ANDHRA PRADESH POWER GENERATION CORPORATION LIMITED
VIDYUT SOUDHA, VIJAYAWADA-520004

SPECIFICATION NO. e- 610000657/HPC&HP/APGENCO/2020

(THESE IS A TWO PART BID)

"Design, Engineering, Manufacture, Supply, Inspection & Testing at Manufacturer’s works, Supervision of Erection, Testing & commissioning of 3 sets of Digital voltage regulator (DVR) based Static excitation equipment (SEE) for Nagarjuna Sagar Right Canal Power House, Andhra Pradesh"

Summary sheet, Instructions to bidders, General, Financial Terms and Conditions, Technical Specification and schedules

Phone No : 0866-2526801
Email : se-hpc1@apgenco.gov.in

Sd/-
SUPERINTENDING ENGINEER
HYDEL-I/APGENCO
VIDYUTSOUĐHA, VIJAYAWADA
# CONTENTS

<table>
<thead>
<tr>
<th>SL.No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Notice Inviting Tender</td>
</tr>
<tr>
<td>2</td>
<td>Check List</td>
</tr>
<tr>
<td>3</td>
<td>Important instructions</td>
</tr>
<tr>
<td>4</td>
<td>Section –I (Instructions to Bidders)</td>
</tr>
<tr>
<td>5</td>
<td>Section-II (General Purchase conditions)</td>
</tr>
<tr>
<td>6</td>
<td>Section -III (Financial)</td>
</tr>
<tr>
<td>7</td>
<td>Section – IV (Technical Specification)</td>
</tr>
<tr>
<td>8</td>
<td>Schedules 1 to 11</td>
</tr>
<tr>
<td>9</td>
<td>Schedule A</td>
</tr>
<tr>
<td>10</td>
<td>Guidelines for Bank Guarantee</td>
</tr>
<tr>
<td>11</td>
<td>Annexure I to VI</td>
</tr>
</tbody>
</table>
ANDHRA PRADESH POWER GENERATION CORPORATION LIMITED
VIDYUT Soudha :: VIJAYAWADA-520004
NOTICE INVITING TENDER
NO. e- 610000657/HPC&HP/APGENCO/2020

<table>
<thead>
<tr>
<th>1. Department Name</th>
<th>Andhra Pradesh Power Generation Corporation Limited</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Circle/Division Name</td>
<td>Chief Engineer /HPC &amp; Hydel Projects /APGENCO Vidyut Soudha, Vijayawada</td>
</tr>
<tr>
<td>3. Tender Notice No.</td>
<td>e-610000657/HPC&amp;HP/APGENCO/2020</td>
</tr>
<tr>
<td>5. Estimated Contract Value</td>
<td>Rs. 1,55,00,000/- inclusive of Taxes.</td>
</tr>
</tbody>
</table>
| 6. Delivery Period | **A) Material:** The materials shall be delivered within Three Months from the date of approval of drawings. However, the delivery period shall include delivery and acceptance of the material in good condition at site. Drawings shall be furnished within 30 days from the date of acceptance of Purchase Order.  
**B) Supervision of Erection, Testing & Commissioning (ETC):**  
Supervision of Erection and Testing & Commissioning of SEE&DVR for each Unit should be completed within 15 days. |
| 7. Tender Type | Open |
| 8. Tender Category | Common Products/Services |
| 9. Bid Security (EMD) | Rs. 4,10,000 (Rupees Four Lakhs Ten Thousand Only)  
The EMD shall be paid in any of the following forms  
i) Non-PEMD Holders: Rs.1 Lakh in the form of DD/BC/Pay Order and balance amount of Rs. 3,10,000/- in the form of Bank Guarantee/DD/BC/Pay Order from any Govt. Banks/ Nationalized Banks/ Public Sector Banks/ Scheduled banks.  
ii) PEMD Holders: Rs.1 Lakh in the form of DD/BC/ Pay order and 2% of the estimated value over and above the PEMD amount in the form of DD/BC/Pay order/ Bank Guarantee from any Govt. Banks/ Nationalized Banks/ Public Sector Banks/ Scheduled banks. However, the Permanent EMD holders shall upload the copy of PEMD approval issued by the competent authority along with bid.  
iii) SSI/NSIC units: The SSI units registered with either the NSIC or the Department of Industries/Govt. of AP, are eligible for exemption from payment of EMD. However, they should apply in advance (at least One week before the bid submission closing date) by enclosing a valid SSI/NSIC certificate and furnishing the details/ information and obtain exemption from the Chief Engineer (HPC &
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<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10.</td>
<td>Bid Security Payable to For DD’s: Pay Officer, APGENCO, Vidyut Soudha payable at Vijayawada. For BG’s: As per Annexure-1</td>
</tr>
<tr>
<td>11.</td>
<td>Process Fee Not Applicable</td>
</tr>
<tr>
<td>12.</td>
<td>Bid Start Date &amp; Time 06.08.2020 @17.00 Hrs.</td>
</tr>
<tr>
<td>13.</td>
<td>Pre Bid Meeting 20.08.2020 @ 11:00 Hrs. Prospective bidders are advised to mail their queries, in advance to <a href="mailto:se-hpc1@apgenco.gov.in">se-hpc1@apgenco.gov.in</a></td>
</tr>
<tr>
<td>14.</td>
<td>Bid Submission Closing Date &amp;Time 03.09.2020 @ 17.00 Hrs.</td>
</tr>
<tr>
<td>15.</td>
<td>Bid Submission Online</td>
</tr>
<tr>
<td>16.</td>
<td>Bid Validity 180 days from the date of opening of the PQ/Tech Bid</td>
</tr>
<tr>
<td>17.</td>
<td>Pre Qualification/ Tech. Bid Opening Date 07.09.2020 at 15.00 Hrs.</td>
</tr>
<tr>
<td>18.</td>
<td>Price Bid Opening Date &amp; Time (Tentative) 16.09.2020 at 15.00 Hrs</td>
</tr>
</tbody>
</table>

### Eligibility Criteria

A) The Bidder shall be Original Equipment manufacturer (OEM) having manufacturing unit in India (Proof shall be submitted) and shall have an experience of at least 5 (FIVE) years in Design, manufacture, supply, testing and commissioning / Supervision of testing and commissioning of SEE & DAVR and must have supplied the equipment for at least two Power generating stations in India and which are working satisfactorily for at least One year as on the date of bid submission. The satisfactory performance certificates issued by the end users along with purchase order copies shall be uploaded.

B) The bidder should have an annual turnover of not less than Rs. 2.3 Crores for at least ONE year during the last ‘3’ years. The bidder should enclose copies of the audited financial statements of the last ‘3’ years so as to prove the financial capacity of the bidder to execute the order.

### Officer Inviting Bids & Place of Opening of Bids

Superintending Engineer, Hydel -I, APGENCO, 4th Floor, Vidyut Soudha, Gunadala, Vijayawada-520004, Andhra Pradesh.

### Contact Details

Phone : 0866 – 2526801/2526318
Email: se-hpc1@apgenco.gov.in

### Procedure for bid submission

Through APGENCO e-procurement platform, i.e., www.apgenco.gov.in OR https://etender.apgenco.gov.in

### Evaluation of Bids

Lowest bidder (L1) excluding the cost of recommended spares.

**Note:**

i) Ensure that all the documents uploaded as per the CHECK LIST.

__Sd/-__

**SUPERINTENDING ENGINEER (HYDEL -I)/APGENCO Vidyutsoudha :: Vijayawada**
CHECK LIST

I. The following documents pertaining to Pre-Qualification & Technical bid should be uploaded in "C-FOLDER ATTACHMENTS" only:

1. EMD: DD/BG/PEMD as per item.no.9 of NIT.
2. Proof of OEM and Manufacturing Unit in INDIA shall be submitted along with Bid
3. Proof of Experience – Minimum Two Performance certificates along with Purchase order copies.
4. Proof of Financial capacity - Annual Turnover Certificates (with authentication of Chartered Accountant) along with Balance Sheets (Financial statements) for last three financial years.
5. Proof of Technical Capability – The Guarantee Technical particulars along with full Technical details and other relevant documents of the equipment previously supplied shall be furnished.
6. Registration Certificates: Copies of documents relating to the Registration of the firm, Registration as Electrical Licensed Contractor, Partnership deed, Articles of Association.
7. Guaranteed Technical Particulars: sheet (Schedule-09) along with full Technical details of the materials/ equipment to be supplied
8. Income Tax Registration: Copy of PAN.
9. GST Registration: Copy of GST registration.
10. Schedules: Filled in Schedules 1 to 11

I. Copies of the following Price Bid documents shall be uploaded in “ATTACHMENTS FOLDER” which will be visible to the Purchaser after Price bid opening only:

1) Price Summary Proposal sheet duly indicating GST, Packing & Forwarding, freight, Transit Insurance charges as per Schedule-A.
2) Any other items/issues related to Price bid/ Price of items which could not be quoted in the Price Bid can also be uploaded.

NOTE: 1) Uploading of Documents in the respective folder of APGENCO e-platform will only be considered. Any wrong attachments will lead to disqualify of the bid.

2) Hard copies shall be submitted by the successful bidder (L1) for verification if asked by the Competent Authority.
1.0 IMPORTANT INSTRUCTIONS TO BIDDERS

The instructions given below must be read very carefully, as failure in compliance with any of these may render the offer liable for rejection. If a bidder has any doubt about the meaning of any stipulation therein, General Purchase Conditions, specification of materials or any other enclosed document, he should immediately obtain the clarification/information in writing from the executive who has issued these documents.

1.1 Procedure for submission of bids in APGENCO e-procurement website:

1. The bidders need to register on the electronic procurement market place of APGENCO, i.e. www.apgenco.gov.in. On registration in the APGENCO e-procurement website market place the bidder will be provided with a user ID and password by the system using which the bidder can submit their bids online. For any queries on registration and online bid submission, in APGENCO e-procurement Website, the bidders may contact HELP DESK of Service provider on https://etender.apgenco.gov.in

2. The guidelines for the bidders participating in APGENCO e-procurement tender are detailed in the website www.apgenco.gov.in.

3. The Bids/Schedules should be in the prescribed form that can be downloaded free of cost from the website https://etender.apgenco.gov.in.

4. The dates stipulated in the Bid notice are firm and under any circumstances they will not be relaxed unless officially extended.

5. Digital Certificate Authentication:
   a. The bidder shall authenticate the bid with his Digital Certificate for submitting the bid electronically on APGENCO e-procurement website. Bids not authenticated by Digital Certificate of the bidder will not be accepted on the APGENCO e-procurement website.
   b. For obtaining Digital Signature Certificate, all the bidders are requested go through Guidelines to bidders for participating in APGENCO e-procurements tenders which is available in the APGENCO e-procurement website.

6. The tenderer should read and understand clearly the general instructions and terms and conditions of the tender document before uploading of documents and submission of the tender. The Bidder is also requested to down load the training Kit, along with above tender document and use the same to acquaint with the procedure. Any offline submission of the bid will be rejected and action will be taken against the bidder according to the norms of APGENCO e-procurement website.

7. The bids shall be submitted online. All the documents to be submitted as soft copies shall be signed & stamped, scanned and uploaded in Zip format. Those documents which shall be submitted as hard copies shall be signed, stamped and sent to reach the tender inviting authority after written request from the tender inviting authority. List of the documents to be submitted in hard copies/soft copies is given in Check List.

8. Any downloading soft copy of the tender documents from the web site is at the sole risk and responsibility of the bidder. APGENCO will not be responsible for any delay/difficulty/inaccessibility of the downloading facility for any reason whatsoever.

9. Amendments/Addendum, if any will also be posted on website for downloading. APGENCO will not hold any responsibility of amendments being or not being kept tracked from time to time by the bidders.
10. The dates stipulated in the Bid notice are firm and under any circumstances they will not be relaxed unless officially extended.

11. The Bid Opening Authority will not consider any documents uploaded after opening date and time.

1.2 EVALUATION OF BIDS:

a) Bids will be processed in two stages (two part bid). In the first stage, the "Bid" under e-procurement package will be opened to assess whether the Bidder qualifies and whether his offer is technically acceptable and substantially responsive. The Purchaser will examine the Bids to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed and whether the Bids are generally in order. The bids of only such Bidders whose bids are technically and commercially in accordance with the specification will be considered for second stage of Price Bid opening/evaluation. The on-line system will not open the price-bids of tenderers who are not qualified in Technical/PQ.

b) A responsive Bid is the one which accepts and fulfils all the terms and conditions of this specifications and documents, supported by the necessary sureties, and are complete in respect of details as requested in the Bid document.

   i) The responsive Bids received will be evaluated by the Purchaser to ascertain the lowest evaluated Bid for complete works covered under these specifications and documents.

   ii) The purchaser is the final authority in deciding the above and his decision cannot be contended

c) If the due date for opening of the tenders happens to be a Public holiday, the opening of the tenders will be done on the next working day at the same time and venue as specified originally for opening. APGENCO reserves the right to amend or modify the tender and its conditions.

d) The Bids will be opened at the time and date specified in the tender notice by the Superintending Engineer or his authorized assistant in the presence of the bidders or their authorized representatives with valid authorization, who may desire to be present.

e) The tenders which contain the full information and which comply with the requirements regarding technical and financial qualifications, experience and equipment will be considered.

f) The APGENCO e-procurement website market place provides an online self-service registration facility to such of the Bidders who are already registered with the respective participating departments for supply of specified goods and services.

g) Intending bidders can contact the O/o. the Superintending Engineer, Hydel-I, APGENCO, 4th Floor, Vidyut Soudha, Vijayawada - 520004 for any clarification /information on any working day during working hours. Phone: 0866 – 2526801.

h) APGENCO reserves the right to respond to any e-mail received by it through their website. APGENCO does not warrant the privacy and/or security of e-mails during internet transmission.

i) APGENCO reserves the right, without prejudice to other rights under terms and conditions of the NIT and tender documents or other remedies available to cancel tenders without assigning any reasons and will not entertain any correspondence in the matter. APGENCO accepts no liability whatsoever and will not be liable for any loss or damage arising directly or indirectly (including special, incidental or consequential loss or damage) from use of APGENCO e-procurement website or from cancellation of tenders.

1.3 Earnest Money Deposit (EMD): Offers must accompany EMD as per summary sheet, S.No.9 of NIT.
1.4 The EMD shall be forfeited, if

i) Bidder withdraws the bid before expiry of its validity.

ii) Successful bidder does not accept the order/LOI or fails to enter in to a contract within validity period of offer.

iii) Successful bidder fails to furnish Security Deposit within 30 days from the date of issue of P.O/ LOI.

iv) The offer is disqualified for the reasons outlined in clause 1.7.

Waiver in respect of SSI Units:
SSI Units registered with either the NSIC or the Dept of Industries/Govt. of AP, are eligible for exemption from submission of EMD, subject to the following conditions.

(a) The Bidder shall submit a copy of the valid certificate of Registration either with NSIC or Govt. of A.P indicating details such as Monetary limit, details of items covered in the registration, validity period of certificate.

(b) The Items offered must be in the list of Items, for which the Firm is registered.

(c) The quoted price shall be less than the monetary limit stipulated in the Registration Certificate.

The BIDDERS who fulfill the above conditions shall apply for EMD exemption, in advance and they shall obtain approval before Offer submission itself. However, please note that exemption will be issued purely at APGENCO’s discretion.

All the bidders shall invariably upload the scanned copies of DD towards EMD or PEMD approval letter/ EMD exemption letter (if applicable), along with the Bid, in e-procurement platform, failing which their offer shall be liable for rejection.

1.5 Permanent/ Standing EMD Holders:

The bidder may deposit with APGENCO, the permanent fixed deposit of Rs.5,00,000/- (Rupees Five Lakhs only) as EMD in the form of DD/Pay order/ Banker’s cheque. In case of BG, it shall be valid for a period of three years constituting the said sum as security for the compliance with the obligation undertaken in the offer submitted by the bidder. No interest will be payable on such amount. Such bidder shall be entitled to have them considered without payment of EMD upto 5 Lakhs with each tender separately. They need to furnish the Registration Certificate Number and shall also furnish a copy of certificate along with the offer.

1.6 The fact of having enclosed the EMD, in requisite forms as indicated (1.3), or bidder holding permanent EMD (1.5), shall be clearly mentioned in their offer, failing which their offer will not be considered for evaluation whatsoever.

1.7 Post tender rebates or deviation in quoted prices and/or conditions or any other such offers which will give a benefit to the bidder will not only be rejected outright but also the original offer will itself get disqualified on this account, and bidders EMD shall be forfeited.

1.8 Bidders may note that due date and time of opening the bids shall be adhered to and accordingly, if they wish to witness the bid opening, they should bring necessary authorization letter from the organization.

1.9 Standard printed conditions of the bidder if uploaded with their offer will not be accepted.

1.10 Validity of offers: The offer shall be valid for period of 180 days from the date of opening of bids. The period of validity cannot be counted from any other date other than the date of opening the bids. During this period bidder shall not be permitted to withdraw or vary their offers, once made and if they do so, the EMD shall be forfeited.
1.11 **Income Tax Certificate**: The bidder shall submit along with their offers, the latest valid Income Tax returns for at least two years during the last three years.

1.12 **Past Experience**: The list of consumers, to whom the bidder had supplied, erected and commissioned identical materials in the past along with P.O details and performance report, if any, shall be furnished.

1.13 **Acceptance of APGENCO Payment Terms**: The bidders will be loaded in price evaluation @ 1.25% of landed cost per month for deviation in payment terms.

1.14 **Price Basis**: Kindly quote FIRM & F.O.R. destination prices. Otherwise, if the quoted rates are Ex-works, Loading @ 2% towards packing and forwarding and 3% towards freight charges will be done.

1.15 **Transit Insurance**: Bidder shall quote FOR Destination prices inclusive of transit insurance charge till such time material is unloaded at Project site including 30 days storage period. All the damaged parts during transit or otherwise, if any, are to be made good or replaced with good ones by the bidder/ supplier irrespective of the settlement of claims with insurance company.

1.16 **Goods & Services Tax**: Kindly indicate clearly as to whether the offered prices are inclusive or exclusive of GST. The rate applicable shall be shown separately. GST will be paid to the seller at the rate which it is liable to be assessed/actually assessed on the date of supply. In case the bidder stipulates GST extra as applicable at the time of dispatch and specifies the present rate of GST (in numeric percentage or NIL), the offer shall be evaluated considering rate of GST for the product as per rate of Govt. of India or as evident from bids received from other bidder. However, liability of APGENCO shall be restricted to actual GST paid at the time of dispatch subject to production of Tax Invoice.

1.17 **Cost Compensation for Deviation**: Deviations specifically declared by the bidders in respective deviation schedules of bid proposal sheets only will be taken into account for the purpose of evaluation. The bidders are required to declare the prices for the withdrawal of the deviations declared by them in the deviation schedules. Such prices declared by bidders for the withdrawal of the deviations in the deviation schedule shall be added to the bid prices to compensate for these deviations. In case prices for the withdrawal of deviations not furnished by the bidder, the APGENCO shall convert such deviations into Rupee value and add to the bid price to compensate for these. In determining the Rupee value of the deviations, the APGENCO will use parameters consistent with those specified in the specification and documents and / or other information as necessary and available with APGENCO. In case the bidder refuses to withdraw the EMD of bidder shall be forfeited. Bidder may note that deviation variations and additional condition etc. found elsewhere in the bid other than those stated in the Deviation schedules, save those pertaining to any rebates, shall not be given effect to in evaluation and it will be assumed that the bidder compiles with all the conditions of bidding documents. In case bidder refuses to withdraw, without any cost to APGENCO, those deviations, which the bidder did not state in the deviation schedules, the EMD of the bidder may be forfeited.

1.18 **Offer**: Offer should strictly be in conformity with technical specifications/ drawings/ samples as stipulated in this tender. In case no deviations are indicated, it shall be taken for granted that item(s) has/have been offered strictly as per the requirements.

1.19 **Delivery Period**:  

A) **Material**: The materials shall be delivered within **Three Months** from the date of approval of drawings. However, the delivery period shall include delivery and acceptance of the material in good condition at site. Drawings shall be furnished within 30 days from the date of acceptance of Purchase Order.
B) Supervision of Erection, Testing & Commissioning (ETC):

Supervision of Erection and Testing & Commissioning of SEE&DAVR for each unit should be completed within 15 days. Contractors personal should reach the project site within 10 days from the date of intimation of readiness of site.

1.19.1 Delivery Schedule

The material shall be offered for inspection at least 10 days in advance to depute APGENCO representative and the material shall be delivered after issue of dispatch clearance. The offered delivery period shall be based on delivery schedule indicated in the tender. In case of any deviation, the bidder shall offer his best, realistic and firm delivery, which shall be specific and guaranteed. For delivery beyond contractual delivery period, provisions of ‘General Purchase Conditions’ shall apply.

1.20 It is not binding on APGENCO to accept the lowest or any bid. The corporation reserves the right to revise the quantities at the time of placing order. The quoted rates, terms and conditions shall apply. APGENCO further reserves the right to accept or reject any/all bids without assigning any reasons thereof.

1.21 Bidders are requested to fill in the enclosed proforma (Schedule-6) for Terms and conditions and submit the same along with their offer.

1.22 Make/Brand of items offered shall be specified. It shall be appreciated if one copy of detailed descriptive literature/pamphlets shall be enclosed along with the offer which may help technical evaluation.

1.23 Amendment of Bidding Documents:

a) At any time prior to the due date & time for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by amendment through e–platform.

b) In order to allow prospective Bidders reasonable time to make the amendment into account in preparing their bids, the Purchaser may, at his discretion, extend the due date & time for the submission of bids.

1.24 Language of Bids: The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in English language only.

1.25 Documents Comprising Online Bid:

List of all documents which shall be submitted as softcopies/ hardcopies are given in the Check List. The documents which shall be submitted as softcopies shall be signed, stamped and scanned and uploaded during bid submission. The documents which shall be furnished as hardcopies shall be signed, stamped and sent only when requested by the tender inviting Authority by the successful bidder.

1.26 Articles of Association:

a) All Bids must be accompanied by duly authenticated copies of the documents defining the constitution of the company, power of attorney and other relevant documents, and any bid submitted by a partnership firm must be accompanied by duly authenticated extracts from the partnership deed or other documents, so as to show by which person and in what manner contracts may be entered into by or on behalf of the company, partnership for the due execution of such contracts and responsibilities.

b) The said documents must be legalized by the local authorities at the place of issue. Such documents should indicate current address of the firm and full name and current address of all partners of the firm.
c) Any Bid not containing these documents, or if such documents are incomplete, or do not confirm to the aforesaid forms, may at the discretion of the Purchaser be excluded from the judicature.

1.27 The Purchaser may, at his discretion, extend the due date & time for the submission of bids through online corrigendum. However, all rights and obligations of the Purchaser and Bidders previously subject to the due date & time will thereafter be subject to the due date & time as extended.

1.28 **Date of Commencement of Contract:**

The date of issue of LOI/PO is the date of commencement of contract. The contractor will have to complete all the formalities like submission of Security Deposit etc. within 30 days of issue of LOI/PO. Any delays in complying with the above formalities will be to the account of the contractor.

1.29 **Authentication of Bidding:**

a) If the tender is made by an individual, it shall be signed by the individual above his full name and current address.

b) If the tender is made by a proprietary firm it shall be signed by the proprietor above, his full name and the full name of his firm with its current address.

c) If the tender is made by a firm in partnership, it shall be signed by all the partners of the firm above their full names and current address, or by a partner holding the power of attorney for signing the tender in which case a certified copy of the power of attorney shall accompany the tender. A certified copy of the partnership deed, current address of the firm and the full names and the current addresses of all the partners of the firm shall also accompany the tender.

d) If the tender is made by limited company or a limited corporation, it shall be signed by a duly authorized person holding the power of attorney for signing the tender in which case a certified copy of the power of attorney shall accompany the tender. Such limited company or corporation may be required to furnish satisfactory evidence of its existence before Contract is awarded.

e) If the tender is made by group of firms, the sponsoring firm shall submit complete information pertaining to each firm in the group and state along with the bid as to which of the firms shall have the responsibility for tendering and for completion of the Contract document and furnish evidence admissible in law in respect of the authority assigned to such firm on behalf of the group of firms for tendering and for completion of the Contract document. The full information and satisfactory evidence pertaining to the participation of each member of the group of firms in the tender shall be furnished along with the tender.

f) The documents or information as required by paras “(a) to (e)” herein above must be uploaded by the tenderer.

g) All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses’ shall be stated below their signatures.

h) All signatures in the tender documents uploaded shall be dated.

**Note:**

1. Bidder need to upload the relevant documents satisfying the eligibility criteria beyond doubt.

2. Regarding satisfactory performance of previously executed orders, the End User issued certificates are only valid, but not others (like Certificate issued by Main Contractor to Sub Contractor etc.,)
2.0 GENERAL PURCHASE CONDITIONS

2.1 The following terms and expressions herein used shall have the meaning as indicated therein:

Supplier/ Vendors: Shall mean the individual; firm or company whether incorporated or otherwise in whose name this purchase order is addressed and shall include its permitted assigns and successors.


2.2 Reference: This purchase order number must appear on all the correspondence, packing slips, invoices, drawings or any other document or paper connected with this purchase order.

2.3 Specifications and drawings: Any information or details which are included in the specification but not indicated in the drawings and vice-versa shall have the same effect and meaning as if included for and shown both in the specifications and drawings. In case of any dispute between the specifications and drawings, the decision of the Corporation or its authorized representative shall be final and binding.

2.4 Additions/ Alterations/ Modifications: The Corporation reserves the right to make additions/ alterations/ modifications to the quantity of items in the purchase order. The supplier shall supply such quantities also at the same rate as originally agreed to and incorporated in the purchase order. The variation shall, however, be limited to +/- 20% of the quantity ordered.

2.5 Waiver: Any waiver by the authority or any breach of the conditions of the purchase order shall not constitute any right for subsequent waiver of any other terms and conditions.

2.6 Subletting and Assignment: The supplier shall not, except with prior consent in writing of the Corporation, sublet, transfer or assign this order or any part thereof or interest therein or benefit or advantage thereof in any manner, whatsoever. Provided nevertheless that any such consent shall not relieve the supplier from any obligation, duty or responsibilities under the contract.

2.7 Information Provided by the Corporation: All drawings. Data and documentation that are given to the suppliers by the Corporation for the execution of the order are the property of the Corporation and shall be returned when demanded. Except for the purpose of executing the order of the Corporation, supplier shall ensure that the above documents are not used for any other purpose. The supplier shall further ensure that the information given by the Corporation is not disclosed to any person, firm, body, corporate and/or authority and every effort that the above information is kept confidential. All such information shall remain the absolute property of the Corporation.

2.8 Name Plate: Equipment should be provided with name plate giving full details of manufacture, capacity and other details as specified in the relevant IS or other specification stipulated. The purchase order number, date and year of supply and the words “APGENCO” must be etched on the name plate.

2.9 Interchangeability: All similar materials and removable parts of similar equipment shall be interchangeable with each other. A specific confirmation of this should be furnished along with the invoices for the supplies.

2.10 Materials & Workmanship: Supplier shall fully warrant that the stores, equipment and component supplied against the purchase order shall be new and first quality, according to the specifications and shall be free from defects (even concealed faults, deficiency in design, materials and workmanship).
2.11 **Spare Parts, Oil & Lubricants:** Whenever applicable, the supplier shall furnish to the Corporation, item-wise price list of spares required for five-year operation & Maintenance of the equipment. The supplier shall also furnish necessary instructions and drawings to identify the spare part numbers and their locations as well as on interchangeability chart. The supplier shall recommend the quality of oils & lubricants required to be used for un-interrupted operation (at least for one year) of the equipment supplied against this order.

2.12 **Supplier’s liability:** Supplier hereby accepts full responsibility and indemnifies the Corporation and shall hold the Corporation harmless from all acts of omission and commission on the part of the supplier, his agents, his subcontractors and employees in execution of the purchase order. The supplier also agrees to defend and hereby undertakes to indemnify the Corporation and also hold it harmless from any and all claims for injury to or death of any and all persons including but not limited to employees and for damage to the property arising out of or in connection with the performance of the work under the purchase order.

2.13 **Access to supplier’s Premises:** The Corporation and /or its authorized representative shall be provided access to suppliers and / or his sub-contractor’s premises, at any time during the pendency of the purchase order, for expediting the supplies, inspection, checking etc.

2.14 **Modifications:** This purchase order constitute an entire agreement between the parties hereto. Any modification to this order shall become binding only upon the same being confirmed in writing duly signed by both the parties.

2.15 **Inspection/checking/testing:** All materials/ equipment to be supplied against this purchase order shall be subject to inspection/checking/testing by the Site engineers/ authorized Quality control department representative/Engineer from Head Quarters at all stages and places, before, during and after the manufacture. All these tests shall be carried out in presence of Site engineers/ authorized Quality control department representative/Engineer from Head Quarters of the Corporation. Supplier shall notify the corporation for the inspection of materials/ equipment when they are ready, giving at least 10 days notice. If upon receipt at our stores, the materials / equipment do not meet the specifications, they shall be rejected and returned to the supplier for repair/ modification etc., or for replacement. In such cases all expenses including to and fro freight, repacking charges, transit insurance etc., shall be to the account of supplier.

Inspection by the authorized representative of the Corporation or failure of the Corporation to inspect the material/ equipment shall not relieve the supplier of any responsibility or liability under this purchase order in respect of such materials /equipment not be interpreted in any way to imply acceptance thereof by the Corporation. Whenever specifically asked for by the Corporation, the supplier shall arrange for inspection/ testing by institutional Agencies such as Lloyd’s Register of Industrial services, Boiler Inspectorate, RITES etc. In such cases vendor shall adhere to the inspection / testing procedures laid down by such agencies. All expenses including inspection fees shall be to the suppliers account unless agreed to the contrary and specified in the purchase order.

*Accommodation and local conveyance shall be provided by the suppliers for the APGENCO/Third party representatives during inspection.*

2.16 **Packing and Marking:** All materials/equipment shall be securely packed to the requirement of transportation by Rail/Road/Sea transport. All exposed services/ connections/ protrusions shall be properly protected. All unexposed part shall be packed with due care and the packages should bear the words ‘Handle with Care’. The packing requirements of Rail/ Road transport shall be complied with so as to obtain clear Railway/ Lorry Receipt i.e. without any qualifying remarks.
All packages and unpacked materials shall be marked with the name of the Consignor, Consignee, Purchase Order No., gross and net weight, sign of handling, if any, with indelible paint in English at least at two places. In case of bundles, metallic plates marked with the above details shall be tagged with such bundles.

2.17 Despatch of materials: The equipment & material shall be dispatched only after issuance of MDCC from the Chief Engineer/HPC & Hydel Projects. The supplier is responsible for the safe delivery of the goods in good condition at destination stores. The supplier should acquaint himself of the conditions obtaining for handling and transport of the goods to destination and shall include and provide for security and protective packing of the goods so as to avoid damage in transit. After packing the materials / equipment those shall be dispatched strictly as per the provision of purchase order. In case any changes in the mode of transportation and / or transporter has to be done, the same shall be done only after obtaining prior approval in writing. Normally the goods shall be dispatched through our approved transporter only. All formalities related to allotment of wagons, loading permission from railways shall be completed by the supplier. The supplier shall communicate immediately the dispatch details to the consignee as specified in the purchase order. The original despatch documents shall be forwarded immediately, failing which the supplier shall be responsible for any delay in payment and consequential payments of demurrages and wharfages to the transporter, if any.

2.18 Demurrage/wharfage:
   i. Dispatch of materials not through authorized transporter
   ii. Late receipt of invoice or due to violation of any other clause(s) of the purchase order will be to supplier’s account. Supplier shall also be responsible for all such payments due to late receipt of RR/LR and other documents.

2.19 Acceptance of order: The Purchase orders shall be sent to supplier in duplicate and he shall return one copy along with enclosures, duly signed and stamped, within 7 days in token of having received and accepted the order.

2.20 Jurisdiction: All and any dispute or difference arising out of or touching this order shall be decided only by the courts or Tribunals situated in Hyderabad/ Secunderabad/ Vijayawada.

For the purpose of any legal obstruction, the material, spares etc. should be deemed to pass into company’s owner ship only at the destination stores where they are delivered and accepted.

2.21 Guarantee Period: The equipment shall be guaranteed for satisfactory operation for a period of 24 months from the date of receipt of last delivery at stores in good condition or 18 months from the date of commissioning, whichever is earlier. If during the period of guarantee any of the material is found defective and / or fail in test or operation, such materials shall be repaired or replaced by the contractor free of cost to APGENCO irrespective of their reimbursements from the insurance company within reasonable time which shall in no circumstances be more than 15 days or such other reasonable time as APGENCO may deem proper to afford, failing which the cost of the failed units will be deducted from subsequent bills/ Bank Guarantees.

2.22 Drawings: The detailed drawings and bill of materials shall be furnished within 30 days from the date of acceptance of P.O and got approved by APGENCO before manufacturing.

2.23 LABOUR CONDITIONS:
   a) The Supplier/contractor shall comply with the labour laws as may be current and shall furnish the returns and information as may be specified from time to time.
b) The Supplier/contractor should have the labour license, labour insurance and EPF registration for the labour engages for the work and shall furnish to the Engineer-in-charge before commencement of work.

c) The Supplier/contractor shall as far as possible, obtain his requirements of labour, skilled/unskilled from the local area. No person below the age of 18 years shall be employed as labour.

d) The Supplier/Contractor shall provide reasonable facilities to the satisfaction of the Engineer-in-charge for the laborers employed by him where no such natural facilities exist. The usual facilities are weather proof shelter for rest and meal, supply of drinking water, reasonable washing and sanitary facilities, suitable residential and cultural activities: general sanitation and health measures etc.

e) The implementation of any and all provisions of this clause shall in no way entitle the contractor to claim compensation or rates higher than those tendered in the contract.

f) The supplier/contractor has to make his own arrangements in respect of ventilation facilities to his personnel working inside the power house. No extra claims shall be entertained in this regard.

2.24 SAFETY OF STAFF AND LABOURERS:

The supplier/Contractor shall provide and make all necessary arrangements for safety of staff and laborers at site of work. The Owner will not, in any way be responsible for any accident minor, major or fatal to any person at the site of works or for any damages arising there from during erection, testing and commissioning and putting them into commercial operation which shall be the supplier/Contractor’s sole responsibility. The staff insurance charges, if any, shall also be borne by the Supplier/Contractor.

2.25 SECURITY MEASURES:

Security requirements for the erection works shall be in accordance with the Government’s general requirements including other provision as set out below in this clause and the Contractor shall conform to such requirements and shall be held responsible for the actions of all his staff, employees and the staff and employees of his sub-contractor.

All Contractor’s employees, representatives and sub-contractor’s employees shall wear identification badges provided by the Contractor, showing employee number and shall be worn at all time while at the site.

All vehicles used by the supplier/Contractor shall be clearly marked with the Contractor’s name.

The Supplier/Contractor shall be responsible for the security of the erection work for the duration of the contract and shall provide and maintain continuously adequate security personnel to fulfill these obligations. The requirements of security measures shall include, but not be limited to maintenance of order on the site, provision of all lighting and all other measures necessary for the protection of the works with in the work site, all material delivered to the site, all persons employed in connection with the works, continuously throughout working and non working periods including nights, Sundays and holidays for the duration of the Contract.

Other contractors working on the site concurrently with the Contractor will provide security for their own parts and materials. However, their security provision shall in no way relieve the supplier/Contractor of his responsibilities in this respect.

Separate payments for provision of security services will not be made and the cost of this work shall be deemed to have been included in the cost of the items of the contract.
2.25 **LIGHTING AND FIRE PROTECTION:**

Temporary lighting required at the work spot shall be provided, installed, maintained and removed by and at the expense of the contractor.

The Supplier/Contractor shall provide and maintain adequate, ventilating system, temporary Firefighting equipment and take necessary fire preventive measures for the safety of all personnel and temporary/ permanent works and shall take action to prevent damage to or destruction by fire.

Separate payment will not be made for the provision of ventilating system, temporary testing appliances required for erection, testing and commissioning and shall be contractor's liability.

2.27 **INSURANCE & EPF:**

The tenderer should have obtained independent EPF Account code in his name, from the competent authority and all cost of such work shall be deemed to have been included in the cost of Contract Prices.

2.28 **COMPLETENESS OF CONTRACT:**

Erection and commissioning of any fittings, accessories or apparatus which may not have been specifically mentioned in these specifications, but which are usual or necessary in the equipment of similar plant or for the efficient working of the plant shall be deemed to be included in the contract. The same shall be erected and tested by the supplier without extra charges in all respects whether such details are mentioned in these specifications or not.

Terms and conditions given in this clause shall be applicable to the extent of Supervision of Erection / Testing and Commissioning works. All material/ instruments, tools and tackles and manpower, authority required shall be arranged during commissioning works.

The supplier/contractor shall have to make his own arrangement for insurance of his tools, takes and other materials as well as to cover the injury or accidents to his erection personnel, who will be engaged in erection work, or otherwise. The Contractor should also bear responsibility under third party liability limited to the insurance coverage applicable. The contractor has to make EPF contributions in respect of the personnel employed by him and proof of payment of such contributions to the EPF Commissioner has be produced when called for.

**NOTE:**

The tender scope

1. Bidders are requested to visit the NSRCPH (3 X30 MW) for ascertaining the scope of present tender before submission.

2. If the prospective bidders have any queries regarding this tender after the above site visit, they may mail their queries to se-hpc1@apgenco.gov.in. OR ce-hpc@apgenco.gov.in before THREE 3 days to Date of Pre Bid meeting.

3. Pre-bid meeting will be conducted on .0 .2020 and the queries of the prospective bidders will be addressed.

  Sd/-
  Superintending Engineer
  (Hydel -I)/APGENCO
3.0 FINANCIAL

3.1 Prices: Price(s) mentioned in the purchase order shall be firm and not subject to escalation on any account, till the order is executed in full and its subsequent amendments accepted by the supplier even though the completion/execution of order may take longer time than delivery period incorporated and accepted in purchase order.

3.2 Taxes and Levies: Taxes and other levies payable shall be shown separately in the invoice. These shall be to the account of Corporation, unless otherwise mentioned in the purchase order.

3.3 Variations in Statutory Levies: Any variation, upward or downward, in statutory levies or new levy is introduced after opening of the bids/placement of order under this purchase order shall be to the account of the Corporation, unless otherwise mentioned in the P.O. provided that the delivery is completed within the contractual delivery schedule. In cases where delivery schedule is not adhered to by the supplier and there are upward variation/revision after the agreed delivery date, the bidder/supplier shall bear the impact of such increased levies and if there is downward variation/revision, the corporation shall be given advantage to that extent.

All royalties for patent or charges for the use or infringement thereof that may be involved in the construction or use of any equipment/Softwares shall be included in the bid price. The bidder/supplier shall protect the Corporation against any and all claims arising on account of the use thereof and the Corporation agrees to furnish the supplier any appropriate information or assistance.

3.4 Security Deposit (SD)

a) The successful bidder shall furnish within 30 days from the date of issue of LOI/PO (if the value of order is above Rs.2,00,000/-) security deposit equal to 2.5% of value of purchase order for full execution of Purchase order thereof.

b) Security deposit may be furnished in the shape of Demand Draft/BC/Pay order drawn on any nationalized/Scheduled/Public Sector Banks payable to APGENCO or bank guarantee in lieu of cash from any Nationalized/Scheduled/Public Sector banks in prescribed proforma as per Annexure-3 (Bank Guarantee shall be accepted only if amount of SD is above Rs.10,000/-) or Government Securities duly endorsed in favour of APGENCO. However, the Bank guarantee shall be valid till the end of guarantee period with a claim of 6 months over and above the guarantee period and the validity of the bank guarantee shall be extended suitably in case of delay in execution of Purchase order.

c) Security Deposit payment is exempted for SSI/NSIC units.

d) The security deposit amount shall be forfeited to the extent of financial loss suffered by the Corporation, if supplier fails to execute the order and fulfill its terms and conditions.

e) The Security deposit shall be returned promptly to the supplier as soon as order is fully executed and there is nothing outstanding either against this purchase order or any other purchase order placed by the corporation on the supplier.

3.5 Terms of payment:

3.5.1 The standard payment terms shall be:

A) MATERIAL PORTION:

i) Within the contractual delivery period: 75% of the all inclusive price of the materials supplied shall be paid within 30 days after receipt and acceptance of the material in good condition at site against furnishing of Bank Guarantee (as per
Annexure-4 enclosed) for 10% value of the contract covering the guarantee period and on presentation of the contractor’s commercial invoice.  
20% payment shall be paid within 30 days after DRY commissioning, unit wise and balance 5% payment (Unit wise) shall be paid within 30 days after successful commissioning. 

ii) **Beyond the contractual delivery period**: 70% of all inclusive price of the materials shall be paid within 30 days after receipt and acceptance of the material in good condition at site against furnishing of Bank Guarantee (As per Annexure-4 enclosed) for 10% value of the contract covering the guarantee period and on presentation of the contractor’s commercial invoice.  
20% payment shall be paid within 30 days after DRY Commissioning, unit wise and balance 10% payment (Unit wise) shall be paid within 30 days after successful commissioning, subject to effective performance of the contract and settlement of liquidated damages etc.

**C) ERECTION, TESTING & COMMISSIONING:**

90% Payment of the all inclusive price of Supervision of erection, testing & commissioning charges for shall be paid within 30 days after completion of Dry Commissioning, Unit wise and on presentation of the contractor’s commercial invoice.  
Balance 10% Payment of the all inclusive price of Supervision of Erection, Testing & Commissioning charges shall be paid within 30 days after successful completion of Erection, Testing & Commissioning in complete shape, Taking over of entire system and complete fulfillment of all the contractual obligations under this contract and on presentation of the contractor’s commercial invoice and Subject to effective performance of the contract and settlement of liquidated damages etc.

3.5.2 Payments shall be made through account Payee CHEQUES ONLY.

3.5.3 If the supplier has received any over payments by mistake or if any amounts are due to the Corporation due to any other reasons, when it is not possible to recover such amount under the contract resulting out of this purchase order, the Corporation reserves the right to collect the same from any other amounts and/or Bank Guarantee given by the supplier due to or with the Corporation.

3.5.4 When the supplier does not at any time fulfill his obligations in replacing/rectifying etc., of the damages/defective materials in part or whole, promptly to the satisfaction of the corporation’s officers, the corporation reserves the right not to accept the bills against subsequent dispatches made by the supplier and under these circumstance only the supplier will be responsible for any demurrage, wharfage or damages occurring to the consignments so dispatched.

3.6 **Liquidated damages/ failure and termination:**

3.6.1 In the event of any delay in the supplies of ordered materials and /OR delay in execution of Services (ETC) in this contract, beyond the stipulated date of delivery/ delivery schedule including any extension permitted in writing, the Corporation reserves the right to recover from the supplier a sum equivalent to 0.5% of the delayed materials/ work for each week of delay or part thereof subject to a maximum of 5% of the total value of the order.

3.6.2 Alternatively, the Corporation may resort to purchase the materials/ equipment from elsewhere at the risk and cost of the supplier and recover all such extra cost incurred by the Corporation in procuring the materials by above procedure.

3.6.3 Alternatively, the Corporation may cancel the purchase Order completely or partly without prejudice to its right under the alternatives mentioned above.

3.6.4 In case of recourse to alternative 3.6.2 and 3.6.3 above, the Corporation shall have the right to repurchase the materials which are readily available in the market to meet the
urgency of requirements caused by supplier’s failure to comply with the scheduled delivery period irrespective of the fact whether the materials /equipment are similar not.

3.7 **Performance Bank Guarantee:** The supplier shall ensure that all materials/ equipment under this purchase order shall conform to Corporation’s requirements and specifications. An additional security in the form of Performance Bank Guarantee is essential for satisfactory performance of the equipment over a period of time. In view of this, the suppliers of equipment/ instruments/ machinery shall be required to furnish a Bank Guarantee (10% of All inclusive price/ order value) against any manufacturing defects/ poor workmanship/ poor performance valid till the guarantee period and with a claim period of 6 months over and above the guarantee period. In case any deficiencies are found during guarantee period, the same shall be repaired/rectified/replaced free of cost. BG shall be from any Nationalized /Public Sector/Schedule Bank in the prescribed proforma and got approved by APGENCO. **OR** otherwise, 10% of order value shall be deducted from the bills, if the supplier fails to furnish the Performance bank guarantee. The deducted 10% performance guarantee amount shall be released after expiry of guarantee period.

3.7.1 The Corporation shall at its discretion have recourse to the said Bank Guarantee for recovery of any or all amount due from the supplier in connection with the purchase order including of the Guarantee obligations. Checking/approval of supplier’s drawings, inspection and acceptance of materials/equipment furnishing to effect shipment and /or work done by erection, testing and commissioning of the equipment by Corporation or any other agency on behalf of the Corporation shall not in way relieve the supplier from the responsibility for proper performance during the Guarantee period.

3.8 **Insurance:** Supplier shall arrange suitable transport insurance cover at their risk and cost.

3.9 **Removal of Rejected Goods and Replacement:**

a) If upon delivery, the material/ equipment is found not in conformity with the specifications stipulated in the purchase order, whether inspected and approved earlier or otherwise, those shall be unacceptable to the Corporation or its authorized representative. A notification to this effect shall be issued to the supplier, normally within 30 days from the date of receipt of materials at our stores.

b) Supplier shall arrange suitable replacement supplies and remove the rejected goods within 30 days from the date of notification failing which, the goods shall be dispatched to vendor by road transport on ‘freight to pay basis’ at suppliers risk and cost.

c) External damages or shortages that are prima-facie the results of rough handling in transit or due to defective packing shall be intimated within a fortnight of the receipt of the materials, spares etc.. In case of internal defects, damage or shortages or any internal parts, which cannot ordinarily be detected on a superficial visual examination, though due to bad handling in transit or defective packing should be intimated within 3 months from the date of receipt of these articles. In either case the damaged or defective materials should be replaced by the supplier free of cost to the company.

d) If no steps are taken within 15 days of receipt of intimation of defects or such other reasonable time as corporation may deem proper to afford, the company may without prejudice to its other rights and remedies arrange for repairs/ rectification of the defective materials or replace the same and recover the expenditure incurred from the deposits such as EMD, SD and performance guarantees or other monies available with the company or by resorting to legal action.

e) However, if any advance payment had been made by the Corporation for the goods so rejected on technical ground, rejected materials shall be returned to the supplier after receipt of suitable replacement supplies. If the supplier does not settle the
rejection within a period of 60 days from the date of notification from stores, rejected goods shall be sent back to supplier at his risk and cost.

3.10 Force Majeure:

3.10.1 The supplier shall not be liable for any delay or failing to supply the materials/equipment for reasons of Force Majeure such as Acts of God, Acts of War, Act of Public Enemy, Natural calamities, Fires, Floods, Frost, Strikes, Lockouts etc. Only those causes which have duration of more than 7 days shall be considered for force majeure.

3.10.2 The vendors shall within 10 days from the beginning of such delay notify to the Corporation in writing the cause of delay. The corporation shall verify the facts and grant such extension of time as facts justify.

3.10.3 No price variation shall be allowed during the period of force majeure and Liquidated damages would not be levied for this period.

3.10.4 At the option of the Corporation, the order may be cancelled. Such cancellation, would be without any liability whatsoever on the part of the Corporation. In event of such cancellation, supplier shall refund any amount advanced or paid to him by the Corporation and release the facilities, if any provided by the Corporation.

3.11 Cancellation of Order: The Corporation reserves the right to cancel the order in part or in full by giving two weeks’ notice there by if

- The supplier fails to comply with any of the terms of the order.
- The supplier becomes bankrupt or goes into liquidation.
- The supplier makes general assignment for the benefit of the creditors and
- Any Receiver is appointed for the property owned by the supplier.

Sd/-
SUPERINTENDING ENGINEER
(HYDEL -I)/APGENCO
4.0 TECHNICAL SPECIFICATION
DVR TECHNICAL SPECIFICATION

4.1 SCOPE:

The scope of this specification covers Design, manufacture, supply, Inspection & testing at manufacturer’s works before dispatch, delivery on F.O.R. project site basis, Supervision of Erection, Testing & Commissioning of 3 sets of Digital voltage regulator (DVR) based Static Excitation Equipment (SEE) for 3 Nos. power Generating units (3x30MW) at Nagarjunasagar Right Canal Power House, Andhra Pradesh. Inter panel and Intra panel wiring of Supplied equipment including all necessary materials eg. wires, Ferrules etc., is in contractor scope.

4.2 LIMITS OF CONTRACT:

The scope of the contract shall not be limited to the items or equipment scheduled in the specification. Any item or equipment occasionally required for satisfactory performance of the equipment or completeness of the contract shall be deemed to have been included in the scope of supply and shall be complete in themselves, unless otherwise stated.

4.3 TECHNICAL DETAILS OF DIGITAL VOLTAGE REGULATOR (DVR) BASED STATIC EXCITATION EQUIPMENT (SEE):

The excitation system shall build up the voltage, in full auto mode, with an ‘ON’ command, through AC/DC field flashing circuits, after attaining 90% of rated speed. The voltage shall be adjustable between 90% to 110% of rated voltage for auto channel and 0-110% for manual channel. Response shall be very fast to maintain system stability. The system shall also have the facility to test the generator for OC and SC characteristics whenever required.

The digital voltage regulator with integrated power converters (2 Nos.) each capable of catering the field current requirement of Generator at 10% above the rated output independently shall be supplied. It shall have two identical excitation modules/channels with each module/ channel having Auto and Manual modes of operation separately. Hence the excitation system shall consist of 2 identical Excitation modules/channels and a common I/O system. One of either channel is HOT standby.

The Excitation system shall be suitable to unit– I to III of Nagarjunasagar Right canal power house, whose technical particulars are mentioned below.

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Description</th>
<th>value</th>
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<tbody>
<tr>
<td><strong>I.</strong> Technical particulars of Generator (Unit – 1 to 3)</td>
<td></td>
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<tr>
<td>a.</td>
<td>Capacity</td>
<td>30.6 MW / 36 MVA</td>
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<tr>
<td>b.</td>
<td>Rated Voltage</td>
<td>11 KV</td>
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<tr>
<td>c.</td>
<td>Full Load Current</td>
<td>1890 A</td>
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<tr>
<td>d.</td>
<td>Rated Frequency</td>
<td>50 Hz</td>
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<tr>
<td>e.</td>
<td>Rated Power Factor</td>
<td>0.85 lag</td>
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<tr>
<td>f.</td>
<td>Rate Speed</td>
<td>150 rpm</td>
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<tr>
<td>g.</td>
<td>Type of Rotor</td>
<td>Salient pole type</td>
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<td><strong>II.</strong> Excitation system requirements:</td>
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<td>--------------------------------------------------</td>
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</tr>
<tr>
<td>a.</td>
<td>No load Current</td>
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<td>b.</td>
<td>No load Field Voltage</td>
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<tr>
<td>c.</td>
<td>Nominal Current</td>
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<tr>
<td>d.</td>
<td>Nominal Field Voltage</td>
<td></td>
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<tr>
<td>e.</td>
<td>Field Current (max-continuous):</td>
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<tr>
<td>f.</td>
<td>Field Current (max-10sec)</td>
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<tr>
<td>g.</td>
<td>Field Voltage (max-10sec)</td>
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<tr>
<td>h.</td>
<td>Field resistance</td>
<td></td>
</tr>
<tr>
<td>i.</td>
<td>Direct axis synchronous reactance (un saturated)</td>
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<td>j.</td>
<td>Direct axis transient reactance (un-saturated)</td>
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<tr>
<td>k.</td>
<td>Direct axis sub-transient reactance (un saturated)</td>
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<tr>
<td>l.</td>
<td>Quadrature axis synchronous reactance (unsaturated)</td>
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<tr>
<td>m.</td>
<td>Quadrature axis transient reactance</td>
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<tr>
<td>n.</td>
<td>Quadrature axis sub-transient reactance</td>
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<tr>
<td>o.</td>
<td>Direct axis open circuit time constant</td>
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<td>p.</td>
<td>Armature time constant</td>
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<tr>
<td>q.</td>
<td>Station DC control supply</td>
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<td>r.</td>
<td>Ambient Temperature</td>
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<td>s.</td>
<td>Humidity</td>
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<tr>
<td>t.</td>
<td>Station Auxiliary AC supply</td>
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<tr>
<td></td>
<td>381V, 943A, continuously obtainable at 9KV supply voltage</td>
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<td></td>
<td>521V, 1289A for 5.68 Sec for field forcing</td>
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<td></td>
<td>0.253 Ohm at 18°C</td>
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<td></td>
<td>0.75 p.u</td>
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<td>0.2 p.u</td>
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<td>0.16 p.u</td>
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<td>0.46 p.u</td>
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<td>0.46 p.u</td>
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<td>0.21 p.u</td>
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<td>220V DC</td>
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<td>45°C</td>
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<td></td>
<td>75%</td>
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<td>415v, 3 ph</td>
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**4.4 Excitation Transformer:** Excitation system shall be designed for the existing excitation transformer, whose details are given below. Supplier can also offer with Different Excitation Transformer, in which case supply of the same shall also be in bidder’s scope and price of the same shall be included during determining lowest bidders.

- Rating of the transformer: 728 KVA
- Primary Voltage of the transformer: 11KV
- Secondary Voltage of the transformer: 533V
- Vector Group: Yd11
- Impedance: 9.95 for Unit No. 1 & 2
- 10.1 for Unit No. 3

**4.5 The Digital voltage regulator (DVR) based Static excitation equipment (SEE) shall consist of the following equipment.**

**4.5.1 DIGITAL AUTOMATIC VOLTAGE REGULATOR:**

Microprocessor based Regulation panel consisting of hardware, interface, Power supply and associated software necessary for the following features:

(i) Dual channel voltage regulator i.e., 2 independent channels, each with auto and manual modes of field voltage/current control with auto tracking and bump less transfer and Hot standby between channels.
Reference value tracking should be available between Channel-I & II and between Auto & Manual to facilitate bump less control transfer from Channel-I to Channel-II and from Auto to Manual.

(ii) Shall have redundant power supply units, which shall generate all the voltages required for excitation system’s internal operation, from the 220 V Station DC and 533V excitation transformer secondary voltage.

(iii) Shall have Redundant measuring units, which are responsible for processing all the incoming and outgoing analog signals such as PT voltage, Generator current, synch. Voltage, field voltage, field current etc.,

(iv) Auto channel – (Digital) consisting of

1. Automatic voltage regulator with
   a. Reference value setting: Shall have 100% as default reference value and can be changeable from 90% to 110% of rated voltage.
   b. V/Hz limiter: To maintain the healthy ratio between voltage and frequency so as to avoid over fluxing of the cores of GT etc.
   c. Rotor current limiter: To limit the rotor current according to the thermal capability of the rotor.
   d. Stator current limiter: To limit the stator current according to the thermal capability of the stator.
   e. P/Q limiter: To limit the machine loading according to the capability curve of the machine.
   f. Load angle limiter/Minimum excitation limiter: To limit the minimum excitation current to prevent machine falling out of synchronism.
   g. Power system stabilizer: To extend the angular stability limits of a power system by providing supplemental damping to the oscillation of synchronous machine rotors through the generator excitation.
   h. Soft start facility: To start excitation smoothly and to avoid over–shoot during voltage build–up
   i. Power factor Control: Shall be able to maintain the set power factor when pf control mode is selected.
   j. reactive power control: Shall be able to maintain the set reactive power flow when VAR control mode is selected.
   k. Follow up controller: Auto and Manual Modes in each excitation Channel and both the excitation channels shall follow/track each other, so as to enable bump less transfer during emergency/manual changeover, among Auto to Auto or Auto to Manual.

   Reference value for Standby Auto Mode should Track, Follow up & Update the Reference value of Auto Mode of Main Operating Channel for Bump less transfer between AUTO modes of TWO Channels.

   Manual mode reference value has to Track, Followup and Update to the respective AUTO Mode reference value continuously for Bump less transfer between AUTO & Manual modes of Operation.

l. Pulse supervision: Shall supervise the pulses up to thyristor/pulse transformers to facilitate alarm and trouble shooting.

m. Shall automatically match the machine voltage to the Bus voltage to facilitate easy synchronization and/or in accordance with the commands of Auto synchroniser.
n. Equipment necessary to conduct and prepare reports for Step-response test on the machines shall also be included in the scope like data capturing, data storing and laser colour printer etc., Step-response test and PSS tuning is to be performed and reports furnished for all the THREE Generators as part of commissioning of DVRs.

Manual channel – 1 no. (Digital)

1. Field current regulation with reference value setting from 0- 110% of the rated current.

2. Pulse supervision.

4.5.2 Logic & Control function: The logic & control functions shall include necessary hardware, communication interface, and power supply and associated software for interlocks, control, protection, indications and remote signaling, rotor temperature measurement & indication.

Excitation system shall have interlock/logic to switch off excitation and field breaker, only after ensuring ‘switched off’ condition of Generator circuit breaker and Switch ON Excitation/Field Breaker when the Generator speed is greater than 90%.

Excitation system shall invert the pulses before switching off the excitation/field breaker to facilitate minimum current breaking.

It shall also be capable of delivering the excitation power to the machine

4.5.3 Human Machine Interface (HMI)

1 No. HMI system shall be provided with LCD/LED display with necessary push buttons and indication lamps and shall be responsible for:

a. Local operation of the AVR.

b. Monitoring of actual measured values.

c. Modification or adjustment of settings.

d. Display of alarms, settings, faults/events related to controller, converter bridges, and all the auxiliary equipment with fault logging up to a minimum of 100 previous faults/events with time tagging of at least 1ms interval.

e. Password protection.

f. Uploading and downloading of application program and settings.

g. The system shall communicate to the control room SCADA system through Ethernet.

h. shall have following controls.

1. Excitation on/off.

2. Field breaker on/off.

3. Channel selection – Channel 1 /channel 2.


5. Reference value Raise/Lower.

i. shall have the following meters.

1. Ammeter for generator current.

2. Voltmeter for generator voltage.


4. Excitation current.
5. Excitation voltage.
6. Generator power factor
j. shall have the following indication lamps.
   1. Excitation ON and OFF.
   2. Field Breaker ON and OFF.
   3. Channel 1 in service.
   4. Channel 2 in service.
   5. Auto channel ON.
   6. Manual channel ON.
   7. Field Breaker Trip Circuit healthy
   8. DAVR PT fuse fail
   9. Thyristor bridge 1/2 faulty

4.5.4 Excitation transformer instantaneous and time delayed over current protection system.

4.5.5 Rotor Earth fault Protection Scheme and Rotor temperature measurement scheme.

4.5.6 Excitation transformer temperature surveillance unit with Alarm and Trip if the existing excitation transformer is not used.

4.5.7 I) Standard monitoring functions:
   1) PT fuse failure monitoring
   2) Synchronous voltage fuse monitoring
   3) Rotor temperature monitoring
   4) Self supervision of controller
   5) Excitation Transformer Monitoring

II) Standard protection functions:
The system shall include the following main standard monitoring:
   1) Monitoring of PT voltage.
   2) Monitoring of synchronous voltage.
   3) Monitoring of converter bridge temperature.
   4) Monitoring of healthiness of operating channel.
   5) Monitoring of rotor temperature.
   6) Monitoring of converter current.
   7) Field over current instantaneous and time delayed.
   8) V/F protection and monitoring.
   9) Field flashing supervision.
  10) Under voltage monitoring.
  11) AC and DC over voltage protection.
  12) Rotor Earth fault protection.
  13) Monitoring of final stage pulses.
  14) Monitoring of load sharing among the thyristor bridges.
15) Any other protections, which are essential to safeguard the Static Excitation system and machine.

16) For any of the Protection faults or Faults of Excitation system or those preventing the excitation of Generator OR Causing Generator Trip etc., A common annunciation along with a Potential free contact for use by SCADA declaring Excitation system Fault shall be generated and provided.

III) Miscellaneous items comprising MCBs, fuses, relays, shunts, transducers, transmitters etc.

4.5.8 Interface cards:

(i) Digital/Analog I/Os required for interfacing of analog and digital control signals shall contain the following:

a. Digital I/O cards shall have opto-couplers for isolation and shall have field interrogation voltage of 24V or more.

b. Following Analog outputs shall be provided. (4-20 mA) for SCADA Utilisation.
   i. reference/set-point indication of operating mode and channel.
   ii. Field current.
   iii. Field voltage.
   iv. Balance voltage between Auto to Auto and Auto to Manual
   v. Generator Rotor Temperature

(ii) Potential separation and level matching of the actual values from the machine (e.g. actual voltage of machine actual current) shall be arranged by the supplier (if required). It shall include the following:

a. Three phase machine voltage measuring 110V.

b. Three phase stator current measuring 5A.

4.6 Auxiliary supplies/customer inputs: The following auxiliary supplies/inputs of the machine will be supplied for the use of excitation system.

Generator, Bus PT and CT Inputs:

<table>
<thead>
<tr>
<th>Signal</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generator voltage</td>
<td>ACV sensing</td>
<td>3 phase voltage sensing from machine PT set 1:3 x 100 - 120V (ph-ph)</td>
</tr>
<tr>
<td>Bus voltage</td>
<td>ACV sensing</td>
<td>single phase voltage sensing from bus PT for voltage matching</td>
</tr>
<tr>
<td>Generator current</td>
<td>ACC sensing</td>
<td>3 phase current sensing from machine CT set 1:3 x 5A</td>
</tr>
</tbody>
</table>

Auxiliary Supply Inputs:

<table>
<thead>
<tr>
<th>Signal</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single phase AC aux.</td>
<td>Ac supply</td>
<td>Separate single phase 1 * 230V for heater, light and line outlet.</td>
</tr>
<tr>
<td>Supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 phase AC aux.</td>
<td>Ac supply</td>
<td>Supply for fan testing. Combined with single phase (Ph-N) supply 3<em>415/1</em>230V.</td>
</tr>
</tbody>
</table>
### 4.7 DIGITAL AND ANALOG INPUTS/OUTPUTS

Following digital and analog input and outputs shall be provided for customer for remote operation/indication in addition with those required for normal operation of the system.

**i) Digital Inputs (From Customer):**

a. Field Breaker ON.
b. Field Breaker OFF.
c. Excitation ON.
d. Excitation OFF.
e. Set point/reference value raise.
f. Set point/reference value lower.
g. Change over to Auto.
h. Change over to Manual.
i. Generator CB closed
j. Change over to channel-I
k. Change over to channel-II
l. Speed>90%

**ii) Digital Outputs (To Customer):**

a. Field Breaker ON.
b. Field Breaker OFF.
c. Excitation ON.
d. Excitation OFF.
e. Set point maximum limit reached.
f. Set point minimum limit reached.
g. Auto channel running.
h. Manual channel running.
i. Common non-trip alarm.
j. Common Trip alarm.
k. Generator CB closed.
l. All the trip commands necessary to trip other eqpt., viz., machine, GCB etc.,
j. All the monitored signals of protection & Interlock & alarms shall be provided.
k. Channel-I/Module-I in service
l. Channel-II/Module-II in service
m. Thyristor bridge 1/2 fail.
(iii) Analog Inputs (From Customer):

(iv) Analog outputs (To Customer):
   a. Field voltage.
   b. Field current.
   c. Reference/set point value.
   d. Balance signal (difference between Auto1 –Auto2 channel reference values) and Auto and Manual channel
   e. Rotor Temperature.

4.8 Power Converter (Thyristor Bridge):

It shall be consisting of 3 phase fully controlled thyristor rectifier bridge with semi-conductor fuses, RC snubber circuits, pulse transformer etc.,

Power converter shall preferably consist of 2 sets of three phase, 6 –pulse thyristor converters each capable of catering the field current requirement of Generator at 10% above the rated output independently. Normally One converter is in operation to deliver full output as per requirement, with the other one as 'standby'. In case of multiple bridge converters shall deliver its full output with n-1 bridge operation and reduced/controlled output with n-2 bridge operation.

The main components of each thyristor bridge are:

1. Three phase fully controlled Thyristor Bridge with semi-conductor fuses and Gate circuit assembly with pulse transformer, Snubber Circuit etc.,
2. ON load isolators on both input and output sides.
3. Air flow monitoring unit
4. Thyristor bridge cooling fan.
5. Miscellaneous items comprising HRC fuses, MCB, Meters
6. AC and DC over voltage protection.
7. CTs on AC side
8. Shunt on DC side etc.,
9. Thyristor bridge temperature monitoring unit

4.9 Field Flashing and Field Suppression equipment:

Following items shall be supplied for facilitating field flashing and field suppression.

1. Field – flashing contactor/breaker.
2. Field flashing Diode Bridge for AC field flashing.
3. Blocking Diode and resistor assembly for DC field flashing.
4. AC field flashing supply Transformer (Step down).
5. Field discharge resistor.
6. 1 No. Field circuit breaker.
7. Field voltmeter, field ammeter and shunt and transducers for the same.
8. Miscellaneous items e.g. MCBs, relays and fuses.
9. 1 No. crow bar circuit equipped with two anti-parallel thyristors to connect the discharge resistor due to an external trigger pulse initiated by the over voltage protector unit, in case of positive or negative field over voltage.

4.10. Panel Construction:
The panels shall be enclosed sheet steel cubicle, indoor, floor mounting free standing type. Panels shall be totally enclosed, dust and vermin proof with IP-31 degree of protection as per IS: 2147. Panels shall be suitably reinforced to provide rigid flat level surfaces, resistant to vibration during transportation and installation. No welds rivets, hinges or bolt threads shall be apparent from outside. The colour of the panels (both interior and exterior) will be decided later. The panels shall have front and back opening doors.

Ventilating louvers, detachable filters shall be provided for the panels. All the components and devices shall be mounted in an orderly manner. Easy access of components shall be possible for maintenance purpose. Necessary panel space heaters should be provided.

4.11. Sheet metal thickness:
Minimum 2.0mm for load bearing members and 1.6 mm for non load bearing members shall be provided.

4.12. Cabling:
Inside the excitation system, minimum 1 Sq.mm copper wires are to be used. Other prefabricated system cables are standard connections.
The Units are running with the existing Excitation Power cables (i.e from Field breaker to Generator) as of now and the Suitability and the lengths compatible to the new proposed system may be ascertained during your Site visit. If found suitable, the existing Power cables may be used by the contractor free of cost. Otherwise, New Power cables and the associated costs of laying / re-routing etc shall be borne by the contractor.

4.13. Terminals Blocks:
The measuring circuits are provided with disconnecting terminals for 2.5 sq.mm wires. Standard 2.5 sq.mm CATM4 type ELMEX make or equivalent terminals shall be provided for the interfacing control and signal circuits. For CT and DC/AC power supply input terminals shall be of disconnecting type equivalent to CATDM4 of ELMEX make.

4.14. Dimensions:
The approximate dimensions of the panel are 5000mm (W) x 1000mm (D) x 2200mm (H) due to space constraints design of panel i.e., dimensions and place will be decided at the time of approval of drawing. The Supplier is requested to visit the site for designing the panel as per site conditions, before submitting the drawings for approval. For ergonomic point of view there shall not be any components mounted below 300mm from the bottom of the panel. Panels shall be illuminated by LED lamps operated by door switches providing sufficient illumination as per standards Panel doors shall be provided with pockets for accommodating Drawings / documents of A4 size or more.

4.15. Label:
Name plates of approved design shall be provided for each panel. Danger plates/ Warning messages as per regulations shall be provided outside each door. The components and devices shall be labelled clearly with non deteriorating tape or anodized aluminium stickers. Provision to keep the circuit diagram drawings inside the panel shall be made possible.
4.16  **Grounding and Cable Entry:**
Two separate grounding terminals shall be provided for each panel for connection of 50x6mm GI or 25x6 copper flat earthing strips. If separate Electronic Earth is required same shall also be provided in line with the panel earth i.e 50x6 mm GI or 25x6 mm copper. Station earth and electronic earth pits will be arranged by APGENCO. All the cable entries shall be from bottom. Cable glands, lugs and other items necessary for cable termination shall be provided by the supplier. Removable gland plates for cable terminations shall be provided with panels.

4.17  **GUARANTEED PERFORMANCE:**
The system is operated within the permissible environmental conditions, the guaranteed performance is as detailed here.

4.17.1  **Output Values:**
- Rated system continuous DC output current $I_{EN}$ : 943A
- Rated system continuous DC output voltage $U_{EN}$ : 381V
- Max system Current $I_p$ : 1289A
- Response time : 20ms

4.17.2  **Permissible ambient conditions:**
- System design ambient temperature : $50^\circ$C
- Temperature range during storage : 0 to $+55^\circ$C
- Altitude of installation : less than 1000m of MSL

4.17.3  **Insulation level**
- Power circuit : 2.5 KV AC for 1 min.
- Analogue input interface : 1.5KV AC, 1 min.
- Digital I/O interface : 1.5 KV AC 1min.

4.17.4  **Function performance**
- Accuracy of voltage regulation : +/- 0.5%
- Range of voltage settings
  - a) AUTO mode : 90% to 110% of $U_{gn}$
  - b) MANUAL mode : 0 to 110% of $I_{fn}$
- Response time : $\leq$ 20 milliseconds
- Operating frequency : 47 to 52 Hz
- Dead Band : NIL
- Range of Reactive drop adjustment : 0 to 15%

4.18  **EQUIPMENTS/MATERIALS AND WORKMANSHIP:**
All the equipments shall be of the best class and capable of satisfactory operation in the tropics with humid atmospheric conditions without distortion or deterioration. Unless otherwise specified the equipment shall conform to the requirements of the appropriate Indian or I.E.C. Standards. Where a specification covering the equipments in question has not been published, the tenderer should specify to what extent they would be in a position to accept the various provisions in the specification.

The workmanship shall be of the highest grade and the entire construction in accordance with the best modern practice. The whole of the work shall be of the highest class throughout, well finished and of approved make. The entire design and construction
shall be capable of withstanding the severest stresses likely to occur in actual service and of resisting rough handling during transport.

The design shall incorporate every reasonable precaution and provisions for the safety of all those concerned in the operation and maintenance.

All the equipments should operate without undue vibration and with the least practicable amount of noise.

4.19 STANDARDS AND QUALITY ASSURANCE PLAN:

The equipment shall comply in all respects with the latest issues of Indian or any other authoritative standards. The bidder shall enclose the quality Assurance plan, duly indicating the type of the tests to be carried out on the whole system, party to witness the tests etc., along with the tender in Part-I i.e. “Technical & Pre-qualification Bid”. The system shall be functionally tested for circuit continuity and output response. All the components & interconnection cables shall be tested to ensure compliance with the specification requirements & all other applicable codes & standards.

Hard copies of Data schedules and Catalogues/Brochures of All assembled items of the equipment supplied must be furnished by the contractor in (3) Sets along with Final as Built drawings and One set in electronic form along with drawings submitted for Approval.

4.20 DRAWINGS AND DATA TO BE FURNISHED BY TENDERER IN HIS TENDER:

Block Diagram of Proposed Scheme shall be furnished along with the Bid. E-Drawings, data schedules and catalogues must be furnished by the tenderer in his offer for proper evaluation of his tender. Tenderer shall also furnish any other essential information not specifically mentioned below. Incomplete tenders not giving required information in systematic manner are liable to be rejected outright. All parameters of the equipment and dimensions shall be given in Metric/SI units only.

A write-up shall be furnished supported by computation on aspects of design of the system, vis-à-vis this specification and tenderers verification thereof. Any other technical/physical details that tenderer considers necessary for purchasers reference and understanding of equipment and system, shall also be furnished. Detailed product catalogues with functional description and technical data of the main components of the system shall be furnished. Clause by clause comments and conformance/ non-conformance to the above specifications is required.

4.21 ELECTRICAL TESTS:

4.21.1 Electrical Test at Manufacturer’s Works:

The tests to be conducted on the equipment at works shall be witnessed by APGENCO Engineers/ Third party agency nominated by APGENCO.

1. Checking of wiring and cable continuity.
2. IR value of complete wiring circuit with all equipments mounted on the panels.
3. The high potential test of 2.0 KV for one minute shall be tested on all panels.
4. Functional check on electronic modules by simulation.
5. Routine test according to relevant standards such as control sequence interlocks as per scheme.
6. Load test on Thyristor bridges at rated voltage.
8. Type, Routine and special test certificate shall be furnished to the purchaser for review and approval.
9. Any other special tests recommended by the bidder shall be specifically brought out in the tender.

4.21.2 Electrical Tests at site:
Tests on the assembled panels shall include, but not be limited to those listed herein.
1. Satisfactory operation of synchronous machine
2. Performance and functioning test of all limiters.
3. Test for Auto-slave tracking the Auto-master channel and Auto changeover.
4. Test for manual mode following Auto mode and Auto changeover to manual.
5. Ranges of voltage adjustment test for both Auto and Manual mode.
6. PSS Tuning shall be done by conducting step response test as per SRPC norms/procedure and atleast 3 copies colour prints of Graphs, test reports etc., along with one soft copy and test procedure shall be submitted.

4.22 ERECTION, COMMISSIONING AND MAINTENANCE EQUIPMENT:
The bidder shall include the item wise list of any special tools required for erection, testing, commissioning and maintenance of the equipment supplied by him and shall include the following erection, testing, Commissioning and maintenance tools in the tender.

i. One Programming tool with LED display (Laptop) along with required hardware (Communication interface module along with Communication cable for connecting the laptop to the control interface) and system software (licensed OS & Application softwares) shall be supplied for operation, programming, parameter settings, tuning and trend recording of the signals with following features.
   - Display
   - Trend display up to 8 event –triggered signals and their history
   - Parameter setting
   - Signal and status monitoring
   - Data logging, software for analysis of trend history
   - Transient recording display up to 8 event –triggered signals
   - setting/programming
   - Application program display

   Supplied Laptop must be a vibrant view LED 15.4" Widescreen industrial grade Laptop (Minimum specification) With Intel ® i7 Processor of not less than 7th Generation, 8 GB of RAM, 1 TB Hard Drive, and DVD Dual Layer Writer along with the software and necessary tools for testing during pre-commissioning, Programme debugging and for modification/uploading at the controller directly.

ii. One Dual channel fully automatic Cathode Ray Oscilloscope of frequency 300Hz with recording / History Facility.

iii. Digital Multi meter

4. 23 MANDATORY SPARES:
The supplier shall provide a guarantee that the spares for the system shall be available at least for 10 years after the last delivery of the system. In the event of phasing out of any spare part, the vendor shall intimate the purchaser, well in time to enable the purchaser to decide on the later strategy to procure spares. In particular, the purchaser
must be offered the opportunity to purchase the spare part being phased out. The scope of supply shall include the required spares as indicated below. The list of spares and quantity shall be furnished in a schedule form.

1) Processor/Control board  -  1 No
2) Power supply unit  -  1 No (each type)
3) Pulse transformer,  -  1 set (6 Nos.)
4) Thyristors  -  1 set (6 Nos.)
5) Semi-conductor fuses for thyristors  -  1 set (6 Nos.)
6) Relay and contactors  -  2 No. for each type
7) Control switches and indicators  -  1 No. for each type
8) Thyristor cooling fan  -  1 Set
9) Special connectors and adopters.  -  1 set
10) Field discharge Resistor  -  1 No
11) DC Over voltage protection Unit complete.  -  1 Set
12) AC and DC Field flashing Diodes.  -  Each 1 Set.
13) Firing Card / module  -  1 No.
14) Air flow Monitoring Unit  -  3 Nos.

15) All types of cards/modules other than specified vide item 1 to 9 above etc. used in the system -1 No. each type minimum or cube root ($n^{1/3}$), rounded off to the nearest integer, where $n$ is the number of each of the card/module used in the system to be supplied.

**SCOPE OF WORK for DVR:-**

- Testing and commissioning of Equipments with protection relays and external interlocks- permissives for all functions/logics, parameter setting, operation, interlocks, indications, annunciations etc., and furnishing of test certificates.
- The Equipment panels have to be fully tested, commissioned before putting into service.
- Any defects arise in the Equipments during testing, Commissioning or its operation during Guarantee period at site shall be replaced free of cost, which include transportation also.
- The equipment shall also comply with the latest revision of Indian Electricity Act, Indian Electricity Grid Code (IEGC) and Indian Electricity Rules and any other applicable statutory provisions, rules and regulations applicable with latest revisions as on the date of bid submission in the locations where these are to be installed.
- All Supplied items to be provided with labels. The labels shall be mounted properly showing name of auxiliary, rating and compartment No. of the panel.
- The Equipments shall be mounted such that removal and replacement can be accomplished individually without interruption of service to adjacent equipment confirming all safety interlocks.
- Bidder should supply One Laptop along with valid licensed software necessary for programming & Debugging tool of DAVR / SEE along with Widows -10 OS and MS Office satisfying all the technical requirements as per specification against laptop.
- All documents including drawings, data sheets, erection and commissioning manuals, O & M manuals shall be provided on electronic media viz. DVD’s. Each electronic media
shall be of high quality and suitable for long-term storage. The reproduction from media shall be of good quality.

- Before dispatch of equipments to consignee, the supplier is required to submit (FOUR+TWO) sets of following drawings/documents in suitable files. FOUR sets Hard and TWO sets of soft copies of equipment shall be forwarded to consignee along with equipment and (FOUR+TWO) sets final as built drawings after commissioning of equipments.
  
  a) Control schematics and wiring diagrams.
  b) Operation and maintenance manual.
  c) Commissioning manual and Reports.
  d) Catalogues for all bought out items.

- The manuals and test reports should be submitted in bound form suitable for long storage with the necessary information printed on the cover page as well as back for easy traceability in addition to TWO sets of soft copies. The documents not submitted in the above manner will not be accepted.

- All Erection, operation & maintenance manuals & drawings shall be furnished in reproducible form (DVDs/CDs) also.

- The supplier shall provide a guarantee that the spares for the system shall be available for at least **10 years** after the delivery of last item of the system. In the event of phasing out of any spare part the vendor shall intimate the purchaser well in time to enable the purchaser to decide on the later stage to procure spares. In particular the purchaser must be offered the opportunity to purchase the spare part being phased out.

- Recommended Spares, if any, required for trouble free operation of SEE & DAVR for a period of 5 years in addition to the Mandatory spares shall be indicated separately along with cost for each item of spare. The purchase of these spares is at the discretion of APGENCO. The cost of Recommended Spare items mentioned should be Firm until completion of the contract. The cost of Recommended Spares will not be considered for the evaluation of the BIDs.

- The training on DAVR & SEE shall cover familiarization with manufacturing and assembly techniques, procedures of installation, testing, commissioning, operation, maintenance and trouble shooting and associated software.

- APGENCO will provide following facilities to the successful bidder at the time of work execution
  
  a) Providing required LT power supply.
  b) E.O.T. crane facility with operator.
  c) Service air for cleaning purpose.

**NOTE:**

- APGENCO will not provide any accommodation to the Contractor or any associated third party.

- Supply, Supervision of Erection, Testing and commissioning DVR shall be in the scope and responsibility of the bidder.

- The offered equipment shall be complete with all components necessary for their effective trouble free operation. Such components shall be deemed to have been included in the scope whether those are specifically brought out in this specification and/or the commercial order or not.

- The work should be executed as per the instruction of Engineer In-charge of the project and his decision will be final in any matter.
The bidder should be Original Equipment Manufacturer of DVR.

The offered systems (DVR & SEE) consisting of Laptops, computers, Ethernet switches, PLC/Processors, Power & I/O cards, Communication devices etc., should be of Industrial grade only but not of general purpose/ personal/domestic usage grade or quality.

The bidders shall visit the NSRC Hydro Power Station and interact with the concerned engineers to estimate / assess the Scope & Quantum of work. If they have any queries they must get them clarified during their site visit & in the Pre-bid meeting. Later no appeals/Claims at any stage of Contract will be entertained and the contractor is bound to execute the contract in Full & complete shape.

ERECTION, TESTING, COMMISSIONING AND INTEGRATION OF ENTIRE SYSTEM:

- The Supervision of Erection, Testing & commissioning of the system has to be carried out by the bidder. All the necessary special tools and tackles required for erection of the equipment shall be supplied by the manufacturer. It is the responsibility of the bidder to furnish a detailed program (bar charts) for erection, testing and commissioning works of the system as soon as the supplies are completed. Site clearance for taking up the works will be communicated by APGENCO under concurrence with SLDC. Upon intimation of the readiness of the system the contractor within one week from such intimation shall depute his team along with detailed plan for execution of works so as to complete the works during the agreed contract period. No accommodation will be provided by APGENCO.

NOTE: The supplied equipment is to be replaced with the existing equipment in the power house. Hence, the erection of the system depends on the availability of line clear based on the water availability in the reservoir and other constraints. It is expected that ETC works can be completed within 45 Days. Generally period from February to June will be free for erection work. Bidders are requested to note the above constraints in the execution for erection, testing, commissioning and integration.

COMPLETENESS OF EQUIPMENT:

- The tender shall be complete in all respects and include all accessories which may not be specifically mentioned in this specification but which are essential for the completeness of equipment offered. All the necessary mounting accessories shall be in the scope of bidder. The Bidders shall quote the prices taking into account all the extra items which are not specifically mentioned.

- The specification mentioned above is tentative. However, vendor may submit the offer for more advanced and proven system suitable for the power Generating units (3X30 MW generator sets) at Nagarjunasagar Right Canal Power House. The instruments to be supplied shall be with suitable carrying case for transportation. All softwares are to be supplied in compact disc. All standard accessories, like probes, cables, connectors etc. are to be supplied as part of instrument. The equipment offered must be Industrial Grade & of latest version at the time of procurement. Test certificates of calibration from reputed laboratory are to be submitted with relevant operation/maintenance instruction manuals. Installation and commissioning of hardware and software to be done by supplier at the site.

TRAINING:

Supplier shall impart training for THREE Days at site for customers operation and maintenance engineers on SEE & DVR covering Working principle, scheme/circuit familiarization, regular operation/ emergency handling, test procedures, data/ result interpretation, test file management, operation and maintenance, trouble shooting etc and on Preventive, Routine and
Breakdown Maintenance activities including the tracing and rectification of the faults and the relevant software.

**PAINTINGS**

All the equipments shall be protected against external corrosion by providing suitable painting as per standards. The surfaces of stainless steel, gunmetal, brass, bronze and non metallic components shall not be applied with any painting.

All steel surfaces (external) exposed to atmosphere (outdoor installation)

Painting: One coat of red oxide primer of thickness 30 to 35 microns followed with three (3) coats synthetic enamel paint with 25 microns as thickness of each coat.

All sheet steel work shall be pre-treated, in tanks, in accordance with IS:6005. Degreasing shall be done by alkaline cleaning. Dust and scale shall be removed by pickling the parts shall be washed in running water. Then these shall be rinsed in slightly alkaline hot water and dried. The phosphate coating shall be "Class-C" as specified in IS:6005. The phosphated surfaces shall be rinsed and passivated prior to application of stoved lead oxide primer coating. After primer application, two coats of finishing synthetic enamel paint on panels shall be applied. Electrostatic painting shall also be acceptable. Finishing paint on outdoor equipment shall be shade 632 (smoke grey) and on indoor equipment & panels shall be shade 631 of IS:5 unless required otherwise by the Employer. The inside of the panels shall be glossy white. Each coat of finishing shall be properly stoved. The paint thickness shall not be less than 100 microns. Finished parts shall be coated by peelable compound by spraying method to protect the finished surface from scratches, grease, dirt and oily spots during testing, transportation handling and erection.

**Quality Assurance Plan:**

The successful bidder shall within 30 days of placement of order, submit the following information to the Chief Engineer / HPC & Hydel Projects/APGENCO, 4th Floor, Vidyut Soudha, Gunadala, Vijayawada.

a) Manufacturing quality plan (MQP). As per Annexure-6

b) Field quality plan (FQP). As per Annexure-7

c) The names of sub-suppliers selected (sub supplier /sub contractor assessment & approval by quality department).

d) Inspection and testing schedules.

e) Quality Assurance Plan (QAP) with customer hold points (CHP) for APGENCO inspection. QAP's and QA&I customer hold points shall be discussed between the QA&I/purchaser and contractor and issuance /Clearance of CHP by quality department before the QAP’s is finalized. The Tenderer shall submit the routine test certificates / compliance certificates of bought out accessories and for raw material at the time of routine testing if required by the quality department / inspector and ensure that the quality assurance requirements of specification are followed by the contractor/sub-contractor.

*The Equipments & Materials shall be dispatched only after issuance of MDCC from the Chief Engineer / HPC & Hydel Projects/APGENCO.*

**Panel Construction:**

The panels shall be enclosed sheet steel cubicle, indoor, floor mounting free standing type. Panels shall be totally enclosed, dust and vermin proof with IP-31 degree of protection as per IS: 2147. Panels shall be suitably reinforced to provide rigid flat level surfaces, resistant to vibration during transportation and installation. No welds, rivets, hinges or bolt threads shall be apparent from outside. The colour of the panels (both interior and exterior) will be decided later. The panels shall have front and back opening doors.
Ventilating louvers, detachable filters and Anti vibration pads shall be provided for the panels. All the components and devices shall be mounted in an orderly manner. Easy access of components shall be possible for maintenance purpose. Necessary panel Illumination with LED lamps and Space heaters should be provided.

**Sheet metal thickness:**

Minimum 2.0mm for load bearing members and 1.6 mm for non load bearing members shall be provided. Panel doors shall be provided with Pockets of suitable size (Not less than A4) to keep the Drawings/Manuals

**Cabling:**

Inside the control panels, minimum 1 Sq.mm copper wires are to be used. Other prefabricated system cables are standard connections. Inter Panel and Intra panel wiring of Supplied equipment inclusive of all Material, labour, tools etc., is in the contractor scope.

**Terminals Blocks:**

The measuring circuits are provided with disconnecting terminals for 2.5 sq.mm wires. Standard 2.5 sq.mm CATM4 type ELMEX make or equivalent terminals shall be provided for the interfacing control and signal circuits. For CT and DC/AC power supply input terminals shall be of disconnecting type equivalent to CATDM4 of ELMEX make.

**Dimensions:**

The approximate dimensions of the panel are 5000mm (W) x 1000mm (D) x 2200mm (H) due to space constraints design of panel i.e., dimensions and place will be decided at the time of approval of drawing. The Supplier is requested to visit the site for designing the panel as per site conditions, before submitting the drawings for approval. For ergonomic point of view there shall not be any components mounted below 300mm from the bottom of the panel. Panels shall be illuminated by LED lamps operated by door switches providing sufficient illumination as per standards

**Label:**

Name plates of approved design shall be provided for each panel. Danger plates/Warning messages as per regulations shall be provided outside each door. The components and devices shall be labelled clearly with non deteriorating tape or anodized aluminium stickers. Provision to keep the circuit diagram drawings inside the panel shall be made possible.

**Grounding and Cable Entry:**

Two separate grounding terminals shall be provided for each panel for connection of 50x6mm GI or 25x6 copper flat earthing strips. If separate Electronic Earth is required same shall also be provided in line with the panel earth i.e 50x6 mm GI or 25x6 mm copper. Station earth and electronic earth pits will be arranged by APGENCO. All the cable entries shall be from bottom. Cable glands, lugs and other items necessary for cable termination shall be provided by the supplier. Removable gland plates for cable terminations shall be provided with panels.
**SCHEDULE – 1**

**CONTRACTOR’S EXPERIENCE**

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Particulars</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Name of the Project</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Name, designation and full Postal address of order placing Authority</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Date of award of the contract and detailed order No. of the project authority</td>
<td></td>
</tr>
</tbody>
</table>
| 4.     | (a) Reasons for delay in supply of material, if any  
(b) whether the equipment is in trouble free operation for a duration of at least 18months after commissioning. |  |
| 5.     | Nature of arbitration with the project authority, if any |  |
| 6.     | Approximate value of the contract |  |

Seal of the Tenderer

**Signature, Designation**
**And address of the Tenderer.**

**Note:**

1. The above information should be furnished contract wise.
2. Bidder need to upload the relevant documents satisfying the eligibility criteria beyond doubt.
3. Regarding satisfactory performance of previously executed orders, the End User issued certificates are only valid, but not others (like Certificate issued by Main Contractor to Sub Contractor etc.,)
SCHEDULE-2
Letter of Transmittal
(to be enclosed in the Part-I Pre-qualification bid)

From: 
To: The Superintending Engineer,
    (Hydel-I), HPC & Hydel Projects wing,
    APGENCO, Vidyut Soudha, Vijayawada.

Dear Sir,

i) Tender no.
ii) Specification no.
iii) Item of work.

1. Having examined the above specification, together with the accompanying general conditions therein referred to, we hereby offer to provide and carry out the work described in the said specification according to the said specification and general conditions at the rates entered in the contract schedule of prices attached to the price bid.
2. We hereby undertake to have the materials delivered within the time specified in the schedule.
3. We hereby guarantee the particulars entered in the schedules attached to the bid.
4. In accordance with clause 3.4 & 3.7 of section-III of this specification we propose to furnish securities to the extent of 2½ % & 10% of the value of the contract.
5. We hereby confirm that before submitting this tender, we have visited the Project site and fully acquainted ourselves with the system requirement, site conditions and local situation regarding material, labour and all other factors pertaining to the work under this tender.
6. We hereby agree to make the supplies as per the terms and conditions

Yours faithfully,

Signature:
Date:
SCHEDULE - 3
DECLARATION
(to be enclosed in the Part-I Pre-qualification bid)

I ____________________________ certify that all the data and information to the subject tender specification are correct and are true representation of the equipment covered by our formal Bid No.__________________________, Dt.__________________.

I hereby certify that I am the duly authorized representative of the Bidder whose name appears above my signature.

Bidder’s Name: ____________________

Authorized Representative’s Signature: ____________________

Authorized Representative’s Name (Typed): ____________________

Authorized Representative’s Designation: ____________________

Bidder’s Seal

Bidder’s Intent: The Bidder hereby agree to fully comply with the requirements and intents of the subject tender specification for the price(s) indicated in the price bid.

Authorised Representative’s Signature: ____________________

Bidder’s Seal.
### SCHEDULE – 4
### SCHEDULE OF WEIGHTS
(to be enclosed in the Part-I Pre-qualification bid)

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Item or Equipment</th>
<th>Qty</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td></td>
<td>2.</td>
<td>3.</td>
</tr>
</tbody>
</table>

Signature of Tenderer
SCHEDULE –5
PROFORMA OF GUARANTEE FOR EQUIPMENT PERFORMANCE
(to be enclosed in the Part-I Pre-qualification bid)

The tenderer hereby guarantees the requirements of this specification.

If any of the requirements of the guarantees given are not fulfilled, the purchaser has the right to reject the equipment, and if capacity, performance and efficiency obtained during acceptance tests falls short of that guaranteed by the tenderer, the tenderer hereby affirms that such deficiency will be made good by rectifying/replacing the defective parts. All the replaced parts shall be removed from the site. While the facility for making good the deficiency will be normally given once, the purchaser is entitled to reject the equipment in case of repeated failure to meet the guarantee as per the specification.

Name of the firm :  
Signature of the bidder :  
Designation :  
Date :  
Seal of the company
SCHEDULE – 6

SCHEDULE OF GENERAL TERMS AND CONDITIONS
(to be enclosed in the Part-I Pre-qualification bid)

Bidders are requested to fill in the blank space and upload the same along with offer otherwise their offer will be either treated as non-responsive or suitable cost compensated for deficiencies as deemed fit by the Corporation.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tender Specification No., date and due date</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Offer/quotation No. &amp; Date</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Name of the bidder</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>GST Registration No</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>DGS&amp;D’s Registration No., if any (Please enclose copy of rate contract, if any)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>NSIC/SSI/MSME Registration No., if any (Copies of certificates to be enclosed)</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Price Basis (F.O.R.)</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Discount, if any</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Packing and forwarding charges (If price basis ex-works)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>GST for material</td>
<td>Included/Excluded (Indicate rate)</td>
</tr>
<tr>
<td>11</td>
<td>GST for services</td>
<td>Included/Excluded (Indicate rate)</td>
</tr>
<tr>
<td>12</td>
<td>Freight charges</td>
<td>Included/Excluded</td>
</tr>
<tr>
<td>13</td>
<td>Transit Insurance</td>
<td>Included/Excluded</td>
</tr>
<tr>
<td>14</td>
<td>Bank charges</td>
<td>To be borne by seller.</td>
</tr>
<tr>
<td>15</td>
<td>a) Delivery Period</td>
<td>Within ___________ / Months from the date of approval of drawings.</td>
</tr>
<tr>
<td></td>
<td>b) Supervision of Erection, Testing &amp; commissioning</td>
<td>Supervision of Erection, Testing and Commissioning of SEE&amp;DAVR for each unit should be completed within ……. Days.</td>
</tr>
<tr>
<td>16</td>
<td>Whether phased delivery acceptable</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Mode of dispatch</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Confirmation of submission of Performance Bank Guarantee for 10% of order value for performance of Equipment.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Earnest Money Deposit Details (APGENCO reserves the right to reject/consider offers without EMD)</td>
<td></td>
</tr>
</tbody>
</table>
We Confirm acceptance towards the following:

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Payment Terms</td>
<td>APGENCO payment terms as per tender specification</td>
</tr>
<tr>
<td>21</td>
<td>Security Deposit</td>
<td>2.5% of order value (for full execution of order) by the way of DD/Pay order/Bank guarantee.</td>
</tr>
<tr>
<td>22</td>
<td>Validity of offer</td>
<td>180 days from the date of opening of pre-qualification &amp; Technical bids</td>
</tr>
<tr>
<td>23</td>
<td>Recovery of Liquidated Damages.</td>
<td>In case of delay in Execution of order beyond stipulated delivery period, APGENCO reserves the right to recover from the vendor Liquidated Damages equivalent to 0.5% of the value of delayed materials/work for each week or part thereof subject to maximum of 5% of total value of Purchase Order.</td>
</tr>
<tr>
<td>24</td>
<td>Part order</td>
<td>Acceptable</td>
</tr>
<tr>
<td>25</td>
<td>Price Variation</td>
<td>The prices quoted shall remain firm till execution of full order (in case of any specific price variation formula, the same shall be mentioned with ceiling limits. If the bidder quotes for variable prices, Non furnishing of Ceiling limit and the applicable formula may lead to disqualification of the tender.)</td>
</tr>
<tr>
<td>26</td>
<td>Rate Certificate</td>
<td>It is certified that prices quoted herein are the same as applicable to other Government Departments/Public Sector Undertakings.</td>
</tr>
<tr>
<td>27</td>
<td>Guarantee Certificate</td>
<td>The equipment shall be guaranteed for satisfactory operation for a period of 24 months from the date of receipt of last delivery at stores in good condition or 18 months from the date of commissioning, whichever is earlier</td>
</tr>
<tr>
<td>28</td>
<td>Interchangeability</td>
<td>It is certified that the quoted items are interchangeable with the items existing in APGENCO and if fails to interchange, the same shall be replaced free of cost.</td>
</tr>
</tbody>
</table>

(Signature of Bidder with Name, Designation and Office Seal)
SCHEDULE – 7
SCHEDULE OF TESTS
(to be enclosed in the Part-I Pre-qualification bid)

Tests as per this specification, IS and manufacturer’s standard shall be performed. Detailed list of tests shall be indicated in this schedule.

Name of the firm:

Signature of the bidder:
Designation:
Date:
Seal of the company
**SCHEDULE - 8**

**SCHEDULE OF DEVIATIONS FROM THE SPECIFICATION**  
(to be enclosed in the Part-I Pre-qualification bid)

Tenderer shall carefully state below all points not in accordance with enclosed specification.

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Section</th>
<th>Deviation</th>
</tr>
</thead>
</table>

The tenderer hereby certifies that the above mentioned are the only deviations from the specification No.

**Signature of the tenderer.**
**SCHEDULE – 9**

GUARANTEED TECHNICAL PARTICULARS

**SIGNATURE OF THE TENDERER**

* Indicate the equipment MAKE and other features if any.
SCHEDULE-10

BIDDER’s UNDERTAKING

We M/s. ______________ visited/(aware of the complete work as per the site) and thoroughly understand the tender scope and field requirements & availabilities at the Nagarjunasagar Right Canal Power House. We will not claim any extra/additional cost/requirements to execute this order as per the site requirement and for satisfactory performance.

Signature of the Bidder
Company Seal
SCHEDULE – 11
List of Recommended Spares for DAVR based Static excitation system
(to be enclosed in the Part-I Pre-qualification bid)

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Item or Equipment</th>
<th>Qty</th>
<th>Rate/item</th>
</tr>
</thead>
</table>

Signature of Tenderer
SCHEDULE – A  
Proforma of summary price proposal  
(To be uploaded in the price bid through e-platform)

<table>
<thead>
<tr>
<th>S. No</th>
<th>Description of the material</th>
<th>Qty.</th>
<th>Unit Price in Rs.</th>
<th>Amount in Rs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Supply of Digital Automatic Voltage Regulator (DVR) based Static excitation equipment (SEE) complete, including mandatory spares for Nagarjuna sagar Right Canal Power House</td>
<td>3 Nos.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Supervision of Erection and Testing &amp; Commissioning of supplied SEE &amp; DVRs at Nagarjuna Sagar Right Canal Power House</td>
<td>3 Nos.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>GST for material @%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Packing &amp; Forwarding Charges</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Freight Inclusive of GST</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Insurance Inclusive of GST</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>GST for Services @ %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gross total amount</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:**  
1) The Bidder shall compulsorily quote the Prices of all items in the price bid through APGENCO e-platform otherwise their offer will be treated as non-responsive and disqualified.  
2) However, the bidder may upload this sheet in Attachments folder in the price bid.

Date
Place

Signature-----------------------------
Name-------------------------------
Designation-----------------------
(Seal)--------------
ANDHRA PRADESH POWER GENERATION CORPORATION LIMITED

GUIDE-LINES FOR SUBMISSION OF BANK GUARANTEE

The Bank Guarantee shall fulfill the following conditions failing which it shall not be considered valid:

1. Bank Guarantee shall be executed on non-judicial stamp paper of applicable value purchased in the name of bank.

2. Non-judicial stamp paper shall be used within 6 months from the date of purchase. Bank Guarantee executed on the stamp paper of more than 6 months old shall be treated as invalid.

3. The contents of the Bank Guarantee shall be as per our proforma which will be enclosed along with the Purchase Order.

4. The Bank Guarantee should be executed by a nationalized bank’s/Scheduled bank’s/public sector bank’s.

5. The executor of Bank Guarantee (Bank Authority) should mention the Power of Attorney No. and date executed in his/her favour authorizing him/her to sign the document or produce the Photostat copy of Power of Attorney.

6. All conditions, corrections, deletion in the Bank Guarantee should be authenticated by signature of Bank Officials signing the Bank Guarantee.


8. Two persons should sign as witnesses mentioning their full name and address.

9. **Validity of Bank Guarantees:**

   a) The Bank Guarantee for EMD shall be valid for a period of 270 days from the date of opening of pre-qualification with a claim period of 6 months.

   b) The Bank Guarantee for PEMD shall be valid for a period of 3 years from the date of submission with a further claim period of 6 months.

   c) The Bank Guarantee for Security Deposit shall be valid till the end of guarantee period with a claim of 6 months over and above the guarantee period.

   d) The Bank Guarantee for Performance Guarantee shall be valid up to the Guarantee period with a claim period of 6 months over and above the Guarantee period.
ANNEXURE – I
(TO BE STAMPED IN ACCORDANCE WITH INDIAN STAMP ACT)

PROFORMA OF BANK GUARANTEE FOR THE EARNEST MONEY DEPOSIT (EMD)

<table>
<thead>
<tr>
<th>Bank Guarantee No:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Up to:</td>
<td></td>
</tr>
<tr>
<td>Claim Period up to:</td>
<td></td>
</tr>
</tbody>
</table>

In consideration of the Andhra Pradesh Power Generation Corporation Limited (An enterprise of the Government of Andhra Pradesh) (hereinafter referred to as 'APGENCO' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Indian Companies Act, 1956 read with subsequent amendments and Act(s) and having its registered office at Vidyut Soudha, Gunadala, Vijayawada, Andhra Pradesh, India-520004 having agreed to exempt (Name of the Tenderer/Vendor/Contractor/Supplier) having its registered office at _ (hereinafter called the said Tenderer/Contractor which term includes Supplier), under the terms and conditions of the Tender Notification No. _______________ , Dated payment of EMD of Rs. ____________, (Rupees ______________ only ) is payable part of EMD for the due fulfillment by the said Tenderer/Contractor of the terms and conditions contained in the said Tender for __________ , on production of a Bank Guarantee for Rs. ______________(Rupees ______________ only).

At the request of _______[Tenderer/Contractor] We, ______________________, (hereinafter referred to as the “Bank”), having Registered/Head office at __________ and a branch at __________ being the Guarantor under this Guarantee, do hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the APGENCO without any delay or demur, merely on your first demand any sum or sums up to a maximum amount but not exceeding Rs ______________(Rupees ______________ only).

We undertake to pay unconditionally to the APGENCO any money so demanded notwithstanding any dispute(s) raised by the Tenderer/Contractor in any suit, or proceedings pending before any Court or Tribunal or Arbitration or any other Authority relating there to our liability under this present being is absolute and unequivocal. The payment under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the Arbitration proceeding or by any other Authority.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment hereunder and the Tenderer/Contractor shall have no claim against us for making such payment.

We, _______________, (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effective till the award of tender to the successful bidder. Validity of BG will be for a period of 270 days from the date of opening of pre-qualification bid with a further claim period of 6 months. However, BG of EMD will be returned after the award of Tender. BG is to be valid till ______________.

We, _______________, (indicate the name of the Bank) further agree with the APGENCO that the APGENCO shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Tender or to extend time of BG by the said Tenderer/Contractor from time to time or to postpone for any time or from time to time.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Tenderer/Contractor.

We, _______________, (indicate the name of the Bank) lastly undertakes not to revoke this guarantee during its currency except with the previous consent of the APGENCO in writing. Furthermore, we _______________, (indicate the name of the Bank) accept that

1. This Bank Guarantee is unconditional and absolute
2. Claim against this Bank Guarantee shall be honoured without any delay or demur; and

3. This Bank guarantee covers all the losses, claims, damages and costs suffered by the APGENCO against the said Tender.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed…
   .........................................

b) This Guarantee shall be valid up to Dt._____________

c) Unless the Bank is served a written claim or demand on or before Dt.__________
   (claim period) all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, ___________ (indicate the name of the Bank), have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

In witness whereof signed this Guarantee on this_____Day ___Year___ for __ Bank at

(Signature(s) of Authorised Personnel of the Bank with Seal)
Designation:
Address:
ANNEXURE – 2
TO BE STAMPED IN ACCORDANCE WITH INDIAN STAMP ACT

PROFORMA OF BANK GUARANTEE FOR THE PERMANENT EARNEST MONEY DEPOSIT (PEMD)

Bank Guarantee No: 
Date: 
Valid Up to: 
Claim Period up to: 

In consideration of the Andhra Pradesh Power Generation Corporation Limited (An enterprise of the Government of Andhra Pradesh) (hereinafter referred to as ‘APGENCO’ which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Indian Companies Act, 1956 read with subsequent amendments and Act(s) and having its registered office at Vidyut Soudha, Gunadala, Vijayawada, Andhra Pradesh, India-520004 has afforded a facility to Tenderer(s)/Contractor(s)/Vendor(s) and Supplier(s) who submit tender(s)/bid(s)/offer(s) in response to the Tender notice(s) of the Andhra Pradesh Power Generation Corporation Limited calling for Tenders for supply of materials or rendering of services or execution of works permitting Tenderer(s)/Contractor(s)/Vendor(s) and Supplier(s) who furnish a Permanent Earnest Money Deposit (PEMD) of Rs. ______ (Rupees ______ only) in the shape of Bank Guarantee in lieu of Cheque/Demand Draft to have their tenders considered without separate payment of earnest monies with each tender, wherever the EMD is not more than Rs. 5.00 lakhs (Rupees Five Lakhs only) in a single case/Tender.

Whereas (Name and address of the Tenderer/Vendor /Contractor/ Supplier)……………… has offered the guarantee of this Bank (indicate the name and address of the Bank), towards the Fixed/Permanent Earnest Money Deposit and the APGENCO has agreed to accept the same.

At the request of ______ [Tenderer/Contractor] We, …………………, (hereinafter referred to as the “Bank”), having Registered/Head office at ……………. and a branch at …………. being the Guarantor under this Guarantee, do hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the APGENCO without any delay or demur, merely on your first demand any sum or sums up to a maximum amount but not exceeding Rs.------------------ (Rupees----------------). We,____ (indicate the name of the Bank), do hereby undertake to forthwith and immediately pay the amounts due and payable under this guarantee without any demur, merely on a demand from APGENCO. Any such demand made on the bank, shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.____/- (Rupees ______ only).

We ____ (indicate the name of the Bank) undertake to pay unconditionally to the APGENCO any money so demanded notwithstanding any dispute(s) raised by the Tenderer/Vendor /Contractor / Supplier in any suit, or proceedings pending before any Court or Tribunal or Arbitration or any other Authority relating thereto our liability under this present is being absolute and unequivocal. The payment under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the Arbitration proceeding or by any other Authority.

The payment so made by us under this guarantee shall be a valid discharge of liability for payment there under and Tenderer/Vendor /Contractor / Supplier shall have no claim against us for making such payment.

We, ____ (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect till the award of tender to the successful bidder. Validity of BG shall be for a period of 3 years from the date of submission with a further claim period of 6 months. BG is to be valid till ________.
This guarantee will not be discharged due to the change in the constitution of the Bank or the Tenderer/Vendor /Contractor / Supplier.

We, ____ (indicate the name of the Bank) lastly undertakes not to revoke this guarantee during its currency except with the previous consent of the APGENCO in writing. Furthermore, we_______________ Bank accept that

1. This Bank Guarantee is unconditional and absolute
2. Claim against this Bank Guarantee shall be honoured without any delay or demur; and
3. This Bank guarantee covers all the losses, claims, damages and costs suffered by the APGENCO against the Tender.

Notwithstanding anything to the contrary contained hereinabove:
   a. The liability of the Bank under this Guarantee shall not exceed Rs.______/-(Rupees ______ only)
   b. This Guarantee shall be valid up to Dt.________________
   c. Unless the Bank is served a written claim or demand on or before Dt._________ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, ____ (indicate the name of the Bank), have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

In witness where of signed this Guarantee on this ______Day ___Year___ for __ Bank at

(Signature(s) of Authorised Personnel of the Bank with Seal)

Designation:
Address:
ANNEXURE-3

(TO BE STAMPED IN ACCORDANCE WITH INDIAN STAMP ACT)

PROFORMA OF BANK GUARANTEE FOR THE SECURITY DEPOSIT (SD)

Bank Guarantee No: 
Date: 
Valid Upto: 
Claim Period: 

In consideration of the Andhra Pradesh Power Generation Corporation Limited (An enterprise of the Government of Andhra Pradesh) (hereinafter referred to as ‘APGENCO’ which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Indian Companies Act, 1956 read with subsequent amendments and Act(s) and having its registered office at Vidyut Soudha, Gunadala, Vijayawada, Andhra Pradesh, India-520004 having agreed to exempt (Name of the Contractor/Supplier/Vendor) having its registered office at___ (hereinafter called the said Contractor/Supplier/Vendor) from the demand/payment of Security Deposit payable under the terms and conditions of the Contract/Purchase Order/Work Order No., Dated between the APGENCO and (Name of the Contractor/Supplier/Vendor) for supply/commissioning/rendering services/execution of work ___ (hereinafter called ‘the said Contract/Agreement’), on production of a Bank Guarantee for Rs. ______________(Rupees______________only).

At the request of _______[Tenderer/Contractor] We, ......................, (hereinafter referred to as the “Bank”), having Registered/Head office at ................. and a branch at ............ being the Guarantor under this Guarantee, do hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the APGENCO without any delay or demur, merely on your first demand any sum or sums up to a maximum amount but not exceeding Rs ______________- ( Rupees------------) in the event of any breach by the said Tenderer/Contractor of any of the terms and conditions contained in the said Contract/Purchase Order/Work Order No., Dated .

We,_____(indicate the name of the Bank), do hereby undertake to forthwith and immediately pay the amounts due and payable under this guarantee without any demur, merely on a demand from APGENCO. Any such demand made on the bank, shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs______________ (Rupees______________only).

We undertake to pay unconditionally to the APGENCO any money so demanded notwithstanding any dispute(s) raised by the Contractor/Supplier/Vendor in any suit, or proceedings pending before any Court or Tribunal or Arbitration or any other Authority relating thereto our liability under this present being is absolute and unequivocal. The payment under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the Arbitration proceeding or by any other Authority.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment hereunder and the Contractor/Supplier/Vendor shall have no claim against us for making such payment.

We, (indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/Agreement and that it shall continue to be enforceable till all the dues of the APGENCO under by virtue of the said Contract/Agreement have been fully paid and its claims satisfied or discharged or till the concerned authority of APGENCO certifies that the terms and conditions of the said Contract/Agreement have been fully and properly carried out by the said Contractor/Supplier/Vendor and accordingly discharge the guarantee, subject to however that
the APGENCO shall have no right under this bank guarantee after expiry of _________ (period) from the date of its execution. BG is to be valid till ________, Unless a demand or claim under this guarantee is made on us in writing on or before the ________, we (indicate the name of the Bank) shall be discharged from all the liability under this guarantee thereafter.

We, (indicate the name of the Bank) further agree with the APGENCO that the APGENCO shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract/Agreement or to extend time of BG by the said Contractor/Supplier/Vendor from time to time or to postpone for any time or from time to time.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor/Supplier/Vendor.

We, (indicate the name of the Bank) lastly undertakes not to revoke this guarantee during its currency except with the previous consent of the APGENCO in writing. Furthermore, we (indicate the name of the Bank) accept that

1. This Bank Guarantee is unconditional and absolute
2. Claim against this Bank Guarantee shall be honoured without any delay or demur; and
3. This Bank guarantee covers all the losses, claims, damages and costs suffered by the APGENCO against the said Contract/Agreement.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed ......................

b) This Guarantee shall be valid up to Dt. ______________

c) Unless the Bank is served a written claim or demand on or before Dt. ____________ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, __________ (indicate the name of the Bank), have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

In witness where of signed this Guarantee on this ______Day __ Year___ for __ Bank at

(Signature(s) of Authorised Personnel of the Bank with Seal)
Designation:
Address:
**ANNEXURE – 4**

(TO BE STAMPED IN ACCORDANCE WITH INDIAN STAMP ACT)

**PROFORMA OF BANK GUARANTEE FOR THE PERFORMANCE (PBG)**

<table>
<thead>
<tr>
<th>Bank Guarantee No:</th>
<th>Date:</th>
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</tbody>
</table>

Valid Up to:  
Claim Period up to:  

In consideration of the Andhra Pradesh Power Generation Corporation Limited (An enterprise of the Government of Andhra Pradesh) (hereinafter referred to as 'APGENCO' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Indian Companies Act, 1956 read with subsequent amendments and Act(s) and having its registered office at VidyutSoudha, Gunadala, Vijayawada, Andhra Pradesh,India-520004 has agreed to accept upon request of (Name of the Contractor/Supplier/Vendor) having its registered office at ___________, Dt. ___________ for the said Contractor/Supplier/Vendor this Bank Guarantee No. ___________ ,Dt. ___________ for making payment without effecting recovery of 10% of the value of Contract/Agreement/Purchase Order/Work Order towards Performance Guarantee for the satisfactory fulfilment of the Contract/Agreement/ Purchase Order/Work Order under the terms and conditions of the Contract/Agreement/Purchase Order/Work Order No. ___________ , Dated made between the APGENCO and (Name of the Contractor/Supplier/Vendor) for supply/commissioning/rendering services/execution of work ______ (herein after called ‘the said Contract/Agreement’),on production of a Bank Guarantee for Rs. ___________ (Rupees ___________ )only).

At the request of ___________ [Tenderer/Contractor] We, ______________, (hereinafter referred to as the “Bank”), having Registered/Head office at ______________ and a branch at ______________ being the Guarantor under this Guarantee, do hereby irrevocably and unconditionally undertake to forthwith and immediately pay to the APGENCO without any delay or demur, merely on your first demand any sum or sums up to a maximum amount but not exceeding Rs. ______________ (Rupees ______________ )only).

We, ___________(indicate the name of the Bank), do hereby undertake to forthwith and immediately pay the amounts due and payable under this guarantee without any demur, merely on a demand from APGENCO. Any such demand made on the bank, shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. ______________ (Rupees ______________ )only).

We undertake to pay unconditionally to the APGENCO any money so demanded notwithstanding any dispute(s) raised by the Contractor/Supplier/Vendor in any suit, or proceedings pending before any Court or Tribunal or Arbitration or any other Authority relating thereto our liability under this present being is absolute and unequivocal. The payment under this guarantee would not wait till the disputes have been decided by any Court or Tribunal or in the Arbitration proceeding or by any other Authority.

The payment so made by us under this guarantee shall be a valid discharge of our liability for payment hereunder and the Contractor/Supplier/Vendor shall have no claim against us for making such payment.

We, ___________(indicate the name of the Bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/Agreement and that it shall continue to be enforceable till all the dues of the APGENCO under by virtue of the said Contract/Agreement have been fully paid and its claims satisfied or discharged or till the concerned authority of APGENCO certifies that the terms and conditions of the said Contract/Agreement have been fully and properly carried out by the said Contractor/Supplier/Vendor and accordingly discharge the guarantee, subject to however that
the APGENCO shall have no right under this bank guarantee after expiry of ____________ (period) from the date of its execution. BG is to be valid till ____________.

We, (indicate the name of the Bank) further agree with the APGENCO that the APGENCO shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract/Agreement or to extend time of BG by the said Contractor/Supplier/Vendor from time to time or to postpone for any time or from time to time.

This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor/Supplier/Vendor.

We, (indicate the name of the Bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the APGENCO in writing. Furthermore, we (indicate the name of the Bank) accept that

1. This Bank Guarantee is unconditional and absolute
2. Claim against this Bank Guarantee shall be honoured without any delay or demur; and
3. This Bank guarantee covers all the losses, claims, damages and costs suffered by the APGENCO against the said Contract/Agreement.

Notwithstanding anything to the contrary contained hereinabove:

a) The liability of the Bank under this Guarantee shall not exceed__________________________

b) This Guarantee shall be valid up to Dt.__________________________

c) Unless the Bank is served a written claim or demand on or before Dt.__________________________ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, _____________ (indicate the name of the Bank), have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

In witness where of signed this Guarantee on this ________Day __Year___ for __ Bank at

(Signature(s) of Authorised Personnel of the Bank with Seal)

Designation:
Address:
## ANNEXURE-5

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<th>S. NO</th>
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<th>CHARACTERISTICS</th>
<th>CLASS</th>
<th>TYPE OF CHECK</th>
<th>QUANTUM OF CHECK</th>
<th>REFERENCE DOCUMENT</th>
<th>ACCEPTANCE NORMS</th>
<th>FORMAT OF RECORD</th>
<th>AGENCY</th>
<th>REMARKS</th>
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### LEGEND:

- **M**: MANUFACTURER/SUB-SUPPLIER
- **C**: MAIN SUPPLIER, **A**: APGENCO
- **P**: PERFORM, **W**: WITNESS, **V**: VERIFICATION
- **CHP**: APGENCO SHALL IDENTIFY ‘W’ IN COLUMN “A”

### SIGNATURE

MANUFACTURER/SUB-SUPPLIER: MAIN-SUPPLIER: FOR APGENCO USE: REVIEWED BY: APPROVED BY: APPROVAL SEAL:

DOC. NO.: REV...... CAT.....
## ANNEXURE-6

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<th>SL. NO.</th>
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<th>TYPE OF CHECK</th>
<th>QUANTUM OF CHECK</th>
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### LEGEND:
- **A** = CRITICAL, **B** = MAJOR, **C** = MINOR;
- 'A' SHALL BE WITNESSED BY OWNER QUALITY DEPTT., 'B' SHALL BE WITNESSED BY OWNER ERECTION / CONSTRUCTION DEPTT. AND 'C' SHALL BE WITNESSED BY MAIN SUPPLIER. (A & B CHECK SHALL BE OWNER CHPP STAGES)

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<tr>
<th>MANUFACTURER/ SUB-SUPPLIER</th>
<th>MAIN-SUPPLIER</th>
<th>FOR APGENCO USE</th>
<th>REVIEWED BY</th>
<th>APPROVED BY</th>
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**D** = DOCUMENT

**DOC. NO.:** REV......