work given to them. The unsuccessful tenderers shall return all the drawings given to them.

9A. Use of correcting fluid, anywhere in tender documents is not generally permitted. Such Tender is liable for rejection.

10. In the case of Item Rate Tenders, only rates quoted shall be considered. Any tender containing percentage below / above the rates quoted is liable to be rejected. Rates quoted by the contractor in item rate tender in figures and words shall be accurately filled in so that there is no discrepancy in the rates written in figures and words. However, if a discrepancy is found, the rates which correspond with the amount worked out by the contractor shall unless otherwise proved be taken as correct. If the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or in words, then the rates quoted by the contractor in words shall be taken as correct. Where the rates quoted by the contractor in figures and in words tally, but the amount is not worked out correctly, the rates quoted by the contractor will unless otherwise proved be taken as correct and not the amount.
In event no rate has been quoted for any item(s), leaving space both in figure(s), word(s), and amount blank, it will be presumed that the contractor has included the cost of this/these item(s) in other items and rate for such item(s) will be considered as zero and work will be required to be executed accordingly.

10A In case of Percentage Rate Tenders only percentage quoted shall be considered. Any tender for Item containing item rates is liable to be rejected. Percentage quoted by the contractor in Rate percentage rate tender shall be accurately filled in figures and words, so that there is no Tender only discrepancy.

11. In the case of any tender where unit rate of any item/items appear unrealistic, such tender will be considered as unbalanced and in case the tenderer in unable to provide satisfactory explanation, such a tender is liable to disqualified and rejected.

12. All rates shall be quoted on the tender form. The amount for each item should be worked out and requisite totals given. Special care should be taken to write the rates in figures as well as in words and the amount in figures only, in such a way that interpolation is not possible. The total amount should be written both in figures and in words. In case of figures, the word `Rs' should be written before the figure of rupees and word `P' after the decimal figures, e.g. Rs. 2.15 P and in case of words, the word `Rupees' should precede and the word `Paise' should be written at the end. Unless the rate is in whole rupees and followed by the word `only' it should invariably be up to two decimal places. While quoting the rate in schedule of quantities, the word `only' should be written closely following the amount and it should not be written in the next line.

13. (i) The Contractor, whose tender is accepted, will be required to furnish performance guarantee of 5% (Five Percent) of the tendered amount within the period specified in scheduled C. This guarantee shall be in the form of Deposit at call receipt of any scheduled bank/ banker's cheque of any scheduled bank/Demand draft of any scheduled bank /Pay order of any scheduled bank or Government Securities or Fixed Deposit Receipt or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form.

(i) The Contractor, whose tender is accepted, will also be required to furnish by way

of Security Deposit for the fulfillment of his contract, an amount equal to 2.50 % of the tendered value of the work. The Security Deposit will be collected by deductions from the running bills of the contractor at the rates mentioned above and the earnest money deposited at the time of tenders, will be treated as a part of the Security Deposit. The security amount will also be accepted in the shape of Government Securities. Fixed Deposit Receipt and Guarantee Bonds of a Scheduled Bank or State Bank of India will also be accepted for this purpose provided confirmatory advice is enclosed.

14. On acceptance of the tender, the name of the accredited representative(s) of the contractor who would be responsible for taking instructions from the Engineer- in- Charge shall be communicated in writing to the Engineer- in- Charge.

15. The contractor shall give a list of IISER employees, if any, related to him.

16. The tender for the work shall not be witnessed by a contractor or Contractors who himself/ themselves has/ have tendered or who may and has/ have tendered for the same work. Failure to observe this condition would render, tenders of the contractors tendering, as well as witnessing the tender, liable to summary rejection.

17. The contractor shall submit list of works which are in hand (progress) in the following form:

Name of work	Name of client & particulars of works being executed	Value of work In Rs.	Position of works in progress	Remarks

18. The contractor shall comply with the provisions of the Apprentices Act 1961, and the rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of the contract and the Engineer in charge may at his discretion without prejudice to any other right or remedy available in law cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

(ii) CONDITIONS OF CONTRACT

Definitions:

1 The **contract** means the documents forming the tender and acceptance thereof and the formal agreement executed between the competent authority on behalf of the Director, Indian Institute Of Science Education and Research Tirupati and the Contractor, together with the documents referred to therein including these conditions, the specifications, designs, drawings and instructions issued from time to time by the Engineer- in- Charge and all these documents taken together, shall be deemed to form one contract and shall be complementary to one another.

2 In the contract, the following expressions shall, unless the context otherwise requires, have the meanings, hereby respectively assigned to them:-

i). The expression **works** or **work** shall, unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the works by or by virtue of the contract contracted to be executed whether temporary or permanent, and whether original, altered, substituted or additional.

ii). The **Site** shall mean the land/ or other places on, into or through which work is to be executed under the contract or any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.

iii). The **Contractor** shall mean the individual, firm or company, whether incorporated or not, undertaking the works shall include the legal personal representative of such individual or the persons composing such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.

iv). The **Director**, Indian Institute of Science Education and Research Tirupati means his successors also.

v) The **Engineer- in- Charge** means Engineer/Officer either from IISER, Tirupati or consultant notified by The Director (IISER, Tirupati) who shall supervise and be in- charge of work and who shall act on behalf of the Director, IISER for execution of contract.

vi) **IISER** means Indian Institute of Science Education and Research Tirupati, or his authorized representative.

vii) **Accepting Authority** shall mean the authority mentioned in Schedule 'C'.

viii) **Excepted Risk** are risks due to riots (other than those on account of contractor's employees), war (whether declared or not) invasion, act of foreign enemies,

hostilities, civil war, rebellion revolution, insurrection, military or usurped power, any acts of Government, damages from aircraft, acts of God, such as earthquake, lightening and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority or causes solely due to use or occupation by IISER Tirupati of the part of the works in respect of which a certificate of completion has been issued or a cause solely due to IISER- Tiruapti's faulty design of works.

ix). **Market Rate** shall be the rate as decided by the Engineer- in- Charge on the basis of the cost of materials and labour at the site where the work is to be executed plus the percentage mentioned in Schedule `C' to cover, all overheads and profits.

x). **Schedule(s)** referred to in these conditions shall mean the relevant schedule(s) annexed to the tender papers or the standard Schedule of Rates of the CPWD Delhi schedule of rates mentioned in Schedule `C' hereunder, with the amendments thereto issued up to the date of receipt of the tender.

xi). **Department** means Indian Institute of Science Education and Research Tirupati. (IISER Tirupati)

xii). **Specifications** means the specifications contained in tender documents, CPWD General Specifications for Electrical Works Part VII D.G. Sets - 2013, Indian standard specification, technical specifications as applicable.

xiii). **Tendered Value** means the value of the entire work as stipulated in the letter of award.

xiv) **Date of commencement of work: The date** of commencement of work shall be the date of start as specified in schedule "C" or the first date of handling over the site, whichever is later, in accordance with the phasing if any, as indicated in the tender documents.

Xv) Director IISER TIRUPATI, Registrar IISER Tirupati and Engineer In- charge shall bear all the decisionary and financial power of pertaining to Name of Work: **:** Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

NIT No. : IISERT/ENGG/Elec/02

3 Where the context so requires, words imparting the singular only also include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine gender and vice versa.

4 Headings and Marginal notes to these General Conditions of Contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.

5 The contractor shall be furnished, free of cost one certified copy of the contract

documents except standard specifications. Schedule of Rates and such other printed and published documents, together with all drawings as may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract

6 The work to be carried out under the Contract shall, except as otherwise provided in these conditions, include all labour, materials, tools, plants, equipment and transport which may be required in preparation of and for and in the full and entire execution and completion of the works. The descriptions given in the Schedule of quantities shall, unless otherwise stated, be held to include wastage on materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting and fixing in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

7. The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and the rates and prices quoted in the Schedule of Quantities, which rates and prices shall, except as otherwise provided, cover all his obligations under the Contract and all matters and things necessary for the proper completion of the works.

8. The several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawing and figured dimensions in preference to scale and special conditions in preference to General conditions.

8.1. In the case of discrepancy between the schedules of quantities, the specifications and or the drawings, the following order of preference shall be observed.

(i) Description of schedule of Quantities
(ii) Technical specification and Special Condition, if any.
(iii) C.P.W.D. Specification
(iv) Indian Standard Specifications of B.I.S.

8.2 If there are varying or conflicting provision made in any one document forming part of the contract, the Accepting Authority shall be deciding authority with regard to the intention of the documents and his decision shall be final and binding on the contractor.

8.3 Any error in the description, quantity or rate in Schedule of Quantities or any omission there from shall not vitiate the contract or release the contractor from the execution of the whole or any part of the works comprised therein according to drawings and specifications or from any of his obligations under the contract.

9. The successful tenderer/contractor, on acceptance of his tender by the Accepting Authority, shall within one month from the stipulated date of start of the work, sign the contract consisting of:-

(i) The notice inviting tender, all the documents including drawings if any, forms the

tender as issued at the time of invitation of tender and acceptance thereof together with any correspondence leading thereto.

(ii) Standard Form Consisting of followings

(a) NIT, Work order
(b) Item rate tender form & Contract for worker.
(c) General Rules and Directions
(d) Condition of contracts
(e) Clauses of contracts, Safety code & Contractors labour regulations
(f) Proforma of agreement
(g) Proforma of Schedule A to C
(h) Special Condition of contracts
(i) Technical specifications
(j) All correspondence between the parties till award of contract

(iii) Till such time contract agreement is signed between the parties, all the documents mentioned Sr. 9 (i), 9 (ii)- (a to j) above shall be binding on the contractor.

(iv) No payment for the work done will be made unless contract is signed by the contractor.

(iii) CLAUSES OF CONTRACT SAFETY CODE AND LABOUR REGULATIONS

The Clauses of Contract, safety code to be followed and the labour regulations to be adhered to, are as per the **CPWD General Conditions of contract 2014** with corrections as applicable up to date. The clauses of contract as as given in the mentioned GCC 2 (iii), the safety code as given in the 2 (v) and labour regulations in 2 (vii). The schedules from A to C applicable in addition to the GCC are given in this tender document as proforma of Schedules.

In addition to all the safety code as mentioned above, the general safety rules as per the Indian Electricity Act are to be followed.

(vii) Form of Performance Security (Guarantee)

Bank Guarantee Bond

1. In consideration of the Director IISER Tirupati (hereinafter called "IISER- Tirupati") having offered to accept the terms and conditions of the proposed agreement between- and- (hereinafter called "the said Contractor(s)") for the work - (hereinafter called "the said agreement") having agreed to production of an irrevocable Bank Guarantee for Rs.- - - - - - - - - - (Rupees - only) as a security/guarantee from the contractor(s) for compliance of his obligations in accordance with the terms and conditions in the said agreement.

   We - (hereinafter referred to as "the Bank") hereby (indicate the name of the Bank) Undertake to pay to the IISER Tirupati an amount not exceeding Rs- - - - - - - - - - - - - - - - - - .(Rupees - - - - - - - - - - - - - - - - only) on demand by IISER Tirupati

2. We - do hereby undertake to pay the amounts due and payable (indicate the name of the Bank) under this Guarantee without any demure, merely on demand from the IISER Tirupati stating that the amount claimed as required to meet the recoveries due or likely to be due from the said contractor(s).Any such demand made on the bank shall be conclusive as regards the amount due and payable by the bank under this Guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs- - - - - - - - - - - - - - - - - - (Rupees- only)

3. We, the said bank further undertake to pay the IISER Tirupati any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto, our liability under this present being absolute and unequivocal.

   The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Contractor(s) shall have no claim against us for making such payment.

4. We, - further agree that the guarantee herein contained shall (indicate the name of the Bank) remain in full force and effect during the period that would be taken for the performance of the said agreement and that it shall continue to be enforceable till all the dues of the IISER Tirupati under or by virtue of the said agreement have been fully paid and its claims satisfied or discharged or till Engineer- in- Charge on behalf of the IISER Tirupati certified that the terms and conditions of the said agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee.

5. We, - further agree with the IISER Tirupati that the IISER Tirupati (indicate the name of the Bank) shall have the fullest liberty without our consent and without affecting in any manner our obligation hereunder to vary any of the terms and conditions of the said agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the IISER Tirupati against the said contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Contractor(s) or for any forbearance, act of omission on the part of the IISER Tirupati or any indulgence by the IISER Tirupati to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s).

7. We, - lastly undertake not to revoke this guarantee except (indicate the name of the Bank) with the previous consent of the IISER Tirupati in writing.

8. This guarantee shall be valid up to- unless extended on demand by the IISER Tirupati. Notwithstanding anything mentioned above, our liability against this guarantee is restricted to Rs- - - - - - - - - - - - - - - - - (Rupees- only) and unless a claim in writing is lodged with us within six months of the date of expiry or the extended date of expiry of this guarantee all our liabilities under this guarantee shall stand discharged.

Dated the - - - - - - - - - - - - - day of- - - - - - - - - - - - - - - for- (indicate the name of the Bank)

(viii) Proforma of Agreement

ARTICLE OF AGREEMENT is made at Tirupati on the .... day of................... 2020 between Indian Institutes Of Science Education and Research Tirupati, (IISER Tirupati) (Herein after referred to as the employer which expression shall includes its successors and assigns where the context so admits) of the one part and - - - - - -
- -
- -
- -
- -
- -
- - - - - - -
(Hereinafter referred to as the “contractor(s) which expression shall include his/their respective heirs, executors, administrators and assigns where the context so admits) of the other part.

WHEREAS the employer is desirous of getting the work…………………………………………………………………………………………………
………………………………..done and caused drawings, schedule of quantities, terms and conditions and specification describing the work to be executed and completed maintained.(hereinafter called “the works”)and has accepted a tender of the CONTRACTOR for the execution, completion and guarantee of such works.

AND WHERE AS the contractor has deposited a Sum of Rs.- -
- -

- -

- - - - - - - - - - - - - With employer as security for the due performance of this agreement as

provided in the said Conditions.

NOW IT IS HEREBY agreed and declared by and between the parties as follows.

(a) In consideration of the payments to be made to him as herein after provided the contractor shall upon and subject to the condition herein contained and the said conditions executed and complete the work shown upon the said drawings and such further detailed drawings which may be furnished to him and described in the said specifications and the said priced schedule of quantities within - - - - - - - - - - - - - - - - - - from the date of order to commence the work.

(b) The employer shall pay to the contractor such sum that shall become payable hereunder at the times and in the manner specified in the said conditions.

(c) Time is essence of this agreement and the contractor agrees to pay compensation for delay as per Clause 2 of general Condition of Contract.

(e) The documents mentioned below under (g) shall form the basis of this agreement and the decision Engineer or the Engineers in Charge, in reference to all matters of dispute as to material and workmanship shall be final and binding on both the parties.

(f) The employer through the Engineer- in- Charge reserves to himself the right of altering the drawings and the adding to or omitting any items of works or of having portions of the same carried out departmentally or otherwise and such alterations or variations shall not violate agreement.

(g) This agreement comprises the work said above and the entire subsidiary work connected there with, even though work may not be shown on the drawings or described in the said specifications or the priced schedule of quantities.

This agreement contains the following documents in addition to pages of articles of agreement.

(a) NIT/WORK ORDER
(b) Item rate tender form & contract for works.
(c) General Rules and Directions
(d) Condition of contracts
(e) Clauses of contracts
(f) Safety code
(g) Models rules for the protection of health, sanitary arrangements for workers employed by IISER Tirupati or its Contractors.
(h) Contractors labour regulations
(i) Proforma of agreement
(j) Proforma of Schedule A to C
(k) Special Condition of contracts
(l) Technical specifications
(m) Tenders drawings
(n) Price Schedule/ Schedule of Quantities
(o) All corresponds between the parties until award of contract.
(p) Prequalification document

In witness whereof the parties hereto have their respective hands the day and the year herein above written.

Signed by for and on behalf of the

employer. Engineering In charge

Witness

(1)- - - - - - - - - - - -

- - - - - - - - - -

Witness

(2)

- - - - - - - - - - - - - -

- - - - - - - -

Signed by the said contractor

Address- -

- - - - - - - - - - - - - -

Witness (1) -

Countersigned Witness (2)

- -

(IX) PROFORMA BANK GUARANTEE IN LIEU OF BID SECURITY

(On Non Judicial Stamp paper to be stamped in accordance with stamp act, the stamp paper to be in name of Executing Bank)

Ref.............. Date.......…………….....

Bank Guarantee No....…………………..

To **INDIAN INSTITUTE OF SCIENCE EDUCATION & RESEARCH,** TIRUPATI

____

____

Dear Sir,

In accordance with your Notice Inviting Tender for__________under your tender No________dated ______________ M/s __________________(hereinafter called the Tenderer) with following directors on their Board of Directors /Partners of the firm.

1______________________ 2______________________

3______________________ 4______________________

5_____ 6_____

7_____ 8_____

9_____ 10_____

Wish to participate in the said tender for the following:

1_____

2_____

3_____

Whereas it is a condition in the tender documents that the tenderer has to deposit Bid Security with respect to the tender, with Indian Institute of Science Education & Research, Tirupati amounting to Rs……..... or alternatively the tenderer is required to submit "Bank Guarantee" from a nationalised bank irrevocable and operative till 28 days after the validity of the offer. (i.e. 120 days from the date of opening of tender), for the like amount which amount is likely to be forfeited on the happening of contingencies mentioned in the tender documents. And whereas the tenderer desires to secure exemption from deposit of Bid Security and has offered to furnish a Bank Guarantee for a sum of Rs..……..... to the IISER, Tirupati for the purpose of securing exemption from the deposit of Bid Security.

1. NOW THEREFORE, we the ……..... Bank, a body corporate constituted under the Banking Companies (Acquisition and Transfer of undertakings) Act 1969 and having a branch office at……..... (hereinafter referred to as the Bank") do hereby undertake and agree to pay on demand in writing by the IISER, Tirupati the amount of Rs……..…….. (Rupees...……....) to the **Indian Institute of Science Education & Research, Tirupati** without any demur, reservation or recourse.

2. We, the aforesaid Bank, further agree that the IISER, Tirupati shall be the sole judge of and as to whether the tenderer has committed any breach or breaches of any of the terms and conditions of the tender and the extent of loss, damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by the IISER, Tirupati on account thereof the extent of the bid security required to be deposited by the Tenderer in respect of the said Tender document and the decision of the IISER, P Tirupati that the Tenderer has committed such breach or breaches and as to the amount or amounts of loss, damage, costs, charges and expenses caused to or suffered by or that may be caused to or suffered by the IISER, Tirupati shall be final and binding on us.

3. We, the said Bank further agree that the Guarantee herein contained shall remain in full force and effect until it is released by the IISER, Tirupati and change in the constitution, liquidation or dissolution of the Tenderer shall not discharge our liability guaranteed herein.

4. It is further declared that it shall not be necessary for the IISER, Tirupati to proceed against the Contractor before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank notwithstanding any security which the IISER, Tirupati may have obtained or shall obtain from the Contractor at the time when proceedings are taken against the Bank for whatever amount may be outstanding or unrealized under the Guarantee.

5. The right of the IISER, Tirupati to recover the said amount of Rs…….. (Rupees …….....) from us in manner aforesaid will not be affected or suspended by reason of the fact that any dispute or disputes have been raised by the said M/s……..... (Tenderer) and/or that any dispute or disputes are pending before any authority, officer, tribunal or arbitrator(s) etc.

6. Notwithstanding anything stated above, our liability under this guarantee shall be restricted to Rs…….....(Rupees……..…….....) and our guarantee shall remain in force up to……..... and unless a demand or claim under the guarantee is made on us in writing within three months after the aforesaid date i.e. on or before the ……..... all your rights under the guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there under.

Date.....

place.....

(Signature)_____

(Printed Name)_____

(Designation)_____

(Bank's Common seal_____

(Authorisation No.)_____

In the presence

of: Witness

1)_____

2)_____

Accepted

(Signature of the Officer)

For and on behalf of the

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, TIRUPATI.

APPENDIX (xv) - CLAUSE 25

APPENDIX XV Notice for appointment of Arbitrator [Refer Clause 25]

To
The Chairman
Building and Works Committee
IISER Tirupati.

Dear Sir,
In terms of clause 25 of the agreement, particulars of which are given below, I/we hereby give notice to you to appoint an arbitrator for settlement of disputes mentioned below:

1. Name of applicant
2. Whether applicant is Individual/Prop. Firm/Partnership Firm/Ltd. Co.
3. Full address of the applicant
4. Name of the work and contract number in which arbitration sought
5. Name of the Division which entered into contract
6. Contract amount in the work
7. Date of contract
8. Date of contract Date of initiation of work
9. Stipulated date of completion of work
10. Actual date of completion of work (if completed)
11. Total number of claims made
12. Total amount claimed
13. Date of intimation of final bill (if work is completed)
14. Date of payment of final bill (if work is completed)
15. Amount of final bill (if work is completed)
16. Date of request made to SE for decision
17. Date of receipt of SE's decision
18. Date of appeal to you
19. Date of receipt of your decision.

Specimen signatures of the applicant

(only the person/authority who signed the contract should sign)

I/We certify that the information given above is true to the best of my/our knowledge. I/We enclose following documents.

1. Statement of claims with amount of claims. 2.

Yours faithfully

Copy in duplicate to:
Engineer in Charge.

(iv)PROFORMA OF SCHEDULES

(Operative Schedules to be supplied to each intending tenderer)

SCHEDULE 'A'

Schedule of quantities Enclosed

SCHEDULE 'B'

Schedule of materials to be issued to the contractor.

S.No	Description of item	Quantity	Rates in figures & words at which the material will be charged to the contractor	Place of issue
1	2	3	4	5
	NIL			

Tools and plants to be hired to the contractor

S.N	Descripti	Hire charges per	Place of
1	2	3	4
	NIL		

Extra schedule for specific requirements/document for the work, if any. - - NIL—

Reference to General Conditions of contract.-

NAME OF WORK: Supply, Installation, Testing and Commissioning of 625 KVA Diesel Generator Setat IISER TIRUPATI Main Campus, Jangalapalli Village, Yerpadu Mandal, Tirupati

NIT NUMBER **:** IISERT/ENGG/Elec/02

Estimated cost put to tender **:** **Rs. 44.33 Lakhs**

(i) Earnest money : Rs 88,662/-
(to be returned after receiving performance guarantee)

(ii) Performance Guarantee : 5% of tendered value.

(iii) Security Deposit : 2.5 % of tendered value.

SCHEDULE 'C'

GENERAL RULES & DIRECTIONS:

Officer inviting tender DIRECTOR, IISER TIRUPATI

Maximum percentage for quantity of items of work to be executed beyond which rates are to be determined in accordance with Clauses 12.2 & 12.3 : See below

Definitions:

2(v) Engineer- in- Charge : Superintending Engineer, IISER Tirupati

2(viii) Accepting Authority : The Director, IISER, Tirupati

2(ix) Percentage on cost of materials and labour to cover all overheads and profits : 15%

2(x) Standard Schedule of rates :CPWD Delhi Schedule of Rates (E&M) 2018

2(viii) Department : Indian institute of Science Education & Research, IISER, Tirupati

2(ix) Standard contract Form Item rate tender form & Contract of works

Clause 1

(i) Time allowed for submission of Performance Guarantee from the date of issue of letter of acceptance 7days

(ii) Maximum allowable extension with late fee @ 0.1% per day of Performance Guarantee amount beyond the period provided in (i) above 15 days

Clause 2

Authority for fixing compensation The Director Indian institute of Science

under clause 2. Education & Research, IISER Tirupati.

Clause 2 A

Whether Clause 2A shall be applicable Yes Applicable

Clause 5

Number of days from the date of issue of letter of award works for reckoning date of start 5 days

Mile stone(s) as per table given below:-

S.No	Description of Mile Stone (Physical)	Time allowed in days/months (From date of start)	Amount to be with- held in case of non- achievement of Milestone

Authority to decide:

(i) Extension of time The Director Indian institute of Education & Research, IISER

(ii Rescheduling of mile Engineer in charge

(iii) Shifting of date of start in case of delay in handing over of site: Engineer in charge.

Clause 6, 6 A

Clause applicable – (6or 6A) 6A

Clause 7

Gross work to be done together with net payment /adjustment of advances for material collected, if any, since the last such payment for being eligible to interim payment Rs. 10.00 Lakhs

Clause 10

List of testing equipment to be provided by the contractor at site lab.

To be arranged by the agency as per work requirement.

Clause 10 B

Whether Clause 10 B shall be applicable 10B applicable

Clause 10 C

Component of labour expressed as percent of value of work = Not Applicable

Clause 10 CA **NOT Applicable**

Material covered Nearest Materials (other than	Base price and its corresponding period of all the materials
NIL	NIL

CLAUSE 10 CC **NOT APPLICABLE**

Clause 11

Specifications to be followed for execution work	1) Technical specification given in Tender documents.
	2) CPWD standard specification for DG set
	3) Indian Standard Specification
	4) Manufactures specification
	5) Engineer In charge decision.

Clause 12

Type of work Project and original work

12.2 & 12.3	Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for building Super structure work & other Associated Electro- mechanical works	(±) 30 %
12.5	(i) Deviation Limit beyond which clauses 12.2 & 12.3 shall apply for foundation work	(±) 100%

Clause 16

Competent Authority for deciding reduced rates

The Director Indian institute of Science Education &. Research, IISER Tirupati

Clause 18

List of mandatory machinery, tools & plants - NIL
To be deployed by the contractor at site at his cost:

Clause 25
Constitution of Dispute Redressal committee will be as constituted by Director, IISER Tirupati.
Clause 34 (i)

Requirement of Technical Representative(s) and recovery rate to be affected from Contractor bill for non- deployment of technical staff at site of work:

S.No.	Technical Representative(s)	Qualification & Discipline of the Technical representative(s)	Minimum Experience of the Technical representative(s)	Minimum Numbers to be employed at site	Rate at which recovery shall be made from the contractor in the event of not fulfilling provision of clause 34(i)	
					Figure	Words
1	Project Manager (Full duration of project)	BE Electrical	5 years	1	20000	Twentty thousand only

Note:
(1) Assistant Engineers retired from Government services that are holding Diploma will be treated at par with Graduate Engineers.
(2)Diploma holder with minimum 10 year relevant experience with a reputed construction co. can be treated at par with Graduate Engineers for the purpose of such deployment subject to the condition that such diploma holders should not exceed 50% of requirement of degree engineers.

VOLUME II

SCOPE OF WORK & TECHNICAL SPECIFICATIONS

SPECIFICATIONS FOR 625 KVA (500 KW) SILENT TYPE DG SET

SCOPE OF WORK

The scope of work mainly includes but not necessarily limited to the following:

Supplying, installation, testing and commissioning of Diesel Generator set complete with base plate, anti-vibration isolators acoustic enclosure and all fixing accessories as required including **warranty of ONE YEAR**

Exhaust piping, duly insulated with mineral wool and aluminum sheet cladding. Residential type silencer, complete with GI supports, brackets hardware etc.
Low Maintenance lead acid batteries with charging system.

Day oil tanks complete with supporting stand, all accessories, filters, valves, fittings level indicators, and level controllers with contacts.

MS pipes for fuel, and generator cooling system, including all valves accessories fittings, painting of pipes and supports etc.

Hoisting and handling facilities such as cranes, tools and tackles specially required for this kind of equipment and for lowering equipment wherever it is to be installed.

Providing of automatic transfer switch panel complete with necessary controllers and switchgears. Provide manufacturer's factory representative's services, including coordination and supervision Carry out performance testing and commissioning, cabling, earthing system, interconnections, first lube oil filling.

ASSOCIATED CIVIL WORKS

Following civil works associated with Power Generating set installation are included in the scope of this tender. These shall be executed by the agency in accordance with approved shop drawings

1.2.1 RCC Foundation
1.2.2 RCC basin & Supports

AMBIENT CONDITIONS

Rating of all equipment shall be appropriate for the conditions on the location where the equipment will be installed and operate. All the equipment shall be suitable for continuous equipment will be installed and operate. All the equipment shall be suitable for continuous

Ambient Temperature
Maximum : 47 deg. C
Minimum : 2 deg. C

Note: All equipment shall give required output under the above conditions

TECHNICAL SPECIFICATION

1.1 GENERAL

This section deals with unloading procedures, location, standard capacities and climatic conditions for DG set installation

1.1.1 Unloading

1.1.1.1 Genset should be covered with polyethylene or tarpaulin during installation to ensure that water does not enter inside

1.1.1.2 Spreader bar/spacer plate of suitable size may be required to avoid damages to Genset components

1.1.1.3 DG set with Acoustic enclosures are provided with lifting hooks

1.1.1.4 Climatic Conditions

The output of DG Set shall work under following climatic conditions to be in conformity with CPCB approved type tests

(i) Outside Maximum Ambient Temperatures : 47 Deg.C
(ii) Height above Mean Sea Level : 1000 Meter
(iii) RH : 50%

1.1.1.5 DG Set should be type tested for Noise and Emission norms/standards as per CPCB as per

1.2 DIESEL ENGINE

Scope: This section covers engine rating, standard components of a diesel engine including exhaust piping.

1.2.1.1 Engine Rating

The engine shall be of standard design of the original manufacturers. It should be 4 stroke cycles, water cooled, naturally aspirated/turbo charged (as per manufacturer standard), diesel engine developing suitable BHP for giving a power rating as per ISO 8528- Part-1, in KVA at the load terminals of alternator at 1500 rpm at ambient temperature of 47ºC, for height at 1000 Meter above MSL and at 50% RH The engine shall be capable for delivering specified Prime Power rating at variable loads for PF of 0.8 lag with 10% overload available in excess of specified output for one hour in every 12 hours. The average load factor of the engine over period of 24 hours shall be 0.85 (85%) for prime power output The engine shall conform to IS;10000/ISO 3046/BS; 649/BS 5514 amended upto date

1.2.1.2 Necessary certificate indicating the compliance of the above capacity requirement for the engine model so selected along with compliance of Noise and Emission norms as per latest CPCB guidelines for DG set should be furnished from the manufacturers alongwith the technical bid. However, DG set, manufacturers shall furnish certificate that the Engine for the DG set complies with the CPCB Emission norms.

1.2.1.3 The engine shall be fitted with following accessories subject to the design of the manufacturer

(i) Dynamically balanced fly-wheel.
(ii) Necessary flexible coupling and guard for alternator and engine (applicable only for double bearing alternator)
(iii) Air cleaner (dry/oil bath type) as per manufacturer standard

(iv) A electronic governor to maintain engine speed at all conditions of load
(v) Daily fuel service tank fabricated from M.S. Sheet with inlet outlet connections air vent tap, drain plug and level indicator (gauge) M.S. fuel piping from tank to engine with valves, unions, reducers, flexible hose connection and floor mounting pedestals, twin fuel filters and fuel injectors. The location of the tank shall depend on standard manufacturers design.

(vi) Dry exhaust manifold with suitable exhaust residential grade silencer to reduce the noise level.
(vii) Suitable self-starter for 12 V/24 V DC.
(viii) Battery charging alternator unit and voltage regulator, suitable for starting batteries, battery racks with interconnecting leads and terminals
(ix) Necessary gear driven oil pump for lubricating oil, priming of engine bearing as well as fuel systems as per manufacturer recommendations.

(x) Naturally aspirated/turbo charger (as per manufacturer standard

(xi) Lubrication oil cooler
(xii) Lubrication oil filters with replaceable elements
(xiii) Crank case heater as per manufacturer recommendations.

(xiv) Fuel injection: Engine should have suitable fuel injection system in order to achieve low fuel consumption.
(xv) Fuel control solenoid.
(xvi) Fuel pump with engine speed adjustment.
(xvii) Engine Control Panel: fitted and having digital display for following: -
(a) Start/stop key switch.
(b) Lube oil pressure indication.
(c) Water temperature indication
(d) RPM indication.
(e) Engine Hours indications
(f) Engine Hours indications
g) Low lube Oil trip indication
(h) High water temperature indication
(i) Over speed indication.

(xviii) All moving parts of the engine shall be mechanically guarded in such a manner that a human finger cannot touch any moving part.

(xix) Radiator System or suitable as per OEM.
(xx) Any other item not included/specified, but is a standard design of the manufacturer.

1.2.1.4Governor
Electronic governor of class A1, as per ISO 3046/BS 5514 with actuator shall be provided as per standard design of manufacturer. Governor shall be a self-contained unit capable of monitoring speed.

1.2.1.5Frequency variation
The engine speed shall be so maintained that frequency variation at constant load including no load shall remain within a band of 1% of rated frequency.

1.2.1.6Fuel system
It shall be fed through engine driven fuel pump. A replaceable element of fuel filter shall be suitably located to permit easy servicing. The daily service tank shall be complete with necessary supports, gauges connecting pipe work etc. In case of top mounted tanks, non-return valves are

must in fuel supply and return line of specified value. Pipe sealant should be used for sealing all connection. No Teflon tape is to be used. If piping length is more than 10 meters detail engineering required in consultation with OEM/Manufacturers

Metal fuel day tank of (Capacity 990ltrs. sufficient for 08 hours operation at full load) shall be installed. The tank shall be provided with all necessary fittings including fill, vent, drain and overflow line, level indication and access for inspection and maintenance. Level switches shall be provided for the following services. For Testing & Commissioning of DG set, the fuel shall be in Vendor"s scope of work. Also at the time of handing over DG set to the client, DG Vendor has to fill new Lubricating oil with brand new filters.

(a) Low level alarm.
(b) High level alarm.
(c) Low level start of transfer pump.
(d) High level stop to transfer pump.

1.2.1.7Lubricating oil system

It shall be so designed that when the engine starts after a long shut down lubrication failure does not occur. Necessary priming pump for the lub, oil circuit as per recommendation of manufacturer shall be installed, to keep bearings primed. This pump shall be normally automatically operative on AC/DC supply available with the set.

1.2.1.8 Starting system

This shall comprise of necessary set of heavy duty batteries 24V DC (as per manufacturer standard), and suitable starter motors and axial type gear to match with the toothed ring on the fly wheel. A timer in the control panel to protect the starter motor from excessively long cranking runs shall be suitably integrated with the protection system and shall be included within the scope of the work. Battery capacity shall be suitable for meeting the needs of starting system (as three attempt starting), as well as the requirements of control panel, indications and auxiliaries such as priming pump as applicable etc. The scope shall cover all cabling, terminals, including initial charging etc. The system shall be capable of starting the DG set within 20-30 seconds, even in winter condition with an ambient temperature down to 0ºC.

1.2.1.9Battery charger

The battery charger shall be suitable to charge required numbers of batteries at 24 Volts complete with, transformer, rectifier, charge rate selector switch, indicating ammeter & voltmeter etc. Connections between the battery charger & batteries shall be provided with suitable copper leads with lugs etc.and system should be capable for trickle charging.

1.2.1.10Piping work

All pipe lines, fittings and accessories requirement inside the room/enclosure and outside for exhaust piping shall be provided by the contractor. This shall include necessary flexible pieces in the exhaust, fuel, lub. oil and water lines as are necessary in view of the vibration isolation requirement in the installation. Piping of adequate size shall be used for lub. oil of the material as per manufacturer standard. However, only M.S. pipes for the exhaust and fuel oil lines shall be used.

The pipe work shall be inclusive of all fittings and accessories required such as bends, reducers,

elbows, flanges, flexible connection, necessary hardware etc. The installation shall cover clamps, supports, hangers etc. as are necessary for completing the work. However, the work shall be sectionalized with flanged connections as are necessary for easy isolation for purposes for maintenance of unit as approved by Engineer-in-charge

1.2.1.11Common bed plate

Engine and alternator shall be coupled by means of flexoplate/ flexible coupling as per manufacturer standard design and both units shall be mounted on a common bed plate together with all auxiliaries to ensure perfect alignment of engine and alternator with minimum vibration. The bed plate shall be suitable for installation on suitable anti-vibration mounting system.

1.2.1.12 Exhaust System

1.2.1.12.1 ***Exhaust Piping***:- All M.S. Pipes for exhaust lines shall be conforming to relevant IS. The runs forming part of factory assembly on the engine flexible connections upto exhaust silencer shall be exclusive of exhaust piping item. The work includes necessary cladding of exhaust pipe work using 50mm thick glass wool /mineral wool/ rockwool, density not less than 46 kg/m² and aluminum cladding (0.80mm thick) for the complete portion. The exhaust pipe work includes necessary supports, foundation etc. to avoid any load & stress on turbo charger/exhaust piping. The exhaust pipe support structure shall be got approved by engineer in-chargebefore execution.

1.2.1.12.2

(a) Exhaust system should create minimum back pressure.
(b) Number of bends should be kept minimum and smooth bends should be used to minimize back pressure.
(c) Pipe sleeve of larger dia should be used while passing the pipe through concrete wall & gap should be filled with „felt lining.
(d) Exhaust piping inside the Acoustic Enclosure should be lagged with asbestos rope along with aluminum sheet cladding to avoid heat input to the room.
(e) Exhaust flexible shall have it‟s free length when it is installed. For bigger engines, two flexible bellows can be used.
(f) For engines only one bellow is required. However, If exhaust pipe length is more than 7 m, then additional bellow/provision for expansion should be provided.
(g) „Class B" MS pipes and long bend/elbows should be used.
(h) The exhaust outlet should be in the direction of prevailing winds and should not allow exhaust gases to enter air inlet/windows etc.
(i) When tail end is horizontal, 45 Degree downward cut should be given at the pipe to avoid rain water entry into exhaust piping.
(j) When tail end is vertical, there should be rain trap to avoid rain water entry. If rain cap is used, the distance between exhaust pipe and rain cap should be higher than diameter of pipe. Horizontal run of exhaust piping should slope downwards away from engine to the condensate trap. Silencer should be installed with drain plug at bottom.

1.2.1.12.3 Care should be taken to ensure that no carbon particle emitted due to exhaust leakage enters and deposits on alternator windings and on open connections.

1.2.1.12.4 Support to Exhaust Piping

Exhaust piping should be supported in such manner that load of exhaust piping is not exerted to turbocharger.

1.2.1.13 Air System

It is preferable to provide vacuum indicator with all engines to indicate chocked filter. Maximum air intake restrictions with clean and chocked filters should be within prescribed limit as per OEM/manufacturer recommendation for the particular model of the engine. Gensets should be supplied with medium duty/heavy duty air cleaners (specify one only). (Heavy duty air cleaner should be used for installation in dusty or polluted surroundings.)

1.2.1.14 Cooling System

1.2.1.14.1 System should be designed for ambient temperature of 47 Deg. C.

1.2.1.14.2 Water softening/dematerializing plants should be used, if raw water quality is not acceptable.

1.2.1.14.3 Coolant should be used mixed with additive (in suitable proportion) as per recommendation of OEM/Manufacturer for various engine models.

1.2.1.14.4 Radiator fan flow should be free from any obstruction.

1.2.1.14.5 For radiator cooled DG Set and proper room ventilation should be planned at the time of construction of DG room.

1.2.1.14.6 Remote radiator can be used in case of basement installation where fresh air may not be available. The proper location of remote radiator is very essential for the successful and efficient operation of remote radiator. In this the cooling media is ambient air. So in order to obtain maximum efficiency from remote radiator, it is necessary to get fresh air in its surrounding. The horizontal distance of remote radiator from engine should not exceed 10 meter.

1.3 ALTERNATOR

Scope: This section covers technical requirement of the alternator

1.3.1 **Synchronous Alternator:** Self excited, screen protected, self-regulated, brush less alternator, Horizontal foot mounted in Single/Double bearing construction (specify one only) suitable for the following:

KVA Rated	: 625 KVA
Rated PF.	: 0.8 (lag)
Rated voltage	: 415 volts
Rated frequency	: 50 Hz
No. of phases	: 3
Enclosure	: SPDP
Degree of protection	: IP-23
Ventilation	: Self ventilated air cooled
Ambient Temperature	: 47º C Maximum
Insulation Class	: H
Temperature Rise	: Within class H limits at rated load
Voltage Regulation	: +/- 1%

Voltage variation : +/- 5%
Overload duration/capacity : 10% for one hour in every 12 hours of Continuous use.
Frequency variation : As defined by the Engine Governor (+/- 1%)
Excitation : Self /separately excited (Self excitation
Type of AVR : Electronic
Type of Bearing and : Anti-friction bearings with Grease Lubrication arrangement lubrication
Standard : IS-4722 & IEC:34 as amended upto date.

1.3.2 The alternator shall be fitted with suitable nos. Resistance Temperature Device (BTD) alongwith space heaters. The terminal of space heaters will be wired to terminal box and the temperature scanner shall be provided in control panel for scaling the winding and bearing temperature.

1.3.3 ***Excitation****:* The alternator shall be brushless type and shall be self/separately excited, self-regulated having static excitation facility. The exciter unit should be mounted on the control panel or on the alternator assembly. The rectifier shall be suitable for operation at high ambient temperature at site.

1.3.4 ***Automatic Voltage Regulators (AVR):*** In order to maintain output terminal voltage constant within the regulation limits i.e. +/-1%, Automatic voltage regulator unit shall be provided as per standard practice of manufacturer.

1.3.5 ***Fault tripping:*** In the event of any fault e.g. over voltage/high bearing temperature/ high winding temperature or an external fault, the AVR shall remove the excitation voltage to the alternator. An emergency trip shall also be provided.

1.3.6 ***Standards:*** *The alternator shall be in accordance with the following standards as are applicable.*

(i) IS:4722/BS: 2613/1970. The performance of rotating electrical machine.

(ii) IS:4889/BS:269 rules for method of declaring efficiency of electrical machine.

1.3.7 ***Performance:*** Voltage dip shall not exceed 20% of the rated voltage for any step load of transient load as per ISO:8528 (Part I). The winding shall not develop hot spots exceeding safe limits due to imbalance of 20% between any two phases from no load to full load.

The generator shall preferably be capable of withstanding a current equal to 1.5 times the rated current for a period of not more than 15 seconds as required vide clause 14.1.1 of IS 4722:1992.

The performance characteristics of the alternator shall be as below:

(a) Efficiency at full load 0.8 P.F. not less than 93.5%

(b) Total distortion factor - Less than 3%

(c) (i) 10% overload - One hour in every 12 hrs - of continuous use.
(ii) 50% overload 15 seconds

1.3.8 *Terminal Boxes:* Terminal boxes shall be suitable for U.G. cables The terminal box shall be

suitable to withstand the mechanical and thermal stresses developed due to any short circuit at the terminals.

1.3.9 *Earth Terminals:* 2 Nos. earth terminals on opposite side with vibration proof connections, non-ferrous hardware etc. with galvanized plate and passivated washer of minimum size 12mm dia. hole shall be provided.

1.4 CONTROL PANEL, BATTERIES AND ELECTRICAL SYSTEM

Scope: This section covers technical and functional requirements of Control Panel, Battery/Electrical System.

1.4.1 Location of Control Panel:

1.4.1.1 *DG Set with acoustic enclosure*

Associated Control panel of the DG Set should be located inside the acoustic enclosure as per manufacturer's standard.

1.4.2 Requirement in Control Panel

The control panel shall be fabricated out of 1.6 mm sheet steel, totally enclosed, dust, damp and vermin proof wall mounted/free standing floor mounted type with IP-53 degree of protection & front operated.

The Standard control panel shall consist the following instruments:

(a) Composite meter for digital display of:

(i) Voltage
(ii) Current
(iii) Power factor
(iv) Frequency
(v) Energy Meter

(b) HRC fuses of suitable rating.
(c) One MCB of suitable rating for DG sets or Switch Disconnector Fuse Unit (SDFU) for higher ratings.
(d) Push button-switch or ON/OFF Switch for ON and OFF operation.
(e) Pilot lamps 3 numbers in case of three phase DG sets.
(f) Battery charger complete with voltage regulator, Voltmeter and Ammeter for charging the battery from external Mains. This will be in addition to the battery charging alternator or dynamo fitted on the engine.

(g) Instrument fuses

All the components in the control panel shall be properly mounted, duly wired and labeled. Suitable terminals are to be provided for panel incoming and outgoing connections.

1.4.2.1.1 ***General Features:*** The control panel shall be fabricated out of 1.6 mm sheet steel, totally enclosed, dust, damp and vermin proof free standing floor mounted type & front operated. It shall be made into sections such that as far as feasible, there is no mixing of control, power, DC & AC functions in the same section and they are sufficiently segregated except where their bunching is necessary. Hinged doors shall be provided preferably double leaf for access for routine inspection from the rear. There is no objection to have single leaf hinged door in the front, all indication lamps,

instruments meter etc. shall be flushed in the front. The degree of protection required will be IP-42 conforming to IS:2147.

1.4.2.1.2 ***Terminal blocks and wiring:*** Terminal blocks of robust type and generally not less than 15 Amps capacity, 250/500 volts grade for DC upto 100 volts and 660/1100 volts grade for AC and rest of the junction shall be employed in such a manner so that they are freely accessible for maintenance. All control and small wiring from unit to unit inside the panel shall also be done with not less than 2.5 sq. mm copper conductor PVC insulated and 660/1100 volts grade. Suitable colour coding can be adopted. Wiring system shall be neatly formed and run preferably, function wise and as far as feasible segregated voltage-wise. All ends shall be identified with ferrules at the ends.

1.4.2.1.3 ***Labeling:*** All internal components shall be provided with suitable identification labels suitably engraved. Labels shall be fixed on buttons, indication lamps etc.

1.4.2.1.4 ***Painting:*** The entire panel shall be given primer coat after proper treatment and powder coating with 7 tanks process before assembly of various items.

1.4.2.1.5 ***Equipment requirements:*** The control cubical shall incorporate into assembly general equipment and systems as under:

(a) Control system equipments and components such as relays, contactors timers, etc. both for automatic operation on main failure and as well as for manual operation.

(b) Equipment and components necessary for testing generating set's healthiness with test mode and with load on mains.

(c) Necessary instruments and accessories such as voltmeter, power factor meter, KW meter, KWH meter, Ammeter, Frequency meter etc. in one energy analyzer unit with selector switch to obtain the reading of desired parameters.

(d) Necessary indication lamps, fuses, terminal blocks, push buttons, control switches etc., as required.

(e) Necessary engine/generating set shut down devices due to faults/ abnormalities.

(f) Necessary visual audio alarm indication and annunciation facility, as specified.

(g) Necessary battery charger.

(h) Necessary excitation control and voltage regulating equipment.

(i) Necessary overhead bus trunking terminations all internal wiring, connections etc., as required

(j) Breakers as specified in the schedule of work.

1.42.1.6 ***System Operation****:* The above-mentioned facilities provided shall afford the following operational requirements.

1.4.2.1.6.1 Auto *Mode:*

(a) A line voltage monitor shall monitor supply voltage on each phase. When the mains supply voltage fails completely or falls below set value (variable between 80% to 95% of the normal value)

on any phase, the monitor module shall initiate start –up of diesel engine. To avoid initiation due to momentary disturbance, a time delay adjustment between0 to 5 second shall be incorporated in start-up initiation.

(b) A three attempt starting facility shall be provided 7 seconds ON, 6 seconds OFF, 7 seconds ON, 6 seconds OFF, 7 seconds ON. If at the end of the third attempt, the engine does not start, it shall be locked out of start and a master timer shall be provided for this function. Suitable adjustment timers are to be incorporated which will make it feasible to vary independently ON-OFF setting periods from 1-10 seconds. If alternator does not build up voltage after the first or second start as may be, further starting attempt will not be made until the starting facility is reset.

(c) Once the alternator has built up voltage, the alternator circuit breaker shall close connecting the load to the alternator. The load is now supplied by the alternator.

(d) When the main supply is restored and is healthy as sensed by the line voltage monitor setting, both for under voltage and unbalance, the system shall be monitored by a suitable timer which can be set between 1 minute to 10 minutes for the load to be transferred automatically to main supply.

(e) The diesel alternator set reverts to standby for next operation as per (a), (b) and (c) above.

1.4.2.1.6.2 *Manual mode:*

(a) In a manual mode, it shall be feasible to start-up the generator set by the operator on pressing the start push button.
(b) Three attempts starting facility shall be operative for the start-up function.

(c) Alternator circuit breakers closing and trip operations shall also be through operator only by pressing the appropriate button on the panel and closure shall be feasible only after alternator has built up full voltage. If the load is already on „mains", pressure on „close" button shall be ineffective.

(d) Engine shut down, otherwise due to faults, shall be manual by pressing a stop" button.

1.4.2.1.6.3 Test mode:

(a) When under test mode, pressing of "test" button shall complete the startup sequence simulation and start the engine. The simulation will be that of mains failure. Sequence I (a) and (b) shall be completed.

(b) Engine shall build up voltage but the set shall not take load by closing of alternator circuit breaker. When the load is on the mains, monitoring of performance for voltage/frequency etc. shall be feasible without supply to load.

(c) If during test mode, the power supply has failed, the load shall automatically get transferred to alternator.

(d) Bringing the mode selector to auto position shall shut down the set as per sequence I (d) provided main supply is ON. If the mains supply is not available at that time, the alternator shall take load as in (c) above.

1.4.2.1.7 ***Engine shut down and alternator protection equipment:*** Following shut down and

protection system shall be integrated in the control panel.

(a) Engine:

(i) Low lubricating oil pressure shut down. This shall be inoperative during start up and acceleration period.

(ii) High coolant (water temperature shut down.

(iii) Engine over speed shut down.

(b) Alternator Protection: Following protection arrangement shall be made:

(i) Over load
(ii) Short circuit
(iii) Earth fault
(iv) Over voltage

1.4.2.1.8 Monitoring and metering facilities:

(a) Necessary energy analyzer unit for visual monitoring of mains, alternator and load voltage, current, frequency, KWH, power factor, etc.

(b) A set of visual monitoring lamp indication for:

i. Load on set
ii. Load on mains
iii. Set on test (Alternator on operation duty, Alternator on standby duty).
iv. Set of lamp for engine shut down for over speed, low lub. Oil pressure and high coolant water temperature, overload trip of alternator, earth fault trip of alternator, engine lock out and failure to start etc. All these indications shall have an audio and visual alarm. When operator accepts the alarm, the hooter will be silenced and the fault indication will become steady until reset by operating a reset button.

1.4.2.1.9 ***Operating devices:*** A set of operation devices shall be incorporated in the front of panel as under:

(a) Master Engine Control Switch: This shall cut off in „OFF" position DC control to the entire panel, thus preventing start- up of engine due to any cause. However, battery charger and lamp test button for testing the healthiness of indication lamps, DC volt mater/ammeter etc. shall be operative. It shall be feasible to lock the switch in OFF position for maintenance and shut down purposes.

(b) Operation selector switch OFF/AUTO/MANUAL/TEST position.

(c) Energy analyzer unit for display of various electrical parameters like voltage, current, frequency, KW, power factor, etc.

(d) A set of push button, as specified.

(e) Relays, contactor, timers, circuit breakers, as required.
(f) Necessary battery charger with boost/trickle selector, DC voltmeter and DC ammeter.

1.4.2.1.10 ***Compatibility with 'Building Management System' (BMS):*** PLC compatibility and required nos. of Input/Output terminals points should be provided in the AMF control panel.

1.4.3 Battery/Electrical System

1.4.3.2.1 Batteries should be placed on stands and relatively at cool place.

1.4.3.2 Battery capacity and copper cable sizes for various engine capacity should be as indicated in the table below. Cable sizes shown are for maximum length of 2m. If length is more, cable size should be selected in such a way that voltage drop does not exceed 2V.

DG Set Capacity	Battery Capacity (AH)	Cable Size (Material: Copper) Sq.mm	Electrical System (Volts)
625 KVA	As per OEM	As per OEM	24

1.4.3.4 1.5 Sq.mm copper wire should be used for wiring between junction box and Control Panel.

1.4.4 Cabling

1.4.4.1 Power cabling and Control cable between alternator and control panel and control panel and change over switch to mains should be done with recommended cable sizes.

1.4.4.2 Overheating due to loose thimbling/undersize cables causes most of electrical failures and hence correct size of cable and thimbles should always be used, if cable is specified.

1.4.4.3 While terminating cables, avoid any tension on the bolts/busbars. (if cable is specified

While terminating R, Y & B phase notations should be maintained in the alternator and control panel for easy maintenance

1.4.4.4 Crimped cables should be connected to alternator and control panel through cable glands, if cable is specified.

1.4.4.5 Multi-core copper cables should be used for inter connecting the engine controls with the switchgear and other equipments.

1.4.4.6 For AMF application, multicore core 1.5 sq.mm flexible stranded copper cable for control cabling should be used.

1.4.4.7 It is recommended to support output cables on separate structure on ground so that weights of cables should not fall on alternator/baserail.

1.4.4.8 External wiring, when provided for remote voltage/excitation monitoring/droop CT etc. shall be screened sheathed type. Maximum length of such wiring shall not exceed 5 meters.

1.4.4.9 Alternator Termination Links

1.4.4.9.1 For proper terminations between links and switchgear terminals, the contact area must be adequate. The following situations should
also be avoided as they lead to creation of heat sources at the point of termination:

(i) Point contact arising out of improper position of links with switchgear terminals.
(ii) Gaps between busbars/links and terminals being remedied by connecting bolt/stud. In such cases the bolt will carry the load current. Normally these bolts/studs are made of MS and hence are not designed to carry currents.

1.4.4.9.2 Adequate clearance between busbars/links at terminals should be maintained (IS:4232 may be referred to for guidelines).

1.4.4.9.3 Improper termination will lead to local heat generation which may lead to failure.

1.5 Warranty

1.5.1 1 year Comprehensive or 1000 hrs whichever is earlier.

1.6 FOUNDATION

Scope: This section covers details of foundations for DG set with acoustic enclosures.

Genset with acoustic enclosure: A PCC foundation (1:2:4-M-20 grade) of approximate depth of 400 mm is required so as to provide leveled surface for placement of the acoustic enclosure. About 250 mm foundation height should be above ground level. The length and breadth of foundation should be at least250 mm more than the size of the enclosure. Genset should be mounted on AVM‟s inside the enclosure.

1.7 ACOUSTIC ENCLOSURE

Scope: This section covers technical requirements of the acoustic enclosures.

1.7.1 As per CPCB norms, restriction has been imposed for new DG set for noise level. Therefore, in terms of these norms, acoustic enclosure should be type tested at the climatic conditions specified in pars 1.1.3 through one of the authorized laboratory.

1.7.2 Installation

1.7.2.1 Acoustic enclosures are supplied with built in Anti Vibration Mounting(AVMs). As such Genset can be installed directly on the leveled surface.

1.7.2.2 Exhaust piping outlet should not be turned towards window/ventilator of home or occupied building. Provision of rain cap should be ensured.

1.7.2.3 The acoustic enclosure placement should be such that there is no restriction in front of air inlet and outlet from canopy.

1.7.3 Service Accessibility

1.7.3.1 Genset/Engine control panel should be visible from outside the enclosure.

1.7.3.2 Routine/periodical check on engine/alternator (filter replacement and tappet setting etc.) should be possible without dismantling acoustic enclosure.

1.7.3.3 For major repairs/overhaul, it may be required to dismantle the acoustic enclosure.

1.7.3.4 Sufficient space should be available around the Genset for inspection and service.

1.7.4 General Design Guidelines

1.7.4.1 To avoid re-circulation of hot air, durable sealing between radiator and canopy is must.

1.7.4.2 Ventilation fans are must for the Gensets cooled by heat-exchanger/cooling tower system.

1.7.4.3 Exhaust piping inside the enclosure must be lagged (except bellow).

1.7.4.4 Temperature rise inside the enclosure should not be more than 5°C for maximum ambient above 47°C and it should be below 10°C for ambient below 40°C

1.7.4.5 There should be provision for oil, coolant drain and fill. Fuel tank should have provision for cleaning.

1.7.5 Specifications for Acoustic Enclosure

1.7.5.1 The acoustic enclosure shall be designed and manufactured confirming to relevant standards suitable for outdoor installation exposed to weather conditions, and to limit overall noise level to 75 dB (A) at a distance of 1 mtr. From the enclosure as per CPCB norms under free field conditions.

1.7.5.2 The construction should be such that it prevents entry of rain water splashing into the enclosure and allows free & quick flow of rain water to the ground in the event of heavy rain. The detailed construction shall confirm to the details as under:

1.7.5.3 The enclosure shall be fabricated out of the CRCA sheet of thickness not less than 1.6 mm on the outside cover with inside cover having not less than 0.6 mm thick perforated powder coated CRCA sheet.

1.7.5.4 The hinged doors shall be made form not less than 16 SWG (1.6 mm) thick CRCA sheet and will be made air tight with neoprene rubber gasket and heavy duty locks.

1.7.5.5 All sheet metal parts should be processed through 7-tank process.

1.7.5.6 The enclosure should be powder coated.

1.7.5.7 The enclosure should accommodate the daily service fuel tank of the D.G. Set to make the system compact. There should be provision of fuel gauge, which should show the level of the fuel even when the DG Set is not running. The gauge should be calibrated. The fuel tank should be filled from the outside as in automobiles and should be with a lockable cap.

1.7.5.8 The batteries should be accommodated in the enclosure in battery rack.

1.7.5.9 The canopy should be provided with high enclosure temperature safety

device.

1.7.5.10 The acoustic lining should be made up of high quality insulation material i.e. glass/mineral wool of minimum 100mm thickness for 625KVA capacity 75Kg/cubic metered to 100Kg/cubic meter for sound absorption as per standard design of manufacture‟s to reduce the sound absorption as per norms. The insulation material shall be covered with fine glass fiber cloth and would be supported by performed M.S. Sheet duly powder coated.

1.7.5.11 The enclosure shall be provided with suitable size and No. of hinged type doors along the length of the enclosure on each side for easy access inside the acoustic enclosure for inspection, operation and maintenance purpose. Sufficient space will be provided inside the enclosure on all sides of the D.G. set for inspection, easy maintenance and repairs.

1.7.5.12 The canopy should be as compact as possible with goods aesthetic look.

1.7.5.13 The complete enclosure shall be modular construction.

1.7.5.14 The forced ventilation shall be as per manufacturer design using either engine radiator fan or additional blower fan(s). If the acoustic enclosure is to be provided with forced ventilation, then suitable size of axial flow fan (with motor and auto-start arrangement) and suitable size axial flow exhaust fan to take the hot air from the enclosure complete with necessary motors and auto start arrangement should be provided. The forced ventilation arrangement should be provided with auto stop arrangement to stop after 5 minutes of the stopping of D.G. sets.

1.7.5.15 The acoustic enclosure should be suitable for cable connection/connection through bus-trunking. Such arrangements on acoustic enclosure should be water proof and dust-proof conforming to IP-65 protection.

DETAIL SPECIFICATION OF AUXILLARY EQUIPMENTS ENABLE

Earthing

a. Each Neutral of DG shall be solidly earthed to 2 different earth pits through copper plate of size 600mm x 600mm x 3mm & Via Neutral Contactor. Control scheme shall be provided to ensure that one neutral only of one generator in the group shall be connected to the earth to avoid problem during synchronizing. Also when generator neutral is connected to earth supply transformer earth should be disconnected and vice-versa.

b. on equipment on the skid shall be bonded to the base frame of the skid and the skid shall be connected to the grid earthing by 2 independent parts with copper strips in accordance with IS : 3043.

c. Similarly, day tank, panel, battery rack, Electrical panels shall also be grounded by 2no. GI strips.

d. Terminations at equipment shall have flexibility for movement of equipment.

e. Earth Pit: As per detailed in Schedule of quantities.

f. Earth Electrodes in Earth Pits:

g. Earth Bus and Earth Continuity Conductor as required

h. Artificial Treatment of Soil

If the earth resistance is too high and the multiple electrode Earthing does not give adequate low resistance to earth, then the soil resistivity immediately surrounding the earth electrodes shall be reduced by adding sodium chloride, calcium chloride, sodium carbonate, copper sulphate, salt and soft coke or charcoal in suitable proportions.

i. Entire earth system shall confirm to the Code of Practice as per IS 3043

j. The resistance of Earthing Grid shall not exceed 1.0 ohm.

k) Each body of the DG / Electrical panels shall be connected to minimum 2 nos of earth pits

DRAWINGS & DOCUMENTATION

With offer :

a) Vendor to submit 2 sets of outline dimensions, panel dimensions etc
b) GA Drawing of DG with static & dynamic Loading
c) Drawing of control panel
d) Material List
e) Confirmation of technical details and parameters as per annexure duly filled, stamped and signed.
f) Technical Catalogues

After receipt of order.

a) Outline dimensional drawings with general arrangement.
b) Piping flow sheets and piping layout.
c) Electrical wiring and schematic diagram along with cable schedule and general arrangement drawing for control panel.
d) Foundation drawings with Static and Dynamic Loads.
e) Fuel oil system with instrumentation and control with write-up.
f) Lub. oil system with instrumentation and control with write-up.
g) Jacket water scheme with instrumentation and control with write-up.
h) Governor system and voltage regulator write-up.
i) D.G. Set instrumentation and control system with write-up.
j) Gland plate detail drawings
k) Sectional Views
l) Control Schematics
m) Wiring Diagrams
n) Fuel piping diagram along with storage tank.
o) Cooling system details along with equipment layout &PID.
p) Exhaust piping including Chimney & connection details.

Prior to Commissioning

i) Final copies of (i) to p above
ii) Operational & Maintenance Manual (O& M)
iii) Certified test reports (duly signed by client & consultant)

For Record

All above documents duly amended to incorporate all modifications, settings etc., carried out at Site during the Commissioning, Test Reports of Commissioning Tests. And other notes and important observations.

O & M Manual

The manual shall contain the following (but not limited to) information/data

a. Description of the Equipment Key Features and Operational Logic
b. Operational Instructions and Safe – Guards c. Details of Maintenance with Time – Schedules
d. Fault Diagnostic and Rectification Chart
e. Parts List with Cat. Nos. for Ordering Spares
f. Contact Details of Agency of nearest Dealer.
g. Set of reduced size Final Drawings with settings.
h. Copy of Type, Factory and Commissioning Test Reports.
i. Copy of Technical Catalogues.
j. Special Notes and Instructions.

TESTING

Test certificates including test records and Performance curves etc, shall be furnished by the Vendor.
The report on type test conducted for generator not more than 5 Years old as per IS 4722 shall be submitted before dispatch of DG set.

Alternator

a. Open Circuit characteristic test
b. Short Circuit characteristic test
c. Temperature rise test

DG Set
a. Over load test
b. Vibration measurement test

The Vendor shall submit authenticated test certificate for the type test carried out by manufacturer ..

FINAL CHECK

After installation at site the following checks and tests shall be conducted

DG Set

a) Checking of piping interconnections.
b) Checking electrical interconnections
c) Checking of insulation resistance.
d) Checking of Earthing.
e) Checking of instruments and controls.
f) Checking of alignment.
g) Checking of vibration transmission to building a structure.
h) Checking of expansion joints.
i) Pressure testing of piping.

SITE TESTS
The following tests shall be carried out after installation at the site:
- Load Test - 50 % load 15 minutes
-100 % load 15 minutes
-110 % load 15 minutes (as required)
- Functional testing of all alarm devices
-Checking of the starting time and time up to taking over the full load.
- Testing of noise level at 1 M and 6 M distances.
- Load rejection test
Diesel for testing Purposes shall be borne by provided by IISER.

Exhaust System Test
a) Checking of silencer operation
b) Checking of surface temperature of exhaust piping
c) Checking of emission as per PCB norms
Free Maintenance and Defects Liability Period

Following are the works which shall be carried out during the free maintenance period.

- Emergency call back service.
- Inspect, clean, oil and grease where necessary.
- Adjustment of machinery.
- Replacement of any defective part.

COMPLETION CERTIFICATE AND GUARANTEE

After the complete testing the Vendor shall furnish the certificate confirming that the installation has been fully completed and as is in conformity with the technical specification BOQ and all requirements of local Authorities and Statutory Bodies.

Vendor shall guarantee that the equipment shall satisfy the requirements of its intended use and be free from latent defects. Vendor shall repair and replace any equipment, which proves to be defective within 12 months from the date of commissioning and handing over the installation. If any defect is noticed during the guarantee period, it shall be rectified / replaced at no extra cost. The guarantee period will again commence from the date of such rectifications / replacement.

2.0 LIST OF APPROVED MANUFATURES

1.	L.T. Switchgear	-	Legrand
		-	Hager
		-	Siemens
		-	Schneider
		-	Crompton Greaves
		-	GE
		-	L&T
2.	Diesel Engine	-	Volvo
		-	Perkins
		-	Caterpillar
		-	Kirloskar
		-	Cummins
3.	Alternator	-	Kirloskar Green
		-	Leroysomer
		-	Cater Pillar
		-	Stamford
4.	Battery Charger	-	AMCO
		-	Expo-Fyn
		-	Aplab
		-	BCH
		-	Micro Tech
		-	Power system controls
		-	Maxcom
5.	Low maintenance lead acid batteries	.	-
		-	Exide
		-	TATA
		-	AMCO
		-	Standard Farrukawa
		-	AMRON
		-	Cummins
		-	OEM of DG Sets
6..	Relay	-	Crompton Greaves
		-	GEC (Alstom)
		-	EE
		-	ABB

7.	Power and Control cable	-	Polycab Confirming to IS standard
		-	Finolex
		-	ICC
		-	National
		-	ECKO
		-	Rallison Cables (Rollex)
		-	Cable Corporation of India Limited
		-	Havells
		-	RR
8.	Breaker/ contractor/timer	-	Siemens/C&S/L&T/Schneider/Hager/BCH
9.	Control Panel	-	CPRI Approved manufacturer
10.	Digital Meters	-	HPL/Nippon/conzer/Havells/L&T/AE/Hager
11.	CT	-	AE/Kappa/Havells/L&T/Hager
12.	Push Button	-	BCH/Siemens/concord/Havells/ESSBEE
13.	Indication lamp	-	BCH/Siemns/conzor/Havells/ESSBEE

TECHNICAL SPEC FOR 625 KVA SILENT TYPE DG SET

S.No	Description of technical parameters	Specifications of item offered by
1	Engine make and model	
2	Alternator make	
3	Rated R.P.M	
4	BHP Rating	
5.	Physical Dimensions:-	
	(a) Length (mm)	
	(b) Width (mm)	
	(c) Height (mm)	
6.	Weight	
7.	Aspiration method	
8.	Lub oil recommended	
9	Lub oil pressure	
10.	Qty. of lub oil required	
11.	Time required for starting	
12.	Lub oil sump capacity	
13.	No. of exhaust pipe required	
14.	Dia. of exhaust pipe	
15.	Whether meets CPCB Norms	
16.	Fuel oil level indicator	
17.	Engine Lub capacity (Ltrs.)	
18.	Specific fuel oil consumption (gm/BHP/Hr.)	
	(a) 100% Loading (Ltrs/hrs)	
	(b) 75% Loading (Ltrs.hrs)	
	(c) 50% Loading (Ltrs/hrs)	
19	No. of cylinder	
20.	Method of starting	
21.	Efficiency	
22.	Exhaust gas Flow Rate	
23.	Compression Ratio	
24.	Exhaust Temperature	
25.	Engine confirming standard	
26	Fuel Tank Capacity (Ltrs.)	
27.	Fuel Tank sheet thickness	
28.	Fuel piping Yes/No	
29.	PT fuel pipe(Yes/No)	
30.	Injectors (Yes/No)	

31.	Fuel Filters (Yes/No)	
32.	Engine mounted oil pump (Yes/No)	
33.	Type of oil cooler	
34.	Type of oil filter	
35.	By Pass Filter (Yes/No)	
36.	Self contained Piping (Yes/No)	
37.	Turbo generator-Type	
38.	Exhaust silencer (Yes/No)	
39.	Governor Type/class	
40.	Engine mounted instrument panel consists:	
a.	Start/stop key switch	
b.	Lub oil Pressure indication	
c.	Water temperature indication	
d.	RPM indication	
e.	Engine Hour indication	
f.	Battery charging indication	
g.	Lub oil trip indication	
h.	High water temperature indication	
i.	Over speed indication	
j.	Any other	
41.	Engine and alternator Protection/safeties provided:	
a.	Low oil pressure shut down	
b.	High coolant (water) temperature shut down	
c.	Engine over speed shutdown	
d.	Over load protection	
e.	Short circuit protection	
f.	Earth fault protection	
g.	Over voltage protection	
h.	Any other protection	
42.	Cooling system type and accessories:-	
a.	System of cooling	
b.	Type of radiator	
c.	Thermostat	
d.	Corrosion inhibitor	
e.	Capacity in ltr. of radiator	
f.	Any other detail	
43.	Battery charger make and specification:-	
	(a) Battery voltage	
	(b) Ah Capacity	
	(c) No. of Battery	
	(d) Mode (auto/normal)	
	(e) Indicating Lamp	
	(f) Name of indicating meter	
	(g) Name of protections:-	
44.	Tool kit set (Yes/No)	
45.	Acoustic enclosure sheet thickness:	
46.	Name the Norms being followed for acoustic enclosure:-	
47.	Ventilation system for heat and air	
48.	Alternator	
	(a) Make & Model	
	(b) KVA/KW rating	
	© output voltage	
	(d) No. of phases output	
	(e) Frequency	

	(f) Insulation class of rotor and stator	
	(g) Standard Enclosure Details	
	(h) Rotor	
	(i) Wave form distortion	
	(j) Total harmonic distortion factor	
	(k) Excitation system	
	(l) Conformance standard	
	(m) Power factor	
	(n) Voltage regulation	
	(o) Full Load output in Kw at 0.8P.F	
	(p) Designed over load capacity at Max. ambient temperature	
	(q) Efficiency at full load	
49.	AMF Panel	
	(a) Auto/manual synchronizing facility	
	(b) Make	
	(c) Degree of Protection	
	(d) Type (Floor/wall mounted)	
	(e) Size	
	(f) Finish	
	(g) Any other detail:-	
	(h) Annunciation window type	
	(i) Name the indications on Annunciation window:-	
50.	Metering	
	(a) Name of the indications (LED)	
	(b) Readings available on confirmed digital	
51.	LT switchgear	
	(a) Type of ACB and make	
	(b) Current rating	
	(c) Short circuit capacity	
	(d) Protection facility:-	
	i. Short circuit	
	ii. Over current	
	iii. Earth fault	
52	(a) Sheet thickness of CRCA	
	(b) Current rating of bus bars	
	(c) Provision of space heater with thermostat	
	(d) Whether manufacture approved by CPRI	
53.	Make of anti-vibration pads	
54.	Have any service center for both Alternator and engine in the state of J&K?. If Yes mention the address.	
	Name the tests to be carried out at manufacture‟s site	
a.	Routine test	
b.	Full load test for 1 Hr.	
c.	Over load test @ 110% for 1 Hr.	
d.	Fuel consumption (gm/BHP/Hr.)	
e.	Any other detail	
55.	Name the tests to be carried out at customer‟s	
a.	Alignment check	

b.	Insulation test	
c.	Vibration and noise level test	
d.	Testing of safeties	
e.	Earth electrode resistance test	
f.	Any other detail	
56.	**Warrantee of the DG set, Foundation Base, spares and accessories (in months). The warranty will includes the change of Consumables/filters/ mobil oil as per standard of servicing.**	
57.	**The vendor must have executed in their own firm name complete SITC of 80% capacity of one work or two works of 60% capacity or three works for 40% capacity for the last five years.**	

Signature of the tenderer with date

VOLUME III

FINANCIAL BID

Volume III- Financial Bid					
Name of work: Supply, Installation, Testing and Commissioning of 625 KVA DG Set at IISER Tirupati Main Campus, Andhra Pradesh					
Sl.No.	**Description**	**Quantity**	**Unit**	**Rate**	**Amount**
1	Providing, Installing, Testing and Commissioning of 'Silent Type' Diesel Generating set alongwith having Prime Power Rating of **625 KVA,** 415 volts at 1500 RPM, 0.8 lagging power factor at 415 V suitable for 50 Hz, 3 phase system & for 0.85 Load Factor and consisting of the followings:	1	Nos		
	(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 12 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 lub. Oil trip indication				
	ix) Engine Hours indication				
(c)	**Alternator :**				
	Synchronous alternator rated at 625 **KVA,** 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 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.				
(d)	**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.				
(e)	**Fuel Tank:**				
	Daily service fuel tank **of 990 liters** capacity fabricated out of 3 mm thick M.S. sheet complete with all standard accessories and fuel piping between fuel tank and diesel engine with MS class 'C' pipes of suitable dia. Complete with valves, level indications & accessories as required as per specifications.				
(f)	**Exhaust System:**				
	Dry exhaust mainfold with hospital exhaust silencer .				
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 (25 plates, 180 Amp. Hour capacity lead acid type) as required as per specifications.				
(h)	Accoustic 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.				
2	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 metre long etc. with charcoal/ coke and salt as required.	2	Nos		

3	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 metre long etc. with charcoal/ coke and salt as required.	2	Nos		
4	Supplying and laying 50mmX6mm GI strip at 0.5m below ground level as strip earth electrode, including soldering etc. as required.	10	Metres		
5	Providing and fixing of 50mmX6mm Copper strip at 0.5m below ground level as strip earth electrode, including soldering etc. as required.	10	Metres		
6	Providing and laying in position cement concrete 1:2:4 (1cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) in foundation of pump, DG set etc including form work etc as required.	14	Cum		

Note: The rates shall be quoted including supply, installation, testing and commissioning of item as per specification, transportation, loading, unloading and GST (12%) as applicable for works contract. Nothing extra shall be payable.