National Insurance Academy
25, Balewadi, Baner Road, NIA P.O., Pune 411 045
Tel: 020-27204000/4042, **Fax**: 020-27204555
Website: www.niapune.org.in

Through Online Mode Only
NIA E-PROCUREMENT WEBSITE IS:
https://www.tenderwizard.com/NIA

E-TENDER

Request for Proposal (RFP) for Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune.

Last date of submission of tender 24.02.2025 up to 17.00 Hrs

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DISCLAIMER:

The information contained in this Tender document or subsequently provided to **Bidder(s)**, whether verbally or in documentary or any other form by National Insurance Academy (NIA) or anyof their employees is provided to Bidder(s) on the terms and conditions set out in this Tender Document and such other terms and conditions subject to which such information is provided.

This Tender is not an agreement and is neither an offer nor invitation by the NIA to the Bidders or any other person. The purpose of this Tender is to provide interested parties with information that may be useful to them in making their technical and financial offers pursuant to thisTender (the "**Bid**"). This Tender includes statements, which reflect various assumptions and assessments arrived at by the NIA in relation to the Project. Such assumptions, assessments and statements do not purport to contain all the information that each Bidder may require. This Tender may not be appropriate for all people, and it is not possible for the NIA to consider the technical capabilities, investment objectives, financial situation and particular needs of each party who reads or uses this Tender. The assumptions, assessments, statements, and information contained in this Tender, may not be complete, accurate, adequate or correct.

Each Bidder should, therefore, conduct its own investigations, studies and analysis and should check the accuracy, adequacy, correctness, reliability and completeness of the assumptions, assessments, statements, and information contained in this Tender and obtain independent advice from appropriate sources.

Information provided in this Tender to the Bidder(s) is on a wide range of matters, some of which depends upon interpretation of law. The information given is not an exhaustive account of statutory requirements and should not be regarded as a complete or authoritative statement of law. NIA accepts no responsibility for the accuracy or otherwise for any interpretation or opinion on law expressed herein.

NIA, makes no representation or warranty and shall have no liability to any person, including any Bidder under any law, statute, rules or regulations or tort, principles of restitution or unjust enrichment or otherwise for any loss, damages, cost or expense which may arise from or be

incurred or suffered on account of anything contained in this Tender or otherwise, including the accuracy, adequacy, correctness, completeness or reliability of the Tender and any assessment, assumption, statement or information contained therein or deemed to form part of this Tender or arising in any way in this Bid Stage. NIA also accepts no liability of any nature whether resulting from negligence or otherwise howsoever caused arising from reliance of any Bidder upon the statements contained in this Tender.

NIA may in its absolute discretion, but without being under any obligation to do so, update,amend or supplement the information, assessment or assumptions contained in this Tender. The issue of this Tender does not imply that NIA is bound to select a Bidder or to appoint the Preferred Bidder, as the case may be, for the Project and NIA reserves the right to reject all or any of the Bidders or Bids without assigning any reason whatsoever.

NIA reserves all the rights to cancel, terminate, change, or modify this selection process and/or requirements of bidding stated in the Tender, at any time without assigning any reason or providing any notice and without accepting any liability for the same.

The Bidder shall bear all its costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by NIA, or any other costs incurred in connection with or relating to its Bid. All such costs and expenses will remain with the Bidder and NIA shall not be liable in any manner whatsoever for the same or for any other costs or other expenses incurred by a Bidder in preparation or submission of the Bid, regardless of the conduct or outcome of the Bidding Process.

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INFORMATION & INSTRUCTIONS TO THE BIDDERS

FOR USING ONLINE ELECTRONIC TENDERING SYSTEM (ETS).

Special Conditions & instructions for using online Electronic Tendering System (ETS) through portal (website) https://www.tenderwizard.com/NIA adopted by National Insurance Academy, Pune as given in the subsequent pages will over-rule the conditions stated in the tender documents, wherever relevant and applicable.

Bidders are required to enrol for Vendor Registration on the NIA e-Procurement Tender wizard Portal **(URL: https://www.tenderwizard.com/NIA)** by clicking on the link **"Registration"** on the home page of e- Portal, which is chargeable. **(Rs.1000/- + GST 18%, Non-Refundable)** to be paid online through e-payment gateway). Those bidders who have enrolled recently need not register. The validity of registration is one year.

Note: The e-Payment Gateway is available on e-Procurement Portal for making the Online Vendor Registration Payment.

Note: Information about e-Procurement Portal.

More useful information for submitting online bids on the NIA e-Procurement Tender wizard Portal may be obtained at: **https://www.tenderwizard.com/NIA**.

Bidders are requested to refer to the Vendor's manual by downloading the Vendor's Manual by visiting on home page of **https://www.tenderwizard.com/NIA** and following KEY INSTRUCTIONS for BIDDERS by clicking on "Latest Circulars/Formats/Help Manuals/FAQs". The complete Step by Step Vendors Help Manual For e-Procurement / e-Tendering Process, Vendors Registration Process, System Settings Requirements & JAVA Settings Manuals, e-Payment Guidelines & Digital Signature Certificate Process are available on e-Auction Website regarding the e-Auction.

Online Support / Web Support / E-Mail Support / Phone Support are also available for Bidders. Online support will be provided through "Team viewer" or "Ammy Admin" Remote software only.

For Downloading this software, the downloading software links are available on home page of e-Auction Website.

• **Registration of the Vendors / Bidders:** All the bidders intending to participate in the tenders floated online using Electronic Tendering System (ETS) are required to get registered on the e-Tender Portal (website) http://www.tenderwizard.com/NIA. After successful Registration on above mentioned portal, bidders will get a **User ID** and **Password** to access the website. Those bidders who have enrolled recently need not register. The validity of registration is one year.

• **Viewing of Online Tenders:** The bidders can view tenders floated on online Electronic Tendering System (ETS) hereinafter referred as "e-Tendering System" through portal (website) at http://www.tenderwizard.com/NIA.They can view the details like Tender Notice, Terms and

Conditions, drawing (if any) and any other information. To download the tender, they need to login on to the above portal and can download the tender documents of an e-Tender.

• **Key Dates:** The bidders can view the Online Scheduled dates of e-tendering System (time schedule) hereinafter referred as "Key Dates" for all the tenders floated using the online electronic tendering system on above mentioned portal (Website) http://www.tenderwizard.com/NIA

The bidders are strictly advised to follow dates and time as mentioned in Key Dates of a particular tender. The date and time will be binding on all the bidders. The bidders are required to complete the stages within the stipulated time as per the schedule (Key Dates) to continue their participation in the tender. All online activities are time tracked and the system enforces time locks that ensure that no activity or transaction can take place outside the start and end dates and time of the stage as defined. The bidder should ensure that the status of a particular stage should be shown as **"Completed"** before the expiry date and time of that particular stage and they should possess a copy of receipt of completion of each stage to be performed from their end which should match with the status with their offer on online portal. It will be the sole responsibility of the bidder if the status of a particular stage is "Pending" till the expiry date and time of that stage, and he will not be able to proceed further in the e-Tendering process. The Key dates are subject to change in case of any amendment in schedule due to any reason stated by the Department.

• **Obtaining a Digital Certificate and its Usage**: On e-Tendering System the bids should be Encrypted and Signed electronically with a Digital Signature Certificate (DSC) to establish the identity of the bidder on online Portal. The Digital Signature Certificate (DSC) has two keys i.e., Public Key and Private Key. The Public Key is used to Encrypt (code) the data and Private Key is used to decrypt (decode) the data. The Encryption means conversion of normal text into coded language whereas decryption means conversion of coded language into normal text.

Note: Digital Signature Certificates: Class III Signing + Encryption Digital Signature Certificate is required for e-Tendering. (DSCs) are issued by an approved Certifying Authority, by the Controller of Certifying Authorities (CCA India), Government of India.

• The bidders may obtain Class III digital certificate from any Certifying Authority or Sub certifying Authority authorized by the Controller of Certifying Authorities on the portal http://cca.gov.in. or may obtain information and application format and documents required for issue of digital certificate from our Service Provider for Electronic submission.

E-Tendering System (ETS):
E-Tender helpdesk, #24, Sudha Complex,
03rd Stage, 04th Block, Basaveshwaranagara,
Bengaluru - 560079
dscprocessingunit@yahoo.com
Help Desk Contact Details:
Tel: 080-40482000/121/133/140, Mobile: 9686115304/9686115323
E-mail: lokesh.hr@antaressystes.com / raghuprashanth@antaressystems.com

• The Bid (Online Offer) for a particular e-Tender may be submitted only using the Digital Signature Certificate (DSC), which is used to Encrypt (codified) the data and sign the Hash (Impression of your data) during the stage of Bid Preparation and Hash submission. In case, during the process of a particular e-Tender, the user loses his Digital Certificate (i.e., due to virus attack, hardware problem, operating system problem), he may not be able to submit the bid online. Hence, the users are advised to keep their Digital Signature Certificates in safe custody.

• In case of online Electronic Tendering, if the Digital Certificate issued to the authorized user of a firm is used for signing and submitting an online bid, it will be considered equivalent to a no objection certificate/power of attorney to that User. The firm has to authorize a specific individual via an authorization certificate signed by all partners to use the Digital Certificate as per Indian Information Technology Act 2000 and its amendments. Unless the certificates are revoked, it will be assumed to represent adequate authority of the user to bid on behalf of agency for NIA Office Pune, as per Information Technology Act 2000 and its amendments. The Digital Signature of this authorized user will be binding on the firm. It shall be the responsibility of management / partners of the registered firms to inform the certifying authority or Sub Certifying Authority; in case of change of authorized user and that a fresh digital certificate is procured and issued an "Authorization Certificate" for the new user. The procedure for application of a Digital Certificate will remain the same for the new user.

• The same procedure holds true for the authorized users in a private/Public limited company. In this case, the authorization certificate will have to be signed by the directors of the company.

• Bidders participating in e-tendering shall check his/her validity of Digital Signature Certificate before bidding in the specific work floated online at the e-Tendering Portal (website) through **http://www.tenderwizard.com/NIA.**

NOTE: -

NIA AND TENDERWIZARD will not entertain any reasons /claims of Tenderer on account of Net Connection Failure/Power Connection Failure and any issues during the submission of tender online. Tenderer shall be solely responsible for all those facts and failure of Net Connectivity, Electricity Current Connectivity etc.
For Registration and for further details on e-tendering, please visit website above mentioned portal (website) or below mentioned address:

E-Procurement Helpdesk Officials details.
Office Address: - E-Tender helpdesk, # 24, Sudha Complex, 03rd Stage,
04the block, Basaveshwaranagara, Banglore-560079

Help Desk Contact Details: -

1) **Mr. Sanjay K. Chandak, (Pune & Mumbai Maharashtra) (E-mail: sanjay.kc@antaressystems.com) Or sanjay.kc@etenderwizard.com Ph: 9665721619.**
2) **Mr. Lokesh, (E-mail: lokesh.hr@antaressystems.com) Ph: 09686115304 & 080-40482140**

TENDER SCHEDULE:

Request for Proposal (RFP) for Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune.

Sl. No.	Items	Date & Time
1	Tender No.	**NIA/ENGG/DG 01 dated 03.02.2025**
2	Tender Type	Open
3	Availability of Tender Document on the website (https://www.niapune.org.in) and for online participation visit the https:// www.tenderwizard.com/NIA. only.	From 03/02/2025, 10.01 hrs. to 24/02/2025, 17.00 hrs.
4	Last date for receiving Pre-Bid queries.	07/02/2025 at 12.00 hrs.
5	Date and Time of Pre-bid Conference.	11/02/2025 at 11.30 hrs.
6	Inspection of Site / Location	From 04/02/2025 to 10/02/2025 during office hours 10.00 hrs. to 17.00 hrs. except Saturday / Sunday and Public Holidays
7	Issue of Corrigendum (if required)	On or before 14/02/2025
8	Last Date and Time for Submission of BidDocument	24/02/2025 up to 17:00 hrs.
9	Date and Time of opening of Pre-Qualification Bids & Technical Bids (PQ & TB)	25/02/2025 at 11.00 hrs.
10	Opening of Commercial Bid (CB) of qualified bidders.	To be informed later.
11	Tender Fee Applicable	Rs.1000.00 + GST
12	EMD Applicable	Rs.3,00,000.00

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1. Fact Sheet:

Clause Reference	Topic
Commercial BidEvaluation	**The method of selection:** Least Cost Based Selection **(LCBS)** method will be used to select the Agency for **Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and for buyback of old DGs at NIA, Pune High cost-based selection method will be used.**The bidder has to apply the bid in **two-part system**, Pre-Qualification – cum – Technical bid & Financial bid. Financial bid of those bidders who qualifies in Pre- Qualification – cum – Technical bid shall be opened. The bidder with lowest-priced conforming **(LPC)** offer will be the most responsive bidder and will win the bid for the buyback of DGs, price H1 bidder will be considered.
Downloading RFP Document	RFP can be downloaded from https://niapune.org.in and https://www.tenderwizard.com/NIA
Registration Fee	Tender Registration Fee: One Time Tender Registration Fee in a year. Bidders are requested to pay the registration fee of **Rs. ₹1000/-+ GST** through online mode on https://www.tenderwizard.com/NIA portal. Those who have already registered need not have to pay Registration Fee.
Tender Processing Fee	Tender Processing fee: To participate in the bid, bidders are requested to pay the tender processing fee of **Rs. ₹1000/-+ GST** through online mode on https://www.tenderwizard.com/NIA portal.
Scope of work	This project is linked to deliverables relating to **Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune** and providing maintenance support within stipulated time.
Language	The Proposal should be filled up by the Bidder in English language only.
Taxes	Taxes: The bidder must quote price in Indian Rupees only. The bid price to be offered by the bidders must be inclusive of all taxes and levies **excluding GST**.
Proposal Validity	Proposals must remain valid till **180 days** after the last date of submission of the bids.
Submission of Responses	Bidders must submit all required documents online on the website https://www.tenderwizard.com/NIA
Online Proposal	This is an online proposal; interested bidders/parties are required to submit bids online only on the website mentioned in above clause. All required documents are to be uploaded, and no hard copies will be entertained from the bidders.
Last Date of	Proposals must be submitted no later than the following date and time: 24/02/2025 up to 17:00 hrs. or else the bid will be auto rejected by the portal /

Submission	system.
Submission of Document fee through Electronic Mode	All payments of proposal will be made only through the tender wizard portal with multiple enabled payment options / modes. i.e., https:// www.tenderwizard.com/NIA

2. About the Institute:

National Insurance Academy, Balewadi, Pune is an Apex Educational, Training and Research Institute in the field of Insurance, Pension and Management established under the aegis of Ministry of Finance, Government. of India and Public Sector Insurance Companies. The Director, NIA has requested **RFP** for **Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune.**

3. Instructions to the Bidders:

3.1 General:

i. While every effort has been made to provide comprehensive and accurate, requirements, and specifications, Bidders must form their own conclusions about the requirements. Bidders and recipients of this RFP may wish to consult their own legal advisers in relation to this RFP.
ii. All information to be supplied by Bidders will be treated as contractually binding on the Bidders, on successful award of the assignment by NIA on the basis of this RFP.
iii. NIA reserves the right to cancel this public procurement at any time without any noticeand reason.
iv. This RFP supersedes and replaces any previous public documentation & communications in this regard and Bidders should place no reliance on such communications.

3.2 Compliant Tenders / Completeness of Response:

i. Bidders are advised to study all instructions, forms, requirements, appendices, and other information in the RFP documents carefully. Submission of the bid / proposal shall be deemed to have been done after careful study and examination of the RFP document with full understanding of its implications.
ii. Failure to comply with the requirements of this paragraph may render the Proposal non-compliant and the Proposal will be rejected.

Bidders must:

a. Comply with all the requirements set out within this RFP.
b. Submit the forms as specified in this RFP and respond to each element in the order as set out in this RFP.

3.3 Include all supporting documentations specified in this RFP.

3.4 Pre-Bid Meeting & Clarifications:

3.3.1 Bidders Queries:

i. Pre-Bid Queries should be submitted in prescribed format before **07/02/2025** before **12.00 hrs**.

ii. A pre-bid conference will be scheduled by NIA on 11/**02/2025** at **11.30** hrs to clarify doubts of potential bidders in respect of the procurement and the records of such conference shall be published on the respective websites as Pre-bid clarifications.

iii. Only the prospective bidders who have deposited the RFP document fees shall be allowed to participate in the Pre-bid meeting.

iv. The RFP document fee of Rs.1000.00 + GST needs to be transferred online through NEFT/RTGS only to National Insurance Academy, Pune through the Payment Gateway e-tender Portal. In case of NEFT online transfer of RFP Document fee, the firm must mention the Firm Name, Amount Transferred with Transaction ID, Tender Enquiry Number, GST No through e-mail on **kishor@niapune.org.in.**

v. The Pre-bid meeting details shall be shared through the mail to the prospective bidders those have submitted the pre-bid queries along with proof of payment of RFP document fee.

vi. The Bidders will have to ensure that their queries for Pre-Bid meeting should reach the below email id on or before the prescribed date as mentioned in "Important Dates and information" section of this RFP.

vii. Pre-Bid Queries to be sent to **kishor@niapune.org.in** with a copy to **pramodkatke@niapune.org.in** & **sridharjayashree@niapune.org.in**.

viii. The Queries should necessarily be submitted in the format as prescribed in Annexure-4 of this RFP.

ix. NIA shall not be responsible for ensuring receipt of the bidder's queries. Any requests for clarifications post the indicated date and time may not be entertained by NIA.

3.3.2 Responses to Pre-Bid Queries and Issue of Corrigendum:

i. NIA will endeavour to provide timely response to all valid queries. However, NIA makes no representation or warranty as to the completeness or accuracy of any response made in good faith, nor does NIA undertake to answer all the queries that have been posed by the bidders.

ii. At any time prior to the last date for receipt of bids, NIA may, for any reason, modify the RFP Document by a corrigendum.

iii. The Corrigendum (if any) & clarifications to the queries from all bidders will be posted on the websites: https://www.niapune.org.in and https://www.tenderwizard.com/NIA on 14/08/2024.

iv. Any such corrigendum shall be deemed to be incorporated into this RFP.

v. In order to provide prospective bidders reasonable time for taking the corrigendum into account, NIA may, at its discretion, extend the last date for the receipt of Proposals.

3.4 Key Requirements of the Bid:

3.4.1 Right to Terminate the Process:

i. NIA may terminate the RFP process at any time without assigning any reason. NIA makes no commitments, expresses or implied that this process will result in a business transaction with anyone.

ii. This RFP does not constitute an offer by NIA. The bidder's participation in this process may result NIA selecting the bidder to engage towards execution of the contract.

iii. NIA reserves the right to consider dropping any of the item asked for quotation in the RFP after evaluating Technical Bid.

3.4.2 Bid Security (EMD):

The bidder should submit copies of Tender fee details (Rs.1000.00 + GST) and Earnest Money Deposit (Rs.3,00,000.00) details along with the bid. The tender fee and EMD details should be uploaded on or before the last date of submission of tender.

Bids without Tender Fee and EMD will be summarily rejected without any further reference to the bidder.

3.4.3 Submission of Responses:

i. The bidders should submit their responses, as per the format given in this RFP in the following manner
   - Response to Pre-Qualification–cum–Technical Criteria: Online on the tender-wizard portal. https://www.tenderwizard.com/NIA
   - Commercial Proposal - Online on the tender-wizard portal. https://www.tenderwizard.com/NIA

ii. All submission process will be done on the said (tender-wizard) portal only for any information or help you may refer the Help Manuals or Dial us on, **9665721619 / 9404060582 .**

iii. Please Note that Prices should not be indicated in the Pre-Qualification – cum - Technical Proposal but should only be indicated in the **Commercial Proposal**. Any Bidder found to indicate prices in the Pre-Qualification – cum - Technical Proposal **are liable to be rejected.**

iv. All the pages of the proposal must be sequentially numbered and must contain the list of contents with page numbers. Page references should be identified easily. If required, All the relevant parts should be highlighted in the bid documents. Any deficiency in the documentation may result in the rejection of the Bid.

v. Bidders may modify their prices till closing/submission date & time of this RFP in the prescribed excel format available on the tender-wizard portal and upload the scanned copies in the portal.

vi. Manufacturer Authorization Form (MAF) should be submitted positively in original/photocopies by the bidders while submitting the response to RFP, failing which the bid is subject to rejection. MAF is requested for following Equipment:

vii. The Bidder(s) must submit the Form-2 (Compliance Sheet for Technical Proposal) in their official letterhead along with the Datasheet of the equipment quoted. Bidder(s) should upload the scanned copy in the portal

3.4.4 Authentication of Bids:

A Proposal should be accompanied by a power-of-attorney / authorization in the name of the signatory of the Proposal. Bids shall be considered only on the successful bid submission on the tender-wizard portal.

3.5 Preparation and Submission of Proposal:

3.5.1 Proposal Preparation Costs

The bidder shall be responsible for all costs incurred in connection with participation inthe RFP process, including, but not limited to, costs incurred in conduct of informative and other diligence activities, participation in meetings/discussions/presentations, preparation of proposal, in providing any additional information required by NIA to facilitate the evaluation process, and in negotiating a definitive contract or all such activities related to the bid process. NIA will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

3.5.2 Language:

The Proposal should be filled by the bidders in English language only. If any supporting documents submitted are in any language other than English, translation of the same in English language is to be duly attested by the Bidders. For purposes of interpretation of the documents, the English translation shall govern.

3.5.3 Venue & Deadline for Submission of proposals:

Proposals, in its complete form in all respects as specified in the RFP, must be submitted to NIA at the website specified below:

Website	https://www.tenderwizard.com/NIA
Last Date & Time of Submission	**24/02/2025 up to 17:00 hrs.**

3.5.4 Late Bids:

i. The bids submitted by telex/telegram/ fax/e-mail/post etc. shall not be considered for evaluations. No correspondence will be entertained on this matter.
ii. NIA reserves the right to modify and amend any of the above-stipulated condition/criterion depending upon project priorities and need.

3.6 Evaluation process:

i. A Committee constituted by NIA shall evaluate the responses to the RFP and all supporting documents / documentary evidence. Inability to submit requisite supporting documents / documentary evidence, may lead to rejection of bid.
ii. The decision of the Committee in the evaluation of responses to the RFP shall be final. No correspondence will be entertained outside the process of evaluation with the Committee.
iii. The above-mentioned Committee may ask for meetings with the Bidders to seek clarifications on their proposals.
iv. The Committee reserves the right to reject any or all proposals on the basis of any deviations.
v. Each of the responses shall be evaluated as per the criterions and requirements specified in this RFP.
vi. Clarification (if any) sought has to be submitted by the bidder within specified timeline,

failing which the Bid is liable to be rejected.

3.6.1 Tender Opening:

The Proposals **PQ & TQ** submitted up to **24/02/2025 up to 17:00 hrs**. will be opened at **11:00 AM on 25/02/2025** online.

3.6.2 Tender Validity:

The offer submitted by the Bidders shall be valid for minimum period of **180 days** from the last date of submission of Tender.

Tender Evaluation:

i. Incomplete details as given below will be treated as non-responsive. If Proposals:
   - Are not submitted in as specified in the RFP document
   - Received without the Letter of Authorization/Power of Attorney
   - Are found with suppression of details
   - With incomplete information, subjective, conditional offers and partial offers submitted
   - Submitted without the documents requested in the checklist
   - Have non-compliance of any of the clauses stipulated in the RFP
   - With lesser validity period

ii. All responsive Bids will be considered for further processing as below.
   - NIA will prepare a list of responsive/eligible bidders, who comply with all the Terms and Conditions of the Tender. All eligible bids will be considered for further evaluation by the Committee according to the Evaluation process defined in this RFP document. The decision of the Committee will be final in this regard.

5.Criteria for Evaluation

- **Pre-Qualification (PQ) – Cum- Technical Criteria**

All bids will primarily be evaluated on the basis of Prequalification Criteria- Cum-Technical Bid. The Committee will carry out a detailed evaluation of the Proposals. Only those bidders who qualify all Prequalification & Technical criteria, are eligible for opening of their Financial Bid.

Bidder shall quote for all the items including Optional Items. The order will be placed on turnkey basis only and will not be bifurcated / splitted, in any case.

Bidder shall quote only for one brand for each item. Multiple brands quoted may disqualify the bidder from the process.

Sl. No.	Basic Requirement	Specific Requirements	Documents required
1.	Legal Entity	The bidder should be a Company registered under the Companies Act, 1956 / Proprietary Firm / Partnership Firm under the Partnership Act 1932. The company offices must have been Registered in Maharashtra, Registered with Valid GST No and having PAN, & IT Return up to 31st March 2023/24.	– Certificates of incorporation. – Registration Certificates, – PAN copy & other necessary supporting documents.
2.	Average Sales Turnover DG and related works	**Annual Average Turnover** of Minimum of **₹ 100Lakhs** generated from Supply and Installation of Diesel generating set in **any three last financial years** i.e.: FY 23-24, FY 22-23, FY 21-22, FY 20-21, FY-2019-20 and FY 2018-19	Extracts from the audited Balancesheet and Profit & Loss: OR Certificate from the statutory auditor
3.	Net Worth	The net worth of the bidder in the last three financial years should be positive.	CA Certificate with CA's Registration Number / Seal indicating net worth of the firm.
4.	Technical Capability	The Bidder must be **OEM/Chanel partner/Authorized Dealer** and should be in the field of providing and erecting DG sets in India for at least Five Years as on 31-Jan-2025. Experience certificate or Orders would be required for the same. Bidder must have successfully undertaken / completed at least the following numbers of DG	Technical Capability: Work order along with Completion Certificates from the client / duly signed, Delivery Challan and Installation Report need to be submitted. Project should be complete in all respect.

		installations and associated maintenance services specified herein during the last five financial years, ending on the last date of submission of the bid: One project of similar nature is not less than the amount **Rs. 64 Lakhs.** **OR** Two projects of similar nature, each of which not less than the amount **Rs. 40 Lakh.** **OR** Three projects of similar nature each of which not less than the amount **Rs. 32 Lakh.** 'Similar Nature' is defined as SITC of DGs and associated maintenance services for government / public / private sector enterprises in India and Government and Private Institutes.	
	ii. Technical Capability	The bidder must have Tender Specific Authorization stating that quoted products are not end of sales or discontinued, from the manufacturer for Supply, installation, support, and services of the OEM. **The Bidder must attach Tender Specific Authorization certificates from the OEMs**.	
5	Local Service Centers	The bidder should have presence in Maharashtra with Service Support Center at Pune / Mumbai.	– A Self Certified letter by an authorized signatory. – A single point of Contact from the bidder to be submitted along with escalation matrix.
6	Blacklisting	The bidder must not have been blacklisted by any Department of Government of Maharashtra or Government of India. The bidder must also disclose full details of any blacklisting by Central or State PSUs /	A Self certified letter by an authorized signatory.

		Undertakings / Autonomous Organizations or under a declaration of ineligibility for corrupt or fraudulent practices in last two years ‘as on ‘date of tender.	
7	Performance	The Bidder must not have any record of poor performance, abandoned work, having inordinately delayed completion, and having faced commercial failures etc. for any StateGovernment or Government of India Organization / Department during last 5 years as on ‘**20/02/2025**.	Self-Declaration

Commercial Bid Evaluation:

- The Financial Bids of PQ and technically qualified bidders will be opened online on the prescribed date.
- The Bidder who submits the lowest Commercial bid shall be selected as the **L1 bidder** and shall be called for further process leading to the award of the assignment. In the case of Buyback of old DGs the bidder who quotes higher value, will be considered as **H1 Bidder**.
- The rates quoted must be FOR destination / site where the DG to be delivered, installed and should include all incidental charges.
- Only fixed price financial bids indicating total prices for all the deliverables and services specified in this bid document will be considered.
- The bid price will include all taxes and levies excluding GST and shall be in Indian Rupees.

- Prices quoted in the bid must be further negotiable with the Lowest bidder(L1) and shall be permissible to any modifications, on any account whatsoever.

- All the required items must be listed and priced separately in the financial bid. If a financial bid shows items listed but not priced, their prices shall be assumed to be included in the prices of other items.

- An evaluation will be made on the basis of total bid price inclusive of all taxes. The bidder has to quote Tax(s) as applicable in the Tax Columns of Financial Bid Format. Evaluation will be done on the basis of Grand Total cost [Total cost = (Unit cost + Taxes as applicable)].
- In case of a Tie of the bid price for L1, both the bidders shall be called for further negotiations, then whose ever price becomes L1 will be awarded the contract.
- Any conditional commercial bid would be rejected.
- Errors & Rectification: Arithmetical errors will be rectified on the following basis: “If there is a discrepancy between the unit price and the total price of any item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected accordingly. In the case of multiple items, grand total price shall be corrected by adding the sub-total costs of each item. If there is a discrepancy between words and figures in respect of unit price, the amount in words will prevail.

6.Appointment of Agency for SITC of DGs

Award Criteria

NIA will award the Contract to the successful bidder whose proposal is determined to be substantially responsive as per the process outlined above.

Right to Accept Any Proposal and To Reject Any or All Proposal(s)

NIA reserves the right to accept or reject any proposal, and to annul the tendering process / Public procurement process and reject all proposals at any time prior to award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for NIA action.

Notification of Award

Prior to the expiration of the validity period, NIA will notify the successful bidder through tender-wizard portal as also through e-mail, that its proposal has been accepted. In case the tendering process / public procurement process has not been completed within the stipulated period, NIA, may like to request the bidders to extend the validity period of the bid.

The notification of the award will constitute the formation of the contract. Upon the successful bidder furnishing Performance Bank Guarantee, NIA will notify each unsuccessful bidder.

Failure to Agree with the Terms and Conditions of the RFP

Failure of the successful bidder to agree with the Terms & Conditions of the RFP shall constitute sufficient grounds for the annulment of the award, in which event NIA may award the contract to the next best value bidder or call for new proposals from the interested bidders. In such a case, NIA shall invoke the PBG of the bidder.

Fraudulent and Corrupt Practices

i. The Bidders and their respective officers, employees, agents, and advisers shall observe the highest standard of ethics during the Selection Process. Notwithstanding anything to the contrary contained in this RFP, NIA shall reject a Proposal without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice (collectively the "Prohibited Practices") in the Selection Process. In such an event, NIA shall, without prejudice to its any other rights or remedies, forfeit and appropriate Performance Security or suspend the bidder for a specific time period, as the case may be, as mutually agreed genuine pre-estimated compensation and damages payable to the Authority for, inter alia, time, cost and effort of the Authority, in regard to the RFP, including consideration and evaluation of such Bidder's Proposal.

ii. Without prejudice to the rights of NIA under Clause above and the rights and remedies which NIA may have under the LOI or the Agreement, if a Bidder is found by NIA to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Selection Process, or after the issue of the Work Order or the execution of the Agreement, such Bidder shall not be eligible to participate in any tender or RFP issued by NIA during a period of 2 (two) years from the date of such Bid.

iii. For the purposes of this Section, the following terms shall have the meaning hereinafter respectively assigned to them:

a. "corrupt practice" means (i) the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the action of any person connected with the Selection Process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of NIA who is or has been associated in any manner, directly or indirectly with the Selection Process.

b. "fraudulent practice" means a misrepresentation or omission of facts or disclosure of incomplete facts, in order to influence the Selection Process.

c. "coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person's participation or action in the Selection Process."undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by NIA with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or (ii) having a Conflict of Interest; and

d. "Restrictive Practice" means forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Selection Process.

Conflict of Interest:

The bidder shall disclose to NIA in writing, all actual and potential conflicts of interest that exist, arise or may arise in the course of performing the Service(s) as soon as practical after it becomes aware of that conflict.

NIA considers a conflict of interest to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations. In pursuance of NIA's Procurement Ethics requirement that bidders, suppliers, and contractors under contracts, observe the highest standard of ethics, NIA will take appropriate actions against the bidder(s), if it determines that a conflict of interest has flawed the integrity of any procurement process. Consequently, all bidders found to have a conflict of interest shall be disqualified.

i. A bidder may be considered to be in a conflict of interest if the bidder or any of its affiliates participated as a consultant in the preparation of the solicitation documents/RFP for the procurement of the goods and services that are the subject matter of the bid.

ii. It may be considered to be in a conflict of interest with one or more parties in the bidding process if

a. they have controlling shareholders in common; or

b. it receives or has received any direct or indirect subsidy from any of them; or

c. they have the same legal representative for purposes of the Bid; or

d. They have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder or influence the decisions of the tendering authority regarding this bidding process.

7.Performance Bank Guarantee (PBG)

i. The selected bidder will submit a Performance Bank Guarantee (PBG), within **10 days** after issuance of Purchase order or Work order issued by NIA, for a value equivalent to **10%** of the total order value. No MSME registration will be considered for availing exemption in tender fee, EMD and PBG.

ii. The Performance Bank Guarantee needs to be furnished for Total validity period of **36 months + 3 months claim period** from the date of submission of PBG. The selected bidder shall be responsible for the claim period of the Performance Guarantee as and when it is due on account of non- completion of the project and Warranty period.

iii. In case the selected bidder fails to submit performance Bank guarantee within the time stipulated, NIA at its discretion may cancel the order placed on the selected bidder without giving any notice and may suspend the bidder for a specific period of time as decided by the committee.

iv. In that event, NIA, at its discretion, may award the Contract to the next best value bidder with the discovered L1 Price, in case the bidder is agreed and whose offer is valid.

v. NIA shall invoke the performance Bank Guarantee in case the selected Vendor fails to discharge their contractual obligations during the project period or NIA incurs any loss due to Vendor's negligence in carrying out the project implementation as per the agreed terms & conditions.

vi. Performance Bank Guarantee shall be returned after 1 month of warranty period completion.

vii. No interest will be paid by NIA on the amount of performance Bank Guarantee.

viii. The EMD of the successful bidder will be refunded within a month after submission of the Performance Bank Guarantee.

8.Terms and Conditions: Applicable Post Award of Contract

Termination Clause

8.1.1 Right to Terminate the Process

NIA reserves the right to cancel the contract placed on the selected bidder and recover expenditure incurred by NIA under the following circumstances:

i. The selected bidder commits a breach of any of the terms and conditions of the bid.
ii. The bidder goes into liquidation, voluntarily or otherwise.
    If the selected bidder fails to complete the assignment as per the timelines prescribed in the RFP and the extension if any allowed, it will be a breach of contract.NIA reserves its right to cancel the order in the event of delay and forfeit the bid security as liquidated damages for the delay.
iii. In case the selected bidder fails to deliver the quantity and non compliance of norms as stipulated in the delivery schedule, NIA reserves the right to procure the same or similar product from alternate sources at the risk, cost, and responsibility of the selected bidder, after 2 weeks of cure period.
iv. NIA reserves the right to recover any dues payable by the selected Bidder from any amount outstanding to the credit of the selected bidder, including the pending bills and/or invoking the bank guarantee under this contract.

Consequences of Termination

i. In the event of termination of the Contract due to any cause whatsoever, whether consequent to the stipulated term of the Contract or otherwise, NIA shall be entitled to impose any such obligations and conditions and issue any clarifications as may be necessary to ensure an efficient transition and effective business continuity of the Service(s) which the Vendor shall be obliged to comply with and take all available steps to minimize loss resulting from that termination/breach, andfurther allow the next successor Vendor to take over the obligations of the erstwhileVendor in relation to the execution/continued execution of the scope of the Contract.
ii. Nothing herein shall restrict the right of NIA to invoke Performance Bank Guarantee and other guarantees, securities furnished, enforce the Deed of Indemnity, and pursue such other rights and/or remedies that may be available to NIA under law or otherwise.
iii. The termination hereof shall not affect any accrued right or liability of either Party nor affect the operation of the provisions of the Contract that are expressly or by implication intended to come into or continue in force on or after such termination.

Extension in Delivery Period and Liquidated Damages (LD)

i. Except as provided under clause "Force Majeure"(point No 8.5), if the selected bidder fails to deliver any or all of the Goods or perform the Related Services within the period specified in the Contract, NIA may without prejudice to all its other remedies under the Contract,deduct from the Contract Price, as liquidated damages, a sum equivalent to thepercentage specified in sub clause **(iv)** below for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the percentage specified in sub clause **(iv)**. Once the maximum timeline is reached, the Purchaser mayterminate the Contract pursuant to clause "Termination".
ii. The time specified for delivery in the tender form shall be deemed to be the **essence of the contract** and the selected bidder shall arrange goods supply and related serviceswithin the specified period.

iii. Delivery and completion period may be extended with or without liquidated damages if the delay in the supply of goods or service is on account of hindrances beyond the control of the selected bidder to be determined by NIA.

a. The supplier / selected bidder(s) shall request in writing to NIA giving reasonsfor extending the delivery period of service, if he finds himself unable to completethe supply of goods or service within the stipulated delivery period or is unable tomaintain prorate progress in the supply of goods or service delivery. This request shall be submitted as soon as a hindrance in delivery of goods and service occurs or within **15 days** of such occurrence but before expiry of stipulated period of completion of delivery of goods and service after which such request shall not be entertained.

b. NIA shall examine the justification of causes of hindrance in the delivery of goods and service and the period of delay occurred due to that and recommend the competent authority on the period of extension which should be granted with or without liquidated damages.

c. If the competent authority agrees to extend the delivery period / schedule, an amendment to the contract with suitable denial clauses and with or without liquidated damages shall be issued. The amendment letter should mention that no extra price or additional cost for any reason, whatsoever beyond the contracted cost shall be paid for the delayed supply of goods and service.

d. It shall be at the discretion of the competent authority to accept or not to accept the supply of goods and/or services rendered by the contractor after the expiry of the stipulated delivery period, if no formal extension in delivery period has been applied and granted. The competent authority shall have right to cancel the contract with respect to undelivered goods and / or service.

e. In the event of extension in the delivery and / or completion period is granted with full liquidated damages, the recovery shall be made on the basis of following percentages of value of goods which the selected bidder has failed to supply or complete:

No.	Condition
1	For delay in work beyond the work schedule mentionedin the work order**, LD @ 1.0%** per week or part thereof value up to maximum **10%** will be deducted.

f. The maximum amount of liquidated damages shall be 5% of the total order value.

g. NIA reserves its right to recover these amounts by any mode such as adjusting from any payments to be made by NIA to the bidder.

8.2 Service Level Agreement and Penalties

i. SLA defines the terms of the successful bidder's responsibility in ensuring the performance of the hardware & all other accessories supplied as per the **Scope of Work** as specified in the RFP document based on the agreed Performance Indicators.

ii. The Bidder shall provide comprehensive, end-to-end service including supply, warranty and replacement of the defective Hardware & peripherals in case of physical damage until delivered at the NIA Campus, Balewadi. No reason shall be entertained (unless those mentioned in Force Majeure) in case of un- availability of any service given in the Scope of Work in this RFP and the appropriate penalty shall be levied.

iii. The selected bidder and NIA shall regularly review the performance of the services being provided by the selected bidder and the effectiveness of this SLA.

iv. The following measurements and targets shall be used to track and report performance on a regular basis. The targets shown in the following tables are applicable for the entire duration of the Contract /Project, failing which the selected bidder(s) is liable to be penalized:

Sl. No.	Type of Incident	Target Resolution Time	Penalty
		T+7 days	No penalty
		> T+ 7 days	1.0 % of the cost of the Work value will be deducted per week up to maximum 5% of
1.	**Any defect in Hardware & peripherals or any of its part**		
			If the selected bidder
		> T + 60 Days	fails to rectify a defectwithin 90 days, NIA may proceed to take such remedial
			action as may be necessary (including Invocationof PBG), in addition toother resourcesavailable in terms and conditions of the contract and bidding document

Note: -

1. ***The upper limit of the penalties due to default in SLA Warranty is 5% of the entire PO value.***
2. ***T is the time when user reports the defect with the AV Hardware and peripherals by complaining log in through web/ help desk. The bidder shall generate a Ticket on receiptof complaint and also has to keep proper record of 'Complaint Date' & 'Issue Resolution Date.***

8.3 Dispute Resolution Mechanism

The Bidder and NIA shall endeavour their best to amicably settle all disputes arising out ofor in connection with the Contract in the following manner:

i. The Party raising a dispute shall address to the other Party a notice requesting an amicable settlement of the dispute within **seven (7) days** of receipt of the notice.
ii. The matter will be referred to for negotiation between NIA and the Authorized Official of the Bidder. The matter shall then be resolved between them, and the agreed course of action documented within a further period of 15 days.
iii. In case, it is not resolved, it will be referred to The Director, NIA and his decision would be final and binding for both the parties.

iv. In case any dispute between the Parties, does not settle by negotiation in the manner as mentioned above, the same may be resolved exclusively by arbitration and such dispute may be submitted by either party for arbitration within 20 days of the failure of negotiations. Arbitration shall be held in Pune and conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof. Each Party to the dispute shall appoint one arbitrator each and the two arbitrators shall jointly appoint the third or the presiding arbitrator.

v. The "Arbitration Notice" should accurately set out the disputes between the parties, the intention of the aggrieved party to refer such disputes to arbitration as provided herein, the name of the person it seeks to appoint as an arbitrator with a request to the other party to appoint its arbitrator within 45 days from receipt of the notice. All notices by one party to the other in connection with the arbitration shall be in writing and be made as provided in this tender document.

vi. Each Party shall bear the cost of preparing and presenting its case, and the cost of arbitration, including fees and expenses of the arbitrators, shall be shared equally by the Parties unless the award otherwise provides. The Bidder shall not be entitled to suspend the Service/s or the completion of the job, pending resolution of any dispute between the Parties and shall continue to render the Service/s in accordance with the provisions of the Contract/Agreement notwithstanding the existence of any dispute between the Parties or the subsistence of any arbitration or other proceedings.

8.4 Notices

Notice or other communications given or required to be given under the contract shall be in writing and shall be faxed/e-mailed/hand-delivery with acknowledgement thereof or transmitted by pre-paid registered post or courier.

8.5 Force Majeure

Force Majeure is herein defined as any cause, which is beyond the control of the selected bidder or NIA, as the case may be, which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the contract, such as:

i. Natural phenomenon, including but not limited to floods, droughts, earthquakes, and epidemics

ii. Acts of any government, including but not limited to war, declared or undeclared priorities, quarantines and embargos

iii. Terrorist attack, public unrest in work area provided either party shall within 10 days from occurrence of such a cause, notifies the other in writing of such causes. The bidder or NIA shall not be liable for delay in performing his/her obligations resulting from any force majeure cause as referred to and/or defined above. Any delay beyond 30 days shall lead to termination of contract by parties and all obligations expressed quantitatively shall be calculated as on date of termination. Notwithstanding this, provisions relating to indemnity, confidentiality survive termination of the contract.

8.6 Failure to agree with Terms and Conditions of the RFP

Failure of the successful bidder to agree with the Terms & Conditions of the RFP shall constitute sufficient grounds for the annulment of the award, in which event NIA shall invoke the PBG of the selected bidder and may award the contract to the next best value bidder or call for new proposals from the interested bidders.

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9.Details on Scope of Work

9.1 Scope of Work

All products should be offered in current production as of the date of the award. For purpose of this contract "current production" shall mean that the equipment model is being manufactured as new equipment for the Indian market. Refurbished equipment is not acceptable.

9.1.1 Supply and Delivery of Hardware & peripherals

The selected bidder is expected to carry out all activities covering Supply including delivery, installation and documentation, Testing, Quality Inspection compliance with external agencies in coordination with NIA Pune.

i. Supply of all the required quantities of Hardware and peripherals having the specifications. (As mentioned in the Specifications provided in Form 4 titled "Technical Specifications") at the NIA and in quantities as specified by the purchaser
ii. Conduct 100% Quality inspection and testing and ensure that each and every Hardware and other peripherals complies to the specifications given in Form 2 and ensure that there should not be any physical damage(s) and shall contain all the required every Hardware and other peripherals before declaring them as "Ready for delivery".
iii. The bidder will provide the soft copy and hard copy of both listing every Hardware and other peripherals serial nos. to NIA for better monitoring purposes.
iv. The Delivery Challan, Inspection Report & Acceptance Note will constitute the Final Acceptance of every material supplied.

9.1.2 Bill of Materials [BoM]

The Item details, brands, specifications, quantity etc of each item is as per Form 2, i.e. Compliance Sheet for Technical Proposal

9.1.3 Comprehensive OEM Warranty and support services

The Successful bidder shall:

i. Provide comprehensive OEM Warranty and support services through its designated Support Service Centres / Service Engineers.
ii. Warranty to start from the date of acceptance of installation at Site.
iii. Be responsible for ensuring adequate and timely availability of spare parts needed for repairing the supplied goods at the Service Support Centres / Service Engineers during the warranty period.
iv. The Successful bidder to provide Single Point of Contact Details (SPOC) for warranty and Support at NIA at the time of final delivery and installation of material.

9.2 Sub-contracting

i. The bidder shall not assign or sub-let its contract or any part thereof to any other agency.
ii. Subcontracting shall in no event relieve the Supplier/ Selected bidder(s) from any of its obligations, duties, responsibilities, or liability under the Contract

9.3 Roles and Responsibilities

National Insurance Academy (NIA):

NIA may

i. Conduct Pre-Delivery/Post-delivery Inspection.
In-case of Pre-Delivery / Factory Sight Inspection, the bidder has to bear the entire cost including all arrangements except the travel cost which will be borne by NIA.

ii. Authorize the concerned person of NIA to sign on the Delivery Challan.

9.4 Delivery/ Installation Schedule:

The Bidder shall ensure that all the required quantities of the ordered materials are supplied, delivered, and installed to the desired location(s) as per the schedule given below:

S.N.	Identification Lot	Quantity to be Delivered (in % age)	Delivery Schedule in Weeks
1	Complete work	100% of total BOQ	At NIA within 4 weeks, from the Date of receipt of Purchase Order or make it available at Vendor's warehouse at Pune which will be verified by NIA Officials (if required).
			At desired location of **NIA,** within 1 weeks, after verification done by NIA.
Installation			
Installation of Materials at Sites / given locations to be completed preferably within Three Weeks of delay of material at that NIA. However, it may please be noted that the if certain situations of event at NIA might occur where the shutdown of the system is not allowed.			

The arrival of goods must be informed to NIA in advance (before 3 days minimum), so that NIA will physically verify the same in the local go-down of the selected bidder or at NIA store. The time taken for material inspection & verification by NIA shall be excluded from the delivery period mentioned in the Delivery Schedule of the RFP.

9.5 Right to alter Quantities

NIA reserves the right to give repeat orders to the L1 bidder in Respective Package for maximum up to 25% of ordered quantity, if required, within the tender validity period of from the last date of submission of bid under same terms and conditions with same Specifications and Rate. Any decision of NIA in this regard shall be final, conclusive, and binding on the bidder. If NIA does not purchase any of the tendered articles or purchases less than the quantity indicated in the bidding document, the bidder(s) shall not be entitled to claim any compensation.

NIA reserves the right to drop any item after technical evaluation and complete the bidding, without considering that/those item(s).

9.6 Confidential Information

NIA and Selected bidder shall keep confidential and should not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract.

9.7 Specifications and Standards

- All articles to be supplied shall strictly conform to the specifications, trademark laid down in the tender form and wherever articles have been required according to ISI/ ISO/ other applicable specifications / certifications / standards, those articles should conform strictly to those specifications / certifications / standards. The supply shall be of best quality and description. The decision of the competent authority / purchase committee whether the articles supplied conform to the specifications shall be final and binding on the selected bidder.
- **Technical Specifications:**
  i. The Selected bidder shall ensure that the goods and related services comply with the technical specifications and other provisions laid down in the RFP & the work order.
  ii. The goods and related services supplied under this Contract shall conform to the standards mentioned in bidding document and, when no applicable standard mentioned, the standard shall be equivalent or superior to the official standards whose application is appropriate to the country of origin of the Goods.

9.8 Packing and Documents

a. The Selected bidder shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the final destination of the Goods and the absence of heavy handling facilities at all points in transit.
b. The Bidder shall be responsible for any defect in packing and any material found damaged / defective at the delivery points and those are to be replaced by the selected bidder within 2 weeks without any financial obligations to NIA.

9.9 Transit Insurance

a. The Hardware and peripherals to be supplied under the Contract shall be fully insured towards all risk against any loss during transit from Bidder site to NIA site.
   The insurance charges will be borne by the supplier, and NIA will not pay such charges.
b. The bidder must submit the certificate of insurance (from Insurance company/ self) covering all the risks mentioned above before commencement of fright delivery

9.10 Inspection

i. NIA or its duly authorized representative shall at all reasonable times have access to the Bidders's premises and shall have the power at all reasonable times to inspect and examine the materials and workmanship of the goods/ equipment/ machineries during manufacturing process or afterwards as may be decided.
ii. NIA may conduct inspection for which the cost shall be borne by NIA. NIA shall undertake the inspection of the DG set in accordance with the standard procedures being followed by NIA in

Quality Inspection.

iii. The inspection team shall prepare a Report specifying satisfactory operational condition of the inspected DG and necessary corrective measurements required by the Bidder.

iv. NIA will engage any Third-Party Agency (TPA), who shall be responsible for performing the inspection of the DG set in accordance with Industry Standards. NIA shall bear the inspection charges of TPA.

v. The bidder has to demonstrate availability / usability of all parts, and its working demonstration mentioned in the Technical Specification.

9.11 Rejection

Articles not approved during inspection or testing shall be rejected and will have to be replaced by the selected bidder(s) at his own cost within 6 business days or the time fixed by Competent Authority.

9.12 Authenticity of Equipment(s)

i. The selected bidder shall certify that the supplied goods are brand new, genuine / authentic, not refurbished, confirm to the description and quality as specified in this bidding document and are free from defects in material, workmanship, and service.

ii. If during the contract period, the said goods be discovered counterfeit/ unauthentic or not to confirm to the description and quality aforesaid or have determined (and the decision of NIA in that behalf will be final and conclusive), notwithstanding the fact that the purchaser may have inspected and/ or approved the said goods, the purchaser will be entitled to reject the said goods or such portion thereof as may be discovered not to confirm to the said description and quality, on such rejection the goods will be at the selected bidder's risk and all the provisions relating to rejection of goods etc., shall apply.

iii. Goods accepted by the purchaser in terms of the contract shall in no way dilute purchaser's right to reject the same later, if found deficient in terms of this clause of the contract.

9.13 Limitation of Liability

Except in cases of gross negligence or willful misconduct: -

a. neither party shall be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier / selected bidder to pay liquidated damages to the Purchaser; and

b. the aggregate liability of the selected bidder to the Purchaser, whether under the Contract, in tort, or otherwise, shall not exceed the amount specified in the Contract, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the supplier / selected bidder(s) to indemnify the Purchaser with respect to patent infringement.

9.14 Change in Laws & Regulations

1. Unless otherwise specified in the Contract, if after the date of the Invitation for Bids, any law, regulation, ordinance, order or bylaw having the force of law is enacted, promulgated, abrogated, or changed in Maharashtra / India, where the Site is located (which shall be deemed to include any change in interpretation or application by the competent authorities) that subsequently affects the Delivery Date and / or the Contract Price, then such Delivery Date and /or Contract Price shall be correspondingly increased or decreased, to the extent that the Supplier has thereby been affected in the performance of any of its obligations under the Contract.
2. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited, if the same has already been accounted for in the price adjustment provisions where appl.

10.Payment Terms and Procedure

20.1.Paying Authority

The payments as per the Payment Schedule covered herein above shall be paid by NIA. However, Payment of the Bills would be payable, on receipt of advice / confirmation for satisfactory delivery / installation / re-installation, and inspection / service report from the authorized official of National Insurance Academy.

20.2.Payment Schedules

a. No advance payment will be made.

b. Payment of the 50% of the order value shall be made by NIA within 30 days of 100% of material delivery at the site in good condition and verification by NIA and certificate of satisfaction.

c Another 40% payment shall be made within 15 days after installation, testing & commissioning of DG set along with other works related for the installation of DGs at the designated location and its acceptance by NIA. The bidder should also hand over the OEM warranty cards of equipment, Installation reports and User Manuals to NIA officials before claiming for the second payment.

d. Remaining 10% will be paid against submission of bank guarantee of 10% of total order value for the period of warranty of 3 years+ 3 months. All payments are subject to statutory deductions, wherever applicable

e the selected bidder's request for payment shall be made to NIA in writing, accompanied by invoices describing, as appropriate, the goods delivered and related services performed,and by the required documents submitted pursuant to general conditions of the contract and upon fulfillment of all the obligations stipulated in the Contract.

f. Due Payments shall be made promptly by NIA, generally within fifteen (15) days after submission of an invoice and other supporting documents in order.

h. The currency or currencies in which payments shall be made to the supplier / selected bidder(s) under this Contract shall be Indian Rupees (INR) only.

i. All remittance charges will be borne by the selected bidder.

j. In case of disputed items, the disputed amount shall be withheld and will be paid only after settlement of the dispute.

k. Any penalties/ liquidated damages, as applicable, for delay and non-performance, as mentioned in this bidding document, will be deducted from the payments for the respective milestones.

Taxes, as applicable, will be deducted at source, from due payments, as per the prevalent rules and regulations.

11.Appendix I: Pre-Qualification – cum – Technical Bid Template

General

The bidders are expected to respond to the RFP using the forms given in this section and all documents supporting Pre-Qualification–cum-Technical Evaluation Criteria. Pre- Qualification Bid – cum – Technical Proposal shall comprise of following forms:

4. Compliance Sheet for Prequalification cum Technical Evaluation:

Sl. No.	Basic Requirement	Documents Required	Complied (Yes / No)	Reference & Page Number
1.	Document / Tender Fee	Receipt for Rs.1000.00 + GST		
2.	Bid Security / EMD	Receipt for Rs.3,00,000.00 + GST		
3.	Power of Attorney / Authorization Letter	Copy of Power of Attorney/ Authorization in the name of the Authorized signatory		
4.	Particulars of the Bidders	As per **Form 1**		
5.	Average Sales Turnover	Extracts from the audited Balance sheet and Profit & Loss; OR Certificate from the statutory auditor		
6.	The net worth of the bidder in the last three financial years	CA Certificate with CA's Registration Number / Seal indicating net worth of the firm		
7.	Technical Capability	Work Order + Completion Certificates from the clients		
8.	Legal Entity	Copy of Certificate of Incorporation, GST registration, PAN, IT return		
9.	Compliance Sheet for Technical Proposal.	As per **Form - 2**		
10.	Local Service Centers	A Self Certified Letter / Undertaking by an authorized signatory		
10.	Blacklisting & Performance	A self-certified letter		
11.	Undertaking on Authenticity of DG set and services related to It (To be filled by the bidder (On ₹.100/- Non-judicial stamp paper)	As per **Form - 5**		

(The Pre-Qualification – cum – Technical proposal should comprise of the following basic requirements. The documents mentioned in this compliance sheet along with this form, need to be a part of the Pre-Qualification proposal and are required to be uploaded)

12.TECHNICAL SPECIFICATIONS OF 500 KVA DG SET

1.0 INTENT OF SPECIFICATION:

1.1 This specification covers the design, manufacture, assembly, shop testing, packing, dispatch, transportation, supply, erection, testing, commissioning, and guarantee testing of Silent type Diesel Generating Set, complete in all respects with all equipment, fitting and accessories for efficient and trouble-free operation as specified here under including statutory approvals.

2.0 SCOPE OF WORK:

General Scope of work shall include design, manufacture, shop testing, packing, dispatch, transportation to site, supply, erection, testing and commissioning of the following:

a) Diesel engines complete with all accessories, an Alternator directly coupled to the engine through flexible / rigid coupling complete with all CTs, PTs, etc. as required or as per BOQ & specifications, accessories for starting, regulation and control, including base frame, foundation bolts etc., interconnecting piping and accessories, power and control cables, glands and lugs.

b) AMF panel including various meters / Annunciation and other control components as per standard practice, BOQ & specifications. Control panel cabling between vendor's & local equipment and special cables if any.

c) Equipments necessary for fuel storing and distribution, fuel tank, piping, valves, level controller and indicators etc.

d) Flexible connections and Hospital Grade Silencer of exhaust system, including thermal lagging inside canopy with rain cap suitably optimized to meet stringent noise limit silencer specifically tuned to EATS.

e) Batteries with MS battery stand painted with one coat of Zinc Oxide and two coats of acid proof black paint and battery charging equipment, including their connections as necessary along with tools & accessories for battery maintenance.

f) Anti Vibration Mountings etc.

g) Preparing of all related shop drawings for approval from client / consultant and statutory bodies. Work shall be as per Final approved drawings

h) Obtaining approval /licensing of the installation of Diesel Generators by the Electrical Inspectorate, MSEDCL and Pollution Control bodies and any other statutory bodies. Any other registrations of Genset (e.g. Industry department)

i) Carrying out performance and guarantee test i.e. full load test for 6 hrs. followed by 1 hour 110% overload and again 6 hrs. full load (Total 13 hours). The vendor must plan for oil lubricants, HSD, other consumables and Electrical load of 110% capacity etc. as required.

j) The DG set shall be mounted on a suitable designed fabricated rigid common base foundation with antivibration pads to provide not less than 99% vibration isolation. The first filling of lube oil & HSD

shall be included in DG - sets cost. The DG Set shall include all standard accessories, fittings, instruments and 3 sets of operating & maintenance manuals, spare parts 2 list etc. complete as per technical specifications. The DG set shall be inclusive of AMF controller, Fuel Day tank, Hospital Grade Silencer of exhaust system, including thermal lagging inside canopy with rain cap suitably optimized to meet stringent noise limit silencer specifically tuned to EATS etc. complete as required.

k) The DG Sets shall be subjected to load tests at the factory before dispatch & at NIA site after installation in the presence of NIA's representative. All consumables required during testing of DG Sets at factory & site testing shall be included in the scope of DG vendor. All consumables required during trial run of DG Sets on load for 13 hours out of which six hours for running up to full load, followed by six hours on full load and concluded by one hour 110% overload capacity to be arranged by DG Vendor. Also, Vendor must arrange the 110% of rated capacity load bank availability for testing at factory and at NIA. The test shall be carried out as per Technical Specification & records to be submitted for approval. (The formats of all tests carried out at factory & at site with details of relevant standards as per latest standards & permissible limits should be submitted by DG vendor for reference along with tender).

l) **The design of DG Sets shall conform to the requirement of CPCB IV+ norms (CPCB IV+ Emission Compliant) for all parameters including flue gas emission and noise level**. DG set should be provided with standard accessories like anti vibration pads, AVR, electronics Class G3 governor, breaker, MFM, microprocessor-based controller (latest version), control cables, power cables complete as required up to AMF panel. BMS compatible ports & I/Os.

m) RCC foundation as per OEM's drawings, minor civil works like chasing, grouting etc, for execution of jobs. All materials must be of high quality.

GENERATOR STANDARD FEATURES:

1) Vendor to provide one-source responsibility for the generating system and accessories.
2) The generator set, and its components are prototype-tested, factory-built, and production- tested.
3) Two-year warranty covers all systems and components.
4) Industrial diesel engine with 24 Volt battery charging alternator.
5) Rated capacity Alternator with insulation class H & IP 23 protection.
6) Unit-mounted radiator.
7) Subbase fuel tank – Not less than 990 liters. capacity with float type level indicator, seven segment digital fuel level indicator.
8) Vibration isolators.
9) Dry type air filter with restriction indicator.
10) Fuel Water separator.
11) Main line breaker.
12) Starting battery and cables.
13) Sound enclosure with 75dB(A), (fully waterproof)
14) Conveniently locate fuel level indication.
15) Operation and installation literature.

ADVANCED DIGITAL CONTROL:

Compact Controller comprising of:

LED display for measurement of

1) Runtime hours
2) Current
3) Voltage
4) Frequency & PF
5) Engine temperature & Oil Pressure
6) Engine speed (RPM)
7) Battery Voltage
8) Fuel level
9) Routine maintenance indicator

LED display faults:

1) High engine temperature
2) Low oil pressure
3) Over crank
4) Overspeed
5) Over & under voltage
6) Over & under frequency
7) E-stop
8) Auxiliary fault
9) Display warning**:**

- Low battery voltage
- High battery voltage
- Low fuel level
- Fuel Theft

Along with Remote monitoring system on Mobile phone or Desktop

Note: Vendor must provide the latest version of controller for a DG set.

STANDARD FEATURES & ACCESSORIES:

1) Master switch: Run/Off-Reset/Auto
2) Current selector switch
3) Remote two-wire start/stop capability
4) Event log
5) Superior electronics
6) Factory-built and production-tested
7) Automatic start with programmed cranking cycle

8) Field software upgrade possibility

9) Environmental specifications:
    i) Operating temperature: - 10°C to 55°C
    ii) Humidity: 0-95% condensing
10) Power Requirements:
    24 VDC with fuse protection
    250 mA 24 VDC
    125 mA 24 VDC
11) Battery charger 24V
12) Mains sensing relay
13) Earth leakage protection

Important Notes:

1) DG Set should accept 55% load of rated capacity of DG Set in one step at the time of starting.
2) DG Set's panel shall be suitable for Auto operation controlled through AMF Relay as well as manual operation.
3) DG Set supplier shall provide microprocessor-based DG's Local Control panel mounted on the engine having all electrical parameters, and fault indication with provision for its remote control.
4) DG Supplier should provide all required hardware (convertor to give BACnet compatibility, control wiring, potential free NO/NC, RS ports, A/D & D/A converters etc. as required to operate the BMS system software.) Arrangement for remote start/stop and DG fault (LLOP, over speed) etc. along with remote adjustment of voltage & speed of the engine (Motorized/ solid state pot. may be required) & shall be included in the quoted rates as required.
5) The neutral CTs as per specification shall be provided on the neutral side of winding and connection brought out to a neutral CT box to be mounted on the alternators (All the six terminals are to be brought out and then shorted).
6) Supply, installation, testing & commissioning of Hospital Grade Silencer of exhaust system, including thermal lagging inside canopy with rain cap suitably optimized to meet stringent noise limit silencer specifically tuned to EATS as per CPCB IV+ norms with 100mm glass/ mineral wool insulation complete with wire chicken mesh and 22 gauge Aluminum cladding from engine up to silencer, including supporting arrangement suitable for the DG Set complete as required.
7) Supply, fabrication, installation, testing & commissioning of M.S. day fuel tank fabricated out of min. 2.5 mm thick M.S. sheet installed on steel frame or masonry pedestal with all associated accessories, filters, valves & fittings including level controller, priming motor complete as required, float switch with contacts for remote interlock should be provided. The tank shall be suitably treated with diesel resistant paint/anticorrosive treatment. The contact of level controller shall be wired up terminal block. or as per manufacturer's design included in the enclosure. The tank level remote indicator to be provided at some suitable location as advised by client in the canopy.

3.0 CODES AND STANDARDS:

3.1 The equipment furnished under this specification shall conform to the following latest standards, except where modified or supplemented by this specification.

BS: 5514 : Specification for reciprocating internal combustion engine.
BS: 5000 : Rotating electrical machines of particular type or for particular applications.
IS: 1239 (Part-I & II): Mild steel tubes and fittings.
S/IEC 60034-1 : Rotating electrical machines - Part 1: Rating and performance
ISO 1460 - ISO 1460:2020 - Metallic coatings
ISO 8528 - Reciprocating internal combustion engine driven alternating current generating sets
ISO 9001 - International standard that specifies requirements for a quality management system (QMS)
ISO 13018 - Internal Combustion Engines - Method of Test for Pressure Charged Engines

IS:1651: Stationary cells and batteries lead acid type (with tubular positive plates).

IS: 9224: Specification of low voltage fuses, General purpose.

IS: 4540: Mono-crystalline semi-conductor rectifier assemblies and equipment.

IS: 4722: Rotating electrical machines.

IS: 1248: Specification for electrical indicating instruments.

IS: 10000: Methods of tests for internal combustion engines.

IS: 10002: Specifications for performance requirements for constant speed compression ignition (Diesel) engine for general purposes (above 20 KW)

IS: 2147: Degree of protection provided by enclosure for low voltage switchgear and control gear.

IS: 1600: Code for type testing of constant speed IC engines for general purposes.

IS: 1601: Performance of constant speed IC engines for general purposes.

ISO 8178-1: 2020 - Reciprocating internal combustion engines — Exhaust emission measurement — Part 1: Test-bed measurement systems of gaseous and particulate emission. ISO 8178-3: 2019 - Exhaust emission measurement — Part 3: Test procedure for measurement of exhaust gas smoke emissions from compression ignition engines using a filter type smoke meter.

ISO 8178-4: 2017 ISO 8178-4: 2020 - Reciprocating internal combustion engines — Exhaust emission measurement — Part 4: Steady-state and transient test cycles for different engine applications.

ISO 8178-7: 2015 - Reciprocating internal combustion engine-Exhaust emission measurement-Part-7: Engine family determination.

ISO 8178-9: 2019 - Reciprocating internal combustion engines — Exhaust emission measurement — Part 9: Test cycles and test procedures for measurement of exhaust gas smoke emissions from compression ignition engines using an opacimeter. 40 CFR Part 1039 - US EPA Regulation: 40 CFR

Part 1039 - Control of emissions from new and in-use nonroad compression-ignition engines. 40 CFR Part 1065 - US EPA Regulation: 40 CFR Part 1065 – Engine testing procedures. 1.3.2 The installation work shall conform to Indian Electricity act and Indian Electricity Rules as amended up to the date of installation.

The fuel oil installation shall meet all statutory requirements of Govt. of India as amended up to the date of installation. Any approval required from statutory authorities shall be obtained by the contractor. Nothing in this specification shall not be the limiting factor to relieve the contractor of their responsibilities.

The Equipments furnished under this specification have to operate in a tropical climate and shall be given tropical and fungicidal treatment as per relevant specification.

ENGINE : The diesel engine shall be of stationary type 6 or more Cylinder, In Line 4 stroke Turbo charged, radiator cooled engine and technologically advanced engine to meet stringent exhaust emission norms as per the latest MoEF notification.

DG Sets shall conform to the requirement of CPCB IV+ norms (CPCB IV+ Emission Compliant) for all parameters including flue gas emission and noise level. 1.4.2 Rating: a) BHP rating of the engine shall be such that the DG set can continuously deliver the specified net electrical output while supplying power/driving all electrical and mechanical auxiliaries connected to alternator terminals and engine shaft at specified site conditions and ambient temperature of 50 deg C. b)

It should also be capable of satisfactorily driving the alternator at 10% overload at the rated speed for one hour in any period of 12 hours of continuous running. The successful bidder shall have to furnish supporting calculations to arrive at the diesel engine rating.

Speed and Vibration Level: Speed shall be 1500 revolutions per minute. Speed governor/over speed protection shall be provided. At due running conditions, speed shall be stabilized at plus or minus 2% nominal speed, regardless of load. At transient condition, engine speed shall vary not more than 10% plus or minus.

Governor class shall be G3 for normal application unless otherwise specified. The Governor of DG sets shall be of similar characteristics to enable synchronization. The engine vibration level shall be within permissible limits.

Lubrication:

a) The engine shall have a closed cycle forced & splash lubricating system with positive oil pressure and a crank chamber for collection/storage of the lubricating oil during circulation. No moving part shall require lubrication by hand or any other external source either prior to the starting of the engine or when it is in operation.

b) A lubricating oil filter shall be provided for operation under normal conditions for a period of 500 hours without the necessity of replacement or cleaning.

c) In case lubricating oil coolers are required they shall be of the water-cooled type and shall be supplied as an integral part of the Diesel Generator Set.

d) Necessary temperature and pressure gauges and other instruments shall be supplied and fitted on the lubrication system.

e) A lubricating oil level dipstick suitably graduated shall be provided and located in the accessible position.

Fuel System:

a) The engine shall be capable of running on all types of diesel fuel oil normally available in India.
b) The fuel consumption of the engine at full, three quarters and half of its rated power output shall be indicated by the Contractor in the bid.
c) A fuel service tank of capacity as specified in BOQ shall be provided on a suitably fabricated steel platform. The tank shall be complete with level indicator marked in liters, filling inlet with removable screen, an outlet, a drain plug, an air vent and necessary piping. The fuel tank shall be painted with oil resistant paint. Service tank level switches (2 Nos. per tank) for alarm & trip shall also be provided by the bidder. All pipe joints should be brazed/ welded. Digital Fuel level indicator recommended with clear 7 segment display.
d) A hand pump for pumping the fuel into the fuel service tank together with necessary pipes or tubing shall be provided. The inlet of the pump shall be provided with 10 meters long armored hose with suitable filter & nozzle.

Air Intake System:

The diesel engine shall be provided with special dry type air filters having low resistance to air passage, high dust retaining efficiency and provision for easy cleaning.

Filters shall be suitable for achieving satisfactory engine operation and ensuring the engine life under tropical humid conditions, with sulfur dioxide and trioxide fumes, abrasive dust and coal particles of 5 to 100 microns present in the atmosphere.

The minimum efficiency of filters shall be 90% down to 5-micron size.

Cooling:

The diesel engine should be cooled liquid/fluid.

Engine Governor:

The governor shall be Class G3 type Electronic Governor as per ISO 8528-part V. It shall have the necessary characteristics to maintain the speed substantially constant even with sudden variation in load. However, a trip shall be provided if speed exceeds maximum permissible limit. The governor shall be suitable for operation without external power supply.

Turbo Charger:

It shall be of a robust construction, suitable for being driven by engine exhaust having a common shaft for the turbine and blower. It shall draw air from filters of adequate capacity to suit the requirements of the engine.

Quietness of Operation:

a) The engine should be designed to achieve maximum quietness of operation.

b) Efficient Hospital Grade Silencer shall be provided for the exhaust as well as the air intake.
c) Noise level of the set shall not exceed 75 dB at One meter distance of the DG Set.

Engine Starting:

a) Engine starting shall be by electric starting motor complete with manual/automatic starting arrangement. The starter motor shall conform to IS-4722 and shall be of adequate power for its prime duty and be of inertia or pre- engaged type. The pinion shall positively disengage when the engine starts up or when the motor is de-energized. The engine cranking shall be only from the panel and any engine starting devices etc., that are given as original fitment on the engine-by-engine manufacturers shall be either removed or padlocking arrangement given for this so that all normal start/stop operations can be done only from panel whether the set is AMF or manual.

b) Time for Run-up to Speed: From the initial operation of the starting device, the engine shall start, run up to normal speed and be capable of accepting 80% of full load within a maximum time of 25 seconds, and full load within a further 5 seconds.

c) Duty Cycle / Period of Operation: The set is intended to supply power only during an emergency for essential services and may be idle for long periods except for periodic routine run once in a day for a short time. When there is a total failure of mains power supply, the sets shall be required to operate continuously at full load for a period which at times may exceed even 18 hours at a stretch. It shall also be capable of satisfactorily running at 10% overload at the rated speed for one hour in any period of 12 hours of continuous running.

i) Starting Duty: This DG Set shall withstand and shall be able to take care of starting load of largest machine and other running loads (55% of rated capacity).

ii) Running Duty: This D G Set shall be capable of running continuously on primary duty of about 100% of its name plate rating. Prime power applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528.

Engine Instrumentation:

The following instruments mounted on instrument panel shall be essentially present as minimum, Engine speed tachometer with service hour counter. - Lube oil pressure gauge - Lube oil temperature gauge - Coolant water temperature gauge the instrument panel shall be mounted on engine using rubber dampers for vibration isolation. The gauge dials shall have clear red marking to identify the limiting dangerous levels, `Zone markings on the scale to indicate the normal healthy & abnormal operating zones for the parameters concerned. The metering could be either a normal electromechanical analogue type or electronic digital type, latter being preferred as manufacturers fitment only**.**

ALTERNATOR:

The alternator shall be brushless type screen protected with revolving field Self-excited alternator conforming to IS/IEC 60034-1 Better motor starting capability and static excitation circuit controlled by field control unit suitably compounded for voltage and load current for a self-excited self-regulated system**.**

The alternator shall be in Screen Protected Drip Proof (SPDP) IP 23 enclosure, foot mounted with ball and roller bearings on end shields.

The alternator shall conform to IS: 4722 / IS/IEC 60034-1/ BS: 2613 and shall be suitable for tropical conditions.

The alternator shall comply with the following specifications: Rating As specified in the B.O.Q Voltage 415 V Voltage Regulation (Max.) ±1% Speed 1500 RPM. Frequency - 50 Hz. P. F. - 0.8 lag Waveform distortion/Total Harmonic Distortion - No load < 1.5%, Non distorting balanced linear load < 3 %. Enclosure IP: 23. Insulation 'H' grade Maximum Unbalanced Load across phases - Less than or equal to 25% Telephonic Harmonic factor - < 2% Excitation - Self excited, self-regulated with brushless system and static voltage control unit suitably compounded for voltage and current to maintain terminal voltage constant at ± 1% at all loads for p.f. not less than 0.8. Terminal Box shall be suitable Rating of cable for terminating DG Sets of rating specified in BOQ with Earthing studs.

Alternator meets IS/IEC 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-32, IEC600034-1, CSA C22.2-100, AS1359. Superior voltage waveform form a 2/3 pitch wound stator.

DIESEL GENERATOR CONTROL PANEL**::**

a) The control panel shall be sheet steel enclosed and shall be dust, weather and vermin proof providing a degree of protection of IP-54 and as per IEC 61439 part 1 and 2 standards. Sheet steel used shall be cold rolled and at least 2.00 mm thick and properly braced and stiffened.

b) Control panel shall be provided with hidden hinged door(s) with pad locking arrangement and suitable brackets/channels shall be provided for floor mounting.

c) All doors, removable covers and plates shall be gasketed all around with neoprene gaskets. All accessible live connections shall be shrouded, and it shall be possible to change individual switches, fuses, ACBs, MCBs without danger of contact with live metal.

d) All live parts shall be provided with at least phase to phase and phase to earth clearances in air of 30 mm and 25 mm respectively.

e) Adequate interior cabling space and suitable removable cable gland plate shall be provided. Necessary number of cable glands shall be supplied and fitted on to this gland plate. Cable glands shall be screwed on type and made of brass.

f) Two number of earthing terminals shall be provided.

g) All sheet steel work shall be degreased, pickled, phosphate and then applied with two coats of finishing powder coating both inside and outside of shade Siemens Grey.

Control of Diesel Generating Sets:

a) DG Set shall be capable of being controlled independently. Diesel Generator shall be capable of being stopped manually. However, an interlock shall be provided in the DG local control panel to prevent shutting down operations if DG Control circuit breaker is closed. Auto Operation: Necessary control equipment and system incorporating various functions etc. shall be provided to ensure the following: When mains power is available, the healthiness of this power shall be monitored through a mains voltage monitor. If voltage on the 3 phases is within limits, the monitor will send a closing signal to the mains breaker and mains power will be connected to the load. If the voltage drops on any phase or on all phases, the monitor shall sense this drop, and if this drop persists for more than a pre-adjusted period (say 1 to 60 seconds) a signal is sent to start the DG sets. While at the same time opening the mains supply breaker and disconnecting load from mains as voltage is below acceptable limits.
b) The Command shall be sent to start the engine through the starting solenoid. When the engine is healthy, it starts up in a few seconds and the generator develops voltage and when the voltage is developed, this gives a signal to the generator breaker/contactor which closes and connects the diesel generator to the load (three DGs get synchronized first).

Simultaneously, it sends a signal to de-energize the engine starting circuit and the starter motor is disengaged. The engine protection circuits for high water temperature and low lubricating oil pressure and engine over speed are also energized.

c) Resumption of Supply: If voltage from mains is resumed, the main voltage monitor will sense this voltage for healthiness, i.e. for maintained correct voltage for a period of time (adjustable up to three minutes) and then send a signal to the panel to stop the engine and to change over the breakers from generator to mains and normal supply is resumed to the load. Provisions shall also be made for effecting the changeover to normal supply through a selector switch.

d) Failure to Start : A three-attempt starting facility similar to using two impulse timers and a summation timer for engine shall be provided and if voltage fails to develop within 30 seconds from receiving the first start impulse, the set shall lockout automatically and a visual and audible alarm shall be given in the remote panel. The panel shall receive "DG Trouble Alarm" (potential free contacts to be provided).

ENGINE SAFEGUARDS:

Safeguards should be provided and arranged when necessary to stop the engine automatically by the following:

a) Energizing a solenoid coupled to the stop lever on the fuel injection pump rack.

b) Deenergizing "fuel on" solenoid or

c) Energizing the "fuel - cut off" solenoid.

The operation of the safeguard shall at the same time give individual warning of the failure by illuminating an appropriate local visual indicator and remote alarm at generator panel. The contactors, relays and other devices necessary for signal and control, for above purposes shall be provided at Generator panel.bn At the set at a easily accessible place an "EMERGENCY STOP" mushroom head stay put type P.B shall be provided to stop the set in emergency mode. The safeguards to "STOP THE SET" shall stop the set irrespective of mode selection of the set viz Auto, Manual or test for following cases, with simultaneous isolation of alternator circuit.

Emergency stop P. B’s operation. a) Over speed. b) Low lube oil pressure. c) Earth fault or restricted earth fault or differential faults of Alternator.

BATTERY & BATTERY CHARGER:

Starter Battery:

a) The battery shall conform to the requirement of IS-1651. Starting battery sets of 12 V, heavy duty high performance approved make'/quality shall be provided to enable

crank & start the engine even in cold/winter morning conditions. Type/ voltage/AH capacity of same on 20 hour rated discharge period shall be indicated in the offer. The batteries shall be capable of performing at least eight (8) normal starts without recharging. Necessary battery calculations shall be furnished at the time of bid.

b) The Battery shall be provided with good quality MS stand painted with one coat of Zinc Oxide & two coat of acid proof black paint with min 3 mm thick rubber mat below the battery.

c) Batteries shall be of lead container type only and not with PVC molded sealed containers so that each individual cells are available for individual monitoring during its life span. Each cell shall be provided with an electrolyte filling cap with level floats for easy monitoring of electrolytic level.

d) For each battery system following accessories shall be provided. 1. PVC Funnel - 1 No. 2. Small PVC mugs with handle - 2 Nos. (Red & white color) 3. Hydrometer syringe type with float calibrated (not with zero markings only) with one spare float. 4. Centre zero voltmeter good quality with 3V-0-3V scale. 5. PVC jerry-can white colour with tested quality distilled water, with can clearly marked with engraved PVC inscription plate "Distilled Water". 6. One tin of **petroleum jelly (500 gms).** 7. Painter brush 1" wide - 2 nos. 8. Hand Fuel Pump - 01 No.

e) The battery shall be provided with 2 nos. cables, min 1.5 m long heavy-duty rubber/PVC insulated cabling with brazed tinned lug at one end and with brazed tinned brass terminal lugs at battery end - for connecting batteries to cranking system - with 0.25 m long inter battery connecting cable.

f) The lugs shall be clearly stamped + or - and positive cable also red sleeved for easy identification.

g) The batteries shall be supplied fully filled and charged ready to use.

Battery Charging System:

a) Float rate charging and quick rate charging system shall be provided at the generator panel with appropriate bridge charger system, LC network, rate selector switch and generously rated charging transformer and silicon one rectifier bridge, so that the cranking battery system can be kept fully charged at all times from E.B. supply network with quick charging rate limited to 0.8 times rated discharge current with provision in control transformer and Silicon rectifier present to enable boost charging the battery at 2 times rated discharge current in case of emergencies. To this and in the mode selector switch boost charge position shall be present which however shall be kept disconnected at mode selector switch normally

b) Two DC ammeters to clearly indicate float charging current and quick/boost charging current shall be provided with 0-250 or 0-500 mA range and 15-0-15 or 30-0-30 A range respectively.

c) The float charging ammeter circuit logic shall be so as to bring in circuit only on demand through a P.B. the R.S.S. (Rate selector switch) in it float charging mode to prevent damage to the ammeter.

d) Dropper resistor network on the load side of battery charger system shall be provided so that higher charger voltages in quick or boost conditions does not get impressed on the I/L and contactor coils, which voltage shall remain well within +10% of rated voltage.

e) Battery charging subsystem shall be designed for continuous operation at cubicle ambient of 50 deg C corresponding to 45 deg C ambient outside and should be designed to operate at 1.5 times rated maximum current corresponding to boost charge current which can reach in practice as high as 2.5 times or 3 times rated discharge current.

f) Any charger dynamo and dynamo charging current network present on the set shall either have to be removed or made in operative so that both for AMF and manual application the cranking battery system is kept charged from the charger at the panels at all times during or shut down periods of the set.

ENGINE EXHAUST:

The exhaust of DG set shall be routed through the Hospital Grade Silencer of exhaust system, including thermal lagging inside canopy with rain cap suitably optimized to meet stringent noise limit silencer specifically tuned to EATS as per CPCB IV+ norms. It is desired to insulate the exhaust duct/chimney with insulation & appropriate support arrangement & adequate trap door with feasibility of cleaning.

SPARE PARTS:

Mandatory Spare Parts : The list of mandatory spares which are considered essential by the Supplier shall be indicated in the bid for successful operation of DG Set for 3 years.

TESTS:

The alternator of each type and rating shall be type tested for all tests as per IS:4722, IEEE 115 & BS:5000. Required type test certificates shall be furnished for information. The alternators and the starting motors shall be tested for the routine tests as per IS:4722 and test certificates submitted for acceptance. The control panels shall be tested/checked for the following (but not limited to). Compliance to drawing, data sheet and this specification.

Check for workmanship, wiring, conformity to functional requirements. Calibration of instruments, meters C.T., P.T. etc., H.V. Test, I.R. Test before and after HV test.

The acceptance and routine tests of battery shall be done as per relevant standard.

Battery Charger (as per IS: 4540)

a) All routine tests as per relevant IS.

b) Test for ripple factor & regulation

c) Heat run test (as type test)

d) Operational and functional tests.

SPECIFIC INCLUSIONS:

The civil works related to DG foundation are included in the scope of works under this specification. DG Vendor must make sure OEMs approved or referred civil foundation & structure drawings for genset base.

NEUTRAL POINT : The winding of the alternator for 500 KVA shall be star-connected and neutral side leads shall be brought out to a separate terminal box. ERECTION, TESTING, COMMISSIONING, PERFORMANCE & GUARANTEE TESTS / PROCEDURE AT SITE: Client shall provide space for genset and its Equipments.

Foundation drawing of each equipment and supervise the foundation casting by another agency to ensure its corrections. Bus ducting/Power cable, control cable and earth layout drawing. Single line diagram, AMF Panel details. vi. Genset and controller wiring diagram vii. Canopy design with framework details. The entire work of erection, testing and commissioning of equipment supplied under this package shall be carried out by contractor and performance and guarantee tests to be conducted at site are also included under the scope of this specification. For this purpose, the contractor shall depute suitable qualified technical supervisor to site on advance intimation to the Owner along with all special testing equipment required for testing and performance and guarantee tests. The supervisor(s) shall be responsible for the installation, testing, commissioning checks and performance & guarantee tests mentioned in relevant clauses of this volume and the checks recommended by the contractor. The successful contractor shall submit sufficiently in advance the biodata of the supervisor giving details of his experience for Owner's approval. The vendor shall ensure that the equipment’s supplied by him are installed in a neat workman like manner such that they are levelled, properly aligned and well oriented. The tolerances shall be established in Contractor’s drawings and/or as stipulated by the Owner. The canopy of the Genset shall be strong and Waterproof (extra coating of any if required, must specify while bidding) All special tools and tackles and spares required for erection, testing and commissioning of

equipment shall be supplied by the contractor. The bid shall include a list of these special tools, tackles and spares along with their item wise prices. The total cost for these tools, tackles and spares shall be included in the bid price. Erection, testing and commissioning manuals and procedures shall be supplied, prior to dispatching the equipment. The contractor shall ensure that the drawings, instructions and recommendations are correctly followed while handling, setting, testing and commissioning the equipment.

Commissioning Check Tests/Performance and Guarantee Test:

In addition to the checks and tests recommended by the manufacturer, the contractor shall supervise the following acceptance tests to be carried out on each set.

Load Test: The engine shall be given test run for a period of at least 13 hours depending upon the actual power factor of the load and set shall be subjected to the maximum achievable load without exceeding the engine or alternator capacity. This full load test is to be followed immediately by a 10% overload run for one hour. The performance of the engine, alternator and exciter shall be satisfactory at the end of this overload run. All the arrangements for the factory visit of IUCAA engineers & consultants - three engineers including stay-if required, shall be in the scope of DG vendor. At the end of the full load run, and again at the end of the over-load run, tests for temperature rise and insulation resistance of the alternator as specified shall be taken. During the load test half hourly records of the following shall be taken:

a) Ambient temperature
b) Exhaust temp. When exhaust thermometer is fitted.
c) Lubricating oil temperature when an oil cooler is fitted.
d) Lubricating oil pressure
e) Speed
f) Voltage, wattage and current output.
g) Oil tank level
h) Stored diesel oil temperature Regulation Test: The automatic and manual regulation of the alternator load at half and full rated load shall be tested for a nominal volt of 240 volts, between phase to neutral and at 0.8 p.f. to verify the requirements of voltage and frequency variation as per IS:4722.

Speed and Governing:

The speed of the engine shall be verified to ensure that it conforms to the requirement of BS:5514.

Vibrations:

The vibrations shall be measured during the full load test as well as during the overload test and the limit shall be limited to 250 microns. A check of the fuel consumption shall be made

throughout the test run of full load and overload. On completion of the engine tests, the insulation of each unit of local wiring in the control cubicles and other components of the engine set, shall be tested with a 500 V insulation tester. The insulation resistance shall not be less than one mega-ohm. between wires in a cable and engine set frame of cable sheath.

Tests will be done before and after the running of the Genset Functional Tests:

a) Protective equipment on the engine against excessive cylinder temperature and low lubrication oil pressure.

b) Type of starting provided for the engine.

c) Pilot and fault indication lamps.

EXECUTION:

Vendor shall give necessary inputs for designing the foundations & shall be responsible for design, erection shall happen after completion of foundation works as per OEM's design. Vendors shall coordinate with other agencies like electrical contractors, civil contractors etc. Further to erection, testing and commissioning of the DG, the termination of cables at DG, Between DG and Main LT panel end shall be done by the main electrical contractor. Calibration of CTs, approval from statutory authorities like electrical inspectorate/MSEDCL/PWD, CPCB etc. shall be the responsibility of the DG supplier. DG supplier shall coordinate with the main electrical contractor for necessary control & power cable termination.

Auto Synchronizing & Auto Load Sharing Panel for 500 KVA DG Set :

The panel includes Motorized ACB EDO FP, 800A 50 KA with O/C, S/C/ E/F & Instantaneous protection as Incomer DG set # The ACB should be equipped with UV, SC, CC etc coils to achieve mentioned protections. R-Y-B indication, ON, OFF, Trip indication, and Load Manager for measurement of ampere, voltage, Kw, kwh and frequency, and Max Demand with Compatible port. Microprocessor- based Relay with AMF, Auto Synchronizing & Auto Load Sharing and Auto shut off facility. It should have the capability to manually synchronize the DG's. The panel should handle 500 KVA DG set load and get synchronize to share the equivalent load when crosses the certain limit. Load Manager for measurement of ampere, voltage, Kw, KWh and frequency, and Max Demand with RS 232 / RS 485 port. The panel should have the following feeders: AMF panel for DG set with switchgear pair with necessary interlocking system 4pole 800 amps as required , with Motorized MCCB`s of reputed make, necessary auto controller with interfacing compatibility with Crc sheet metal powder-coated enclosure of suitable size to accommodate these items, OR with ACB`s 4 pole 800 amps EDO type OR a combination of a Motorized changeover of 800 amps 4 pole with breakers , of both sources, with metering panel for mains and genset parameters and battery charging facility via a trickle and boost charging rate. Necessary selector switches for mode and

control selection. Items of reputed make. The panel shall be IEC 61439 part 1 and 2 compliant double door type with the new standards vermin proof and dustproof, having minimum 7 tank chemical surface treatment process and powder coated, RAL – 7032 All internal wiring shall be of FRLSH 1.1 KV grade, PVC copper wires. CT shorting links are to be provided for the Ammeter and protection circuit. A) GENERAL: The panel shall be metal clad, totally enclosed, rigid, compartmentalized design, floor mounting, air insulated, extensible cubicle type for use on low voltage power, 415V, 3 phase 4 wire, 50 Hz system. The equipment should be designed for operation in high ambient temperature and high humidity tropical atmospheric conditions. Means should be provided to facilitate ease of inspection, cleaning and repairs for use in installations where continuity of operation is of prime importance.

STANDARDS: Following Equipments shall conform to the requirements as per the latest revisions of the following standards: -

1. Air Circuit Breaker (ACB): IS 13937- 1&2 / IEC 60947 – 1&2

2. Molded Case Circuit Breaker (MCCB): IS 13947 – 1&2/ IEC 60947 – 1&2

3. Contactors: IS 13947-1&4

4. Miniature Circuit Breaker (MCB): IS 8828- /IEC 60898

5. Residual Current Circuit Breaker (RCCB): IS 12640 - / IEC 1008

6. HRC fuse link: IS 9224 and BS 8:8

7. Current Transformer: IS 2705 and IEC 185

8. Potential Transformer-: IS 3156

9. Relay -(For Static Relays): IS 3231 and IS 8686

10. Indicating Instrument-: IS 1248

11. TYPE AND CONSTRUCTION:

The panel shall be metal clad, totally enclosed, rigid, compartmentalized design, floor mounting, air insulated, extensible cubicle type, CNC fabricated for use on medium voltage power, 3 phase 4 wire 50Hz system. The overall construction shall meet Form-4 construction requirements.

GENERAL CONSTRUCTIONAL FEATURES:

The Panel/switchboard shall be

a) CRCA-Sheet steel enclosed, indoor floor mounted free-standing cubicle type & CNC fabricated.

b) Made up of the requisite vertical sections which when coupled together shall form continuous switchboards.

c) Dust, vermin and damp proof and enclosure protection not less than IP 42 for indoors & IP55 for outdoor applications and IP:32 for Battery Chargers or as specified elsewhere.

d) Each feeder/instrument compartment shall be provided with a hinged door interlocked with ACB/LBS inside the compartment such that door can only be opened when ACB/ in off position.

e) Readily extendable on either side by the addition of vertical sections after removal of the end covers.

f) Panel/Switchboards shall have access to the feeders, bus bars, cable termination, cable alley, etc. as required.

g) All CTs for metering/protection shall be mounted in respective feeder compartments either in front or on the rear side of the same compartment for easy maintenance without disturbing other feeders.
h) Mounting of any metering OR instrumentation Equipments in Bus chamber is not envisaged.

i) All CT wiring shall be done with CT terminal block with shorting facility mounted in the metering compartment.

j) Wherever control wiring is done between the shipping sections, terminal blocks shall be provided on both sides of shipping sections with TB diagram pasted near to the TBs.

k) The total height of the panel shall not be more than 2200mm unless otherwise specified and maximum height of switch operating handle shall not be more than 1800mm from FFL. The maximum shipping section shall be of 2000mm width. The total depth of the panel shall be adequate to cater for proper cabling space.

l) Sheet thickness shall be as below • Main frame : 2.5/3mm • Doors : 2mm • Covers/partitions : 2mm • Gland plate : 3mm 19 Wherever single core cables are used, 3mm thick aluminium gland plate shall be provided. All sheet steel work forming the exterior of switchboards shall be smoothly finished, levelled and free from flaws. The corners should be rounded.

m) The Components in the switchboards shall be so arranged as to facilitate ease of operation and maintenance and at the same time to ensure necessary degree of safety.

n) Components forming part of the switchboards shall have the following minimum clearances: Between phases - 30mm Between phases and neutral - 25mm Between phases and earth - 20mm Between neutral and earth - 20mm Creepage distances shall comply to those specified in relevant standards.

o) All insulating material used in the construction of the equipment shall be of non-hygroscopic material treated to withstand the effects of high humidity, high temperature and tropical ambient service conditions.

p) Functional units such as circuit breakers, fuse switches, ACBs, etc. shall be arranged in multitier formation except that not more than two air circuit breakers shall be housed in a single vertical section.
q) Metallic/insulated shrouding shall be provided within vertical sections and between adjacent sections to ensure prevention of accidental contact with Main bus-bars and vertical risers during operation, inspection or maintenance of functional units and front mounted accessories. Cable terminations of one functional unit, when working on those of adjacent unit/units.

r) All covers providing access to live power equipment/circuits shall be provided with tool operated fasteners to prevent unauthorized access.

s) Provision shall be made for permanently earthing the frames and other metal parts of the switchgear by two independent distinct connections.

t) Thickness tolerance for sheets shall be as applicable in relevant IS.

u) All capacitor control panels shall be of compartmentalized design. All capacitors & reactors shall have individual compartments. Exhaust fans shall be provided for ventilation purpose.

v) The complete panel shall be designed such that its rating is as per SLD without derating considering ambient temperature & temperature rise as per IS/IEC. De-rating of ACBs/ACBs or the whole panel shall not be accepted. Panels shall be provided with necessary ventilation arrangements to meet the above requirement.

EACH VERTICAL SECTION SHALL COMPRISE:

a) A front framed structure of rolled/folded CRCA sheet steel angle section rigidly bolted together. This structure shall house the components contributing to the major weigh of the equipment such as circuit breaker cassettes, fuse switch units, main horizontal bus bars, vertical risers and other front mounted accessories. 20

b) The structure shall be mounted on a rigid base frame of folded CRCA sheet steel of minimum 6 mm thickness and 100 mm height or ISMC100. The design shall ensure that the weight of the components is adequately supported without deformation or loss of alignment during transit or during operation.

c) A cable chamber housing the cable end connections and power/control cable terminations. The design shall ensure generous availability of space for ease of installation and maintenance of cabling and adequate safety for working in one vertical / horizontal section without coming into accidental contact with live parts of the adjacent section.

d) A cover plate at the top of the vertical section, provided with a ventilating hood wherever necessary. Any aperture for ventilation shall be covered with a perforated sheet having less than 1mm diameter perforations to prevent entry of vermin.

e) Front and rear doors fitted with dust excluding neoprene gaskets with fasteners designed to ensure proper compression of the gaskets. When covers are provided in place of doors generous overlap shall be ensured between sheet steel surfaces with closely spaced fasteners to preclude the entry of dust.

METAL TREATMENT AND FINISH:

a) After fabrication, the panel shall undergo minimum 7 tank pre-treatment process for removing grease, Rust etc. and UV resistant powder coating of all parts to withstand extreme environment the panel shall be coated with zinc chromate primer (Applicable for outdoor panels).

b) After coating of primer, the panel shall be coated with Epoxy based paint (powder coating/spray paint). Paint shade shall be as specified by the client/consultant during drawing approval.

BUS BARS :

a) The bus bars shall be made of high conductivity, Electrical grade Aluminum or copper (As specified in SLD), suitable for 415 volts, 3 phase 4 wires 50 Hz,

b) The bus bars shall be suitably supported with non-hygroscopic supports to provide a fault withstand capacity as specified.

c) High tensile (8.8 grade) bolts and spring washers shall be provided at all bus bar joints.

d) Fish plates of equal type and size shall be used at all joints.

e) The bus bars shall have uniform cross section throughout and shall be capable of carrying the rated current at 415V continuously. The bus bars shall be designed to withstand a temperature rise of 40 Deg. Celsius above the ambient temp. of 50 deg. Celsius. Current density (Amp/Sq.mm) shall be 1 A/sq.mm for copper & 0.8 A/Sq.mm for Aluminium.

f) The neutral bus bars shall have a continuous rating of at least 100% of the phase bus bars unless otherwise mentioned.

g) Bus bars shall be fully sleeved using heat shrunk PVC sleeves appropriately colour coded to identify different phases and neutral bar. 21

h) All lighting & raw power panels/SMSBs shall be provided with neutral bus rated same as the size of Phase Busbars unless otherwise specified in SLD.

i) MCCB/ACBs of rating 200A & above rating shall have copper spreaders on terminals & then connected to main busbars.

j) All panels shall be provided with aluminum earth bus, which shall run throughout the length of switch board at top or bottom as required. Following size of earth bus shall be provided as per the switchboard rating: PANEL RATING Al. EARTH BUS SIZE Up to 100A 25x3mm 250A 25x6mm 315A 25x10mm 400 to 630A 50x10mm 800 to 1000A 75x6mm 1250 to 2000A 100x10mm 2500 to 3200A 120x10mm 4000A 150x10mm

POWER/CONTROL WIRING:

All control wiring shall be carried out with 1100/660 V grade single core PVC-FRLSH cable having stranded copper conductors with minimum cross section of 1.5 Sq.mm for potential & control circuits and 2.5 Sq.mm for current transformer circuits. Control wiring for analog, digital inputs/outputs shall be done with 1.5/1 Sq.mm screened copper cables. All power cables shall be minimum cross section of 4 Sq.mm.

The color coding of cables shall be as below:

a) Power up to 25 Sq.mm: Red/Yellow/Blue/black

b) CT & PT: Red/Yellow/Blue/black

c) Control AC: Black/Orange (for interlocks)

d) Control DC: Grey

e) Analog/digital circuits: Red/black-screened Wiring shall be neatly bunched, adequately supported and properly routed to allow for easy access and maintenance. Wires shall be identified by numbered ferrules at each end. The ferrules shall be of ring type and of non-deteriorating material. They shall be firmly located on each termination so as to prevent free movement. All control circuit fuses/MCBs shall be mounted in front of the panel and shall be easily accessible. All CT wiring shall be done with CT terminal block with Shorting facility mounted in the metering compartment. Wherever control wiring is done between the shipping sections, terminal blocks shall be provided on both sides of shipping sections with TB diagram pasted near the TBs. Control wiring for analog, digital inputs/outputs shall be done with Screened cables & routed separately to avoid EMI.

TERMINAL BLOCKS :

Terminal blocks shall be of 500 Volts grade and of stud/screw type. Terminal blocks shall have a minimum current rating of 16 Amps and shall be shrouded. Provisions shall be made for label inscriptions. At least 25% spare terminals shall be provided on each panel and these spare terminals shall be uniformly distributed on all terminal blocks. Terminal blocks for current transformer and voltage transformer secondary leads shall be provided with test links and isolating facilities with disconnecting type TBs. Also, current transformer secondary leads shall be provided with Terminal block with short circuiting and earthing facilities.

Terminal blocks for power feeders shall be of stud type with bolts & nuts. There shall be a minimum clearance of 250mm between the first row of terminal blocks and the associated cable gland plate. Also, the clearance between two rows of terminal blocks shall be a minimum of 150mm. The blocks shall have colour coding as per standards for easy identifications of wiring(Green, Grey, Black, etc)

CABLE TERMINATIONS :

a) Cable entries and terminals shall be provided in the switch board to suit the number, type and size of aluminium conductor power cables and copper conductor control cable specified in the detailed specifications.

b) Provision shall be made for top or bottom entry of cables as required. Generous size of cabling chambers shall be provided with the position of cable gland and terminals such that cables can be easily and safely terminated.

c) Barriers or shrouds shall be provided to permit safe working at the terminals of one circuit without accidentally touching that of another live circuit.

d) Cable risers shall be adequately supported to withstand the effects of rated short circuit currents without damage and without causing secondary faults.

e) Sufficient height shall be provided between busbar & gland plate in case higher size cable & more number of runs. Min. cable termination heights from gland plate shall be as below: Up to 35 Sq.mm: 200mm 50 to 95 Sq.mm : 250mm 120 to 185 Sq.mm : 350mm 240 to 400 Sq.mm : 550-600mm

INSTRUMENT TRANSFORMERS:

A) CURRENT TRANSFORMERS:

a) Current transformer shall comply with the requirements of IS 2705. They shall have ratios, outputs and accuracy as specified/required. All CT's shall be of resin cast type unless otherwise specifically called for.

b) All CT’s shall be of bar type, primary or suitable for the cable given type and size.

c) For all the CT's suitable type and size clamps are to be supplied for mounting in the switchboards. 23

d) Polarities and terminal markings of primary and secondary shall be clearly marked on all CT's.

e) Name plate indicating, current ratio, burden, accuracy class, type, Sr. No. Make and Model etc., shall be provided.

f) Specifications for CT's : 1. Current Ratios : i. Primary : As per SLD ii. Secondary : 5A 2.Type : Resin Cast 3.Class : PS-REF Protection 5P10-O/C & E/F Protection Class 0.5 for metering 4. System Voltage : 440 Volts

B) POTENTIAL TRANSFORMER:

a) All the Potential Transformers shall comply with the requirements of IS 3156 latest editions. All PT's shall be resin cast type and shall have Voltage ratios, output and accuracy class as specified in SLD/Data Sheet.

b) All PT's shall be single phase, dry type suitable for mounting inside the panel/cubicles. Clamps / brackets / supports required for the mounting shall be supplied along with PT.

c) Polarities and Terminal markings shall be clearly marked in all PT's.

d) Name plate indicating, voltage ratio, burden, accuracy class, type, Sr. No. Make and Model etc., shall be provided.

e) A common earth terminal for earthing of core, bolts, clamps (noncurrent carrying metal parts) etc., shall be provided.

BREAKERS:

AIR CIRCUIT BREAKERS:

A) GENERAL: The ACBs shall conform to IS 13947-1 / IEC 60947-1 for general rules and IS 13947- 2/IEC 60947- 2 for Circuit Breakers. The ACBs shall be suitable for 3 phase 415 Volts and should be 4 poles. All the breakers shall have topicalization as a standard feature. ACBs shall meet the following minimum parameters Rated operational Voltage : 800V Rated insulation Voltage : 1000V Rated impulse withstands Voltage : 9kV 24 No. of mechanical operations : 25,000(up to 2000A) 15,000(above 2000A, up to 4000A) No. of electrical operations : 10,000(up to 2000A) 5,000(above 2000A, up to 4000A)

B) CONSTRUCTION:

The Breaker shall be suitable for rear and vertical mounting and line load reversibility. All ACBs shall be draw-out type & shall be with service-test-isolated positions.

C) CONTROL UNITS:

The Control Units shall be housed in a separate enclosure and there shall be total insulation of the control unit with respect to the power unit. The Control Unit shall be of LSI based Microprocessor type with LCD screen & suitable to provide protection against short circuit, overload, Instantaneous SC currents, neutral and earth fault protection with adjustable time delay. The setting range of the short circuit protection shall be from 3 to 9 x In and 5 to 15 x

In. The overload settings shall be adjustable from 0.4 to 1.0 times the rated current. The breaker shall provide Earth fault protection from 0.2 to 0.7 times rated current. Neutral protection of 1-50-100% of Ir range. The LCD display shall monitor the measured current values (average & peak), faults and log (the cause of last trip and maintenance operations).

D) ACCESSORIES:

The connection for the auxiliary shall be accessible from the front. ACB shall be provided with following accessories, in addition to the item specified in Bill of Quantities. Further these devices shall be fitable at site from the front and common for all ratings. a) Under Voltage trip coil. b) Shunt trip coil. c) Closing coil, d) 4NO + 4NC auxiliary switches. e) Fault indicator/Reset unit. f) Pad lock & LOTO facility

E) INTERLOCKING: ACBs shall be provided with the following interlocking: - a) Pad lock to prevent unnecessary manipulation of the breaker. b) Electrical interlock shall be done by using breaker aux. contacts only

F) BREAKING CAPACITY:

The ACB shall have minimum service breaking capacity of 50 kA. Preferably Ics shall be equal to ultimate breaking capacity Icu or it shall be rated as specified in SLD. Original test certificate of the ACB as per the IS shall be provided on request.

MOULDED CASE CIRCUIT BREAKER:

The Moulded Case Circuit Breaker shall be incorporated in the switchboard wherever specified and shall be of the current limiting type. CB shall conform to IS 2516, IS 13947-1/ IEC 947-1 (part I & II / section 1) 1977 for general rules. It should be suitable for Horizontal and Vertical mounting and line load reversibility. CB shall be suitable either for Single Phase AC 230V Or Three Phase 415V. The MCCB/ACB shall be available in four pole versions for neutral isolation. It shall have topicalization as standard feature. The ACB/MCCB cover and case shall be made of high strength heat-resistant and flame retardant thermosetting insulating material. The operating handle shall be quick make, quick break, trip - free type. The operating handle shall have suitable `ON' `OFF' `TRIPPED' indicators and in order to ensure suitability for isolation complying with IS 13947- 2/IEC947-2, the operating mechanism shall be designed such that the toggle or the handle can only be in `OFF' position, if the main contacts are actually separated.

WORKS TO BE DONE BY THE CONTRACTOR:

the following works shall be done by the contractor and therefore, their cost shall be deemed to be included in their tendered cost-whether specifically indicated in the schedule of work or not: -

(i) Foundations for Equipments including vibration isolation springs/ pads,

(ii) Making good all damage caused to the structure during installation and restoring the same to their original finish.

(iii) Minor building works necessary for installation of Equipments, foundation trench for fuel line & cable, making of opening in walls or in floors and restoring them to their original condition/ finish and necessary grouting etc. as required.

(iv) All supports for exhaust & water pipes, chimney, bus trunking (if included in scope of contract), cables, anti-vibration pads etc. as are necessary.

(v) All electrical work and neutral earthing, body earthing, required for engine & alternator, main board/ control panels, and control wiring including loop earthing, if specified in Schedule of Work.

(vi) All pipes, bus trunking and/ or cable connections.

(vii) POL i.e. HSD oil and lube. oil for diesel engines for testing & commissioning for 12 hours i/c 1hr of 10% overloading at OEA/ OEM works shall be arranged by the contractor. POL i.e. HSD oil and lube. oil for trial run of 4 Hrs. at site at available load shall be arranged by the department.

(viii) Painting of all exposed metal surfaces of Equipments and components with appropriate colour.

(ix) **Clearance/ Approval of the complete installation from CPCB/ State Pollution Control Board, Central Electricity Authority (CEA)/ Local Bodies and other licensing authorities, wherever required.**

DG Sets with Acoustic Enclosure

DG sets of 500 KVA capacity are required to be supplied with acoustic enclosure as per CPCB norms. DG Set with acoustic enclosure shall preferably be installed outside the building (including terrace subject to structural feasibility) & location should be finalized in consultation with the Architect. However, DG set should be as near to the substation as possible i.e. as near to Essential LT Panel as possible. Associated AMF panel/ Electrical panel of the DG Set can be located inside the acoustic enclosure or outside the acoustic enclosure as per manufacturer standard. In case, AMF/ Electrical panel has to be installed outside the acoustic enclosure, location of room to house AMF/ Electrical panel should be decided in consultation with the Architect so that it shall be as near to the acoustic enclosure as possible. Especially, in case of connection through bus trunking, care should be taken for aesthetics.

DIESEL ENGINE

This section covers engine ratings, standard components of a diesel engine including exhaust piping.

Engine Rating

The engine should 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 actual site conditions.

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 up to date.

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 capacity of 500 KVA, should be furnished from the manufacturers along with the technical bid.

The engine shall be fitted with the 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 mechanical/ electronic governor to maintain engine speed at all conditions of load

(v) Daily fuel service tank of minimum capacity as per Table below, 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.

Table I: Recommended Minimum Capacity of Daily Fuel Service Tank

S.No.	Capacity of DG set	Minimum Fuel Tank Capacity
(vi)	Above 380 KVA to 500 KVA	700 Litres

(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 temp. indication
(d) RPM indication
(e) Engine Hours indications
(f) Battery charging indication
(g) Low lube. Oil trip indication
(h) High water temp. 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/ Heat Exchanger System/ Remote Radiator (delete whichever is not applicable)

(xx) Any other item not included/ specified but is a standard design of the manufacturer

Governor

Electronic governor of class A1 for capacity above 200 KVA, 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.

Frequency 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.

Fuel 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 for all connections. No Teflon tape to be used. If piping length is more than 10 meters, detail engineering is required in consultation with OEM/ Manufacturers.

Lubricating Oil System

It should be so designed that when the engine starts after a long shut down lubrication failure does not occur. Necessary priming pump for the lube. 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.

Starting System

This shall comprise of a necessary set of heavy-duty batteries 12V/ 24V DC (as per manufacturer standard), and suitable starter motors, 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 engine 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 sec., even in winter condition with an ambient temperature down to 0°C.

Battery Charger

The battery charger shall be suitable to charge the required numbers of batteries at 12V/ 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.

Piping Work

All pipe lines and 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 shall be used. For fuel lines within the acoustic enclosure, PVC braided pipe as per manufacturer recommendations can be used. However, for fuel lines outside the acoustics enclosure only MS pipe be used.

The pipe work shall be inclusive of all fittings and accessories required such as bends, reducers, elbows, flanges, flexible connections, 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.

Common Bed Plate

Engine and alternator shall be directly coupled or 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 vibrations. The bed plate shall be suitable for installation on suitable anti-vibration mounting system.

Exhaust System: (wherever applicable)

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 up to exhaust silencer shall be exclusive of exhaust piping item. The work includes necessary cladding of exhaust pipe work using 50 mm thick Loosely bound resin (LBR) mattress/ mineral wool/ Rockwool, density not less than 120 kg/m3 and aluminum cladding (0.6 mm 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 shall be *run along the existing wall of the building duly clamped/*supported on independent structure for which, the design and Drawing for such structure shall be got approved from the Engineer-in-charge.

(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 walls & gap should be filled with felt lining.
(d) Exhaust piping inside the Acoustic Enclosure/ Genset room should be lagged with asbestos rope along with aluminum sheet cladding / insulated as per clause to avoid heat input to the room.
(e) Exhaust flexible shall have it's free length when it is installed. For bigger engines, 2 flexible bellows can be used.
(f) For engines up to 500 KVA, 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) 'Schedule 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 end of 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 the engine to the condensate trap. The silencer should be installed with drain plug at bottom.

Exhaust Stack Height: In order to dispose exhaust above building height, minimum exhaust stack height should be as follows: -

(a) For DG set up of 500 KVA :-

$$H = h + 0.2 \times \sqrt{KVA}$$

Where H = height of exhaust stack h = height of building

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

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

Air System

It is preferable to provide vacuum indicators with all engines to indicate choked filter. Maximum air intake restrictions with clean and choked 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 installations in dusty or polluted surroundings.)

Cooling System

System should be designed for ambient temperature of 40 Deg.C.

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

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

Radiator fan flow should be free from any obstruction.

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

Remote Radiator can be used in case of basement installation where fresh air may not be available. The proper location of remote radiators is 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 radiators, it is necessary to get fresh air in its surroundings. The horizontal distance of remote radiator from engine should not exceed 10 Meter.

For the dusty or polluted surroundings (as radiator gets clogged) and/ or bigger capacity Gensets (say 1000 KVA and above), installation of Cooling System with

Heat Exchanger system may be used.

Optional items as under may be included as per site requirement at the discretion of Technical Sanctioning authority:

(i) Cooling System

- (a) Remote Radiator
- (b) Jacket Water Heater
- (c) Crankcase Oil Heater
- (d) After cooler jacket turbo charger electrical pre heat systems.

(ii) Fuel System

- (a) Fuel Water Separator
- (b) Auxiliary Fuel Pump

(iii) Exhaust System

- (a) Industrial Grade Muffler
- (b) Residential Grade Muffler
- (c) Critical Grade Muffler
- (d) Super Critical Grade Muffler

(iv) Start System

- (a) Battery Warmer Plate
- (b) Battery Charger
  - Automatic Float Equalizing
  - Trickle

ALTERNATOR

Scope: This section covers technical requirements of the alternator.

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:

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	:	40° C Maximum
Insulation Class	:	F/H
Temperature Rise	:	Within class F/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 upto 750
Type of AVR	:	Electronic
Type of Bearing and lubrication arrangement	:	Anti-friction bearings with Grease
Standard	:	IS 4722 & IEC:34 as amended upto date.

Alternator should be able to deliver output rating at actual site conditions.

Excitation

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

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.

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 should also be provided.

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.

Performance

Voltage dip shall not exceed 20% of the rated voltage for any step load or transient load as per ISO 8528 (Part-1). 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.	
		(ii) Above 250 KVA – 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.

Terminal Boxes

Terminal boxes shall be suitable for U.G. cables/ Bus Trunking. The terminal box shall be suitable to withstand the mechanical and thermal stresses developed due to any short circuit at the terminals.

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 12 mm dia. hole shall be provided.

MANUAL/ AMF PANEL, BATTERIES AND ELECTRICAL SYSTEM

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

Type of Control Panel

Control panel shall be either manual type or AMF type as per the requirement of work to be decided by NIT approving authority.

Manual 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 (for 15 KVA and above)
  (iv) Frequency (for 15 KVA & above)
  (v) Energy Meter (for 15 KVA & above)

(b) HRC fuses of suitable rating.

(c) One MCB of suitable rating for DG sets up to 45 KVA rating 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 one No. in case of single-phase DG sets and 3 numbers in case of three phase DG sets.

(f) Battery chargers are 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.

AMF Control Panel

General Features: The control panel shall be fabricated out of 1.6 mm thick 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.

Terminal Blocks and Wiring: Terminal blocks of robust type and generally not less than 15 Amps capacity, 250/500 V grade for DC upto 100 V and 660/ 1100 volts

grade for AC and rest of the junction shall be employed in such a manner so that theyare 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 sqmm 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.

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

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

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. (Alternatively provided on the Alternator itself).

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

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

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

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 between 0 to 5 second shall be incorporated in start-up initiation.

(b) A three attempt starting facility shall be provided 6 seconds ON, 5 seconds OFF, 6 seconds ON, 5 seconds OFF, 6 seconds ON, if at the end of the third

(c) attempt, the engine does not start, it shall be locked out of start, a master timer shall be provided for this function. Suitable adjustment timers 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.

(d) 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.

(e) 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.

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

Manual Mode:

(g) In a manual mode, it shall be feasible to start-up the generator set by the operator on pressing the start push button.

(h) Three attempt starting facility shall be operative for the start-up function.

(i) Alternator circuit breakers close 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.

(j) Engine shut down, otherwise due to faults, shall be manual by pressing a ‘stop’ button.

Test Mode:

(k) When under ‘test’ mode pressing of ‘test’ button shall complete the start up sequence simulation and start the engine. The simulation will be that of mains failure. Sequence 2.4.2.2.6.1(a) and (b) shall be completed.

(l) 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.

(m) If during test mode, the power supply has failed, the load shall automatically get

transferred to alternator.

(n) Bringing the mode selector to auto position shall shut down the set as per sequence of 2.4.2.2.6.1(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.

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 the start-up and acceleration period.

(ii) High coolant (water) temp. shut down.

(iii) Engine over speed shut down.

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

(i) Overload

(ii) Short circuit

(iii) Earth fault

(iv) Over voltage

Monitoring and Metering Facilities:

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

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.

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, 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, contactors, timers, circuit breakers as required.

(f) Necessary battery charger with boost/ trickle selector, DC voltmeter and DC ammeter.

Battery/ Electrical System

Batteries supplied with Genset are generally dry and uncharged. First charging of uncharged batteries is very important and should be done from authorized battery charging centre. Initial charging should be done for 72-80 hours.

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

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

DG Set Capacity	Battery Capacity (AH)	Cable Size (Material Copper) Sq. mm	Electrical System (Volts)
Above 125 KVA up to 500 KVA	180	70	12

For AMF applications, a static battery charger working on mains supply is recommended to keep the batteries charged at all times.

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

Cabling

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

Typical cable sizes for 415 V application are provided in Appendix VI.

As far as possible, for DG Set of capacity 750 KVA & above connection between alternator to AMF panel & AMF Panel to Essential panel shall be through bus-

trunking. For exposed/ outdoor bus trunking protection the requirement should be IP-55.

If LT panel is part of tender of the DG Set jobs of 500 KVA & above, LT Panel specified, should be one of the reputed brands.

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

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.

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

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

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

It is recommended to support output cables on separate structure on ground so that weight of cables should not fall on alternator/ base rail.

External wirings, 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.

Alternator Termination Links

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 [Figure 2(i)].

(ii) Gaps between busbars / links and terminals being remedied by connecting bolt/stud [Figure 2(ii)]. 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.

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

Figure 2(iii) indicates the quality of different configurations.

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

FOUNDATION

Scope: This section covers details of foundations for DG set with or without acoustic enclosures.

Genset with Acoustic Enclosure

(a) For DG Sets installed inside the DG Set Room - A PCC foundation (1:2:4, M-20 grade) of approximate depth 150 mm above the finished Genset Room Floor level is required so as to provide leveled surface for placement of the acoustics enclosure. The length and breadth of foundation should be at least 250 mm more on all sides than the size of the enclosure. Genset should be mounted on AVM's inside the enclosure.

Design of the foundation as recommended by the OEM shall be submitted by the contractor before execution of work along with the drawings as mentioned in section 1.19.

DG Set Capacity (KVA)	Typical Depth of PCC Foundation (For soil bearing capacity 5000 kg/sqm)
320-500	400 mm

Foundation level should be checked diagonally as well as across the length for even flatness. The foundation should be within ± 0.5 Degree (angle) of any horizontal plane.

ACOUSTIC ENCLOSURE

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

As per CPCB norms, a restriction has been imposed for new DG sets up to 1000 KVA for noise level (see Appendix 'II'). Therefore, in terms of these norms, acoustic enclosure should be type tested at the climatic conditions specified in para 2.1.4 through one of the authorized laboratories.

Installation

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

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

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

Service Accessibility

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

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

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

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

General Design Guidelines

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

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

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

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

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

The enclosure should be designed to meet the total air requirement for the D.G. Set at full load at site conditions as recommended by the engine manufacturer.

Specifications for Acoustic Enclosure

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.

The construction should be such that it prevents the 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 conform to the details as under:

The enclosure shall be fabricated out 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.

The hinged doors shall be made from not less than 16 SWG (1.6 mm) thick CRCA sheets and will be made airtight with neoprene rubber gasket and heavy duty locks.

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

The enclosure should be powder coated.

The enclosure should accommodate the daily service fuel tank of the D.G. Set to make the system compact. There should be provision of a 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.

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

The canopy should be provided with a high enclosure temperature safety device.

The acoustic lining should be made up of high-quality insulation material i.e. rockwool/ glass/ mineral wool/ PU foam of appropriate thickness & density for sound absorption as per standard design of manufacturer's to reduce the sound level as per CPCB norms. The insulation material shall be covered with fine glass fiber cloth and would be supported by perforated M. S. Sheet duly powder coated / GI sheet/ aluminum sheet.

The enclosure shall be provided with suitable size & No. of hinged 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 & repairs.

The canopy should be as compact as possible with good aesthetic look.

The complete enclosure shall be of modular construction.

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 an auto stop arrangement to stop after 5 minutes of the stopping of D.G sets.

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

The inside of enclosure should be provided with at least two nos. 28 W-T5 fluorescent tube light luminaire controlled by a 5A switch for adequate lighting during servicing etc. of the DG Set. The power supply to this luminaire should be from the load side of the AMF Panel so that it can remain energized under all conditions.

ADDITIONAL SPECIFICATION AND CONDITIONS

1. The work shall be carried out strictly in accordance with the CPWD specifications for electrical works Part-I Internal 2013, Part II External 1995as amended up to date and in accordance with Indian Electricity Rules, 1956, Indian Electricity Act, 1910 as amended up to date and as per instructions of the Engineer-in-charge.
2. **The contractor is advised to visit the site before quoting the rates for determining the site condition. No claim shall be entertained at later stage.**
3. All materials to be used in this work by the contractor shall be got approved from the Engineer-in-charge/his representative before installation at site.
4. The work shall be carried out according to approved drawings/details which shall be subsequently issued to the successful tenderer for execution of work and as per instructions of the Engineer-in-charge who will have the right to change the layout as per requirement at site and the contractor shall not have any claim due to a change in layout.
5. All damage done to the building during execution of electrical work shall be the responsibility of the contractor and the same will be done good immediately at his own cost to the satisfaction of the Engineer-in- charge. Any expenditure incurred by the department in this condition shall be recovered from the contractor and the decision of the Engineer-in-charge about recovery shall be final.
6. The bad workmanship will not be accepted, and defects shall be rectified at contractor's cost of the satisfaction of the Engineer-in-charge. The program of electrical works is to be co-coordinated in accordance with the building work and no claim for idle labour will be entertained.
7. All the debris of the electrical works shall be removed and the site should be cleared by the contractor immediately after the accruing of debris. Similarly, any rejected material should be immediately cleared off from the site by the contractor.
8. Cement for this confide work is to be arranged and used by the contractor himself and nothing extra will be paid on this account.
9. The contractor or his representative is bound to sign the site order book as and when required by the Engineer-in-charge and to comply with the remarks therein.
10. The contractor shall make his own arrangement at his own cost for electrical/general tools and plants required for the work.
11. The work shall be carried out according to the drawings/details as approved by the Engineer-in-charge.
12. The rates quoted by the tenderer shall be firm and inclusive of all taxes.
13. The entire installation shall be at risk and responsibility of the contractor until these are tested and handed over to the department. However, if there is any delay in construction from the department side, the installation may be taken over in parts, but the decision on the same shall rest with Engineer-in-Charge which shall be binding on the contractor.
14. The connection, inter connections, earthing and loop-earthing shall be done by the contractor, wherever required and nothing extra shall be paid on this account.
15. The chase cutting in the walls (if required) is to be done by using electrical chase-

cutter, for which the contractor must arrange electric supply at his own level.

16. Nothing extra shall be paid for:-
    a) Inter connections with thimbles / wires / taps / strips / connector etc.

17. All hardware items such as screws, thimbles, G.I. wires etc. which are essentially required for completing an item as per specifications will be deemed to be included in the item even when the same has not been specifically mentioned.

18. All hardware materials such as nuts/bolts/screws/washers etc. to be used in the work shall be zinc/cadmium plated iron.

19. Material to be used in the work shall be ISI marked. The makes of material have been indicated in the list of acceptable makes. No other make will be acceptable. The material to be used in the work shall be got approved by the Engineer-in-charge/his representative before its use at site. The Engineer-in-Charge shall reserve the right to instruct the contractor to remove the material which, in his opinion, is not acceptable.

20. Where switches/sockets/telephone/T.V./regulator/internet outlets are to be provided, the same shall be of same make.

21. The earthing shall be carried out in the presence of the Engineer-in-Charge or his authorized representative.

22. After completion of the installation, testing shall be carried out as provided in CPWD specifications. The contractor will have to furnish completion plans and completion certificate as per manual.

23. The equivalent model has to be got approved by the Engineer-in-Charge. Make also to be got approved by engineer in charge in case of missing the item in the acceptable make list.

GENERAL & COMMERCIAL CONDITIONS

1.1 Scope:

This specification covers manufacture, testing as may be necessary before dispatch, delivery at site, all preparatory work, assembly and installation, commissioning putting into operation, final testing & handing over as reqd.

1.2 Location:

1.2.1 The generating set will be installed at NIA Pune Campus at Pune.

1.2.2 The contractor is advised to visit the site before quoting the rates for determining the site condition. No claim shall be entertained at later stage.

1.3 Related Documents:

These technical specifications shall be read in conjunction with the standard conditions of contract with all correction slips as are relevant for commercial aspects, as well as schedules and drawings & requirements under these specifications. In the event of any discrepancy between these specifications & inter-connected contract documents, the technical requirements as per the tender specifications shall be followed and deemed to be having over-riding value.

1.4 Conformity to Statutory Acts, Rules, Regulations, Standards & Safety Codes:

1.4.1 Indian Electricity Act & Rules:

All electrical works in connection with installation shall be carried out in accordance with the provision of Indian Electricity Act, 1910 and the Indian Electricity Rules 1956, both amended up to date.

1.4.2 CPWD Specifications:

The electrical installation work confirms to CPWD General Specifications for Electrical Works Part - I (Internal) 2013, Part - II (External)1995, Part - IV sub-station equipments 2013 and Part - VII (DG sets) 2013 as amended up to date.

1.4.3 Indian Standards:

The system components shall also confirm to relevant Indian Standards wherever these exist.

1.4.4 Fire Regulations:

The installation shall be carried out in conformity with the local Fire Regulations & Rules there under wherever they are in force & the provisions in local bye-laws, if any.

1.4.5 Safety Codes & Labour Regulations:

i) In respect of all labour employed directly or indirectly on the work, the

successful tenderer (herein after called the contractor) at his own expense will arrange for the safety provisions to comply with the statutory regulations, BIS recommendations & CPWD Codes. In case of default, the department shall be at liberty, to make arrangements & provide facilities as aforesaid and recover the cost from the contractor.

ii) The contractor shall provide necessary barriers, warning signals & other safety measures to avoid any accident. The supplier shall at all times indemnify the department, consequent on this work contract.

e shall be liable for such accident as may be done due to any cause in accordance with the Indian Laws and Regulations and the department shall not be responsible for any accident, damage incurred or claims arising there from during the period of erection under his responsibility & putting into operation of the generating set & ancillary equipment under his supervision. Where necessary he shall also provide all insurance i/c third party insurance as may be necessary to cover the risk.

iii) Nothing in these specifications shall be constructed to relieve the contractor of his responsibility for the design, manufacture & installation of the equipment with all accessories in accordance with applicable standards & statutory regulations & safety codes in force from the safety angle.

1.5 Informing and drawings to be supplied by the department:

1.5.1 Schedule of work:

The schedule of work along with other relevant information shall be supplied with the tender papers detailing the equipment & materials required & estimated quantum of work required to be executed.

1.5.2 Drawings:

All the drawings specified & issued with the tender specifications are for the purpose of tendering only and shall be deemed to be specification drawings.

1.6 Works to be arranged by the department:

Unless otherwise mentioned in the tender specifications, the following works shall be carried out by the department.

i) Termination of power supply on incoming load isolator (which is in turn to be provided by the contractor) on the switchboard. The connection according to the requirement shall however be provided by him.

ii) Major dismantling of any existing building (this specifically excludes all small openings to be made, cutting pockets, holes, etc., in brick masonry, or concrete floors as may be necessary i/c making good to the original finish &

such other minor building work.) However dismantling of existing DG set & LT panel has already taken in the Schedule of work, item No.14 and 15 for which no extra payment will be made.

iii) Electricity supply & water supply during erection, testing, and commissioning (415 V +/- 5%, 3 phase, 50 Hz, 4 wire supply up to 3 KW shall be made available for operation of small tools, welding sets etc. as free of charge.)

iv) No other item of work that will be necessary for completing the installation and trouble free execution would be executed from the responsibility of the contractor.

1.7 Works to be done by the contractor:

In addition to supply and/or, installation, testing & commissioning of all the equipment & materials as per the schedule of work, the following works shall be deemed to be included within the scope of work to be executed by the contractor, whether or not explicitly indicated in the schedule work.

i) Minor building works, necessary for installation of equipment viz. making opening in the walls or in floors & restoring them to their original condition / finish.
Tools for handling and installation.
Necessary testing equipment.

ii) Watch & ward of the equipment & materials, during supply & installation, till their handing over to the department duly installed & commissioned.

iii) All conduits, supports for pipes and anti-vibrations pads etc. as are necessary i/c grouting them as reqd.

iv) All electrical works required from alternator to contractor's main board / control panel and necessary control wiring i/c loop earthing.

v) All pipe connections.

vi) Duct for radiator exhaust not included in the scope of work.

vii) No storage space available in the site. The agency should arrange the same at his own.

1.8 Inspection of site & collection of data:

The tenderer shall be deemed to have examined the tender documents, detailed specifications, data etc. & to have visited the site & ascertained all relevant details for offering suitable equipment & for installation work.

1.9 Information to be supplied by the tenderer:

The tenderer shall be furnished the make & model No. of DG set before the pre-bid meeting of tender, schematic diagram of the installation proposed. Any other data &

technical particulars, printed pamphlets, type test certificates etc. for proper evaluation of their offers shall also be given in the pre-bid meeting.

1.10 Extent of work:

The work when installation included shall comprise entire labour i/c supervision & all materials necessary to make the installation complete to the entire satisfaction of the department. The term "complete installation" shall mean not only major items of equipment covered by these specifications, but also incidental sundry components necessary for complete execution & satisfactory performance of installation, with all labour charges, whether or not these have been exclusively mentioned in detail in the tender documents.

1.11 Completeness of tender:

1.11.1 All fittings, unit assemblies, accessories, hardware foundation bolts, terminal blocks for electrical connections, cable glands & miscellaneous materials & accessories of items of work which are useful & necessary for efficient assembly & working of the equipment i/c labour & supervision for assembly of all such fittings etc., shall be deemed to have been included within the scope of work in the tender & within the overall cost quoted whether they have been specifically mentioned or not.

1.12 Certificate of compliance with or departure from specifications:

1.12.1 The tenderers who wish to depart from the provisions in the specifications or system engineering or the detailed requirements of the tender specifications should list out such departure in a separate pro-forma supported with complete particulars, technical reasons for departure & standards relied upon & required test certificates. They should however, quote rates strictly in accordance with the schedule of work in the tender documents & indicate separately changes in the quoted price due to their proposed departure.

1.12.2 The tenderer shall certify while submitting the offer that except the departure specifically mentioned by him, the work tendered by him complies strictly in all respects with the tender specifications. Unless this is done the system shall be considered to comply in every respect with these specifications without any deviation.

1.13 Care of building:

Care shall be taken while handling & installing the equipment to avoid damage to the building. On completion of the installation, the contractor shall arrange to repair all damages to the building caused during installation so as to bring to the original condition.

1.14 Co-ordination with other agencies:

1.14.1 The contractor shall co-ordinate his work & co-operate with other agencies by exchange of all technical information like details of foundations, weight, overall dimensions, clearance & other technical data required for successful & proper completion of his portion of the work in relation to the work of others without any reservation & according to a well thought out programme. No remuneration what so ever should be claimed from the department for such co-operation.

1.14.2 Care shall be taken not to damage the water proofing done in the case of basements etc.

1.14.3 If any unreasonable hindrances caused to other agencies and any completed portion of the works has to be dismantled & redone for want of the co-operation & co-ordination by the contractor during the course of work, such expenditure incurred will be recovered from the contractor along with the restoration of work to the original condition of specification of the dismantled portion of the work if the same was not undertaken by the contractor in time.

1.15 Prices:

The prices quoted shall be inclusive of all taxes & duties.

1.15.1 No heavy T&P / tools or tackles shall be supplied nor can any accommodation be arranged for the staff / workers of the contractor. He shall make his own arrangements for all the above items / arrangement.

1.15.2 The contractor has to follow the local security / safety rules & regulations & such instructions on restricted hours of work as may be imposed on him by the department / local authorities, while working in security / restricted zones and no claim whatsoever on account of loss of labour / idle labour etc. can be entertained. His attention in therefore again drawn to the above para.

1.15.3 Whenever the items are ready for inspection, the firm shall give due notice period of at least 15 days for enabling the department to depute its representative for inspecting the item before dispatch. The department, however, reserves the right to authorize the firm to despatch the materials by accepting the test certificates, furnished by them. However, the firm shall continue to be responsible for proper operation of the equipment & conformity to specifications etc. & the decision of the Engineer-in-charge in accepting / rejecting the item of receipt at site shall be final & binding on the contractor.

1.15.4 The rates for all items are applicable for all heights of the work to be done as per drawing (or) as directed by the Engineer-in-charge & no extra on this account will be entertained.

1.15.5 It shall be responsibility of the contractor to obtain the approval of drawings & to get the installation inspected & passed by the concerned agencies, as may be

necessary as per local bylaws. Any fee payable to the local bodies for each activity shall also be borne by the contractor.

1.15.6 The contractor should submit the completion plan in three sets failing which his final bill will not be paid.

1.15.7 All the materials to be used in the work are to be got approved by the Engineer-in-charge before using in the work.

1.16 Erection equipment:

No tools & tackles either for unloading or for shifting the equipment or for erection purposes would be made available by the department. The successful tenderer shall make his own arrangement for all these facilities.

1.17 Drawing of the generator house:

The drawing to be prepared by the agency after award of the work. However feasibility check may be done by the agency before quoting the tender.

1.18 Drawings & Manuals to be furnished by the contractor:

1.18.1 Every offer shall have complete detailed technical literature, performance data i/c test certificate along with operation, maintenance manual & spares manuals.

1.18.2 The contractor shall submit in duplicate the following drawings within a fort-night of the award of work for approval by the department.

i) General arrangement drawing of the equipment in the generator room with complete dimensions.
ii) Details of foundations for the equipment & weight of assembled equipment.
iii) Plumbing layout complete with details of all accessories for all circuits.
iv) Control layout and schematic.
v) Electrical layout & schematic & physical arrangement drawings of switch / control board's i/c size & capacity of the equipment / cables used.
vi) Duct layout for radiators & exhaust if used.

1.18.3 Before commencement of the installation the above drawings with observations of the department duly incorporated, shall be submitted to the Engineer-in-charge in triplicate along with any special instructions with regard to handling, storage & installation well before the installation.

1.19 Completion drawings:

On completion of the work, detailed drawings showing the details of equipment & wiring as installed shall be submitted in triplicate. Maintenance instructions & procedures shall also be submitted with the same.

1.20 Inspection & testing at manufacturer's works :

Successful tenderer will be required to provide such facilities as will be necessary for inspection of the equipment before despatch at his or his associate's works unless exempted by the purchaser. Tenderer shall furnish all necessary information for the purpose and will also give sufficient notice regarding the dates proposed for routine & all such tests to the purchaser to facilitate their presence.

1.21 Test Certificate:

Copies of all routine & test certificate of the equipment carried at the manufacturer's premises or otherwise shall be furnished to the purchaser & consignee.

1.22 Mode of despatch:

1.22.1 Consignment may be sent by train and / or road depending upon the requirements & the connection of the destination with the rest of the country.

1.22.2 The machine shall be suitably covered & properly packed so as to avoid damage during transit.

1.23 Consignee’s address:

It shall be the responsibility of the supplier to obtain the complete address of the consignee & all materials may be consigned freight paid & duly insured at the cost of the tenderer. If so required, the consignee can receive the materials on behalf of the successful tenderer & have them transported to the site at the risk & cost of the successful tenderer. All documents for such assistance shall be sent by registered post to the consignee with acknowledgement due. It will be the sole responsibility of the supplier to ensure that these documents reach the consignee well in time. The material to be delivered at site i.e. N.I.A., Pune.

1.24 Guarantee & warranty:

The contractor shall guarantee the entire installation as per specifications both for components & for system. All equipment shall be guaranteed for one year from the date of acceptance against unsatisfactory performance or breakdown due to defective materials, design, manufacture and / or installation. The work shall be covered by the condition that the whole installation or any part / material thereof found defective within one year from the date of taking over shall be replaced or repaired by the contractor free of charge as decided by the department.

LIST OF ACCEPTABLE MAKES

Sl.No	ITEM	MAKES
1	Diesel Engine	Cummins
2	Alternator	Stamford
3	AMF / Synchronization Panel	OEM/ OEA of DG Set / ABAK / Infinity Eng.
4	Acoustic Enclosure	OEM/ OEA of DG Set
5	ACB, Relays	L&T/ Siemens/ GE/ PIC/Legrand
6	Contactors	L&T (MNX)/ Siemens (SKOP)/ GE/ ABB/Legrand
7	GI/MS Pipes 'B' class	TATA/ Jindal Hissar /Prakash Surya
8	Anti Vibrations Mountings	Gerb/ Resisto flex/ Polybond/ Flenonies (USA)/ Dunlop
9	Batteries	Exide/ Standard Farukawa/ Panasonic/ Amara-Raja
10	L.T. Cables/ Power Cables/ HT Cable	Finolex/ Havells / R R Kabel/ Polycab
11	PVC insulated FRLS/ FR copper wires	Polycab /Finolex / RR Kabel / Havells
12	Lug / Thimble	Dowells / Johnson / Schneider Electric
13	Cable Gland / Termination	Comet / Gripwell / Dowell / Raychem / ABB
14	MCB, MCCB	Legrand / Siemens/ L&T / ABB
17	Indicating Instruments, Meters & Selector Switches	Sintron/ MECO/ AE/ Rishabh/ L&T/ RAAS Control/ BCH/ Vaishno
18	Current Transformer	AE/ KAPPA/ L&T / Siemens/ ABB
20	Indicating Lamps	Siemens/ GE/ BCH/ L&T/ RAAS Control/ Vaishno
21	Multi-Function Meter / Digital Meter	Neptune (phase trac)/ L&T/ Enercon (Conzerve)/ AE

Note: DG Set & AMF panel procured from OEM/OEA only shall be acceptable.

SCHEDULE OF WORK

Name of Work: - Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune

Sr. No.	ITEM DESCRIPTION	QTY	RATE	UNIT	AMOUNT
	DG SET				
1	Supplying, erecting, testing and commissioning of diesel generating set with alternator of **500 kVA** output continuous rating, 3 Phase, 415 V, 50c/s 0.8 p. f.A.C supply, a totally enclosed air cooled / liquid cooled multi-cylinder diesel engine developing suitable BHP at 1500 rpm with 10% overload for 1 hour in 12 hours, along with standard accessories, self-excited, self-regulated, screen protected alternator with static excitation system running at 1500 RPM as per IS 4722-2001 with voltage regulation +/- 5 %, with performance class G2 and maximum fuel consumption 81.90 Ltr/hr @75% loading. Both the engine and alternator direct coupled on a common fabricated steel base frame and mounted on anti-vibrating pads with standard control panel comprising meters, switchgears, indicators connected with suitable wires/cables, the complete set enclosed in composite Acoustic enclosure as fully assembled integral unit made of 16 SWG CRCA Sheet, sound absorbing material to restrict sound level up to 75 dB at 1.0 m, provided with first filling of oil, diesel not less than 690 Ltr etc. on provided M20 Grade CC Foundation and obtaining necessary approval from Electrical Inspector as per specification no. GEN-DG (**Preferred brand=Cummins**)	01		Each	
2	**AMF Panel**				
	Supplying, erecting, testing and commissioning microprocessor based AMF panel suitable for diesel generating set of above 400 kVA up to 500 kVA capacity Three phase, 415 Volts, 50Hz A.C. with all standard features, safety etc as per specification no. GEN-AMF. (**Preferred =OEM**)	01		Each	

3	Providing and laying in position cement concrete 1:2:4 (1- cement, 2 - coarse sand, 4- graded stone) aggregate 20 mm (nominal size) in foundation of DG, PUMP, AMF panel, set etc. including form work etc. as required.	01		Each	
4	Unloading, loading, shifting DG from the truck and manual DG set shifting on the PCC platform along with shifting of old DGs from one location to another location completely erected as per standard specifications. (Shifting of existing DG to other Location)	01		Job	
5	Supplying of following sizes XLPE insulated PVC sheathed, armored Aluminum conductor suitable for rated voltage of 1100 volt as per IS:1554 (Part-1) & IS:7098 (Part-1) & having ISI marking.				
	3 ½ x 300 sq. mm	60		Meters	
6	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.				
	3 ½ x 300 sq. mm	06		Set	
7	Providing earthing with copper earth plate size 60 x 60 x 0.315 cm with funnel with a wire mesh for watering and brick masonry block C.l. cover with minimum 25 kg Carbon based environment friendly back fill Ground Enhancing compound complete with all materials, testing & recording the results as per specification no	10		Each	
8	Supplying and laying 25 mm X 5 mm Copper strip at 0.50 metre below ground as strip earth electrode, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50mm)	35		Meters	

9	MS exhaust piping of suitable size, with al cladding only inside the shed with stack extended up to the rooftop as per MPCB guidelines	01		Job	
10	Buyback value of the old used Cummins DG sets of 125 KVA open type with obsolete engine model nos NTC495G and NGEF alternators skid mounted with manufacturing year before 1996. With no support for backup. On as is where is basis,	02		Each	
				Total Amount	
				GST	
				Total Amount including GST	

(Note: Above Quantity may vary as per the actual work execution)

Form 1: Particulars of the Bidders

INDIVIDUAL / FIRM / COMPANY PROFILE		
Sr. No.	**Required Information (QUERY)**	**ANSWER**
1	Name and registered address of the Individual/firm/company.	
2	Name, designation, and telephone nos. of the contact person / persons. Mobile Nos. Fax No. E-mail id	
3	Month and Year of commencement of service business in present name.	
4	**(Photocopies of following documents to be Uploaded)**	
	1. Registration number of the firm. (As per Shop and Establishment act.)	
	2. PAN No. and TIN No.	
	3. Goods and Service Tax No	
5	Name and complete postal address of bankers.	
	Name of Bank	
	Branch	
	Account No	
	Account Type	
	IFSC Code	
6	Additional Information if any.	

Form 2: Compliance Sheet for Technical Proposal

(Note: All the specifications below are minimum specifications, and higher specifications shallbe used wherever necessary / required. Deviation on the higher side shall only be considered andno extra weightage shall be rewarded for such deviations. The bidder needs to fill up and upload the technical compliance sheet as per Form 2.)

DATA SHEET FOR D.G. SETS (To be filled by the Vendor along with the bid)

Sr. No.	Special needs for the Disel Generator set back up for Critical Equipments	Complied with Specifications (Fill in information)
1	**Engine Make & Model Name / No.** (Technical specifications / literature / brochure must be attached)	
i	Engine Type	
ii	Engine BHP	
iii	Number of Cylinder	
iv	RPM	
v	Type of Cooling	
vi	Type of Starting	
vii	Type of Governor, Make & Model Number	
viii	Fuel consumption at 75 % load (Litre / Hr)	
ix	Fuel consumption at 100% load (Litre / Hr)	
x	Lube Oil Consumption @ % of fuel consumption	
xi	Lube oil change period in DG running hours or minimum Period in months	
xii	Lube Oil Sump Capacity (Max) in Litre (High – Low Level)	
xiii	Total Lubrication System Lube Oil Capacity in Litre	
xiv	Total Coolant capacity in Litres	
xv	Maximum time to start engine from cold and attain rated speed & ready to take one step load in Seconds	
2	**Alternator Make & Model Name/ No.** (Technical specifications / literature / brochure must be attached)	
i	KVA Rating	
ii	KW Rating	
iii	Class of Insulation	
iv	Excitation	
v	Alternator Efficiency	
vi	Voltage Regulation in %	
vii	Waveform Distortion in %	
viii	Total Harmonic Distortion in %	
ix	Telephonic Harmonic Factor	
x	Enclosure IP rating	
xi	Mounting	
xii	Terminal Box Provided	
xiii	Earthing Studs Provided	

3	Transient speed increase for sudden 100% decrease of load in %	
4	Transient speed decrease for sudden 100% increase of load in %	
5	Recovery Time in Seconds	
6	Overall Dimensions of Generator Set in mm (Length X Width X Height)	
7	DG Set Weight in Kg	
8	Battery Charger – Make & Model Number	
9	Battery Charger Ratings (Volt & Current)	
10	No of Batteries and Rating (No, Voltage & AH)	
11	DG AMF Panel from approved panel manufacturer only (Give the name of panel manufacturer)	
12	Make & Model Number of AMF Controller	
13	DG Set should accept 55% of rated capacity in one step.	**Yes/ No**
14	DG Set's panel shall be suitable for Auto operation controlled through AMF Relay as well as manual operation.	**Yes/ No**
15	Vendor to provide one-source responsibility for the generating system and accessories.	**Yes/ No**
16	The generator set and its components are prototype-tested, factory-built, and production-tested.	**Yes/ No**
17	The product should provide support for monitoring various parameters of diesel generator set over WEB and SNMP.	**Yes/ No**
18	Name and Address of Service Center at Pune	
19	Response time from service centre after launching a complain	
20	Response time for required spare parts from service centre after launching a complaint	
21	The Diesel Generator is to provide backup power when the electric mains power has a failure. The generator set is to have "primary continuous duty" application of providing power continuously for more than 16 hours on a given day. Please see the main specifications for additional details	**Yes/ No**
22	The Diesel Generator is to provide backup power to the uninterruptible power supplies of data centre / digital equipments and cooling system equipments. The Generator must meet the full load of UPS & HVAC installations (supporting the server equipments) in the event of mains failure in a single step after starting and stabilizing within 30 seconds in a seamless manner. In addition, the cooling equipment (HVAC) loads will get connected too. The DG SET of engine, alternator should be rated for meeting this step load application (near full load) on startup / running.	**Yes/ No**
23	The Diesel Genset operational parameters as detailed in the main specifications have also to be monitored by the BMS. Parameters which are crucial for the reliable operation of data centre operation such as fuel and lubrication oil levels in the tanks / sump respectively, line voltage, current, frequency, battery voltage, charging current, engine temperature are to be provided as	**Yes/ No**

	analog/digital levels or codified digital data through specified interface. This is an essential requirement to be met by the vendors of the DG set. The scope of BMS for DG set includes the transducers for all parameters, hardware and software system as applicable for transferring the parameter to BMS with backnet protocols and local logging of the engine parameters on dedicated standalone system too	
24	A lubricating oil filter shall be provided for operation under normal conditions for a period of 500 hours/ One Year without the necessity of its replacement or cleaning	**Yes/ No**
25	The DG Sets shall be subjected to load tests at NIA site after installation in the presence of NIA`s engineers with consultant. All the consumables required during testing of DG Sets at site shall be included in the scope of DG vendor. All consumables required during trial run of DG Sets on load for 13 hours out of which six hours for running up to full load, followed by six hours on full load and concluded by one hour 110% overload capacity to be arranged by DG vendor. Also, DG vendor arranges the 110% Load bank availability for testing. The test shall be carried out as per Technical Specification & records to be submitted for approval. (The formats of all tests carried out at factory & at site with details of relevant standards as per latest standards & permissible limits should be submitted by DG vendor for reference along with tender).	**Yes/ No**
26	Mandatory Spare Parts: The list of mandatory spares which are considered essential by the Supplier shall be indicated in the bid for successful operation of DG Set for 3 years. Price may also be quoted separately for these spares.	**Yes/ No**
27	Warranty Period (after satisfactory installation, testing & commissioning)	**Yes/ No**

Note: **1) The venders should fill in the above-mentioned details.**
2) Offers with "Incomplete Information" are liable to be rejected, which may be noted.

Seal & Signature of Bidder

Form 3: Letter of Proposal

To,

The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA Post Office,
Pune -411045

Re: Submission of the Technical bid for Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune

Dear Sir,

We, the undersigned, hereby submit our Technical Proposal against your Request for Proposal floated vide RFP Ref: NIA/ENGG/DG-01 dated 03.02.2025

We hereby declare that all the information and statements made in this Technical bid are true and accept that any misinterpretation contained in it may lead to our disqualification.

We hereby declare that if price of any item is disclosed by us in the Technical Bid, it may lead to our disqualification.

We undertake, if our Proposal is accepted, to initiate the Implementation services related to the assignment not later than the date indicated in Fact Sheet.

We agree to abide by all the terms and conditions of the RFP document. We would hold the terms of our bid valid for as stipulated in the RFP document.

We understand, you are not bound to accept any Proposal you receive.

Yours sincerely,

Authorized Signature [*In full and initials*]: _____

Name and Title of Signatory: _____

Name of Firm: _____

Address: _____

Location:_____ Date: _____

Form-4: Pre-Bid Queries Format

(To be filled by the Bidder)

Name of the Company/Firm:

_____

_____

Bidding document Fee Receipt No _____

Person(s) Representing the Company/ Firm:

Name of the Person	Designation	Email-ID(s)	Tel. Nos. & Mobile Nos.

Company/Firm Contacts:

Contact Person(s)	Address for Correspondence	Email-ID(s)	Tel. Nos. & Fax Nos.

Query/Clarification Sought: (MS-Excel Sheet Format)

S.N.	BidderName	RFP ChapterNo.	RFP ClauseNo.	RFP Page No.	Clause Details as per RFP	Query/ Clarification / Suggestion

Note: Queries must be strictly submitted only in the prescribed format (.XLS/ .XLSX/.PDF). Queries not submitted in the prescribed format will not be considered / responded at all by the tendering authority. Also, kindly attach the colored scannedcopy of the receipt towards the submission of the bid document fee. Also, the bidders having purchased the tender / RFP document will only be responded to i.e., their pre-bid queries will be entertained and responded. Also, the soft copy of the queries **(only in MS-Excel Sheet format)** should also be submitted through e-mail at. kishor@niapune.org.in, pramodkatke@niapune.org.in, sridharjayashree@niapune.org.in.

Form 5: Undertaking on Authenticity of Materials provided

(To be filled by the bidder (On ₹.100/- Non-judicial stamp paper)

To,

The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA Post Office,
Pune -411045

Reference: NIA/ENGG/DG-01 dated 03.02.2025

This has reference to the items being supplied / quoted to you vide our bid ref. no.: NIA/ENGG/DG-01 dated 03.02.2025

We hereby undertake that all the components / parts / assembly / software used in the equipment shall be genuine, original and new components / parts / assembly / software from respective OEMs of the products and that no refurbished / duplicate / second hand components / parts / assembly / software are being used or shall be used. In respect of licensed operating system, we undertake that the same shall be supplied along with the authorized license certificate with our name / logo. Also, that it shall be sourced from the authorized source for use in India.

In case, we are found not complying with above at the time of delivery or during installation, for the equipment already billed, we agree to take back the equipment already supplied at our cost and return any amount paid to us by you in this regard and that you will have the right to forfeit our PBG for this bid or debar / black list us or take suitable action against us.

Authorized Ssignatory

Name:

Designation:

Form-6: Bidder's Authorization Certificate

(To be filled by the Bidder)

To,

The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA Post Office,
Pune -411045

I/ We {Name/ Designation} hereby declare / certify that {Name / Designation} is hereby authorized to sign relevant documents on behalf of the company / firm in dealing with RFP reference No. NIA/ENGG/DG-01 dated 03.02.2025. He/ She is also authorized to attend meetings & submit technical & commercial information/ clarifications as may be required by you in the course of processing the Bid. For the purpose of validation, his/ her verified signatures are as under.

Thanking you,

Name of the Bidder: - Verified Signature

Authorized Signatory:

Seal of the Organization:

Date:

Place:

Form 7: Performance Bank Guarantee (PBG) - Template

To,
The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA Post Office,
Pune -411045
Whereas, << name of the supplier and address >>(hereinafter called "the Bidder") has undertaken, in pursuance of contract no. << insert contract no. >> dated. << insert date >> to provide Implementation services for << name of the assignment >> to NIA (hereinafter called "the beneficiary")

And whereas it has been stipulated in the said contract that the Bidder shall furnish you with a bank guarantee by a recognized nationalised bank for the sum specified therein as security for compliance with its obligations in accordance with the contract;

And whereas we, << name of the bank >> a banking company incorporated and having its head / registered office at << address of the registered office >> and having one of its office at << address of the local office >>have agreed to give the supplier such a bank guarantee.

Now, therefore, we hereby affirm that we are guarantors and responsible to you, on behalf of the supplier, up to a total of ₹.<< insert value >> (Rupees << insert value in words >> only) and we undertake to pay you, upon your first written demand declaring the supplier to be in default under the contract and without cavil or argument, any sum or sums within the limits of Rs .<< insert value >> (Rupees << insert value in words >> only) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Bidder before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms of the contract to be performed there under or of any of the contract documents which may be made between you and the Bidder shall in any way release us from any liability under this guarantee and we hereby waive notice of any such change, addition or modification.

This Guarantee shall be valid until << Insert Date >>)Notwithstanding anything contained herein:

I. Our liability under this bank guarantee shall not exceed ₹. << insert value >>(rupees << insert value in words >> only).

II. This bank guarantee shall be valid up to << insert expiry date >>)

III. It is condition of our liability for payment of the guaranteed amount or any part thereof arising under this bank guarantee that we receive a valid written claim or demand for payment under this bank guarantee on or before << insert expiry date >>) failing which our liability under the guarantee will automatically cease.

(Authorized Signatory of the Bank) Seal: Date:

Form 8: RFP Form

(To be filled by the Bidder)

Name of the Tendering Authority	
Address	
Telephone	
Mobile No	
Email	

Firm Details:

Name of Firm				
Name of CMD of the firm with email address and contact number				
Name of ContactPerson with Designation				
Registered OfficeAddress				
Address of the Firm				
Year of Establishment				
Type of Firm PutTick (√) mark	Public Limited	Private Limited	Partnership	Proprietary
TelephoneNumber(s)				
Email Address /Web Site	Email:		Website:	
Fax No.				
Mobile Number	Mobile:			
Certification / Acreditation / Affiliation if Any				

The requisite tender fee amounting to Rs.1180.00 (Rupees <in words>) has been deposited vide receipt no._____Dated_____.

We agree to abide by all the terms and conditions mentioned in this form issuedby the Empanelment Authority and also the further conditions of the said notice given in the attached sheets (all the pages of which have been signed by us in token of acceptance of the terms mentioned therein along with stamp of the firm).

Date:

Name & Seal of the firm: Authorized Signatory:

Form-9: Covering Letter - Technical Bid

(To be filled by the bidder and signed in Company Letter Head)

To,

The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA Post Office,
Pune - 411045

Subject: Technical Proposal for Selection of Agency for the tender under reference no. NIA/ENGG/AV-010 dated 01.08.2024

Sir,

We, the undersigned, offer to provide our services against your RFP enquiry no. NIA/ENGG/DG-01 dated 03.02.2025
<Insert RFP no> dated <insert date>. We are hereby submitting our Proposal, which includes this Technical Bid.

We hereby declare that all the information and statements made in this technical bid are true and accept that any misinterpretation contained in it may lead to our disqualification.

We agree to abide by all the terms and conditions of the tender document. We would hold the terms of our bid valid as stipulated in the RFP document.

We agree that you are not bound to accept the lowest or any bid response you may receive. We also agree that you reserve the right in absolute sense to reject all or any of the products / services specified in the bid response without assigning any reason whatsoever.

It is hereby confirmed that I/We are entitled to act on behalf of our corporation/company /firm/organization and empowered to sign this document as well as other documents which may be required in this connection.

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Form 10: Manufacturer's Authorization Form (MAF)

Letter No.

To,

The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA Post Office,
Pune - 411045

Sub: OEM Authorization Letter

Dear Sir,

We, who are established and reputable----------having factories / development facilities at (address of----------factory / facility) do hereby authorize M/s. (Name and address of Agent) to submit a Bid and accept the Purchase Order against the above Bid Invitation.
We hereby extend our full guarantee and warranty for the Solution, Products and services offered by the above firm against this Bid Invitation. We further undertake that we will support the supplier will all related spares and maintenance during the entire contract period.
We duly authorize the said firm to act on our behalf in fulfilling all installations, technical support and maintenance obligations required by the Project.

Yours faithfully,

Name

Seal

Note: This letter of authority should be on the letterhead of the OEM and should be signed by a person competent and having the power of attorney to bind the manufacturer.

Form-11: Financial Bid Cover Letter and Format

{Bid Price is not to be disclosed in Technical Bid}

(To be filled by the bidder and signed in Company Letter Head)

To,
The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA P.O.,
Pune 411 045

Subject: Submission of the financial bid for Selection of Agency for Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune.

Dear Sir,

We, the undersigned, offer Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune. vide RFP. No. NIA/ENGG/DG-01 dated 03.02.2025 and our Proposal (Pre-qualification, Technical and Financial Proposals). Our attached Financial Proposal is for the sum of <<Amount in words and figures>>inclusive of taxes and duties.

1. Price and Validity

All the prices mentioned in our RFP are in accordance with the terms as specified in the RFP documents. We declare that our Bid Price is for the entire scope of the work as specified in the appropriate section in the RFP. All the prices and other terms and conditions of this Bid are valid minimum for a period from the date of opening of the Bid. Subject to further extended period as mutually agreed upon.
We hereby confirm that our prices do not include any taxes and duties.

We understand that the actual payment would be made as per the existing tax rates during the time of payment.

2. Unit Rates

We have indicated in the relevant forms enclosed, the unit rates for the purpose of on account of payment from the scope of work under the contract.

3. Qualifying Data

We confirm having submitted the information as required by you in your Instruction to Bidders. In case you require any other further information/documentary proof in National Insurance Academy (NIA) this regard before evaluation of our bid, we agree to furnish the same in time to your satisfaction.

4. Bid Price

We declare that our Bid Price is for the entire scope of the work as specified in the RFP. These prices are indicated at Price Bid attached with our bid as part of the Bid. We understand you are not bound to accept any tender you receive.

We hereby declare that our bid is made in good faith, without collusion or fraud and the information contained in the bid is true and correct to the best of our knowledge and belief.

We understand that our bid is binding on us and that you are not bound to accept a bid you receive.

Thanking you,

We remain,
Yours sincerely,

Authorized Signature:

Name and Title of Signatory:

Name of Firm:

Address:

Form-12: Self-Declaration

(Non-blacklisted in company Letter Head)

To,

The Director
National Insurance Academy
25, Balewadi, Baner Road,
NIA P.O.,
Pune 411 045

In response to the NIA/ENGG/DG-01 dated 03.02.2025, for RFP titled Supply, Installation, testing and Commissioning of 500KVA DG set along with AMF panel and buyback of old DGs at NIA, Pune.

I/ We hereby declare that presently our Company/ firm is not under declaration of ineligible for corrupt & fraudulent practices, blacklisted either indefinitely or for a particular period of time, or had work withdrawn, by any State/ Central government/ PSU.

I/We further declare that there is no past / ongoing legal trial in name of any of the Owner / Partner / Director of the bidding company as on the tender submission date.

If this declaration is found to be incorrect then without prejudice to any other action that may be taken, my/ our security may be forfeited in full and the tender if any to the extent accepted may be cancelled.

Thanking you,

Name of the Bidder: ..... Authorized Signatory:

Signature:

Seal:

Date:

Place:

Instruction for Online Bid Submission

Tender wizard portal is the complete process of e-Tendering, from publishing of tenders online, inviting onlinebids, evaluation of bids using the system. You may keep a watch of the tenders floated under **https://www.tenderwizard.com/NIA.**

More information useful for submitting online bids on the tender-wizard portal may be obtained at: **https://www.tenderwizard.com/NIA.**

Bidders, please note that they need to upload scanned copies of all the required documents and all Forms from Form 1 to Form 12 as indicated in the RFP Document.

Preparation of Bids

a. Bidder should consider any corrigendum published on the tender document before submitting their bids.
b. Please go through the tender advertisement and the tender document carefully to understand the documents required to be submitted as part of the bid.
c. 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 formats. Bid Original documents may be scanned with 100 dpi with colour option which helps in reducing size of the scanned document.
d. 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, GST, Annual reports, auditor certificates etc.) has been provided to the bidders. Bidders can accordingly upload such documents.
e. 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.
f. The uploaded bid documents become readable only after the tender opening by the authorized bid openers.
g. Upon the successful and timely submission of bid click "Complete" (i.e., after Clicking "Submit" in the portal), the portal will give a successful Tender submission acknowledgement & a bid summary will be displayed with the unique id and date & time of submission of the bid with all other relevant details.