



APGCL BID DOCUMENT

Name of Work:

Major Overhauling of Unit #1 of 2X50 MW Karbi Langpi Hydro Electric Project (KLHEP) along with supply of spare parts and consumables for the Overhauling of the Unit at KLHEP, APGCL, West Karbi Anglong.

NATIONAL COMPETITIVE BIDDING

(e-Procurement)

Tender No.: APGCL/CGM(Gen)/2026-27/Major Overhauling Unit#1-KLHEP/15.

Issued by:

The Chief General Manager (Generation),
Assam Power Generation Corporation Limited
3rd Floor, Bijulee Bhawan, Paltan Bazar, Guwahati-781001

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SECTION-I

1. NOTICE INVITING TENDER (NIT)

Assam Power Generation Corporation Limited
3rd Floor, Bijulee Bhawan, Paltan Bazar, Guwahati-781001
Website: - www.apgcl.org

Notice Inviting Tender

Tender Ref. No: APGCL/CGM(Gen)/2026-27/Major Overhauling Unit#1-KLHEP/15.

The Chief General Manager (Generation), APGCL hereby invites online Bids from eligible Bidders following two-bid system of bidding for ***"Major Overhauling of Unit #1 of 2X50 MW Karbi Langpi Hydro Electric Project (KLHEP) along with supply of spare parts and consumables for the Overhauling of the Unit at KLHEP, APGCL, West Karbi Anglong"***.

- (i) Open Competitive Bidding method shall be followed for selection of most preferred bidder for the tendered Item(s).
- (ii) The Bidding Documents can be downloaded by any prospective bidders from the e-Procurement/e-Tender portal i.e., <http://assamtenders.gov.in>, free of cost.
- (iii) All Bids must be accompanied by **Bid Processing Fee of Rs. 20,000.00 (Rupees Twenty Thousand only)** and **Bid Security (EMD)** of the amount of **Rs. 54, 00,000.00 (Rupees Fifty-Four Lakh Only)**.

No Exemptions to Bid Security (EMD) & Tender Fee is allowed in this Tender.

- (iv) Bids must be submitted online on the e-Procurement portal (i.e., <http://assamtenders.gov.in>) on or before the due date for submission i.e., up to **12:00 Hrs. of 26/08/2026**.
- (v) The Technical Bid will be opened online on **16:00 Hrs. of 28/08/2026** and the Price Bid shall be opened online only for the technical qualified bidders. **(The date of opening of the price bid shall be intimated later on the Portal).**

--Sd--

Chief General Manager (Gen)
APGCL, Bijulee Bhawan, Guwahati-1

SECTION-II

2. INSTRUCTION TO BIDDERS (ITB)

(Note: The Terms – ‘Bidder’, ‘Contractor’, ‘Supplier’ has been used interchangeably in this document.)

2.1 Introduction

2.1.1 Assam Power Generation Corporation Ltd. (APGCL) is a state GENCO operating in the state of Assam and with the vision of availability of reliable and quality power at competitive rates and on a sustainable basis.

APGCL has various gas based thermal power plants as well as hydro power plants. The Thermal Power Plants of APGCL are Lakwa Thermal Power Station, located in the District of Charaideo and Namrup Thermal Power Station, located in the District of Dibrugarh in the State of Assam. The various Hydro Plants of APGCL are Karbi Langpi Hydro Electric Power Project and Myntriang Small Hydro Electric Project, both located in the District of Karbi Anglong in the State of Assam. In addition, there are a few hydro and solar projects in pipeline/under construction of APGCL.

2.1.2 The Procuring Entity (i.e., APGCL) has issued this Bidding Document for the supply of goods and services as specified in “**Section IV- Schedule of Requirement**” in connection with the notice inviting tenders from the eligible bidders.

2.1.3 This Section provides the relevant information as well as instructions to assist prospective bidders in preparation and submission of bids. It also includes the mode and procedure to be adopted by the Procuring Entity (APGCL) for receipt and opening as well as scrutiny and evaluation of bids and subsequent placement of award of contract.

2.1.4 Before preparing and submitting the bids (Technical & Price) online at the e-Procurement portal in the prescribed manner, the bidder should read and examine all the terms and conditions, instructions, etc., contained in this Bidding Document. Failure to provide the required information or to comply with the instructions incorporated in this Bidding Document may result in rejection of bid.

2.1.5 The Bidder shall bear all costs and expenditure incurred and/or to be incurred by it in connection with its bid including preparation, mailing and submission of its bid and subsequently processing the same. The Procuring Entity shall, in no case be responsible or liable for any such cost, expenditure, etc., regardless of the conduct or outcome of the bidding process.

2.2 Language of Bids

Bid submitted by the Bidder and all subsequent correspondences and documents relating to the bid exchanged between the Bidder and the Procuring Entity (APGCL), shall be written in English language. However, the language of any printed literature furnished by the bidder in connection with its bid may be written in any other language, provided the same is accompanied by a self-certified English translation and, for purposes of interpretation of the bid, the English translation shall prevail.

2.3 Code of Integrity

2.3.1 The Procuring Entity (APGCL) and all its officials or employees, whether involved in the procurement process or otherwise, or bidders and their representatives or consultants or service providers participating in a procurement process or other persons involved, directly or indirectly in any way in a procurement process shall maintain an unimpeachable standard of integrity.

2.3.2 Govt. of Assam prescribes to uphold the Code of Integrity, which prohibits officials or employees of a Procuring Entity or any person(s) participating in the bidding process, as bidder or otherwise, the following:

- (i) any offer, solicitation or acceptance of any bribe, reward or gift or any material benefit, either directly or indirectly, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process;
- (ii) any omission, including a misrepresentation that misleads or attempts to mislead so as to obtain a financial or other benefit or avoid an obligation;
- (iii) any collusion, bid rigging or anti-competitive behavior to impair the transparency, fairness and progress of the procurement process;
- (iv) improper use of information shared between the procuring entity and the bidders with an intent to gain unfair advantage in the procurement process or for personal gain;
- (v) any financial or business transactions between the bidder and any officer or employee of the Procuring Entity, who are directly or indirectly related to the tender or execution process of contract;
- (vi) any coercion including impairing or harming or threatening to do the same, directly or indirectly, to any party or to its property to influence the procurement process;
- (vii) any obstruction of any investigation or audit of a procurement process;
- (viii) making false declaration or providing false information for participation in
 - a) tender process or to secure a contract;
 - b) disclosure of Conflict of Interest;
 - c) disclosure by the bidder of any previous transgressions with any entity in India or any other country during the last three years or of any debarment by any other Procuring Entity.

2.3.3 In case of any breach of the Code of Integrity by a bidder or a prospective bidder, as the case may be, the TIA (Tender Inviting Authority)/APGCL after giving a reasonable opportunity of being heard, may take appropriate measures including –

- (i) exclusion of the bidder from the procurement process;
- (ii) calling off pre-contract negotiations and forfeiture or encashment of bid security;
- (iii) forfeiture or encashment of any other security or bond relating to procurement;
- (iv) recovery of payments made by the Tender Inviting Entity (APGCL) along with interest thereon at bank rate;
- (v) cancellation of the relevant contract and recovery of compensation for loss incurred by it;
- (vi) Initiate available legal actions available under different laws in India.
- (vii) debarment of the bidder from participation in any tender issued by the Procuring Entity (APGCL) for a period not exceeding three years.

2.4 Conflict of Interest

2.4.1 Conflict of Interest for a Procuring Entity or its personnel (i.e., officials or employees) and bidders is a situation in which a party has interests that could improperly influence that performance of its duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations.

2.4.2 Govt. of Assam describes the situations in which a Procuring Entity or its personnel maybe considered to be in a situation of Conflict of Interest include, but are not limited to the following-

- (i) Conflict of Interest occurs when the private interests of a Procuring Entity or its personnel, such as personal, non-official, extra-professional or other relationships or personal financial assets, interfere or appear to interfere with the proper performance of its professional functions or obligations as a procurement official.
- (ii) within the procurement environment, a Conflict of Interest may arise in connection with such private interests as personal investments and assets, political or other social activities and affiliations while in the service of the Procuring Entity, employment after retirement from service or of relatives or the receipt of a gift that may place the Procuring Entity or its personnel in a position of obligation;
- (iii) Conflict of Interest also includes the use of assets of the Procuring Entity including human, financial and material assets, or the use of the office of the Procuring Entity or knowledge gained from official functions for private gain or to prejudice the position of someone the Procuring Entity or its personnel does not favour;
- (iv) Conflict of Interest may also arise in situations where the Procuring Entity or any of its personnel is seen to benefit directly or indirectly or allow a third party, including family, friends, or someone they favour, to benefit directly or indirectly from the decision or action of the Procuring Entity.

2.4.3 The situations in which bidders participating in a procurement process or their representatives may be in Conflict of Interest include, but are not limited to the following:

- (i) If they or their personnel or representatives or agents have any relationship or financial or business transactions or interests with any official of the Procuring Entity that are directly or indirectly involved in or related to the procurement process or execution of contract;
- (ii) If they receive or have received any direct or indirect subsidy from any other bidder;
- (iii) If they have the same legal representative for purposes of the bid;
- (iv) If they have a relationship with each other, directly or through common third parties that puts them in a position to have access to information about or influence on the bid of another;
- (v) If they participate in more than one bid in the same bidding process;
- (vi) If they have controlling partners in common;
- (vii) If a bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the subject matter of procurement of the bidding process or were involved in such preparation in anyway.

2.4.4 In case of a holding company having more than one independently manufacturing/processing/producing unit or more than one unit having common business ownership or management, only one unit shall be allowed to submit bid or quote to prevent any Conflict of Interest. Similar restrictions shall apply to closely related sister or subsidiary companies. Such bidders must proactively declare such sister or subsidiary company or common business or management units in similar lines of business.

2.5 Bidders' Eligibility

2.5.1 Bidder shall be a single business entity (or JV/Consortium/Corporation etc.) having a formal intent and legal competency to enter into an agreement or contract and are registered under respective Act in India.

2.5.2 The Bidder shall refer to Section III, Eligibility Criteria for details.

2.5.3 Bidder should not have a Conflict of Interest as prescribed and specified in ITB Para 2.4, which materially affects fair competition.

- 2.5.4 In addition, any bidder participating in the bidding process shall–
- (i) Have fulfilled his obligation to pay such of the tax payable to the Central Government or the State Government or any local authority.
 - (ii) not be insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoing reasons;
 - (iii) not have, and their directors and officers do not have, been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings.
 - (iv) not be debarred by any Procuring Entity under the State Government, the Central Government, Autonomous body, Authority by whatever name called under them.

2.6 Bidders' Qualification

- 2.6.1 Bidders should substantially meet the qualification criteria as stipulated in the **"Section III - Evaluation and Qualification Criteria"**.
- 2.6.2 Bidders should fill and submit the Forms provided in **"Section V - Bidding Forms"** with relevant information and supporting evidence of fulfillment of their qualification, along with the technical bid.

BIDDING DOCUMENT

2.7 Content of this Bidding Document

- 2.7.1 The Bidding Documents include the following Sections, which should be read in conjunction with any amendment issued in accordance with ITB Para 2.10.
- | | |
|-------------------|---------------------------------------|
| (i) Section I | Notice Inviting Tender (NIT) |
| (ii) Section II | Instructions to Bidders (ITB) |
| (iii) Section III | Evaluation and Qualification Criteria |
| (iv) Section IV | Schedule of Requirements |
| (v) Section V | Bidding Forms |
| (vi) Section VI | General Terms and Conditions (GTC) |
| (vii) Section VII | Special Terms and Conditions (STC) |
- 2.7.2 Unless downloaded directly from the e-Procurement portal, the Procuring Entity (APGCL) shall not be responsible for the correctness of the Bidding Document, responses to requests for clarification, the Minutes of the Pre-bid meeting, if any, or amendment(s) to the Bidding Documents in accordance with ITB Para 2.10.
- 2.7.3 Bidders are expected to examine all instructions, forms, terms, and specifications in the Bidding Documents and to furnish with its Bid all relevant information and documents as required by the Bidding Documents.

2.8 Clarifications of Bidding Documents

- 2.8.1 A Bidder requiring any clarification of the Bidding Document shall communicate in writing to the Procuring Entity through email with reference to the Bidding Document at the following email Ids:
- abhijit.saha@apgcl.org
 - migom.mili@apgcl.org
- The Procuring Entity (APGCL) will respond in writing to any request for clarification, provided that such a request is received well before the end date of bid submission date.

- 2.8.2 The Procuring Entity (APGCL) may also promptly publish a brief description of the enquiry but without identifying its source and its response at the official website/e-Procurement portal.
- 2.8.3 Should the clarification result in changes to the essential elements of the Bidding Documents, the Procuring Entity shall amend the Bidding Documents following the procedure given under ITB Para 2.10.

2.9 Pre-Bid Meeting

DELETED

2.10 Amendments to Bidding (Tender) Document

- 2.10.1 At any time prior to the due date for submission of bid, the Procuring Entity (APGCL) may amend or modify the Bidding Document by issuing amendment(s) pursuant to ITB Para 2.8 and 2.9 or for any other reason, it deemed fit.
- 2.10.2 Such amendment(s) will be published at the e-Procurement portal and the same shall be binding on all prospective Bidders.
- 2.10.3 To give reasonable time to prospective bidders to take necessary action in preparing their bids, the Procuring Entity (APGCL) may, at its discretion, extend the deadline for the submission of bids and other allied time frames, which are linked with that deadline.
- 2.10.4 Any Bidder who has downloaded the Bidding Documents should check the amendment(s), if any, issued on the Procurement portal. **The Procuring Entity (APGCL) shall not be responsible, in any manner, if any prospective Bidder misses any amendment(s) published on the portal.**

PREPARATION OF BIDS

2.11 Documents Comprising the Technical Bid

- 2.11.1 The bid shall be submitted online in two parts (i.e., Technical Bid & Price Bid) at the e-Procurement portal by the bidder within due date and time. The Technical Bid shall consist of the following documents:
- i) **"Letter of Bid"** as per Form provided in Section V – Bidding Forms (Form-B1);
 - ii) **"Bidder Information"** as per Form provided in Section V: Bidding Forms (Form-B2);
 - iii) **"Manufacturer's Authorization Letter"**, in case the bidder is an authorized vendor of manufacturer/service provider of hydro turbine, then the bidder shall submit authorization letter, as per Form given in Section V: Bidding Forms (Form-B3);
 - iv) **"Details of Supply and Work Done by Bidder"** as per format given in Section V: Bidding Form along with supporting documents (Form-B4);
 - v) **"Certificate on Financial Strength"** of the Bidder as per format given in Section V: Bidding Forms (Form-B5);
 - vi) Duly Executed **"Power of Attorney"** for the Authorized Signatory of the Bid as per format given in Section V: Bidding Forms (Form-B6);
 - vii) **"Undertaking by the Bidder"** as per format given in Section V: Bidding Forms (Form-B7).
 - viii) **"Self-Undertaking on Statutory Tax Compliance"** as per format given in Section V: Bidding Forms (Form- B9)
 - ix) **"GST Rules, Act etc. Compliance Undertaking"** as per format given in Section V: Bidding Forms (Form- B10)
 - x) **"Bid Processing Fee"** in accordance with ITB Para 2.19;
 - xi) **"Bid Security"** furnished in accordance with ITB Para2.20;
 - xii) Documents establishing **compliance** to the required quality standards of the product offered and of the process followed by the manufacturer in accordance with ITB Para 2.16 and Section-IV: Schedule of Requirements. Technical

Specifications of the Offered Products **in compliance with** APGCL Bid requirement shall be submitted.

- xiii) Bidder's Certificate of Incorporation/Registration, Article and Memorandum of Association or any such registration document.
- xiv) Self-attested copy of PAN;
- xv) Self-attested copy of GST Registration Certificate.
- xvi) Audited Statement of Accounts/Chartered Accountant Certified Financial Documents (Balance Sheet, P&L Statement, Cash Flow Statement) for last three financial years ending on 31/03/2025.
- xvii) All other documents as per this Bid requirement.
- xviii) **"Checklist of Documents"** submitted along with the Bid in the Format (Form-B9) as given in Section V: Bidding Forms

Note: All prospective bidders shall note that all the bidding FORMS as per APGCL format mentioned in this bid document is mandatory to be submitted by the bidder. However, the form which is not relevant to the participating bidder as per eligibility criteria is not mandatory. Non-submission of these FORMS in the bid document by the bidder, in such case the bid may be treated as non-responsive. APGCL shall not be responsible in case of rejection of the bid due to non-submission of the FORMS as per APGCL format.

2.12 Price Bid

- 2.12.1 **The blank Price Bid in the form of BoQ should be downloaded from the portal <https://assamtenders.gov.in> and saved on Bidder's computer without changing filename otherwise price bid will not get uploaded.** The Bidder should fill in the details in the same file (BoQ) and upload the same back to the portal. **Hardcopy of Price bid will not be accepted.**
- 2.12.2 **Price Bid (BoQ) must be submitted online (soft copies) only on Portal.** The BoQ (excel sheet available in e-procurement portal) is specific to the Bidder and is not interchangeable. The BoQ file shall be downloaded from the e-procurement portal and prices shall be quoted in the respective fields before uploading it. The Price bids submitted in any other formats will be treated as non-responsive and not considered for tabulation and comparison. The BoQ should be submitted online on the portal i.e., <https://assamtenders.gov.in>.
- 2.12.3 Price Bid shall be prepared in accordance with ITB Para 2.14.

2.13 Preparation and Submission of Bid

- 2.13.1 The Bidder shall prepare the Technical Bid comprising of all documents as mentioned in ITB-2.11 and any other document as required. The bid shall be typed with all pages serially numbered and signed by the Bidder or a person duly authorized to sign on its behalf, in token of acceptance of the Bid terms and conditions, Corrections in the bid such as interlineations, erasures, or overwriting shall be valid only if they are duly signed or initialed by the person signing the bid.
- 2.13.2 The Bidder shall submit both Technical and Price Bid **online** at the e-Procurement portal within due date and time for submission.
- 2.13.3 The bidding documents issued by the Procuring Entity in the e-procurement portal (i.e., <https://assamtenders.gov.in>) will appear in the "Latest Tender". The Bidders/Guest users can download the Bidding documents only after the due date & time of issue. The publication of the Bidding Document (i.e., Tender) will be for specific period till the due date for submission of bids after which the same will be removed from the list of "Latest Tender".
- 2.13.4 **Portal Registration:** The bidder intending to participate in the bid is required to register in the e-Procurement portal using an active personal/official e-mail ID as his/her Login ID and attach his/her valid Digital Signature Certificate (DSC) -

Class II or III to his/her unique Login ID. He/She must submit the relevant information as asked for about the bidder. The portal registration of the bidder is to be authenticated by the State Procurement Cell after verification of original valid certificates/documents.

For further details, the bidder may visit the Assam Tender Portal <https://assamtenders.gov.in>.

- 2.13.5 The bidder can download the bidding document and undertake the necessary preparatory work and thereafter upload the completed bid at their convenience before due date and time for submission.
- 2.13.6 The bidder shall upload **technical bid** in **".pdf"** format.

2.14 Bid Prices

- 2.14.1 The prices quoted by the Bidder in the Price Bid (Price Schedule i.e., BoQ) shall conform to the requirements specified below.
- 2.14.2 **The Bidder must quote for all items in the price schedule (BoQ). No part offer of the tender shall be accepted.**
- 2.14.3 The price quoted by the Bidder shall be fixed (remain firm) during the Bidder's performance of the Contract and shall not be subject to variation on any account, unless otherwise specified in this Bidding Document. The bid submitted with adjustable price quotation shall be treated as nonresponsive and shall be rejected.
- 2.14.4 **The price offered in the Price Bid (BoQ) for the item(s) shall be based on FOR consignee location/DDP (Place of destination) price. (Any charges against Freight, Transit Insurance, Packing and Forwarding etc. shall be inclusive)**
- 2.14.5 **The price quoted by bidder shall also be inclusive of any charges against loading/unloading, travelling expenses of Contractor's Personnel, boarding & lodging of Contractor's Personnel at site, etc.**
- 2.14.6 The bidder must unconditionally offer in the Bid to supply the goods and other associated services as specified for each item in Section-IV: Schedule of Requirements.

2.15 Bid Currency

- 2.15.1 The bidder should submit its quote in Indian Rupees (INR) only.
- 2.15.2 Bids, where prices are quoted in any other currency, shall be treated as non-responsive and rejected.

2.16 Documents Establishing Compliance

- 2.16.1 The Bidder shall furnish as part of its Bid the documentary evidence that the item(s) offered by it **conforms** to the required specifications for successful execution of the major overhauling work as well as correct and reliable operation of the hydro turbine unit and generator of KLHEP as specified in Section-IV: Schedule of Requirements.

2.17 Documents Establishing Eligibility & Qualification of the Bidder

- 2.17.1 To establish their eligibility in accordance with ITB Para 2.5, Bidders shall fill-up and submit all Bidding Forms and submit all requisite documents, etc. as per APGCL requirement.
- 2.17.2 The documentary evidence of the Bidder's qualifications to participate in the bid and own the contract, shall establish to the Bid Evaluation Committee's satisfaction that the Bidder meets each of the qualification criteria specified in Section-III: Evaluation and Qualification Criteria and any other criteria/clause mentioned in APGCL Bid Document.

2.18 Period of Validity of Bids

- 2.18.1 Bids shall remain valid for the period **180 (one hundred eighty days) counting from the final deadline specified for the submission of bid**. A bid valid for a shorter period shall be rejected as non-responsive.
- 2.18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Procuring Entity may request bidders to extend the period of validity of their bids. The request and the responses shall be made in writing. A Bidder may refuse the request without forfeiting its Bid Security.
- 2.18.3 The Bidder who agrees to the extension of the period of validity of bids so requested by the Procuring Entity (APGCL) shall also extend the period of validity of bid securities submitted by them or submit new bid security to cover the extended period of validity of their bids. A bidder whose bid security is not extended, or new bid securities not submitted shall be considered to have refused the request to extend the period of validity of its bids and rejected as non-responsive. The decision of the Procuring Entity will be final and binding in this regard.

2.19 Bid Processing Fee

- 2.19.1 The Bidder shall furnish as part of its bid, **the Bid Processing Fee (non-refundable), of the amount Rs. 20,000/- (Rupees Twenty Thousand only)** which shall be collected online from Bidder during bid submission at <https://assamtenders.gov.in>.

2.20 Bid Security (EMD)

- 2.20.1 The Bidder shall furnish as part of its bid, **a Bid Security (EMD) of Rs. 54,00,000.00 (Rupees Fifty-Four Lakh only)** which shall be deposited online during bid submission at <https://assamtenders.gov.in>.
- 2.20.2 The bid security can also be submitted in the form of Bank Guarantee issued by a Scheduled Bank in India.
- (i) If EMD is submitted through BG, the bidder will be required to upload the scan copy of the BG during online Bid submission and the original Hard Copy of the BG should reach APGCL HQ on or before bid opening.
- 2.20.3 In case, bid security is submitted in form of Bank Guarantee, it should be submitted using the format provided below in this document. The Bank Guarantee submitted as Bid Security shall be verified and confirmed from the competent authority of the concerning issuing Bank.
- 2.20.4 The Bid Security must remain valid for a period of one year from the start date of online submission of bid.
- 2.20.5 Any bid not accompanied by a Bid Security (EMD) as specified in ITB Para 2.20 shall be rejected as non-responsive.**
- 2.20.6 The Bid Security of unsuccessful bidder (Technically Rejected) shall be released upon completion and declaration of Technical Evaluations of the submitted bids.
- 2.20.7 The Bid Security of unsuccessful bidder (Technically Accepted but is/are not the L1 bidder) shall be released within 30 working days after signing of Agreement and deposit of performance security by the successful bidder.
- 2.20.8 The Bid Security of successful Bidders shall be released within 30 working days upon the successful Bidder's signing the contract and furnishing the Performance Security pursuant to ITB Para 2.33 and ITB Para 2.34.
- 2.20.9 In case Procuring Entity (APGCL) decides to cancel the procurement process, it shall return the bid security of all bidders after the decision to cancel procurement process.
- 2.20.10 The Bid Security of the bidder, who withdraws its bid prior to deadline for submission of bids, in case bid withdrawal is permitted, shall be returned after the opening of the bids.
- 2.20.11 The Bid Security deposited by a Bidder may be forfeited in the following cases:

- i) when the bidder withdraws or modifies its bid after due date for submission.
- ii) **when the bidder does not deposit the required performance security and/or sign the contract within the specified period;** and
- iii) if the bidder breaches any provisions of Code of Integrity prescribed for bidders as per ITB Para 2.3.

2.20.12 Instructions to bidder who intends to pay the **EMD (bid security)** amount of the tender **through Bank Guarantee (BG)**.

For bidders opting for payment of EMD through BG, the bidder shall follow the below steps at online portal <https://assamtenders.gov.in>

- The bidder shall select the EMD exemption option as "Yes" and in the following steps shall upload the Scanned BG documents and proceed.
- If the bidder selects the EMD exemption option as "No" then the system shall prompt to pay the EMD fees online. There shall be no option to upload the scanned BG document against EMD in that case and the bidder has to pay the EMD online only. This is due to limitation/restriction of the portal. The bidder may not be able to proceed further or revert to the former menu. Hence for BG payment of EMD, the bidder shall select "YES" option.
- Since EMD exemption is not given for this tender and due to the limitation/restriction of the portal, the bidder may not be able to proceed with BG as EMD by selecting the "No EMD exemption option" of the portal, **hence, the bidders are advised to proceed by selecting the EMD exemption as "Yes" in case EMD is submitted through BG.**

Address to which the Original BG is to be submitted on or before Bid Opening:

The Deputy General Manager (Procurement),
Assam Power Generation Corporation Ltd.,
3rd Floor, Bijulee Bhawan, Paltan Bazar,
Guwahati-1.

The BG shall be duly pledged in favour of the Chief General Manager (Gen), APGCL and shall be valid for 01 (one) year period from the Start Date of online Bid submission.

No interest shall be payable on such deposits.

Note: The bidder is requested to advise the Bank Guarantee Issuing Bank to comply with the following and ensure to submit, the receipt of the copy of SFMS message as sent by the issuing bank branch, along with the original bank Guarantee in APGCL's tender issuing office:

The Bank Guarantee issued by the Bank must be routed through SFMS platform as per the following details:

- I. MT/IFN760/MT/IFN760 COV for issuing of Bank Guarantee.
- II. MT/IFFN 760/MT/IFN 767 COV for amendment of Bank Guarantee.

The above message/intimation shall be sent through SFMS by the BG issuing bank branch to Axis Bank, Paltan Bazar Branch, A/C no. 375010200007573, IFS code-UTIB0000375, Branch Address- AXIS Bank Ltd, Commercial Building, A.T. Road, Guwahati-781001, India.

BG format for EMD is given below in Section V of this document.

Note: No EMD Exemption is provided for this Tender.

OPENING OF BIDS

2.21 Extension of Due Date for Submission of Bids

2.21.1 Bids must be submitted online (on e-tender portal) within due date and time for submission of bid.

2.21.2 The date of submission and opening of bids shall not be extended except when–

- i) Sufficient number of bids have not been received within the given time and the Purchase Committee of the Procuring Entity is of the opinion that further bids are likely to be submitted if time is extended; or
- ii) The Bidding Documents are required to be substantially modified because of discussions in pre-bid meeting or otherwise for any other reason and the time for preparations of bids by the prospective bidders appears to be insufficient for which such extension is required.

2.21.3 In cases where the time and date of submission of bids is extended, an amendment to the Bidding Documents shall be issued in accordance with ITB Para 2.10, in which case all rights and obligations of the Procuring Entity and Bidders previously subject to the deadline shall thereafter be subject to the deadline extended.

2.21.4 If the due date for submission of bids is not a working day, the bids shall be opened at the same time and hour on the next working day.

2.21.5 Bidder can withdraw or resubmit an online bid any time prior to the due date and time for submission of Bid (except details of online submission of Bid Security & Processing fee). In case of online resubmission of the bid, the latest submitted bid shall be available for evaluation.

2.22 Opening of Bids

2.22.1 Technical Bids submitted by the Bidders through the e-Procurement portal shall be opened online on the due date for opening of the bid.

EVALUATION AND COMPARISON OF BIDS

2.23 Confidentiality

2.23.1 Information relating to the evaluation of bids including finalization of the list of technically qualified bidders, price comparison and recommendation for award of contract, shall not be disclosed to bidders or any other persons not officially concerned with the bidding process until information on Contract Award is officially communicated to all Bidders.

2.23.2 Any effort by a Bidder to influence the officials of the Procuring Entity (APGCL) or its committee in the evaluation or contract award decisions may result in the rejection of its Bid.

2.23.3 Notwithstanding ITB Para 2.23.2, from the time of bid opening to the time of Contract Award, if any Bidder wishes to contact the officials of the Procuring Entity (APGCL) on any matter related to the bidding process, it should do so in writing.

2.24 Preliminary Examination of Bids

2.24.1 The Bid Evaluation Committee duly constituted by the Procuring Entity (APGCL) shall conduct a preliminary scrutiny of the bids at the beginning to assess the prima-facie responsiveness and record its findings thereof particularly in respect of the following:

- i) That the bid is prepared in the prescribed manner and contains the documents and information as required.
- ii) the bid is valid for the period, specified in the Bidding Documents.

- iii) that the bid is accompanied by due Bid Security and Processing Fee.
- iv) That the bid is unconditional, and that the bidder has agreed to give the required performance security; and
- v) Whether any other conditions specified in the Bidding Documents are fulfilled.

2.25 Clarification of Bids

2.25.1 To assist in the examination, evaluation, comparison and qualification of the bids, the Bid Evaluation Committee may, at its discretion, ask any bidder in writing for clarification by a specific date regarding its bid specifically therein that if the bidder does not comply or respond by that date his bid shall be liable to be rejected. The request of the Committee for clarification and the response of the bidder thereto shall be in writing. **Depending on the outcome, such bids shall be ignored or considered further.**

2.25.2 Any clarification submitted by a bidder about his bid that is not in response to a request by the Committee specifically shall not be considered.

2.25.3 No substantive change to qualification information or to a submission, including changes aimed at making an unqualified bidder qualified or an unresponsive submission, responsive shall be sought, offered, or permitted under any circumstances.

2.25.4 All communication generated as above shall be included in the record of the procurement proceedings.

2.26 Immaterial Non-conformities in Bids

2.26.1 The Bid Evaluation Committee may waive non-conformities in the bid that do not constitute a material deviation, reservation or omission and deem the bid to be responsive.

2.26.2 The Bid Evaluation Committee may request the bidder to submit necessary information or documents which are historical in nature like audited statements of accounts, tax clearance certificate, PAN, etc. within a reasonable period. Failure of the bidder to comply with the request within the given time shall result in the rejection of its bid.

2.26.3 The Bid Evaluation Committee may rectify immaterial non-conformities or omissions based on the information or documentation received from the bidder under ITB Para 2.26.2.

2.27 Determination of Responsiveness

2.27.1 The Bid Evaluation Committee constituted by the Procuring Entity shall determine the responsiveness of a bid to the Bidding Documents based on the contents of the bid submitted by the Bidder;

2.27.2 A bid shall be deemed to be substantially responsive if it meets the requirements of the Bidding Documents without any material deviation, reservation, or omission where:

- (a) "deviation" is a departure from the requirements specified in the Bidding Document;
- (b) "reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Documents; and
- (c) "omission" is the failure to submit part or all of the information or documentation required in the bidding documents.

2.27.3 A "material deviation, reservation, or omission" is one that,

- (a) If accepted, shall: -
 - i) effect in any substantial way the scope, quality, or performance of the subject matter of procurement specified in the Bidding Documents; or

- ii) limit in any substantial way, inconsistent with the Bidding Documents, the rights of the Procuring Entity or the obligation of the Bidder under the proposed contract; or
 - (b) if rectified shall unfairly affect the competitive position of other Bidders presenting responsive bids.
- 2.27.4 The Bid Evaluation Committee shall examine the technical aspects of the bid to confirm that all requirements of Bidding Documents have been met without any material deviation, reservation or omission.
- 2.27.5 The Bid Evaluation Committee shall regard a bid as responsive if it conforms to all requirements set out in the Bidding Documents, or contains minor deviations that do not materially alter or depart from the characteristics, terms, conditions and other requirements set out in the Bidding Documents, that is, there is no material deviation, or if it contains errors or oversights that can be corrected without any change in the substance of the bid;
- 2.27.6 Bids that are not responsive or contain any material deviation shall be rejected. Bids declared as non-responsive shall be excluded from any further evaluation.

2.28 Non-conformities, Errors, and Omissions.

- 2.28.1 Provided that a Bid is substantially responsive, the Bid Evaluation Committee may waive any non-conformities in the Bid.
- 2.28.2 Provided that a bid is substantially responsive, the Bid Evaluation Committee may request that the Bidder submit the necessary information or documentation, within a reasonable period, to rectify nonmaterial non-conformities or omissions in the bid related to documentation requirements. Such omission shall not be related to any aspect of the price of the Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

2.29 Evaluation and Comparison of Bids.

- 2.29.1 The Evaluation Committee of the Procuring Entity (APGCL) for Evaluation of this Bid shall use the criteria and methodologies listed in this Clause/document.
- 2.29.2 The Price Bid of only those bidders who are technically responsive/qualified shall be opened online for comparative evaluation.
- 2.29.3 Unless otherwise specified in "Section III: Evaluation and Qualification Criteria", the evaluation shall be done on the total offered price in BOQ which shall be inclusive of Total Basic Price, Freight, Insurance, Packing and Forwarding, GST etc. The responsive bidder offering lowest **total price** (inclusive of Total Basic Price, Freight, Insurance, Packing and Forwarding, GST etc.) shall be declared L1 (lowest) bidder. In case of tie, the bidder having highest average annual turnover in last three years shall be declared as the most preferred bidder.
- 2.29.4 The list of responsive and non-responsive bidder shall be published at the e-Procurement portal i.e., <https://assamtenders.gov.in> along with the reason for non-responsiveness.

2.30 Right to Accept or Reject any or all Bids

- 2.30.1 The Procuring Entity (APGCL) reserves the right to accept or reject any bid, and to cancel/annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to the Bidders for which the management of the Procuring Entity shall keep record of clear and logical reasons properly for any such action/recall of bidding process. In case of cancellation / annulment, all bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.

AWARD OF CONTRACT

2.31 Award of Contract

- 2.31.1 Subject to ITB 2.30.1, the contract shall be awarded to the lowest responsive bidder for the tendered item(s) as determined in the manner specified in ITB 2.29.
- 2.31.2 Procuring Entity (APGCL) shall award the tendered work to L1 bidder.
- 2.31.3 In case of a tie between two or more bidders in the price bid, then the bidder having highest average annual turnover amongst them (all L1 bidders) shall be declared as most preferred bidder.

2.32 Notification of Award

- 2.32.1 Prior to the expiration of the period of bid validity, the Procuring Entity (APGCL) shall notify the successful Bidder, in writing, that its Bid has been accepted. The notification letter (called the "Letter of Acceptance") shall specify the price of the goods/works that the Procuring Entity (APGCL) will pay the Supplier/Contractor in consideration of timely completion of contracted work (called "the Contract Price"). In addition, the contracted rate quantity to be supplied and scope of work to be carried out by the contracted party shall also be specified (called "the Contract Qty/Works"). APGCL may also issue a Work Order/Purchase Order containing details of the Scope of Supply, Price, Terms & Conditions etc.
- 2.32.2 Until a formal Contract is prepared and executed, the Letter of Acceptance/Work Order/Purchase Order shall constitute a binding Contract. In case where a Contract is not executed, the Work Order/Purchase Order shall constitute the final binding of the contract for Contractor to execute and complete.
- 2.32.3 Procurement Entity (APGCL) shall promptly respond in writing to any unsuccessful Bidder who, after notification of award in accordance with ITB Para 2.32.1, requests in writing the grounds on which its bid was not selected.

2.33 Performance Security

- 2.33.1 Within twenty-eight (28) days of the receipt of Letter of Acceptance/Order from the Procuring Entity (APGCL) or before signing of the Contract, whichever is earlier, the successful Bidder, shall furnish the Performance Security in accordance with the General Terms & Condition (GTC).
- 2.33.2 Failure of the successful Bidder to submit the above-mentioned Performance Security or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Bid Security. In that event the Procuring Entity (APGCL) may award the Contract to the next lowest evaluated Bidder, whose bid is substantially responsive, provided it agrees to lowest evaluated bid price i.e., L1 price.
- 2.33.3 The validity of the performance security shall be for a period of 45 (forty-five) days beyond the date of completion of all contractual obligations including warranty and maintenance obligations, if any. All claims under the warranty, etc. shall be preferred to the executants bank up to 6 (six) months from the above mentioned 45 (forty-five) days period.
- 2.33.4 Performance Security Deposit can also be submitted by the Contractor in the form of Fixed Deposit/Demand Draft.

2.34 Signing of Contract

- 2.34.1 Promptly after notification of Award/issue of Letter of Acceptance/issue of Purchase Order, the Procuring Entity may send the successful Bidder the draft Contract Agreement.
- 2.34.2 The successful Bidder shall sign, date, and return the contract to the Procuring Entity (APGCL) within twenty-eight (28) days of receipt of the Letter of Acceptance/Purchase Order along with required performance security.

SECTION-III

3. Evaluation and Qualification Criteria

3.1 Evaluation Criteria & Methodologies

3.1.1 Evaluation Criteria

- (i) The Procuring Entity shall use the criteria and methodologies listed in this Section/in this Document to evaluate Bids. By applying the criteria and methodologies, the TEC (Tender Evaluation Committee) shall determine the Most Advantageous Bid for Item/Schedule/Work. That is, the Bid that meets the Qualification Criteria and has been determined to be:
 - a) substantially responsive to the bidding document, and
 - b) the lowest evaluated cost for the item(s) or the Schedule, Works, as the case may be, as per ITB 2.29.
- (ii) The determination of bidder quoting lowest cost shall be based on the comparison of evaluated total bid price carried out on "Delivery Duty Paid (DDP) consignee site basis", quoted by substantially responsive bidders and shall be inclusive of all P&F, Freight, Insurance, loading/unloading charges, travelling charges, boarding, lodging, fooding charges, GST, any other tax/duties, etc. That is, L1 bidder shall be the one who quoted the lowest total price inclusive of all cost components, including GST in the BoQ (i.e., Price Bid) of the tender.

3.2 Qualification Criteria

3.2.1 Bidders Eligibility

The bidder may participate either as a single entity or as a Joint Venture (JV), provided that the bidder is legally competent to enter into a contract under applicable Indian laws.

In case of a Joint Venture (JV): All members of the JV shall be jointly and severally liable for successful execution of the contract and fulfilment of all contractual obligations.

The bidder shall fall under any one of the following categories:

Category A – Original Equipment Manufacturer (OEM)

The bidder is the Original Equipment Manufacturer (OEM).

Category B – Authorized Representative / Authorized Service Provider / Joint Venture

The bidder is an authorized representative, authorized service provider, or Joint Venture specifically authorized by the OEM.

The bidder shall submit a valid Manufacturer's Authorization Form (MAF) / Authorization Letter issued by the OEM, expressly authorizing the bidder to:

- Supply genuine OEM spare parts;
- Service M/s Fuji Electric make Hydro Turbine and Generator units;
- Provide engineering, commissioning, and technical support; and
- Fulfil all warranty obligations under the contract.

The authorization shall be submitted along with the Technical Bid and shall remain valid until completion of the contract.

Notwithstanding such authorization, the bidder shall remain fully responsible for satisfactory execution of the contract and for fulfilment of all contractual and warranty obligations.

- The term OEM is defined as below for this tender: -

"Original Equipment Manufacturer (OEM): *The Original Equipment Manufacturer of the existing Hydro Turbine and Generator installed in the 50 MW Unit of Karbi Langpi Hydro Electric Project (KLHEP), APGCL, is **M/s Fuji Electric**, hereinafter referred to as the **OEM**".*

Requirements to be fulfilled by the bidder:

A. Overhauling Liability and OEM Support Undertaking

As a mandatory eligibility requirement, the bidder shall submit, along with the bid, an unconditional Undertaking / Acknowledgement Letter issued directly by the OEM or its authorized regional subsidiary.

The said document shall expressly confirm that the OEM:

- Acknowledges the bidder's participation in the proposed overhauling contract.
- Agrees to provide technical reach-back support, proprietary data, and OEM personnel at site, if required during execution or commissioning.

B. Technical Liability and Emergency OEM Escalation

The bidder shall bear complete operational and technical responsibility for execution of the overhauling work and subsequent commissioning of the machine.

- If, during overhauling, testing, or commissioning, the bidder encounters any technical deadlock, unresolved malfunction, parameter deviation, abnormality, or failure, the bidder shall immediately notify the Owner and escalate the matter to the OEM.
- The bidder shall, at its own cost, arrange for deployment of OEM-certified technical specialists at site within 72 hours/or such other period as may be mutually agreed with APGCL from the occurrence of the issue, for troubleshooting, rectification, and restoration of the machine to normal operation.
- All costs associated with engagement of OEM personnel, including consultancy charges, emergency mobilization charges, international or domestic travel, lodging, specialized diagnostic tools, and replacement components, shall be borne entirely by the bidder.
- If the bidder fails to arrange deployment of OEM personnel within the agreed timeframe, the Owner shall have the right to contact and engage the OEM directly and recover all associated costs, including administrative charges, from the bidder's pending bills and/or Bank Guarantee.

C. Site Visit

Bidders are advised to conduct a pre-bid site visit to Karbi Langpi Hydro Electric Project (KLHEP) to acquaint themselves with the existing installation, equipment configuration, site conditions, accessibility, scope of work, and associated requirements.

Any bidder who chooses not to undertake a site visit shall be deemed to have fully acquainted itself with the site conditions and shall not be entitled to raise any claim on account of lack of knowledge of such conditions during execution of the contract.

Where a Site Visit Certificate is issued by the General Manager, KLHEP, the same may be submitted along with the Technical Bid.

D. Technical Manpower Requirement

The bidder shall possess adequate technically qualified personnel who are permanently employed or engaged under long-term employment or retainer arrangements for execution of the work.

The bidder shall submit documentary evidence such as CVs, educational qualification certificates, experience certificates, employer certifications, appointment letters, payroll records, PF/ESI records where applicable, or equivalent documentary evidence.

The bidder shall have, at a minimum, the following technical personnel:

(a) SCADA & Excitation Specialist

Minimum one (01) Engineer having not less than three (03) years of experience in SCADA systems, Digital Voltage Regulators (AVR), Excitation Systems, and associated control software, with proven experience in testing, commissioning, troubleshooting, and maintenance.

(b) Hydro Governing System Specialist

Minimum one (01) Engineer having not less than three (03) years of experience in Hydro Turbine Governing Systems, with proven experience in testing, commissioning, tuning, troubleshooting, and maintenance.

(c) Protection & Relay Specialist

Minimum one (01) Engineer having not less than three (03) years of experience in testing, commissioning, troubleshooting, and maintenance of:

- Generator Protection;
- Transformer Protection;
- Numerical Relays;
- Excitation Protection;
- Transmission Line Protection;
- Busbar Protection; and
- Associated Substation Protection Systems.

(d) Core Mechanical Engineers

- Minimum one (01) Mechanical Engineer having not less than three (03) years of experience in Hydro Turbines.
- Minimum one (01) Mechanical/Electrical Engineer having not less than three (03) years of experience in Hydro Generators.

The above technical personnel shall be physically deployed at site during the major overhauling work whenever their respective areas of expertise are involved.

3.2.2 Required Minimum Experience

The bidder shall have successfully completed, during the last seven (07) years counted from the start date of online bid submission of this tender, **at least one (01) major overhauling assignment of a Fuji Electric Hydro Turbine-Generator Unit having a unit capacity of not less than 50 MW.**

The qualifying assignment may comprise one or more work orders, executed for one or more clients, provided that such work orders collectively constitute one

(01) successfully completed major overhauling assignment and demonstrate experience covering the complete scope of the following:

- (a) Major overhauling of Fuji Electric Hydro Turbine;
- (b) Major overhauling of Fuji Electric Hydro Generator; and
- (c) Supply of major turbine spare parts forming part of a complete major overhauling package.

The qualifying experience shall pertain exclusively to Hydro Turbine and Hydro Generator equipment manufactured by M/s Fuji Electric.

The Fuji Electric Hydro Turbine and Hydro Generator covered under the qualifying experience shall have remained in successful and satisfactory commercial operation for a minimum period of one (01) year after completion of the major overhauling work executed by the bidder.

Documentary Evidence

The bidder shall submit the following documents in support of the claimed experience:

- Copy of Work Order(s) / Contract Agreement(s);
- Detailed Scope of Work;
- Work Completion Certificate(s);
- Performance Certificate(s), Operation Certificate(s), Client Certificate(s), or any other documentary evidence confirming satisfactory operation.

The submitted documents shall clearly establish the following:

- Equipment manufacturer as M/s Fuji Electric;
- Unit capacity of not less than 50 MW;
- Scope of supply and services executed;
- Successful completion of the major overhauling assignment; and
- Satisfactory operation for a minimum period of one (01) year after completion.

APGCL reserves the right to seek additional documentary evidence and to verify the submitted credentials directly with the respective owners or clients.

Declaration Regarding Debarment/Blacklisting

The bidder shall submit a declaration that it has not been banned, debarred, or blacklisted, as on the date of bid submission, by any Central Government Department, State Government Department, Public Sector Undertaking (PSU), Government Utility, or Statutory Authority for reasons related to fraudulent practices, poor performance, or breach of contractual obligations.

If any declaration furnished by the bidder is subsequently found to be false or misleading, the bid shall be liable for rejection, and if already awarded, the contract shall be liable for termination in accordance with the provisions of the contract.

3.2.3 Financial Standing

- (i) The Bidder must have an average annual Turnover of at least **Rs. 30.00 Crore (Rupees Thirty Crore only)** during the 03 (three) Financial Year, FY 2022-23, 2023-24 & 2024-25. The bidder should have positive Net Worth for last three financial years - FY 2022-23, 2023-24 & 2024-25.
- (ii) In this regard, a certified copy from the Chartered Accountant in Form-B5 should be submitted by the bidder along with his technical bid accompanied by relevant

certified financial documents viz. –Balance Sheet, Profit & Loss Statement, Cash Flow Statement, ITR, etc. of the 03 (three) financial year, FY 2022-23, 2023-24 & 2024-25, Or Audited Financial Report for FY 2022-23, 2023-24 & 2024-25.

Note: In case of Joint Venture or Consortium, each member/partner must comply with the criteria as mentioned this Clause 3.2.3: - “Financial Standing” of this Tender Document.

SECTION-IV

4. Schedule of Requirements:

Name of Work: Major Overhauling of Unit #1 of 2X50 MW Karbi Langpi Hydro Electric Project (KLHEP) along with supply of spare parts and consumables for the Overhauling of the Unit at KLHEP, APGCL, West Karbi Anglong.

The scope of work of the bidder shall include SERVICE and SUPPLY part for execution of the work of Major Overhauling of Unit #1 of 2X50 MW Karbi Langpi Hydro Electric Project (KLHEP) along with supply of spare parts and consumables for the Overhauling of the Unit at KLHEP, APGCL, West Karbi Anglong as per the quantity and technical specifications mentioned below: -

(A) SCOPE OF SERVICE: The bidder shall carry out the following works as mentioned below: -

The following scope of service is not exclusive; any other service works which are not mentioned in this tender document but will be required to complete the Major Overhauling and Commissioning of the Unit will be in the scope of the bidders.

A	<i>Turbine Disassembling</i>
1	Disassemble Wire and Pipes for Turbine
2	Disassemble Turbine Guide Bearing
3	Disassemble Guide Vane Operating Links, Pins & Lever
4	Disassemble Turbine Shaft Seal & TGB oil cooler
5	Disassemble Guide vanes Servomotors
6	Disassemble Head Cover, Runner with Turbine Shaft, Guide Vanes
7	Disassemble and inspection Bottom Ring, Discharge Ring if required
B	<i>Generator Disassembling</i>
1	Disassemble Slip ring
2	Disassemble Generator Top Cover
3	Disassemble combined bearing oil piping and instruments
4	Disassemble Upper & Lower Guide Bearing
5	Disassemble Thrust Collar
6	Disassemble Upper Bracket
7	Disassemble Generator Rotor
8	Disassemble Lower Fan shield, Lower Bracket along with all oil coolers for servicing
C	<i>Overhaul Work for Turbine and Generator</i>
1	Inspection of Stator and CO2/Dry Ice Cleaning Stator Winding, Tightness checking and replacement of Stator wedge & accessories
2	Inspection and Repair Work for Generator Rotor
3	Overhauling of Stator Air Coolers
4	Cleaning and Testing of Combined bearing and Lower bearing oil cooler
5	Testing of Generator instruments
6	Overhauling of Brake & Jacks

7	Scrapping and Blue matching of Thrust & Guide bearing
8	Repair & Cleaning Work for Turbine Parts
9	Testing of TGB cooler, turbine instruments
10	Repairing of shaft seal, Operating ring and other Turbine components
11	Inspection and Refurbishment work Draft Tube and Bottom Ring
12	Installation of new Guide Vane Servomotor
13	Overhaul Work for Main Inlet Valve, Bypass Valve, Additional Bypass Valve
14	Overhaul Work for Turbine Governor and Converter
15	Overhaul Work for Oil Pressure System and Pressure Tank Instrumentation
16	Overhaul Work for Cooling Water supply system, Bearing oil coolers and Flow Relays
17	Overhauling and Refurbishment works for Pressure Release Valve along with accessories.
18	Overhauling of Dash Pot Servomotors along with mechanism
19	Overhauling works for Governor system and Distributor Valve
D	Assembling Work for Turbine & Generator
1	Inspection and condition assessment of runner and Installation and coupling of new Spare Runner if required
2	Assembly of Discharge ring, Bottom ring, guide vanes
3	Lowering Runner with Turbine shaft and centering
4	Assembly of Head Cover, regulating ring and bearing housing
5	Adjustment of Guide vanes top & bottom clearances, bedding of Guide vanes and GV thrust clearances
6	Assembly of Guide vane servomotor and oil piping, lower fan shield, Lower Bracket
7	Assembly and leveling of Brake & Jaking system
8	Lowering Rotor in pit
9	Assembly of Upper Bracket, thrust collar, slip ring, levelling, Alignment run out test of Generator
10	Coupling of Generator and Turbine Shaft
11	Combined alignment of unit.
12	Centering of TGB housing, LGB and UGB housing and doweling
13	Assembly of TGB, LGB and UGB/Thrust Pad.
14	Assembly of Turbine Shaft Seal and pipes
15	Assembly of Generator oil piping and Cooling Water Lines/cooling water components.
16	Assembly of Turbine and Generator instruments
17	Assembly of Generator top cover
E	Generator Insulation Testing
F	Calibration Test of all Supervisory Sensor and Measuring Instruments of the Unit
G	Electrical testing for healthiness of Protection relays and Auxiliary relays.
H	Dry Test, Wet test and Commissioning Test

- (B) SCOPE OF SUPPLY:** The bidder shall supply the list of spares mentioned in **ANNEXURE-A** (Supply part for spare material for overhauling works of Unit-1), **ANNEXURE-B** (Detail technical specification and Material List of Overhauling parts) and consumables mentioned in **ANNEXURE-C** (Supply/Consumables for Air Cooler and Shaft Seal Assembly) required for execution of the major overhauling work.

Bidder shall supply the materials as per the technical specifications and dimensions mentioned against each item.

The bidder should note the following:

- (i) **For any material which mentioned in the Scope of Supply of the Bidder for which the technical specifications, drawings and dimensions are not available in this tender document, it shall be entirely the bidder's responsibility to visit KLHEP site to fully get acquainted with the dimensions, technical details, drawings, and any other necessary information for reverse engineering and manufacturing the same.**
 - (ii) The materials supplied by the bidder shall be fully compatible for safe and correct use in the hydro turbine. **Necessary Fitment and Compatibility Certificates** of the materials offered shall be submitted by the bidder along with their technical bid.
 - (iii) Required performance of the Hydro Turbine Unit as per OEM guidelines should be obtained from the Unit post completion of the Major Overhauling Work. Any corrective measures required to be taken to obtain the required performance from the Unit attributable to major overhauling shall be under bidder's scope without any additional financial implication on APGCL.
- **Few technical details and drawings are attached at ANNEXURE-D for reference of the bidder.**
- The scope of work shall 'further' include but not limited to: -**
- Packing and loading the ordered materials by bidder.
 - Safe transportation of the materials ordered to KLHEP site.
 - To buy Insurance against any loss & damage of the materials during transit up to KLHEP site and thereafter till handover of the items to APGCL.

For any further technical details regarding the work, precise measurement etc., the prospective bidders shall visit the KLHEP site on any working day at his own cost before submission of bid.

For visit at KLHEP Site, bidder shall contact the General Manager of the Plant in advance seeking permission for such site visit.

Contact Details of the General Manager of Karbi Langpi Hydro Electric Project (KLHEP) is given below: -

Mr. Longsing Bey,
General Manager, KLHEP, APGCL.
Contact No.: 9435361372 (M).
Email Id: longsing.bey@apgcl.org

Consignee Address Details:

The General Manager,
Karbi Langpi Hydro Electric project (KLHEP), APGCL.
District: West Karbi Anglong, State: Assam
PO: Amtreng, PIN: 782450
Contact No.: 8638715887 (M).
E-mail Id: khonsing.teron@apgcl.org

SECTION-V

5. Bidding Forms

Bidders shall fill-up and sign-seal and submit the below given relevant Forms – B1 to B7 and B9 in technical bid.

5.1 Letter of Bid

FORM-B1

Letter of Bid (the bidder must prepare the Letter of Bid on its letterhead clearly showing the Bidder's complete name and address.)

Date: [insert date (as DD, MM, YYYY) of Bid Submission]

Tender Ref. No.: _____

To:

The Chief General Manager (Gen), APGCL
3rd Floor Bijulee Bhawan
Paltanbazar, Guwahati-781001

- a) We have examined and have no reservations to the Bidding Documents, including Addenda issued to Bidders;
- b) We meet the eligibility and qualification criteria as set out in this Bidding Document;
- c) We have submitted the required bid security (EMD) and tender processing fee as stated in the bid document.
- d) We offer to supply following tendered item(s) in conformity with all terms and conditions as specified in the Bidding Documents including the quantity, quality standard and delivery conditions, etc., as specified in the bid document under scope of work:

Sl. No	Name of the Item(s)	Description	Remarks
1			
2			
3			
4			

- e) We have submitted both technical and price bid for above mentioned items and our bid shall be valid for 180 (one hundred eighty days) from the start date of online submission of bid, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- f) If our bid is accepted, we commit to obtain a performance security in accordance with the Performance Security Deposit Clause of the Bidding Document.
- g) We are not participating, as a Bidder, in more than one bid in this bidding process.
- h) We, along with any of our suppliers, OEM are not debarred by any procuring entity under the State Government, the Central Government or any State Government or any Public Undertaking, Autonomous Body, Authority by whatever name called under them;

- i) We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in any activities which is in contravention of the Code of Integrity proscribed in the Bidding Documents;
- j) We hereby certify that we are neither associated nor has been associated directly or indirectly with any personnel/official or any other entity that has prepared the specifications and other documents for the subject matter of procurement;
- k) We hereby certify that we have fulfilled our obligations to pay all such taxes as payable to the Central Government or the State Government or any local authority;
- l) We hereby certify that we are not insolvent, in receivership, bankrupt or being wound up, not have its affairs administered by a court or a judicial officer, not have its business activities suspended and must not be the subject of legal proceedings for any of the foregoing reasons;
- m) We hereby certify that our directors and officers have not been convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of three years preceding the commencement of the procurement process, or not have been otherwise disqualified pursuant to debarment proceedings;
- n) We understand that this bid shall constitute a binding contract between us, until a formal contract is prepared and executed; and
- o) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.

Name of the Bidder_____

Name of the person duly
authorized to sign the Bid on _____
behalf of the Bidder

Title of the person signing the Bid _____

Signature of the person named above _____

5.2 Bidder Information Form**FORM-B2****Bidder Information**

[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted.]

Date: *[insert date (as DD, MM, YYYY) of Bid Submission]*

Tender Ref. No.: _____

1. Bidder's Name <i>[insert Bidder's legal name]</i>				
2. Bidder's year of registration/incorporation: <i>[insert Bidder's year of registration/incorporation]</i>				
3. Bidder's Address: <i>[insert Bidder's legal address]</i>				
4. Activities Undertaken by the Bidder:				
5. Bidder's Authorized Representative Information				
a) Name: <i>[insert Authorized Representative's name]</i>				
b) Address: <i>[insert Authorized Representative's Address]</i>				
c) Telephone/Fax numbers: <i>[insert telephone/fax numbers]</i>				
d) Email Address: <i>[insert Authorized Representative's email address]</i>				
6. Details of the Manufacturer and the Production/Processing facility from where the offered goods/item(s) have been produced and processed.				
Sl. No.	Name of the Goods/Item(s) offered	Name of the Manufacturer	Details of the Production Facility	Details of the Manufacturing License
1				
2				

3					
4					
5					
6					
7					

7. Years of experience in similar line of activity:

8. List of clients in Govt/Public Sector to whom supply has been done in last three years:

9. Details of the Bank Account:

(i) Name of the Bank:

(ii) Type of Account:

(iii) Account Number:

(iv) IFSC:

Signature of the Bidder/ Authorized Signatory

(Name, Address & Designation)

5.3 Manufacturer's Letter of Authorization**FORM-B3****Manufacturer's Authorisation Letter**Date: *[insert date (as DD, MM, YYYY) of Bid Submission]*

Tender Ref. No.: _____

To: *[insert complete name of Bid Inviting Entity]*

WHEREAS

We *[insert complete name & address]*, who are manufacturer of *following items*, do hereby authorize *[insert complete name of Bidder]* to submit a bid, the purpose of which is to provide the following item(s), produced/manufactured by us, and to subsequently negotiate and sign the Contract.

S. No	Name of the Item(s)	Quality Certifications	Details of the Mfg. License	Details of Production Facility
1				
2				
3				
4				

We have been manufacturing product(s) of similar in nature as stated above since last three financial years ended on 31st March 2026.

We shall stand guarantor with respect to the quality and genuineness for the goods manufactured or produced by us and supplied by *<insert the name of the bidder>* to *<insert name of the procuring entity>*, on the award of the contract.

We also stand guaranteed to fulfil the warranty and maintenance obligations with respect to the goods manufactured by us as per the bid terms and conditions either directly or through our authorized representatives.

Signed: *[insert signature(s) of authorized representative(s) of the Producer/Manufacturer]*

Name: *[insert complete name(s) of authorized representative(s) of the Producer/Manufacturer]*

Designation: *[Designation]*

Dated on _____ day of _____, *[insert date of signing]*

Note: The Bidder (if not the manufacturer of the goods offered) shall require the Manufacturer to fill in this Form in accordance with the instructions indicated. **This letter of authorization should be on the letterhead of the Manufacturer** of the Goods offer and **should be signed by a person with the proper authority** to sign documents that are binding on the Manufacturer. The Bidder shall include it in its bid]

5.4 Details of Orders**FORM- B4**

Name of the Bidder: _____

Tender Reference No. _____

Name of the Client	Order No. and Date	Description of the Goods Supplied & Work Executed	Value of Order	Quantity	Reason for delay in completion, if any.
1	2	3	4	5	6

Signature
(Bidder/ Authorised Representatives)

The Bidder shall also furnish the following documents in connection with their past performance:

- i) Copy of Orders.**
- ii) Documentary evidence (Client's certificate) in support of satisfactory completion of contract: Work Completion Report.**

5.5 Financial Strength of the Bidder**FORM-B5****Certificate on Financial Strength
(On the letterhead of Chartered Accountant/Statutory Auditor)**

We/I have verified the Audited Financial Statement of Accounts and other documents of..... having registered office at pertaining to the financial year 2022-23, 2023-24 and 2024-25. Based on our verification of the aforesaid statements and records, we certify that the following details are true to the best of our information and according to the explanation given to us.

(Amount in INR Lakhs)

Financial Information	Financial Year			Average
	2022-23	2023-24	2024-25	
	Audited	Audited	Audited	
Total Turnover				
Net worth				

Date:

Signature and seal of the CA firm

Place:

UDIN:.....

Note:

- a) *The bidder must furnish CA Certified/Audited financial statements for the above-mentioned financial years.*

5.6 Power of Attorney for Signing of Bid**FORM-B6****Format for Power of Attorney for Signing of Application
(On a Stamp Paper of Rs 100/-)**

We, [name and address of the registered office] do hereby constitute, appoint and authorize Mr. / Ms.(name and residential address) who is presently employed with us and holding the position ofas our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our response to the Tender for _____[insert Name of the Work] including signing and submission of all documents and providing information to the Client (i.e. [insert name of the Bid Inviting Entity]) and its officials or representatives, representing us in all matters before Client, and generally dealing with Client in all matters in connection with our bid response.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us. Dated this the _____ day of _____ 2026.

For _____
(Signature)
(Name, Designation and Address)

Accepted _____
(Signature)
(Name, Title and Address of the Attorney)

Date: _____

Note:

- i. *The mode of execution of the Power of Attorney should be in accordance with the procedure, if any, as laid down by the applicable law and the charter documents of the executants(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.*
- ii. *In case an authorized Director or key officials of the Applicant signs the Application, a certified copy of the appropriate resolution/document conveying such authority may be enclosed in lieu of the Power of Attorney.*
- iii. *In case the Application is executed outside India, the Applicant must get necessary authorization from the Consulate of India. The Applicant shall be required to pay the necessary registration fees at the office of Inspector General of Stamps.*

5.7 Undertaking by the Bidder**FORM-B7****Affidavit**

(To be submitted on non-judicial stamp paper of minimum Rs 50/- duly certified by Notary)

We, M/s. (the Bidder), (the names and addresses of the registered office) hereby certify and confirm that:

- (i) We or any of our promoter(s) /director(s)/partner(s) are not blacklisted or otherwise disqualified pursuant to any debarment proceedings by any Central or State Government, Local Government or Public Sector Undertaking in India from participating in any bidding process, either individually or as member of a consortium as on the_____ (Date of Signing of Bidder).
- (ii) We are not insolvent, in receivership, bankrupt, being wound up, having our affairs administered by a court or a judicial officer, having our business activities suspended or subject of legal proceedings for any of the foregoing reason;
- (iii) We or any of our promoter(s), director(s), partner(s) and officers are not convicted of any criminal offence related to their professional conduct or the making of false statements or misrepresentations as to their qualifications to enter into a procurement contract within a period of *three years* preceding the commencement of the procurement process.
- (iv) There is no conflict of interest in submitting this Bid.
- (v) We shall abide by the clauses/ conditions of Bidding Documents issued by the Procuring Entity and any amendment made thereafter.

We further confirm that, we are aware of the fact that, our Bid submitted in response of the Tender Ref. No. [*insert tender number &date*] for [*insert the name of the Goods/subject matter of the Tender*], would be liable for rejection in case any material misrepresentation is made or discovered at any stage of Bid evaluation or thereafter during the agreement period.

Signature of the Bidder/Authorized Representatives

Name of the Bidder/Authorized Representatives

5.8 Bank Guarantee Format for Bid Security (EMD)**FORMAT-B8****Format of BG for Bid Security (EMD)****(IN STAMP PAPER of Minimum Rs 100/-)****Bank Guarantee No:** _____, **Date:** _____**Bank Details:****Guarantor:****Tender No:****Name of Work:****Name of Bidder/Applicant:****Beneficiary:** Chief General Manager (Gen),

Assam Power Generation Corporation Ltd. (APGCL)

3rd Floor, Bijulee Bhawan, Paltanbazar, Guwahati - 781001,

Assam.

Whereas(*Name and address of the bidder*) is willing to submit their bid against the above mentioned tender no: for(*Name of Work*) invited by the beneficiary on behalf of Assam Power Generation Corporation Ltd. and as per tender/bid conditions, the applicant is required to submit a Bank Guarantee as Earnest Money Deposit.

At the request of the applicant, we as Guarantor, hereby irrevocably undertake to pay the beneficiary any sum or sums not exceeding in total an amount of Rs.....(*in numeric*) (*Rupeesonly- In words*) if:

- 1) The bidder withdraws or amends, impairs or derogates from the bid in any respect within the period of validity of the bid.
- 2) The bidder fails to furnish the Performance Security for the due performance of the contract/Work Order against this tender.
- 3) The bidder fails or refuses to execute the contract.

We undertake to pay the beneficiary up to the above amount upon receipt of its first written demand, without the beneficiary having to substantiate its demand, provided that in its demand the beneficiary will note that the amount claimed by it due to it owing to the occurrence of one or more of the conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up.....(*date*) i.e. for 01 (one) Year from the start date of online submission of bid up to amount Rs..... (*in numeric*) (*Rupeesonly- In words*) and any demand in respect thereof should reach the bank not later than the above date.

Notwithstanding anything contrary contained in any law for the time being in force or banking practice, this guarantee shall not be assignable or transferable by the beneficiary, notice or invocation by any person such as assignee, transferee or agent of beneficiary shall not be entertained by the bank. Any invocation of guarantee can be made only by the beneficiary directly.

Notwithstanding anything to the contrary contained herein :

1. Our liability under this bank Guarantee shall not exceed Rs.....(*in numeric*) (*Rupeesonly- In words*).
2. This Bank Guarantee shall be valid up to.....(date) i.e. from 01 (one) Year from the start date of online submission of bid.
3. The beneficiary's right as well as the Bank's liability under this guarantee shall stand extinguished unless a written claim or demand is made under this guarantee up.....(date) i.e. up to a period of 01 (one) Year from the start date of online submission of bid.
- 4.

Dated at_____this ____ day of _____, 2026.

(Signature on behalf of the Nationalized/Scheduled Bank)

(Seal of the
Nationalized/Scheduled Bank)

Address of the main Branch of the Bank.....

Address of the BG issuing Bank.....

5.9 Statutory Tax Compliance

FORM B9
Statutory Tax Compliance

Self-Undertaking for Payment of Statutory Taxes**To,**

The Procuring Entity,
 [Name of Department/Organization]
 [Address]

Subject: Self-Undertaking regarding payment of statutory taxes before applying for tender
 Tender/Bid Reference No & Date: _____.

- a) I/We have duly paid and cleared all statutory taxes, cess, dues, and levies payable to Local Authorities, Panchayats, Municipalities, State Government, and the Central Government up to the date of this tender submission and undertake to promptly discharge any such dues that may arise during the tenure of the contract.
- b) I/We shall be solely responsible for payment of all applicable taxes, including GST, duties, license fees, cess, and any other statutory liabilities arising in connection with the performance of the contract.
- c) I/We undertake to immediately inform the Procuring Entity of any statutory revision, demand, or default and shall bear complete responsibility for settlement of such dues, keeping the Procuring Entity fully indemnified against any liability in this regard.
- d) I/We hereby confirm that all notices, demands, or proceedings issued by any Tax Authority up to the date of this submission have been duly complied with and settled. Any outstanding demand has been disclosed to the Procuring Entity, and I/We undertake to settle the same before award of contract, keeping the Procuring Entity indemnified against any liability.
- e) In case of any reduction in the rate or amount of GST, taxes, duties, or levies after the Notification of Award, the corresponding benefit shall be duly passed on to the Procuring Entity without delay.
- f) This undertaking shall remain valid and binding for the entire duration of the tender evaluation and, if awarded, for the full tenure of the contract including any extensions, until its closure.
- g) I/We understand that at any stage if it is found that any statement or document submitted is false/forged/invalid, the Procuring Entity has discretion to terminate the contract and proceed with alternate arrangements as per the tender's risk purchase clause if any.

I/We declare that the above statements are true to the best of my/our knowledge and belief.

Authorized Signatory

Name: _____

Designation: _____

Firm/Company Name: _____

Date: _____

Place: _____

Company Seal:

5.10 GST Rules, Act etc. Compliance Undertaking**FORM B10**

(To be submitted in bidders' pad along with technical bid)

Certified that in discharging the outward tax liability by ITCs all the provisions of GST Acts, Rules and notifications made therein are complied with including the following provisions:

- Goods and services relating to ITCs have actually been received.
- ITCs has been availed strictly in compliance with provisions under Section 16(2) (aa).
- Tax relating to ITCs has actually been paid to the government.
- No ITCs, though reflected in GSTR2B, availed if it is restricted by Section 38(2)(b).
- No ITCs, though reflected in GSTR2B, availed if it is blocked by Section 17(5).
- No ITCs in excess of input goods and services utilized actually in the projects/ works, are utilized to discharge the liabilities.
- In no case, utilization of ITCs in discharging liabilities exceeds the upper limit as prescribed by contractee department.
- The above facts are true to the best of my knowledge.

Signature & seal of contractor/bidder
Name of Bidder:
Designation:

5.11 Checklist of Documents

To be submitted along with Technical Bid by Bidder:

FORM-B11**CHECKLIST**

Sl. No.	Description of the Document	Page		Remarks (if any)
		From	To	
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				

SECTION-VI

6. General Terms and Conditions (GTC):

The bidder must adhere to the clauses of this tender document and also, the tender must be submitted as per instructions given in this document, in the absence of which the submitted tender of the bidder may not be considered for evaluation at this end. However, in case of deviation from any of APGCL's tender document clause by the bidder, the same must be stated clearly as per the format given below:

EXCEPTION AND DEVIATION PROFORMA

Sl. No.	Ref of Bid Document	Subject	Deviation Details
	<i>Page No.</i>	<i>Clause No.</i>	

In case the bidder doesn't state the deviation(s) clearly, it will be presumed that the bidder has accepted all terms and conditions of this tender document. **Also, acceptance/rejection of bidder's deviation(s) shall be at sole discretion of APGCL.**

The clauses under the 'Terms & Conditions of Contract' are given below:

6.1 *Firm Price:*

The basic price(s) quoted by the bidder shall be firm without any variation in any way till completion of the work in full.

The price offered in the Price Bid for the item(s) shall be based on FOR consignee location/DDP {Delivery Duty Paid} (Place of destination) price. (i.e., Charges against Freight, Transit Insurance, Packing and Forwarding etc. **shall be inclusive**). The basic prices shall also be **inclusive of** any charges against loading/unloading, travelling expenses of Contractor's Personnel, boarding & lodging of Contractor's Personnel at site, etc.

6.2 *Performance Security Deposit:*

On receipt of the Letter of Acceptance/Order, the successful bidder shall have to deposit a Bank Guarantee from a Nationalized or Scheduled Bank of RBI for an amount equivalent to 10% (ten percent) of the total value of Order (including GST, etc.) as performance security, **within 28 (twenty eight) days** from the date of receipt of the LOA/Order or before signing of contract, whichever is earlier, duly pledged in favor of the Chief General Manager (Gen), APGCL and such security deposit shall be valid up to 45 (forty-five) days beyond the date of completion of all contractual obligations including warranty and other obligations, if any.

If the Contractor fails or neglects to perform any of his obligations under the contract/as per order/tender, then APGCL shall have the right to forfeit either in full or in part at its absolute discretion, the security deposit furnished by the Contractor. No interest shall be payable on such deposits.

Note: The successful bidder is requested to advise the Bank Guarantee issuing bank to comply with the following and ensure to submit, the receipt of the copy of SFMS message as sent by the issuing bank branch, along with the original bank Guarantee in APGCL's tender issuing office:

The Bank Guarantee issued by the Bank must be routed through SFMS platform as per following details:

- i. MT/IFN760/MT/IFN760 COV for issuing of Bank Guarantee.

- ii. MT/IFFN 760/MT/IFN 767 COV for amendment of Bank Guarantee.

The above message/intimation shall be sent through SFMS by the BG issuing bank branch to Axis Bank, Paltan Bazar Branch, A/C no. 37501020007573, IFS code- UTIB0000375, Branch Address- AXIS Bank Ltd, Commercial Building, A.T. Road, Guwahati-781001, India.

Apart from Bank Guarantee, Performance Security Deposit can also be submitted through Fixed Deposit (FD) and Demand Draft (DD), pledged/drawn in favor of The Chief General Manager (Gen), APGCL, Bijulee Bhawan, Paltan Bazar, Guwahati-1. All other Terms & Conditions regarding the Performance Security Deposit shall remain the same as mentioned in the above paragraphs.

Note: The Bid Security (EMD) deposited by a Bidder may be forfeited in case the bidder does not deposit the required performance security and/or sign the contract **within the specified time period.**

6.3 **Packing:**

The Bidder shall provide packing of the Goods as is required to prevent their damage or deterioration during transit to their destination. During transit, the packing shall be sufficient to withstand, without limitation, rough handling and exposure to extreme temperatures, salt and precipitation, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

6.4 **Insurance:**

- a. The Contractor shall, unless otherwise specified by the Purchaser (APGCL), insure the materials through their underwriter at their cost and shall keep it insured against any loss/damage/pilferage in transit, destruction or damage by fire/flood, exposure to vagaries of weather or through riot, civil commotion, war or rebellion, for the full value of the materials until the materials are received at the Purchaser's (APGCL) destination store and till commissioning/handover to APGCL.
- b. The Contractor shall be responsible for safe arrival of the goods at destination (APGCL Store), their unloading and their receipt by the consignee. Assam Power Generation Corporation Limited will discharge consignee's responsibilities only and shall not be responsible for any damage/loss/pilferage/ non-delivery by the carriers.
- c. In case of any loss/damage/pilferage/non-delivery/short delivery by carriers etc. the supplier (Contractor) shall replace free of cost the missing/damaged/lost materials within 30 (thirty) days from the receipt of report thereof from the consignee without waiting for settlement of their claims with their carriers/ under-writers. Normally such reports from the consignee to the supplier (Contractor) shall be initiated within a period of 30 (thirty) days from the date of receipt of each consignment by him.
- d. If it is considered necessary that the damaged equipment either in part or in full be sent back to the manufacturer's works for repair, the manufacturers/suppliers (Contractor) will furnish the Bank Guarantee for the full value of equipment needing repairs and such Bank Guarantee shall remain valid till such time the equipment are repaired and returned to the consignee in good condition. The to and fro freight, handling and insurance charges in such cases will be borne by the Contractor.
- e. Unless otherwise mutually agreed upon, in case of failure by the supplier to replenish/ make good of the loss/ damage/ short supplied quantities, within the stipulated period, the Purchaser (APGCL) reserves the right to forfeit the security deposit and/or adjust any outstanding payment to the Contractor with APGCL or take any other appropriate action.

- f. All materials will be dispatched against clear door delivery basis unless otherwise agreed by the Purchaser (APGCL).

6.5 Clarification and Additional Information:

During the submitted bid's evaluation, APGCL may request the bidder for any clarification on the submitted bid and/or documents related to the tender. The bidder shall submit the sought clarifications and/or document(s) within stipulated time as determined by the undersigned. However, seeking clarification and document(s) during bid evaluation shall be on sole discretion of APGCL.

6.6 Precautions to be Taken During Execution of Work:

The Contractor shall take reasonable and statutory precaution during execution of the work at work site so as to avoid accident and damage to equipment and injury to workman and to prevent theft, pilferage etc.

6.7 Liability for Accident and Damage:

The Contractor shall not claim for compensation arising out of any accident(s) or damages done during the course of work execution at work site & the Contractor will be responsible for paying compensation to the worker as per Workmen Compensation Act, 1923 and subsequent amendments thereof. It is further clarified that in case any payment is to be made by the Contractor under the said Workmen Compensation Act, the same shall be paid forthwith and in case of failure in making such payments APGCL shall make payment and the amount so paid shall be deducted from the bills of the Contractor.

The Contractor shall adequately insure against liability to third party, in the joint names of the Employer, the Contractor and the sub-contractor for any loss, damage, death or bodily injury which may occur to any physical property owned by others, the goods/materials of the contract or to any person which may arise out of the performance of the contract.

6.8 Acceptance of the Order/LOA:

Acceptance of the Order/LOA in writing shall be conveyed by the supplier/Contractor to the Purchaser/Employer (APGCL) within 07 (seven) days from the date of issue of the such Order/LOA failing which, it will be presumed that all the Contractor has accepted the same in full.

6.9 Force Majeure:

Normally, force majeure shall cover only Act of God, fire, war, riots, epidemics and act of Government, etc. Any constraints other than those specified above, will not constitute a force majeure condition. In view of other constraints beyond the control of the Contractor, primarily due to statutory compulsion, extension of delivery time may also be considered on merit of individual case.

In case of a force majeure condition, the Contractor shall notify APGCL in writing such condition within 10 (ten) days from the beginning of such delay for consideration and acceptance. Unless otherwise directed by the Purchaser (APGCL) in writing, the Supplier (Contractor) shall continue to perform its obligations under the Contract as far as is reasonably practical and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

6.10 Settlement of Disputes:

a. Amicable Settlement:

If any dispute or difference (s) of any kind whatsoever arise between the parties in connection with or arising out of the work/contract, including without prejudice to the generality of the foregoing, any question regarding its existence, validity or termination, or the execution of the Contract whether during the progress of the Contract or after its completion and whether before or after the termination, abandonment or breach of the Contract, the parties shall seek to resolve any such

disputes or differences by mutual consultation between the authorized representatives of both the parties for amicable settlement of the dispute within a period of ninety (90) days after receipt by one party of the other party's request for such amicable settlement.

b. Arbitration:

Any dispute, controversy or claim arising out of or relating to this work/contract or the breach, termination or invalidity thereof, that cannot be settled amicably between both the parties shall be settled by Arbitration.

In any arbitration proceeding hereunder-

- a) Arbitration shall be in accordance with the Arbitration & Conciliation Act, 1996 or any statutory amendment thereof.
- b) Arbitration shall be by a sole arbitrator, if agreed upon by the Parties. Failing agreement on the identity of such sole arbitrator, each Party shall appoint one arbitrator, and these two appointed arbitrators shall jointly appoint a third arbitrator, who shall chair the arbitration panel and act as the Presiding Arbitrator.
- c) In an arbitration proceeding consisting of three arbitrators, if a party fails to appoint an arbitrator within 30 days from the receipt of a request to do so from the other party; or the two appointed arbitrators fail to agree on the third arbitrator within thirty days from the date of their appointment, the appointment shall be made upon request of a party by the High Court or by the President, Institution of Engineers (India), Assam State Centre.
- d) In an arbitration with sole arbitrator, if the parties fail to agree on the arbitrator within 30 days from receipt of a request by one party from the other party to so agree, the appointment shall be made, upon request of a party, by the High Court or by the President, Institution of Engineers (India), Assam State Centre.
- e) Proceedings shall, unless otherwise agreed by the Parties, be held in Guwahati.
- f) English language shall be the official language for all purposes.
- g) Decision of the sole arbitrator or of a majority of the arbitrators (or of the third arbitrator if there is no such majority) and the Arbitral Award shall be final and binding on the parties and the persons claiming under them respectively and shall be enforceable in any court of competent jurisdiction, and the Parties hereby waive any objections to or claims of immunity in respect of such enforcement.
- h) The arbitrators and the parties to the arbitration shall maintain confidentiality of all arbitral proceedings except award where its disclosure is necessary for the purpose of implementation, enforcement and setting aside of the award.
- i) The cost of arbitration shall be equally shared among both the parties.

6.11 Legal Jurisdiction:

Any disputes or differences arising under, out of, or in connection with this work/contract, shall be subject to the exclusive jurisdiction of courts at Guwahati only.

6.12 Mistakes/Errors in submitted Bid:

The Contractor shall be responsible and liable for any change in the work due to any discrepancies, errors, or omissions in the submitted bid which have arisen due to inaccurate information or particulars furnished by the Contractor, even though approved by APGCL.

6.13 Indemnification:

The Contractor shall indemnify APGCL against all claims, actions, suits and proceedings for the infringement or alleged infringement of any patent, design or copyright protected either in the country of origin or in India for the use of any equipment supplied by the Contractor but such indemnity shall not cause any use of

the equipment other than for the purposes indicated by or reasonably to be inferred from the specification.

6.14 Subletting Contract:

The Contractor shall not, without the consent in writing of APGCL assign or sublet his contract, or any substantial part thereof, or interest therein of benefit or advantage whatsoever, other than for raw materials or for minor details or for any part of the work of which the Sub-contractors are named in the tender provided any such consent shall not relieve the Contractor from any obligation, duty or responsibility under the contract.

6.15 Variation of Quantity:

APGCL might increase or decrease the quantity of materials by 20% if so required and the bidder shall agree to the same and shall supply the materials at the same quoted rates/prices in BOQ and terms and conditions stipulated in the tender except in regard to delivery schedule/work completion period, which shall be mutually agreed upon in case of increase in the ordered quantity from that in the tender.

6.16 Co-Operation with Other Contractors:

The Contractor shall agree to co-operate with the APGCL's other contractors for associated supplies and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid unnecessary duplication. No remuneration shall come from APGCL for such technical co-operation.

6.17 Contractual Failure:

In the event of contractual failure of any respect on the part of the Contractor, APGCL shall be entitled to **forfeit** the performance security deposit or any deposit or any payment due to the Contractor from this or his other contracts towards the recovery of APGCL's claim for damages arising out of the failure. In addition, APGCL may black-list or ban the Contractor or pending enquiry, suspend him or take any other steps considered suitable.

6.18 Rejection:

In the event, any of the materials supplied by the Contractor or work executed is found defective or otherwise not in conformity with the requirements of the contract/tender specifications, APGCL shall either reject the material/work or request the Contractor in writing to rectify the same. The Contractor, on receipt of such notification shall rectify or replace the defective material/rectify the defective work free of cost to APGCL. If the Contractor fails to do so, APGCL may at its option: -

- (a) Replace or rectify such defective/non-conforming material/correct the defective work and recover the extra cost so involved plus 15% as overhead charge from the Contractor, or
- (b) Terminate the contract for default, or
- (c) Acquire the defective material at a reduced price as considered equitable under the circumstances.

6.19 Deduction from Contract Price:

All cost, damages or expenses which APGCL may have made for which, under the contract, the Contractor is liable, may be deducted by APGCL from any money due or becoming due by APGCL to the Contractor or may be recovered by action at law or otherwise from the Contractor.

In the event of recovery to the necessary extent becoming impossible owing to insufficiency of the earnest money/security deposit and withheld amounts, the balance due to APGCL may at the option of APGCL be recovered from any money due to the Contractor from APGCL under other contracts with the Contractor.

6.20 Death, Bankruptcy etc.:

If the Contractor becomes bankrupt or being a corporation is in the process of winding up, amalgamation or reorganization, then APGCL shall be at liberty to: -

- (a) Terminate the contract forthwith by notice in writing to the Contractor or to the liquidator or receiver or to any person in whom the contract may become vested.
- (b) Give such liquidator, receiver or other person the option of carrying out the contract subject to his providing a guarantee for the due and faithful performance of the contract up to an amount to be determined by APGCL.

In case of death of the Contractor before completion of the work, then APGCL shall be at liberty to:

- (a) Close up the contract and take over the completed portion of work/supply done and made as per specification and make final payment to the legal heir of the Contractor on receipt of claim from such legal heir.
- (b) Give the contract to the legal heir of the Contractor subject to his depositing a performance security for the due and faithful performance of the contract. The performance security amount shall be determined by APGCL commensurate with the incomplete portion of the work/supply. APGCL will enter into a fresh contract with the legal heir of the Contractor on the same terms and conditions of the earlier contract.

6.21 Regulation of Local Authorities:

The Contractor shall abide by the regulation of local Authorities unless such regulation is repugnant to any terms of the contract agreed upon.

The Contractor is required to fulfill all criteria related to Labour Laws.

The Contractor will also comply with all regulations/directives of both State & Central Government Pollution Boards.

6.22 Suspension Of Business Dealings with Firms/Contractors:

APGCL may suspend business dealings with a Firm/Contractor, if:

- (a) The Central Bureau of Investigation or any other investigating agency recommends such a course in respect of a case under investigation; and if a prima facie case is made out that the firm is guilty of an offence involving unethical, unlawful, fraudulent means in relation to business dealings, which, if established, would result in business dealings with it being banned.
- (b) APGCL has past record of non-performance of the Firm in its previously awarded contracts.
- (c) APGCL has record of ban against the Firm by other Government / Public sector utility.
- (d) However, APGCL shall give the Firm/Contractor a fair chance to explain the circumstances of such previous suspensions.

6.23 Banning Of Business Dealings with Firms/ Contractors:

APGCL may ban business dealings with a Firm/Contractor, if:

- (a) The owner (s) of the Firm/Contractor is convicted by a court of law following prosecution for offences involving unethical, unlawful, fraudulent means in relation to business dealings.
- (b) There is strong justification that the Firm has been guilty of malpractices, such as, bribery, corruption, fraud, substitution of tenders, misrepresentation, evasion or habitual default in payment of any Government tax, etc.
- (c) The Firm continuously refuses to return government dues without showing adequate cause and Government are reasonably satisfied that this is not due to reasonable dispute which would attract proceeding in arbitration or court of law.
- (d) The Firm is found guilty of involving in unethical practices, such as:

1. "Corrupt practice" involving offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence the action of any such official procurement process or in contract execution.
2. "Fraudulent practice" involving misrepresentation or omission of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer.
3. "Collusive practice" involving a scheme among bidders (prior to or after submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.
4. "Coercive practice" involving harming or threatening to harm directly or indirectly, persons or their property to influence procurement process or the execution of a contract.

APGCL may sanction a Firm/ Contractor or its successor, including declaring ineligible, indefinitely or for a period of not less than 3 (three) years.

6.24 **Language:**

Contract as well as all correspondence and documents relating to the Contract exchanged by the Contractor and the Purchaser (APGCL), shall be written in English language. Supporting documents and printed literature that are part of the Contract may be in another language provided they are accompanied by a self-certified accurate translation of the relevant passages in English language, in which case, for purposes of interpretation of the Contract, this translation shall govern.

The Contractor shall bear all costs of translation to the governing language and all risks of the accuracy of such translation, for documents provided by the Supplier.

6.25 **Joint Venture or Consortium:**

If the Contractor is a joint venture, or consortium, all the parties shall be jointly and severally liable to the Purchaser (APGCL) for the fulfillment of the provisions of the Contract and shall designate one party to act as a leader with authority to bind the joint venture or consortium. The composition or the constitution of the joint venture or, consortium, shall not be altered without the prior consent of the Purchaser (APGCL).

In the case of a Joint Venture: -

- (a) no partner of the Joint Venture shall submit an independent bid for the same package for which the Joint Venture submits a bid as this shall constitute conflict of interest;
- (b) all partners of the Joint Venture shall be jointly and severally liable for the bid and for the execution of the Contract in accordance with the terms of the contract and a relevant statement to this effect shall be submitted by them in evidence thereof;
- (c) in the event of the bid of Joint Venture being accepted, they shall either form a registered Joint Venture Company or a Limited Liability Partnership, or a Partnership Firm or else the contract documents and the Joint Venture Agreement, etc. shall be duly signed and executed in such a manner as may be required for making it legally binding on all partners and clearly indicating, amongst other things, the proposed distribution of responsibilities, both financial as well as technical, for execution of the work amongst them; and
- (d) the Joint Venture shall nominate a Lead Partner who shall have the authority to conduct all business for and on behalf of any or all the parties of the Joint Venture during the bidding process and during execution of the contract. This authorization shall be evidenced by submitting a power of attorney signed by

the legally authorized signatories of all the partners or, otherwise, all the parties in Joint Venture shall sign the Agreement.

6.26 Nationality and Country of Origin Requirements:

The Contractor, its Subcontractors, and suppliers shall comply with all applicable eligibility requirements prescribed under Assam Public Procurement Act, 2017 and Assam Public Procurement Rule, 2020 and as amended from time to time.

All Goods to be supplied under the contract shall have their origin in India or any other country with which India has not banned trade relations. The term "origin" used in this clause means the place where the goods are mined, grown, produced, or manufactured or from where the related services are arranged and supplied.

6.27 Tax and Duty Responsibility.:

The Contractor shall be responsible for all taxes, duties, license fees, etc. incurred until completion of contracted work of the purchaser (APGCL).

6.28 Inspection & Testing:

6.28.1 The Contractor shall at its own expense and at no cost to the Purchaser (APGCL) carry out all such tests and/or inspections of the Offered Goods as per any Standard Practice/Requirement.

6.28.2 The inspections and tests may be conducted on the premises of the Supplier (Contractor) or its Subcontractor, at point of delivery, and/or at the Goods' final destination, or in another place in India. If conducted on the premises of the Supplier or its Subcontractor, all reasonable facilities and assistance including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser (APGCL).

6.28.3 If required, the Purchaser (APGCL) or its designated representative shall be entitled to attend the tests and/or inspections, and the Purchaser (APGCL) will bear its own costs and expenses incurred owing to traveling and board and lodging expenses **only**.

6.28.4 Whenever the Supplier (Contractor) is ready to carry out any such test and inspection, it shall give a reasonable advance notice, including the place and time, to the Purchaser (APGCL). The Supplier shall obtain from any relevant third party or manufacturer any necessary permission or consent to enable the Purchaser (APGCL) or its designated representative to attend the test and/or inspection.

6.28.5 The Supplier (Contractor) shall provide the Purchaser (APGCL) with a report of the results of any such test and/or inspection.

6.28.6 The Purchaser (APGCL) may reject any Goods or any part thereof that fail to pass any test and/or inspection or do not conform to the specifications. The Supplier (Contractor) shall either rectify or replace such rejected Goods or parts thereof or make alterations necessary to meet the specifications at no cost to the Purchaser (APGCL), and shall repeat the test and/or inspection, at no cost to the Purchaser (APGCL), upon giving a notice.

6.28.7 The Supplier (Contractor) agrees that neither the execution of a test and/or inspection of the Goods or any part thereof, nor the attendance by the Purchaser or its representative, nor the issue of any report, shall release the Supplier (Contractor) from any warranties or other obligations under the Contract.

6.29 Confidential Information:

a. Any information derived or otherwise communicated by the Purchaser (APGCL) to the Supplier (Contractor) in connection with the contract shall be kept/treated as secret and shall not without written consent of the Purchaser (APGCL)

be published or disclosed to any third party or made use of by the Supplier except for the purpose of execution of the contract.

- b. The Purchaser (APGCL) and the Supplier (Contractor) shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data, or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following completion or termination of the Contract. Notwithstanding the above, the Supplier may furnish to its Subcontractor such documents, data, and other information it receives from the Purchaser to the extent required for the Subcontractor to perform its work under the Contract, in which event the Supplier shall obtain from such Subcontractor an undertaking of confidentiality like that imposed on the Supplier under GTC Clause Copyright.
- c. The Purchaser (APGCL) shall not use such documents, data, and other information received from the Supplier (Contractor) for any purposes unrelated to the contract. Similarly, the Supplier shall not use such documents, data, and other information received from the Purchaser for any purpose other than the performance of the Contract.
- d. The obligation of a party under GTC Sub-Clauses 6.29 (a, b, c) above, however, shall not apply to information that:
 - i. the Purchaser or Supplier need to share with the such institution(s) participating in the financing of the Contract;
 - ii. now or hereafter enters the public domain through no fault of that party;
 - iii. can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party; or
 - iv. otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.
- e. The above provisions of GTC Clause 6.29 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Supply/Work or any part thereof.
- f. The provisions of GTC Clause 6.29 shall survive completion or termination for whatever reason, of the Contract.

6.30 **Limitation of Liability:**

Except in cases of criminal negligence or willful misconduct, the aggregate liability of the Supplier (Contractor) to the Purchaser (APGCL), whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of replacing the substandard Goods supplied/ substandard work executed, or to any obligation of the supplier to indemnify the purchaser (APGCL) with respect to patent infringement.

6.31 **SIGNATORY**

All documents including annexures, financial statements, certificates, documents related to eligibility and experience criteria of the bidder, drawings, specifications etc. submitted by the bidder against this tender must be signed and sealed on all pages by the authorized person named in the Power of Attorney (PoA) Form-6 submitted by the bidder. Also, any shortfall or additional documents submitted by the bidder upon request

from APGCL post technical bid opening shall also be signed and sealed by the authorized person named in PoA (Form-6).

6.32 Copyright:

The copyright in all drawings, documents, and other materials containing data and information furnished to the Purchaser (APGCL) by the Supplier (Contractor) herein shall remain vested in the Supplier, or, if they are furnished to the Purchaser/Authority directly or through the Supplier by any third party, including suppliers of materials, the copyright in such materials shall remain vested in such third party.

SECTION VII

7. Special Terms and Conditions (STC)

7.1 Terms of Payment:

Initial Advance of **10% of the total ordered** value may be released on submission of equivalent amount of Advance Bank Guarantee (ABG). The ABG should be valid till the full recovery of advance amount. Advance amount shall be adjusted **@ 10% from each bill till the full recovery of the advance.**

Supply Part: **70% payment** of the total supply value along with 100% GST against total supply value shall be made after successful delivery and acceptance of all the materials at KLHEP site as per APGCL Order and subjected to submission of Performance Security Deposit.

The balance **30% payment** of the total supply value shall be made after successful completion of the overhauling works and commissioning of the Unit, obtaining the rated output and handover of the unit to APGCL.

Service Part: **100% payment** of the total service value shall be made after successful completion of the overhauling works and commissioning of the Unit, obtaining the rated output and handover of the unit to APGCL.

Paying Authority:

The Chief General Manager (F&A), APGCL,
3rd Floor, Bijulee Bhawan, Paltan Bazar,
Guwahati-781001.

Note:

- All bills are to be processed through The General Manager (KLHEP), APGCL.
- Performance Security Deposit shall be submitted within twenty-eight (28) days of the receipt of Letter of Acceptance/Order from the Procuring Entity (APGCL) or before signing of the Contract, whichever is earlier.

7.2 Warranty Clause:

The materials supplied and works executed shall carry a warranty covering a minimum period for rectification/free replacement thereof. The Contractor warrants that all the Goods are new, unused, and of the most recent or current models, and that they incorporate all recent improvements in design and materials, unless provided otherwise in the Tender document of APGCL. The Contractor further warrants that the Goods shall be free from defects arising from any act or omission of the Contractor or arising from design, materials, and workmanship, under normal use in the conditions prevailing in the state. Free replacement of the materials supplied and/or rectification works shall have to be done by the supplier for any defect under normal use of the supplied materials during the warranty period. The free replacement shall be done within a minimum time as determined and directed by APGCL.

The term “period of warranty” shall mean the following:

- i. **For Supply Part:** The materials supplied shall be guaranteed for a period of 18 (eighteen) months from the date of delivery & acceptance of materials at KLHEP site or 12 (twelve) months from the date of completion of the major overhauling work of Unit #1, KLHEP, whichever is earlier. The major overhauling work shall be considered as complete after commissioning and handover of the Unit to APGCL post successful trial run of the Unit with all parameters showing acceptable correct values as per APGCL engineer from site and subsequent issue of Work Completion Certificate from GM, KLHEP.

- ii. **For Service/Works Part:** The workmanship for the Major Overhauling of Unit #1 of 2X50 MW Karbi Langpi Hydro Electric Project (KLHEP) shall be guaranteed for a period of 12 (twelve) months from the date commissioning and handover of the Unit to APGCL post successful trial run of the Unit with all parameters showing acceptable correct values as per APGCL engineer from site and subsequent issue of Work Completion Certificate from GM, KLHEP.
- iii. If the Contractor fails to rectify the defects within a reasonable time, APGCL may fix a date by which the Contractor would rectify the defects, failing which the APGCL may:
 - (a) Carry out remedial work himself or through others, in a reasonable manner and at the contractor's risk and cost. The cost incurred by APGCL in remedying the defects shall be recovered from the Contractor by APGCL.
 - (b) Determine and certify a reasonable reduction in the contract price or
 - (c) May terminate the contract in respect of such parts of the work and APGCL shall be entitled to recover all sums paid for such parts of the work.

7.3 Work Completion Period:

For Supply: The Work Completion Period for Supply of all ordered materials as per APGCL Order at KLHEP, APGCL site shall be **300 (Three Hundred) Days** from the date of issue of Work Order by APGCL.

For Service/Works: The entire works of **Major Overhauling of Unit #1 of 2X50 MW Karbi Langpi Hydro Electric Project (KLHEP) as per APGCL e-tender/work order** and handover of the Unit to APGCL post successful commissioning and trial run of the Unit shall be completed within **65 days (Sixty-Five days)** from the date of issue of site clearance by APGCL site (KLHEP).

The successful bidder shall request for site clearance and hand over of the Unit from KLHEP site in-charge in minimum 10 (Ten) days advance.

Note: If APGCL is unable to provide the site clearance as per request of the bidder within time to avoid any generation loss then the bidder shall have to accept the request of APGCL for rescheduling the period of the work execution. The bidder cannot claim any financial benefit from APGCL for delay in handover of the site.

Liquidated damage due to delay in supply and service/works part shall be levied as per the Liquidated Damage Clause of this tender.

The Bidder shall submit the breakup of their Order Execution Schedule during submission of their technical bid and they shall adhere to the submitted Order execution Schedule during order execution.

Timeline for Work Execution			
For Supply Part (Item Wise):			No. of Days from placing the PO
	a.	Beginning of Manufacturing Process	
	b.	Completion of Manufacturing	
	c.	Materials Ready for dispatch at bidder's/manufacturer's factory/warehouse.	
	d.	Dispatch of Materials	
	e.	Transportation Time to KLHEP site	
	f.	Delivery of materials at KLHEP site	

For Service/ Works Part:	a.	The bidder shall mention milestone wise timeline of the work execution schedule of the Service/Works Part.	
	b.		
	c.		
	d.		
	e.		
	f.		

7.4 Liquidated Damage (LD):

The date of delivery/completion of work shall be deemed to be the essence of the contract and shall be completed not later than the date specified in the order/contract. In case of failure to deliver the material/equipment or complete the work in full within the stipulated work completion time period, the Purchaser/Employer (APGCL) shall be entitled to: -

- 7.4.1 Recover an amount at the rate of **1% (one percent)** of the Contract Price/Order value of the material/service delayed per week or part thereof of delay, subjected to **maximum of 10% (ten percent)** of the Contract Price/Order value of Material/service delayed as Liquidated Damage. However, the payment of liquidated damage shall not in any way relieve the Contractor from any of its obligation to complete the work or from any other obligation and liabilities of the Contractor under the Contract/as per order.
- 7.4.2 Purchase the undelivered material/equipment from elsewhere or to complete the balance work, giving notice to the Contractor and to recover any extra expenditure incurred thereby for having to purchase these materials or complete the work at a higher price, at risk and responsibility of the Contractor.
- 7.4.3 Cancel the Contract/Order wholly or in part and to purchase materials/equipment and execute the work at the full risk and cost of the Contractor and forfeit the security deposit.

7.5 Inspection, Testing, and Dispatch Clearance

Right of Inspection:

APGCL reserves the right to carry out inspection and/or witness acceptance and routine tests of the manufactured equipment/goods either during the manufacturing process or after the completion of manufacturing.

Intimation for Inspection:

The Contractor shall inform the Chief General Manager (Gen.), APGCL at least 15 (fifteen) days in advance regarding the period when the materials will be ready for inspection and testing at the manufacturer's works, or elsewhere. APGCL shall depute its engineers to witness the inspection and testing activities.

Factory Acceptance Tests (FAT):

The bidder shall arrange for the conduct of all Factory Acceptance Tests in accordance with relevant IS/IEC standards or any other relevant Standard, free of charge to APGCL.

Dispatch Clearance:

Materials shall be dispatched to the site only after receiving dispatch clearance from the Chief General Manager (Gen.), APGCL, subsequent to satisfactory testing and inspection.

7.6 Cyber Security Clause:

In case applicable for the Offered Products/Tendered Products, bidders shall note and adhere to the following requirements as given below under Cyber Security: -

All bidders shall adhere to the Order of Ministry of Power, Govt. of India, No. 12/34/2020 – T&R, dated 24/12/2021 and No. 25-10/72/2024-PG, dated 06/08/2025 regarding Testing of power system equipment for use in the Supply System and Network in the Country for Cyber Security and shall also follow the Guidelines of CEA for Cyber Security in Power Sector, 2021. The products offered and thereafter supplied by bidder shall adhere to the above Order and Guidelines or any amendments issued/recent Guidelines. Bidder shall submit all the requisite documents in this regard including Test Certificates, etc. from Designated Laboratories of their offered/supplied products and shall fulfil all the mandatory requirements in this regard.

If applicable, Bidder shall submit his signed & sealed confirmation regarding adherence to the above requirements along with all mandatory documents, test reports from Designated Laboratories, etc. in technical bid.

Note: Order of Ministry of Power, Govt. of India, No. 12/34/2020 – T&R, dated 24/12/2021 and No. 25-10/72/2024-PG, dated 06/08/2025 and Guidelines of CEA for Cyber Security in Power Sector, 2021 are attached herewith for reference of bidders.

7.7 **Maximum Input Tax Credit (ITC) Utilization**

The maximum Input Tax Credit (ITC) utilization ratio by Contractors will be **70% (seventy percent)** under this tender/contract.

The bidder shall have to submit in technical bid a Signed and Sealed certificate confirming compliance with the applicable provisions of the GST Acts, Rules and other relevant statutory requirements in discharging the outward tax liability by ITC. A standard format for the same is provided under Bidding Forms, **Form B-10** under **SECTION-V** of this document and bidder shall sign-seal and submit the same in technical bid.

Note: For the above details regarding ITC, bidders are requested to go through the notification No. eCF No. 803347/20, dated 11/07/2026 issued by the Finance (Taxation) Dept. Govt. of Assam is attached herewith as **Annexure - V**.

7.8 **Mandatory documents:**

The bidder must upload the scanned copies of the following mentioned documents along with the technical bid on assamtenders.gov.in, failing which the submitted bid of the bidder may be treated non-responsive.

- (a) Copy of PAN Card and EPF Registration.
- (b) Copy of GST Registration Certificate of the Bidder's Firm.
- (c) Documents related to bidder's eligibility and past experience.
- (d) Documents related to bidder's Firm: Certificate of registration of the Firm (in case of Solo Proprietor)/Partnership Deed (in case of LLP)/Certificate of Incorporation (in case of Company), Joint Venture Agreement, whichever is applicable. Note: In case of Joint Venture (JV), the bidder must be the Lead Partner in the JV.
- (e) Documents related to the bidder's average annual turnover & net worth during 03 (three) Financial Year (FY 2022-23, 2023-24 & 2024-25).
- (f) Signed & Sealed Confirmation from Bidder stating that they had quoted for all items (entire bidder's scope) required as per this Tender Clause Section-IV: Schedule of Requirements)/BoQ1. **No Part Offer is accepted.**
- (g) **Site Visit Certificate, duly issued by the General Manager KLHEP.**
- (h) **Fitment & Compatibility Certificates regarding the products offered.**
- (i) Technical documents of the products offered (**as per Clause 7.5**).
- (j) Payment proof of EMD.
- (k) Document in regard to bidder being Manufacturer and Service provider of Hydro Turbine of capacity 50 MW or Higher.

- (l) **All Bidding Forms (B1 to B7, B9, B10 & B11), duly filled up as per the instructions provided therein.**
- (m) All requisite documents, test reports of Designated Laboratories, etc. (if applicable) regarding Cyber Security Guidelines.
- (n) All other documents as sought in this Tender.
- (o) Any other document as deemed necessary as per this Tender.

--Sd--
Chief General Manager (Gen),
APGCL, Guwahati-1.

Annexures:

1. Annexure-A: Scope of Work-Tentative supply part for spare material for overhauling works
2. Annexure-B: Scope of Work: Detail technical specification and Material List of Overhauling Parts.
3. Annexure-C: Scope of Work: Supply/Consumables for Air Cooler and Shaft Seal Assembly.
4. Annexure-1, 2, 4 & 5: Drawings.
5. Annexure-II: Order of Ministry of Power, Govt. of India, No. 12/34/2020 - T&R, dated 24/12/2021.
6. Annexure-III: Order of Ministry of Power, Govt. of India, No. 25-10/72/2024-PG, dated 06/08/2025.
7. Annexure-IV: Guidelines of CEA for Cyber Security in Power Sector, 2021.
8. Annexure-V: Guidelines regarding ITC Utilization.

Annexure-A

Supply Part for Spare Material for Major Overhauling works of Unit-1, KLHEP

NB : The Technical Details of the following Materials are as per the drawing and other records available with KLHEP. Any additional material (apart from this list) which will be required to complete the Major Overhauling and Commissioning of the Unit are in the scope of the bidders. The detailed engineering drawing of each component/items may not be available with APGCL for manufacturing, and hence bidder shall undertake site visit to obtain such details.

No.	Particulars	Quantity	Unit	Technical details
A	Turbine			
1	Upper bearing bush	20	Nos	H215791(Annexure-1)
2	Lower bearing bush	20	Nos	H215791(Annexure-1)
3	U-type packing	20	Nos	H215791(Annexure-1)
4	Liner	20	Nos	H215791(Annexure-1)
5	Thrust bearing (in two sections)	40	Nos	H215791(Annexure-1)
6	Thrust bearing liner	40	Nos	H215791(Annexure-1)
7	Wicket gate key	20	Nos	H215791(Annexure-1)
8	Eccentric pin	20	Nos	H215791(Annexure-1)
9	Shear pin	20	Nos	H215791(Annexure-1)
10	Bush for link pin (DU Bush)	40	Nos	H215791(Annexure-1)
11	Connecting pin (Arm and Regulating Ring)	2	Nos	H215791(Annexure-1)
12	Bearing bush (in two pieces) for Connecting Pin, Teflon coated Bush)	2	Nos	H215791(Annexure-1)
13	Packing	1	Nos	H215791(Annexure-1)
14	Carbon ring 1	1 set (4 - segments)	Nos	H215791(Annexure-1)

15	Carbon ring 2	1 set (4 - segments)	Nos	H215791(Annexure-1)
16	Bearing liner (For gate regulating ring)	6	Nos	H215791(Annexure-1)
17	Dial thermometer for turbine guide bearing oil	1	Set	H216384(Annexure-2)
18	Temperature relay for turbine guide bearing	1	Set	H216384(Annexure-2)
19	Resistance temperature detector for turbine guide bearing	1	Set	H216384(Annexure-2)
20	Resistance temperature detector for turbine guide bearing oil	1	Set	H216384(Annexure-2)
21	Pressure gauge for shaft seal water	2	Nos	H216384(Annexure-2)
22	Overhauling parts for turbine	1	Lot	Refer to Annexure-B
23	Limit switch for 33PR	1	Nos	H216384(Annexure-2)
24	Sliding Plate	1 set (2 - Segment)	Set	H215791(Annexure-1)
25	Pressure Balancing pipe including flange connection from head cover up to pit liner	1	set	H215791(Annexure-1)
26	Supply of valves for various headers and discharge.	1	Lot	Annexure-3
B	Main Inlet Valve			
27	Limit switch for 21L and 21H	4	Nos	H216384(Annexure-2)
28	Limit switch for 21BH and 21BL	4	Nos	H216384(Annexure-2)

29	Overhauling parts for Main Inlet valve	1	Lot	Refer to Annexure-B
C	Pressure relief valve			
30	Overhauling Parts,Seals & Gaskets of PRV	1	set	Refer to Annexure-B
D	OPU System/Mechanical Governor			
31	Overhauling parts for OPU System	1	lot	Refer to Annexure-B
32	Overhauling parts for unloader valve	1	Lot	Refer to Annexure-B
33	Overhauling parts for control valve	1	Lot	Refer to Annexure-B
34	Overhauling parts for oil filter	1	Lot	Refer to Annexure-B
35	Dial thermometer for oil sump tank	1	No	H216384(Annexure-2)
36	Float switch for oil sump tank	1	No	H216384(Annexure-2)
37	Air safety valve for oil press tank	1	No	H216384(Annexure-2)
38	Oil level sight gauge for oil press tank	1	No	H216384(Annexure-2)
39	Oil pressure gauge for oil press tank	1	No	H216384(Annexure-2)
40	Automatic oil level control device	1	No	H216384(Annexure-2)
41	Solenoid valve for 20AS	2	No	H216384(Annexure-2)
42	Packing for pipe of pressure oil	1	Lot	H216384(Annexure-2)
43	Packing for manhole of oil press tank	1	Lot	H216384(Annexure-2)
44	Packing for manhole of oil sump tank	1	Lot	H216384(Annexure-2)
45	Air filter for air pressure tank of generator brake	1	No	H216384(Annexure-2)
46	Air filter for air pressure tank of generator brake	1	No	H216384(Annexure-2)
47	Air safety valve for air pressure tank of generator brake	1	No	H216384(Annexure-2)

48	Water drain valve for air pressure tank of Generator brake	2	Nos	H216384(Annexure-2)
49	Packing for manhole of air pressure tank of generator brake	1	No	H216384(Annexure-2)
50	Pressure gauge for air pressure tank of oil pressure tank	1	No	H216384(Annexure-2)
51	Air filter for air pressure tank of oil pressure tank	1	No	H216384(Annexure-2)
52	Air safety valve for air pressure tank of oil pressure tank	1	No	H216384(Annexure-2)
53	Water drain valve for air pressure tank of oil pressure tank	2	Nos	H216384(Annexure-2)
54	Packing for manhole of air pressure tank of oil pressure tank	1	Lot	H216384(Annexure-2)
55	Overhauling parts for distributing valve of guide vane	1	Lot	Refer to Annexure-B
56	Overhauling parts for emergency stop valve	1	Lot	Refer to Annexure-B
57	Pressure switch for 63QA	1	No	H216384(Annexure-2)
58	Limit switch for 74l	1	No	H216384(Annexure-2)
59	Limit switch for 74m	1	No	H216384(Annexure-2)
60	Limit switch for 74A	1	No	H216384(Annexure-2)
61	Limit switch for 65DL	1	No	H216384(Annexure-2)
62	Water pressure gauge for spiral case	1	No	H216384(Annexure-2)
63	Water pressure/Vacuum gauge for runner crown and top cover	1	No	H216384(Annexure-2)

64	Water pressure/Vacuum gauge for draft tube	1	No	H216384(Annexure-2)
E	AIR COMPRESSOR			
65	Overhauling parts for air compressor	1	Lot	Refer to Annexure-B
F	COOLING WATER SYSTEM			
66	Overhauling parts CW system	1	Lot	Refer to Annexure-B
G	GENERATOR			
67	Speed switch	2	Nos	M905-109173(Annexure-4)
68	Slip Ring Carbon Brush	100	Nos	M905-109173(Annexure-4)
69	Brush for shaft voltage measuring	3	Nos	M905-109173(Annexure-4)
70	Dial thermometer for upper guide bearing	1	Nos	H216384(Annexure-2)
71	Dial thermometer for thrust bearing	1	Nos	H216384(Annexure-2)
72	Dial thermometer for lower guide bearing	1	Nos	H216384(Annexure-2)
73	Dial thermometer for upper bearing oil sump tank	1	Nos	H216384(Annexure-2)
74	Dial thermometer for lower bearing oil sump tank .	1	Nos	H216384(Annexure-2)
75	Dial thermometer for air cooler of inlet air	1	Nos	H216384(Annexure-2)
76	Dial thermometer for air cooler of outlet air	1	Nos	H216384(Annexure-2)
77	Resistance temperature detector for upper guide bearing	1	Nos	M555-234914(Annexure-5)

78	Resistance temperature detector for thrust bearing	1	Nos	M555-234914(Annexure-5)
79	Resistance temperature detector for lower guide bearing	1	Nos	M555-234914(Annexure-5)
80	Resistance temperature detector for upper bearing oil sump tank	1	Nos	M555-234914(Annexure-5)
81	Resistance temperature detector for lower bearing oil sump tank.	1	Nos	M555-234914(Annexure-5)
82	Resistance temperature detector for air cooler of inlet air	1	Nos	M555-234914(Annexure-5)
83	Resistance temperature detector for air cooler of outlet air	1	Nos	M555-234914(Annexure-5)
84	Resistance temperature detector for cooling water supply of air cooler	1	Nos	M555-234914(Annexure-5)
85	Brake jack Cylinder	4	Nos	M905-109173(Annexure-4)
86	Brake Shoe	4	Nos	M905-109173(Annexure-4)
87	Limit switch for brake jack	4	Nos	M905-109173(Annexure-4)
88	Bolt for holding on rotor pole	60	Nos	M905-109173(Annexure-4)
89	Wedge for generator stator	180	Nos	M905-109173(Annexure-4)
90	Wedge for generator stator	60	Nos	M145-4G9217P2
91	Wedge for generator stator	60	Nos	M145-4G9217P3
92	Wedge for generator stator	60	Nos	M145-4G9217P4
93	Wedge for generator stator	60	Nos	M145-4G9217P5
94	Wedge for generator stator	60	Nos	M145-4G9217P6
95	Wedge for generator stator	60	Nos	M145-4G9217P7
96	Wedge for generator stator	60	Nos	M145-4G9217P8

97	Wedge for generator stator	60	Nos	M145-4G9217P9
98	Wedge for generator stator	60	Nos	M145-4G9217P10
99	SPACER-UNDER-WEDGE (No. F25-a) 3600 KO	1	LOT	M140-5E8266P3
100	SPACER-UNDER-WEDGE (No. F25-b) 1800 KO	1	LOT	M140-5E8266P4
101	BINDING-STRING (No. F25-g)	400	NOS	M140-5E8266P9
102	Wedging tool (No. F25-n)	2	NOS	M862-865503AP1
103	Wedging tool (No. F25-n)	2	NOS	M862-865503AP2
104	Wedging tool (No. F25-0)	2	NOS	M864-5D2304AC1P1
105	Special taper pin	20	NOS	KRS12-104 /Sample will be provided
106	UGB Oil Level gauge	1	NO	Float Switch Model-SL-2, 50VA, P2012 C0802AI, Make: Kaneko Sangyo Ltd.
107	LGB Oil Level gauge	1	NO	Float Switch Model-SL-2, 50VA, P2012 C0802AI, Make: Kaneko Sangyo Ltd.
108	Battery for AVR and Governor PLC CPU	1	No	NP1PS32R/NP1PS32 Type-CPU
No.	Particulars	Quantity	Unit	Technical details
I	Recommended Mandatory Spares			
109	Thrust Bearing Pad	1 (10 piece)	Set	M905-109173(Annexure-4)/Reverse Engineering
110	Upper Guide Bearing Pad	1 (10 piece)	Set	M905-109173(Annexure-4)/Reverse Engineering

111	Lower Guide Bearing Pad	1 (2-segment)	Set	Reverse Engineering
112	Turbine Guide Bearing Pad	1 (2-segment)	Set	Reverse Engineering
113	Limit switch for 21L and 21H	2	nos	H216384(Annexure-2)
114	Limit switch for 21BH and 21BL	2	nos	H216384(Annexure-2)
115	Press. Switch, Press. Air, Air comp. ON-OFF <63A1> PH550-8-R3SB (27-29 kgf/cm2) (Off-On)	1	nos	H217134,
116	Press. Switch, Press. air tank LOW ALARM <63A2>PH550-8-R3SB(25-28 kgf/cm2) (Off-On)	1	nos	H217134
117	Press. Switch, Air comp. ON-OFF <63B1>PH550-8-R3SB(27-29 kgf/cm2) (Off-On)	1	nos	For Compressed Air Supply System
118	Press. Switch, Press. air tank LOW ALARM <63B2>PH550-8-R3SB(25-28 kgf/cm2) (Off-On)	1	nos	For Compressed Air Supply System
119	Press. Switch 63AB1 Air comp. ON-OFF, PH550-8-R3SB(27-29 kgf/cm2) (Off-On)	1	nos	H217135
120	Press. Switch 63AB2 Press. air tank LOW ALARM, PH550-8-R3SB(25-28 kgf/cm2) (Off-On)	1	nos	H217135
121	Limit switch for 74A	1	nos	H216384
122	Limit switch for 65DL	2	nos	H216384

123	PRESSURE SWITCH(Model- PL-550-7-G3B Make Fuji Electrical co. ltd)	1	nos	H5N8285P1
124	PRESSURE SWITCH(Model- PL-550-7-G3B Make Fuji Electrical co. ltd)	1	nos	H5N8285P2
125	PRESSURE SWITCH(Model- PL-550-7-G3B Make Fuji Electrical co. ltd)	1	nos	H5N8285P3
126	PRESSURE SWITCH(Model- PL-550-7-G3B Make Fuji Electrical co. ltd)	1	nos	H5N8285P4
127	PRESSURE SWITCH(Model- PL-550-7-G3B Make Fuji Electrical co. ltd)	1	nos	H5N8285P5
128	PRESSURE SWITCH(Model- PL-550-7-G3B Make Fuji Electrical co. ltd)	1	nos	H5N8288P1
129	PRESSURE SWITCH(Model- PL-550-7-G3B Make Fuji Electrical co. ltd)	1	nos	H5L3906BP1
130	BEARING, UCP206	2	Nos	JIS
J	Additional Consumable Spares			
131	ACETONE (No. F25-h)	1	Nos	M140-5E8266P10
132	ADJUSTING SHIM stainless steel	30	Nos	H5L9567AP1
133	ADJUSTING SHIM stainless steel	20	Nos	H5L9567AP2
134	ADJUSTING SHIM stainless steel	20	Nos	H5L9568AP1
135	ADJUSTING SHIM stainless steel	20	Nos	H5L9568AP3
136	ADJUSTING SHIM stainless steel	12	Nos	H5L9569AP1
137	ADJUSTING SHIM stainless steel	12	Nos	H5L9569AP2
138	ADJUSTING SHIM stainless steel	20	Nos	H5L9568AP2
139	BEARING 6309ZZ	2	Nos	JIS
140	BEARING 6311ZZ	2	Nos	JIS

141	BEARING, 6001ZZ	2	Nos	JIS
142	BEARING, 6200ZZ	2	Nos	JIS
143	BEARING, 6201ZZ	1	Nos	JIS
144	BEARING, 6202ZZ	1	Nos	JIS
145	BEARING, 6203ZZ	2	Nos	JIS
146	BEARING,UCP207	6	Nos	H5L3901AP5
147	BOLT, M10X20	2	Nos	JIS
148	CAM FOLLOWER	2	Nos	H5L3898P7
149	CHECK VALVE. 10K-200	3	Nos	H557990A
150	CLAW WASHER M20	30	Nos	JEM
151	CLAW WASHER M10	5	Nos	JEM
152	CLAW WASHER M16	30	Nos	JEM
153	CLAW WASHER M42	1	Nos	KS
154	CLAW WASHER M5	5	Nos	JEM
155	CLAW WASHER M8	10	Nos	JEM
156	CLAW WASHER, M36	12	Nos	JEM
157	CLAW WASHER, M85	4	Nos	KS
158	CLAW WASHER, N30	2	Nos	JEM
159	CLAW WASHER,M42	1	Nos	KS
160	CLAW WASHER,M85	5	Nos	KS
161	CLAW WASHER. M30	20	Nos	JEM
162	CLAY WASHER M24	60	Nos	JEM
163	COPPER PACKING G3/8	100	Nos	KHS675-01BCI
164	COPPER PACKING G1/2	20	Nos	KHS675-01BC1
165	COPPER PACKING G1/4	20	Nos	KHS675-01BC1
166	COPPER PACKING G3/4	20	Nos	KHS675-01BC1

167	COPPER PACKING, G1	12	Nos	KHS675-01BCI
168	CRIMP STYLE TERMINAL R1 25-4	10	Nos	JIS
169	DOUBLE WASHER M12X30	12	Nos	PS
170	DOUBLE WASHER M12X40	10	Nos	PS
171	DOUBLE WASHER M10X25	1	Nos	FS
172	DOUBLE WASHER M12X35	2	Nos	PS
173	DUST SEAL, RW50	1	Nos	H5L9654P21
174	EPOXY-RESIN (No. F25-c)	20	Nos	M140-5E8266P5
175	FELT PACKING, 530	1	Nos	KHS675-10
176	FINISH-VARNISH (No. F25-d)	2	Nos	M140-5E8266P6
177	FLAT TYPE FLANGE GASKET 10K-10	2	Nos	JIS
178	FLAT TYPE FLANGE GASKET 10K-12	2	Nos	JIS
179	FLAT TYPE FLANGE GASKET 10K-25	4	Nos	JIS
180	FLAT TYPE FLANGE GASKET 10K-50	5	Nos	JIS
181	FLAT TYPE FLANGE GASKET 10K-80	1	Nos	JIS
182	FLAT TYPE FLANGE GASKET 5K-80	4	Nos	JIS
183	HARDNER (No. F25-1)	3	Nos	M140-5E8266P14
184	HARDNER (No. F25-j)	2	Nos	M140-5E8266P12
185	HEX. SOCKET CAP SCREW, M12X45	4	Nos	JIS
186	HEX. SOCKET CAP SCREW, M16X45	50	Nos	JIS
187	HEX. SOCKET CAP SCREW, M16X55	4	Nos	JIS
188	HEX. SOCKET CAP SCREW, M16X70	160	Nos	JIS
189	HEX. SOCKET SET SCREW N4X20	60	Nos	JIS
190	HEX. SOCKET SET SCREW, M12X20	4	Nos	JIS
191	HEX. SOCKET SET SCREW, M5X10	2	Nos	JIS
192	HIGH-RESISTANCE (No. F25-i)	2	Nos	M140-5E8266P11

193	INSULATION TUBE	40	Nos	H482917P3
194	NUT,M6	2	Nos	JIS
195	NUT. M6	2	Nos	JIS
196	PARALLEL PIN (A) 16X20	1	Nos	JIS
197	PARALLEL PIN (A) 16X20	1	Nos	JIS
198	PARALLEL PIN (A), 16X65	4	Nos	JIS
199	PARALLEL PIN(A),13X38	1	Nos	JIS
200	PARALLEL PIN(A),16X20	1	Nos	JIS
201	PARALLEL PIN(A),16X20	1	Nos	JIS
202	PIN, 3X25AW	1	Nos	JIS
203	PIN,3X25AW	1	Nos	JIS
204	PLAIN WASHER, M10	20	Nos	JIS
205	PLAIN WASHER, M4	4	Nos	JIS
206	PLAIN WASHER,M16	2	Nos	JIS
207	PLAIN WASHER,M6	10	Nos	JIS
208	PLUG, D4	40	Nos	H482917P2
209	RECEPTACLE,D4	40	Nos	H482917P1
210	RESIN	2	Nos	
211	RETAINING-RING (INSIDE), 17	4	Nos	JIS
212	RETAINING-RING (INSIDE). 12	4	Nos	JIS
213	RETAINING-RING (OUTSIDE), 35	4	Nos	JIS
214	RETAINING-RING (OUTSIDE). 26	20	Nos	JIS
215	RETAINING-RING (OUTSIDE). 40	20	Nos	JIS
216	RING TYPE FLANGE GASKET 10K-10	1	Nos	JIS
217	RING TYPE FLANGE GASKET 10K-12	10	Nos	JIS
218	RING TYPE FLANGE GASKET 10K-15	20	Nos	JIS

219	RING TYPE FLANGE GASKET 10K-25	20	Nos	JIS
220	RING TYPE FLANGE GASKET 10K-40	60	Nos	JIS
221	RING TYPE FLANGE GASKET 10K-50	6	Nos	JIS
222	RING TYPE FLANGE GASKET 10K-65	70	Nos	JIS
223	RING TYPE FLANGE GASKET 5K-40	2	Nos	JIS
224	RING TYPE FLANGE GASKET, 10K-32	4	Nos	JIS
225	RING TYPE FLANGE GASKET. 10K-80	4	Nos	JIS
226	ROLER FOLLOWER	1	Nos	H5L3898AP4
227	ROUND RUBBER 7X2000	2	Nos	KRS18-506
228	ROUND RUBBER 7X3550	1	Nos	KRS18-506
229	ROUND RUBBER 9X7800	1	Nos	KRS18-506
230	ROUND RUBBER Φ 7X2800	1	Nos	KRS18-506
231	ROUND RUBBER Φ 7X5700	1	Nos	KRS18-506
232	ROUND RUBBER Φ 7X600	2	Nos	KRS18-506
233	SCREW PLUG, M16X40	4	Nos	KS604-42C2
234	SCREW PLUG, M16X40	4	Nos	KS604-42C2
235	SDR SCRAPER	1	Nos	KHS675-11A
236	SEAT RUBBER	1	Nos	H5N8328P1
237	SHEET PACKING	2	Nos	M000-5E9486P39
238	SOLENOID VALVE	4	Nos	H5L3904A
239	SOLVENT (No. F25-e)	1		M140-5E8266P7
240	SPIROLOX	20	Nos	KHS613-01A
241	SPLIT PIN, 2X28	70	Nos	JIS
242	SPLIT PIN, 3X35	10	Nos	JIS
243	SPLIT PIN,1.6X10	2	Nos	JIS
244	SPLIT PIN,2X25	20	Nos	JIS

245	SPLIT PIN. 6X10	2	Nos	JIS
246	SPLIT PIN. 3X18	20	Nos	JIS
247	SPLIT PIN. 3X50	70	Nos	JIS
248	SPRING LOCK WASHER, M4	50	Nos	JIS
249	SPRING LOCK WASHER, M5	50	Nos	JIS
250	SPRING LOCK WASHER, M6	50	Nos	
251	SPRING LOCK WASHER, M8	50	Nos	JIS
252	SPRING LOCK WASHER, M10	100	Nos	JIS
253	SPRING LOCK WASHER, M12	100	Nos	JIS
254	SPRING LOCK WASHER, M16	100	Nos	JIS
255	SPRING LOCK WASHER, M20	100	Nos	JIS
256	SYN-CLEAN-100(No.F25-f)	3	Nos	M140-5E8266P8
257	TAPER PIN, 3X32	24	Nos	JIS
258	TAPER PIN, 6X50	1	Nos	JIS
259	TAPER PIN, 3X25	1	Nos	JIS
260	TAPER PIN, 3X32	24	Nos	JIS
261	TEFLON-PACKING	6	Nos	M000-5E9486P25
262	TEFLON-PACKING	2	Nos	M000-5E9486P27
263	THERMOSTAT, 230V, 15 W	1	Nos	H5L9385P1
264	THINNER (No. F25-m)	3	Nos	M140-5E8266P15
265	TONGUED WASHER M12	20	Nos	JEM
266	TONGUED WASHER M20	100	Nos	JEM
267	TONGUED WASHER N10	250	Nos	JEM
268	TONGUED WASHER N12	200	Nos	JEM
269	TONGUED WASHER N16	200	Nos	JEM
270	TONGUED WASHER N4	10	Nos	JEM

271	TONGUED WASHER N6	5	Nos	JEM
272	TONGUED WASHER N8	70	Nos	JEM
273	TONGUED WASHER, M16	10	Nos	JEM
274	TONGUED WASHER, M24	24	Nos	JEM
275	TONGUED WASHER, M8	40	Nos	JEM
276	U seal. UD255	2	Nos	H5L9654P13
277	U seal. UD265	2	Nos	H5L9654P18
278	U seal. UD50	1	Nos	H5L9654P22
279	U seal. UD90	2	Nos	H5L9654P15
280	Consumables for Air Cooler & Shaft Seal	1	Lot	Annexure-C

Annexure-B

Detail Technical Specification and Material List of Overhauling Parts

A.	For Main Inlet Valve (Overhauling parts for Main Inlet valve)					
	Item	Description	Location	Quantity	UOM	Remarks
1	Swivel Joint	G1 RELATED TO SERVOMOTOR	for Inlet Valve	1	Nos	H215780
2	Slow Return Valve	G1	H215781 Assembly of Inlet Valve	1	Nos	H215781
3	Packing C1100P-1/2H PF-1/2	Φ29.5, Φ21.2, T=1.6	H215794P19	1	Nos	H598711, 43/48 SL NO 1
4	Rubber Packing (INLET Valve Casing)	Φ 7*7000	H215794P20	1	Nos	H598711, 43/48 SL NO 2
5	Rubber Packing	Φ 7*5300	H215794P21	1	Nos	H598711, 43/48 SL NO 3
6	Rubber Packing	Φ 7*5000	H215796P8	1	Nos	H598711, 43/48 SL NO 4
7	o-ring p360-n	d*W=Φ359.5*Φ8.4	h592944p2	2	Nos	H598711, 43/48 SL NO 5
8	O-Ring	d*W=Φ389.5*Φ8.4	H592944P3	2	Nos	H598711, 43/48 SL NO 6
9	Round Rubber Packing	Φ20x4900	A586059A	1	Nos	H598711, 43/48 SL NO 7
10	Rubber Ring	Φ 7* Φ396 H438665P2	for Inlet Valve	2	Nos	H598711, 43/48 SL NO 8
11	U-Type Packing (360-390-22)	Φ390, Φ360, 22	H438665P3	2	Nos	H598711, 43/48 SL NO 9
12	Rubber Packing	Φ 12*5100	H438644P2	1	Nos	H598711, 43/48 SL NO 10
13	Piston Packing KY-368	368x400x24 (D,d,H)	H215781A	2	Nos	H598711, 45/48 SL NO 26
14	Dust Wiper	110*110*8*6 (D,d,H,h)	H215781A	1	Nos	H598711, 45/48 SL NO 27
15	O-Ring P-385	8.4x384.4x100.6 (D,d,W)	H215781A	2	Nos	H598711, 45/48 SL NO 28
16	O-Ring G-95	3.1x94.4x100.6 (D,d,W)	H215781A	1	Nos	H598711, 45/48 SL NO 29
17	O-Ring G-110	3.1x109.4x115.6 (D,d,W)	H215781A	1	Nos	H598711, 45/48 SL NO 30
18	O-Ring G-120	3.1x119.4x125.6(D,d,W)	H215781A	1	Nos	H598711, 45/48 SL NO 31
19	O-Ring G-135	3.1x134.4x140 (D,d,W)	H215781A	1	Nos	H598711, 45/48 SL NO 32
20	U-Type Packing 40-65-10 (Bypass Valve)	Φ40, Φ65, t=10	H216401P10	1	Nos	H598711, 43/48 SL NO 11
21	O-Ring ,P40-N	d*W=Φ39.7*Φ3.5	H582241P2	2	Nos	H598711, 43/48 SL NO 12
22	O-Ring ,P40-N	d*W=Φ39.7*Φ3.5	H594391P2	1	Nos	H598711, 44/48 SL NO 13
23	O-Ring ,G120-N	d*W=Φ119.4*Φ3.1	H423095P2	2	Nos	H598711, 44/48 SL NO 14

24	O-Ring ,P32	d*W=Φ31.7*Φ3.5	H432984AP2	1	Nos	H598711, 44/48 SL NO 15
25	Piston-Ring ,FC,M170-D	d*W=Φ170,t=6.0	H313026AP2	2	Nos	H598711, 44/48 SL NO 16
26	O-Ring P32-N	d*W=Φ31.7*Φ3.5	H313026P3	1	Nos	H598711, 44/48 SL NO 17
27	Rubber Ring	Φ166* Φ 6	H318020P4	1	Nos	H598711, 44/48 SL NO 18
28	O-Ring ,P25-N	d*W=Φ24.7,Φ3.5	H318020P6	2	Nos	H598711, 44/48 SL NO 19
29	O-Ring ,G135-N	d*W=Φ134.4, Φ3.1	H438647P5	1	Nos	H598711, 44/48 SL NO 20
30	Asbestors Packing	t=1.5* Φ165× Φ115	H432473P8	2	Nos	H598711, 44/48 SL NO 21
31	Asbestors Packing RF Gasket (16k-100)	t=1.5* Φ165× Φ115	H438648P4	2	Nos	H598711, 44/48 SL NO 22
32	Control Valve	TYPE:H4S2-08K-F	H216384,H595869,Dev No 205	1	Nos	H598711, 47/48 SL NO 49
33	BOLT,M20	for Packing Holder	Sec A of H215781	48	Nos	H215781
34	Washer, Φ30 Outdiameter	for Packing Holder	for Inlet Valve	48	Nos	H215781
35	Liner(1)/Adjusting shim	for Packing Holder (45X154*0.5)	for Inlet Valve	24	Nos	H215781
36	Liner(1)/Adjusting shim	for Packing Holder (45X154*0.3)	for Inlet Valve	24	Nos	H215781
37	Rubber Packing, Φ20	L=10m	Sec A of H215781	1	Nos	H215781

B For Water Turbine (Overhauling of Turbine Parts)						
	Item	Description	Location	Qty.	UOM	Remarks
1	Rubber Packing	Φ7x8500 for Stay Ring	H216189 P23	1	NOS	H598711, 1/48 SL NO 6
2	Rubber Packing	Φ6x3300 for Head Cover	H216189 P18	1	NOS	H598711, 1/48 SL NO 10
3	Rubber Packing	Φ6x4150 for Head Cover	H216189 P16	1	NOS	H598711, 1/48 SL NO 8
4	Rubber Packing	Φ6x4550 for Head Cover	H216189 P11	1	NOS	H598711, 1/48 SL NO 9
5	BUSH	Φ285, Φ224,Φ247, 220,200	H594379 P1	1	NOS	H598711, 5/48 SL NO 49
6	O-Ring	JIS-B2401 P125 for Head Cover W/G Bush Φ5.7XΦ124.6	H594371 P2	20	NOS	H598711, 5/48 SL NO 50
7	U-Type Packing	UPH,Φ125-Φ145-15 for Upper W/G Bearing	KHS675-12	20	NOS	H598711, 1/48 SL NO 12
8	Lubrication of U Type Packing, 200 ml pack		For Section Water Turbine	5	NOS	
9	Rubber Packing	Φ 7x8450 for Bottom Ring	H216195 P9	2	NOS	H598711, 1/48 SL NO 14

10	O-Ring	JIS-B2401 P100 for Bottom Ring W/G Bush $\Phi 5.7 \times \Phi 99.6$	H594372 P2	20	NOS	H598711, 5/48 SL NO 51
11	Stud Bolt M36	L=165,M36	H578016C,P2	4	NOS	H598711, 3/48 SL NO 26
12	Packing Asbestos sheet	D= $\Phi 178$,d= $\Phi 150$, t=2	H432331 AP3	2	NOS	H598711, 3/48 SL NO 27
13	Nut M36	M36	for locking Eccentric Pin (SI No 12) on H216210	20	NOS	H216210
14	Claw WASHER M36	M36	for locking Eccentric Pin (SI No 12) on H216210	20	NOS	H216210
15	Snap Ring 60, SUS	$\Phi 60$, 1.24 SUS H595627 P2	H216210c P15	20	NOS	H598711, 5/48 SL NO 53
16	Stopper	SS41	H216405 SI no 9	4	NOS	H216405
17	Bolt brass bolt for liner	M8x brassx20, $\Phi 16$, 20, M8	H437669P2	80	NOS	H598711, 5/48 SL NO 52
18	Packing, asbestos sheet	t=2 * $\Phi 178 \times \Phi 150$ for TGB (Manhole- Glass)	for Section Water Turbine	2	NOS	H598711, 3/48 SL NO 27
19	Asbestors Packing	t=1.5 * $\Phi 1253 \times \Phi 1203$ for Guide Bearing Cover	H595626	1	NOS	H598711, 3/48 SL NO 28
20	Felt Packing	t=5 * $\Phi 570 \times \Phi 530$ for Guide Bearing Cover	H437667P3	1	NOS	H598711, 3/48 SL NO 29
21	O-Ring	JIS-B2401G55 for Cooling Pipe $\Phi 3.1$, $\Phi 544$	H216402P15	2	NOS	H598711, 3/48 SL NO 34
22	Scraper-Rubber/P	SDR 112-122-8 for Servomotor C/Cover	H216204P5	1	NOS	H598711, 4/48 SL NO 39
23	O-Ring	O-ring $\Phi 8.4 \times \Phi 459.5$ for Servomotor C/Cover	H216204P6	1	NOS	H598711, 4/48 SL NO 40
24	O-Ring	O-ring $\Phi 8.4 \times \Phi 459.5$ for Servomotor C/Cover	H437665P5	1	NOS	H598711, 4/48 SL NO 43
25	O-Ring	JIS-B2401 G90 for Servomotor Piston $\Phi 89.4 \times \Phi 3.1$	H438626P3	1	NOS	H598711, 4/48 SL NO 45
26	Rubber Ring	$\Phi 7 \times 5700$ for Draft Tube	H215793 P30	1	NOS	H598711, 6/48 SL NO 61
27	Rubber Packing	$\Phi 7 \times 2060$ for Draft Tube Manhole Cover	H321723P11	1	NOS	H598711, 6/48 SL NO 62
28	M24 Bolts Outer	For Guide Bearing		24	NOS	H216197 (Sheet 1)

29	M24 Bolts Inner	For Guide Bearing		24	NOS	H216197 (Sheet 1)
30	M12 Bolts	For Cooler		42	NOS	H216198 (Sheet 2)
31	Asbestors Packing	t=1.5, 240x205 for Cooling Pipe	H216402 P6	1	NOS	H598711, 3/48 SL NO 31
32	Asbestors Packing	t=1.5, 240x205 for Cooling Pipe	H216402 P7	1	NOS	H598711, 3/48 SL NO 32
33	Asbestors Packing	t=1.5, 240x205 for Cooling Pipe	H216402 P8	1	NOS	H598711, 3/48 SL NO 33
34	Rubber Packing	Φ5x2650 for Inner Reservoir	H21620P6	1	NOS	H598711, 3/48 SL NO 30
35	Rubber Packing	Φ9x2000 for Carbon Ring Holder	H216580P9	1	NOS	H598711, 3/48 SL NO 35
36	Rubber Packing	Φ6mm for shaft seal housing		5	Meter	H216405
37	M16 SUS304	For Shaft Seal	Details of Length not available on the specified drawing	12	NOS	H216405
38	M16 SUS304	For Shaft Seal		12	NOS	H216405
39	M16 SUS304	For Shaft Seal		20	NOS	H216405
40	M16	For wicket gate		8	NOS	H216210
41	M12 SUS304	For Shaft Seal		12	NOS	H216405
42	M12 SUS305 Jackbolt	For Shaft Seal		4	NOS	H216405
43	M20	For wicket gate		80	NOS	H216210
44	SPRING for Shaft Seal	Φ22, 65 SUS316-WPA		12	NOS	H216405
45	Plug for Shaft Seal	SUS 304		12	NOS	H216405
46	INDICATOR for Shaft Seal Carbon Ring	SUS304, Φ12, M10, THREAD=10		1	NOS	H216405
47	Liner	(Bronze +Solid Lubricant)		20	NOS	H216210
48	Key	S45C		20	NOS	H216210
49	Lock for pin	S35C		20	NOS	H216210
C For Governor (Distributing Valve of Guide Vane and Emergency Stop Valve)						
	Item	Description	Location	Quantity	UOM	Remarks
1	O-Ring	ARP568-014 D=Φ14x d=Φ1.9 for Solenoid Valve	For Governor	20	NOS	h598711 11/48, sl no121
2	O-Ring	JIS B2401,D=Φ17.8 d=Φ2.4 P18 for Solenoid Valve	For Governor	8	NOS	h598711 11/48, sl no122
3	Penta seal Packing	1751S-V48523 Φ8,t=3 for Solenoid Valve	For Governor	8	NOS	h598711 11/48, sl no123

4	Rubber Disc	Φ 34x Φ13x Φ26t=5 for Brake Control Valve	For Governor	2	NOS	h598711 13/48, sl no145
5	O-Ring	JIS-W1516 G1 for Brake Control Valve D=Φ41.28 d=Φ3.53	For Governor	1	NOS	h598711 13/48, sl no146
6	O-Ring	JIS-W1516 G9 for Brake Control Valve D=Φ66.68 d=Φ3.53	For Governor	1	NOS	h598711 13/48, sl no147
7	O-Ring	JIS B2401 P14 for Brake Control Valve D=Φ13.8 d=Φ2.4	For Governor	1	NOS	h598711 13/48, sl no148
8	O-Ring	JIS B2401 P40 for Brake Control Valve D=Φ39.7 d=Φ3.5	For Governor	1	NOS	h598711 13/48, sl no149
9	Limit Switch 65DL	K244gwR-2S Make-Fuji Electric	For Governor	2	NOS	H5A1875 SL no -5/8
10	Limit Switch	K244gwRL-2S Make-Fuji Electric	For Governor	2	NOS	H5A1875 SL no -5/8
11	Converter Dev No-50	TYPE-TSM6, for Governor,H=206,Φ=191,Φ=16 5.5	For Governor	1	NOS	h598711 10/48, sl no109
12	O-Ring dev no 52	JIS B2401 G150, D=Φ149.3,d=Φ5.7 for Dtributing Valve	For Governor	1	NOS	h598711 11/48, sl no125
13	O-Ring	JIS B2401 D=Φ129.3,d=Φ3.1 G130 for Dtributing Valve	For Governor	5	NOS	h598711 11/48, sl no126
14	O-Ring	JIS B2401 D=Φ144.4,d=Φ3.1 G145 for Dtributing Valve	For Governor	1	NOS	h598711 11/48, sl no127
15	O-Ring	JIS B2401 G90 D=Φ89.4,d=Φ3.1 for Dtributing Valve	For Governor	4	NOS	h598711 11/48, sl no128
16	O-Ring	JIS B2401 G35 D=Φ34.4,d=Φ3.1 for Dtributing Valve	For Governor	2	NOS	h598711 11/48, sl no129
17	O-Ring	JIS B2401 P21 D=Φ20.8,d=Φ2.4 for Dtributing Valve	For Governor	2	NOS	h598711 11/48, sl no130

18	O-Ring	JIS B2401 G115 D=Φ114.4.d=Φ3.1 for Distributing Valve No.57	For Governor	4	NOS	h598711 40/48, sl no137
19	O-Ring	JIS B2401 G145 D=Φ144.4.d=Φ3.1 for Distributing Valve No.57	For Governor	2	NOS	h598711 40/48, sl no138
20	O-Ring Dev no-205	JIS B2401 P50 D=Φ49.7.d=Φ3.5 for Control Valve	For Governor	2	NOS	h598711 46/48, sl no37
21	O-Ring	JIS B2401 G30 D=Φ29.4.d=Φ3.1 for Control Valve	For Governor	4	NOS	h598711 46/48, sl no38
22	O-Ring	JIS B2401 P7 D=Φ6.8.d=Φ1.9 for Control Valve	For Governor	2	NOS	h598711 46/48, sl no39
23	O-Ring	D=Φ9.25.d=Φ1.78 for Control Valve	For Governor	4	NOS	h598711 46/48, sl no40
24	O-Ring Dev no 51	JIS B2401 P28 D=Φ27.7.d=Φ3.5 for Emergency Stop Valve	For Governor	1	NOS	h598711 12/48, sl no133
25	O-Ring	JIS B2401 G50 D=Φ49.9.d=Φ3.1 for Emergency Stop Valve	For Governor	2	NOS	h598711 12/48, sl no134
26	O-Ring	JIS B2401 P15 D=Φ14.8.d=Φ2.4 for Emergency Stop Valve	For Governor	1	NOS	h598711 12/48, sl no135
27	O-Ring Dev no 54	JIS B2401 G45 D=Φ44.4.d=Φ3.1 for Change Over Valve	For Governor	2	NOS	h598711 12/48, sl no136
28	O-Ring	JIS B2401 P20 D=Φ19.8.d=Φ2.4 for Change Over Valve	For Governor	1	NOS	h598711 12/48, sl no137
29	O-Ring Dev no 55ab	JIS B2401 G75 D=Φ74.4.d=Φ3.1 for Oil Filter	For Governor	2	NOS	h598711 12/48, sl no138
30	O-Ring	JIS B2401 G25 D=Φ24.4.d=Φ3.1 for Oil Filter	For Governor	2	NOS	h598711 12/48, sl no139

31	O-Ring	JIS B2401 P22 D=Φ21.8.d=Φ2.4 for Oil Filter	For Governor	2	NOS	h598711 12/48, sl no140
32	O-Ring	JIS B2401 P22A D=Φ21.7.d=Φ3.5 for Oil Filter	For Governor	4	NOS	h598711 12/48, sl no141
33	O-Ring	JIS B2401 P14 D=Φ13.8.d=Φ2.4 for Oil Filter	For Governor	4	NOS	h598711 12/48, sl no142
34	O-Ring	JIS B2401 P5 D=Φ4.8.d=Φ1.9 for Oil Filter	For Governor	4	NOS	h598711 12/48, sl no143
D	For Oil Pressure System (Overhauling parts for OPU System, Unloader Valve, Control Valve & Oil Filter).					
	Item	Description	Location	Quantity	UOM	Remarks
1	Plunger Solenoid Valve	Φ=17.8, 48.9,No.20AS	V-54101E NO 7	1	NOS	H598711, 20/48 SL NO 231
2	Seat Packing Teflon	D=Φ 17.9 t=1.3 for Solenoid Valve No.20AS	V-54101E NO 2	1	NOS	H598711, 20/48 SL NO 232
3	Packless packing NBR	D=Φ 38 t=2 for Solenoid Valve No.20AS	V-54101E NO 4	1	NOS	H598711, 20/48 SL NO 233
4	O-Ring	D=Φ6.8, d=Φ1.9 P7 for Solenoid Valve No.20AS	V-54101E NO 28B	1	NOS	H598711, 20/48 SL NO 236
5	Packing	L=72xB=66 t=1 for Solenoid Terminal Box	V-54101E NO 26	1	NOS	H598711, 20/48 SL NO 235
6	Regulate packing NBR	D=Φ6.8, d=Φ1.9 P7 for Solenoid Valve No.20AS	V-54101E NO 17	2	NOS	H598711, 20/48 SL NO 234
7	Coil	Φ 57,h=55 copper wire PW for Solenoid Valve no 20AS	V-54101E NO 11	2	NOS	H598711, 25/48 SL NO 289
8	Packing ,C1100 P	D=Φ 22,d=Φ 13.4 t=1.6	K-20410 No-19	1	NOS	H598711, 19/48 SL NO 217
9	O-Ring	D=Φ144.6,d=Φ5.7, P145 for Automatic oil level control, dev no 102	K63179 NO 8	1	NOS	H598711, 19/48 SL NO 218
10	O-Ring	D=Φ114.4,d=Φ3.1 G115 for Automatic oil level control	K63179 NO 26	1	NOS	H598711, 19/48 SL NO 221

11	O-Ring	D=Φ129.4,d=Φ3.1 G130 for Automatic oil level control	K63179 NO 30	1	NOS	H598711, 19/48 SL NO 222
12	Packing,V#1500		K63179 NO 20	1	NOS	H598711, 19/48 SL NO 223
13	Packing	NBR D=Φ 26,d=Φ 14.5 t=20 for Automatic oil level control	K63179 NO 18	1	NOS	H598711, 19/48 SL NO 219
14	Packing	NBR D=Φ 29,d= Φ 20 t=14 for Automatic oil level control	K63179 NO 25	1	NOS	H598711, 19/48 SL NO 220
15	Asbestors Packing SUS304/SPCC	D=Φ145,d=Φ113,t=4.5	K-20410 No-16,VALQUA 592	1	NOS	H598711, 18/48 SL NO 216
16	Micro switch	L=27.8,B=10.3,H=15.9 For oil level indicator dev no 115	CW01-145 N014 OMRON V-15-1A	3	NOS	H598711, 28/48 SL NO 325
17	Automatic Oil Level Controller,Dev no-102	Tokyokeiso Co.Ltd float type level indicator with micro switches	Oil Prr Supply System	1	NOS	H5A1136 10/20
18	Oil Level Indicator for Oil Pressure Tank	<115> Kaneko sangyo ,KL-100-3L	Oil Prr Supply System	1	NOS	H5A1136 12/220
19	Dial Thermometer for Sump Tank	Φ=112,1268,54	4K870 Dev no 38QS	1	NOS	H598711, 36/48 SL NO 421
20	Oil Level Indicator for Sump Tank	<33QS>	Oil Prr Supply System	1	NOS	Reverse Engineering
21	Gasket	T#1804, Φ 33, Φ 22.5 t=3.2 for Oil level sight gauge	CL-3278E NO1	2	NOS	H598711, 19/48 SL NO 224
22	Gland Packing	P#316+P#116 D=Φ 22d= Φ 13 t=4.5 for Oil level sight gauge	CL-3278E NO12	2	NOS	H598711, 19/48 SL NO 225
23	Gasket	T#1000 A=1410,B=34 for Oil Level sight gauge No.101	CL-3278E NOG4	2	NOS	H598711, 19/48 SL NO 226
24	Cushion	T#1000 A=1410,B=34 for Oil Level sight gauge No.101	CL-3278E NOG5	2	NOS	H598711, 19/48 SL NO 227
25	O-Ring	D=Φ17.8,d=Φ2.4 for Oil level sight gauge No.101	CL-3278E NOG14 JIS B2401 P18	4	NOS	H598711, 19/48 SL NO 228

26	O-Ring	D=Φ12.3,d=Φ2.4 for Oil level sight gauge No.101	CL-3678E N0 14 JIS B2401 P12.5	4	NOS	H598711, 20/48 SL NO 229
27	Gasket SUS304	D=Φ40,d=Φ33.5, T=1 for Oil level sight gauge No.102	CL-3678E N0 10	4	NOS	H598711, 20/48 SL NO 230
28	Micro switch	X-10GW2S for Oil Level	H596219A	4	NOS	H598711, 34/48 SL NO 397
29	Ball Bearing	D=Φ120,d=Φ55,T=29, for Oil Pump No.107ab<DEV.108a,b)	Y409121, No-120, NSK6311	16	NOS	H598711, 31/48 SL NO 361
30	Safety Valve DEV.108ab	Kawasaki industry Ltd.GA3Y50, 230ltrs/min	Oil Pressure System	2	NOS	H5A1136,6/2
31	Asbestors Packing	D=Φ 46,d=Φ 33 t=1.5 for Safety Valve dev no -103	FD06B007 P20	2	NOS	H598711, 18/48 SL NO 212
32	Asbestors Packing	D=Φ 28,d= Φ 18 t=1.5 for Safety Valve	FD06B007 P21	4	NOS	H598711, 18/48 SL NO 213
33	Asbestors Packing V127	D=Φ 14,d= Φ 20 L=21 for Safety Valve	FD06B007 P36	2	NOS	H598711, 18/48 SL NO 214
34	Asbestors Packing	D=Φ 35,d= Φ 26 t=1.5 for Safety Valve	FD06B007 P37	4	NOS	H598711, 18/48 SL NO 215
35	Asbestors Packing	Φ 74x Φ 61 t=1.5 for Safety Valve (No.103)	FD06B007 P19	4	NOS	H598711, 18/48 SL NO 211
36	Safety Valve	25A*50A ,(110,105,355)Device No. 103	FD06B007	1	NOS	H598711, 32/48 SL NO 373
37	Rubber Packing	D=Φ 396x d=Φ 7 for Pressure Tank Manhole Dev No 100	H577725B P2	1	NOS	H598711, 21/48 SL NO 246
38	O-Ring	JIS B2401 G125 for Oil pump (D=Φ124.4, d=Φ3.1)	Y409121 NO311/OORBG114	2	NOS	H598711, 15/48 SL NO 169
39	O-Ring	JIS B2401 G115 for Oil pump (D=Φ114.4, d=Φ3.1)	Y409121 NO348/OORBG115	2	NOS	H598711, 15/48 SL NO 170
40	Asbestors Packing	t=1 D=Φ262, d=Φ208 for Oil pump	Y409121 NO536/502586	2	NOS	H598711, 15/48 SL NO 171
41	Packing Copper	D=Φ30,d=Φ22	Y409121 NO-438,OTB22	2	NOS	H598711, 15/48 SL NO 172
42	O-Ring	JIS B2401 G60 Φ59.4, Φ3.1for Oil pump for Outlet Flange	Y409121 NO438/OTB22	2	NOS	H598711, 15/48 SL NO 173

43	Asbestors Packing	t=1 * Φ 210, Φ 116 for Oil pump for Inlet Flange	Y40912 NO 003/PDPB100	2	NOS	H598711, 15/48 SL NO 174
44	Asbestors Packing	T=1 * Φ 165 for Oil pump	Y409121 NO 578/502702	2	NOS	H598711, 15/48 SL NO 175
45	Asbestors Packing	T=1 * Φ 300, Φ 245 for Oil pump	Y409121 NO 002/PDPS300	2	NOS	H598711, 15/48 SL NO 176
46	O-Ring	JIS B2401 G55, D= Φ 54.4, d= Φ 3.1 for OIL Safety Valve	Y401536 NO 610/00RBG55	2	NOS	H598711, 15/48 SL NO 177
47	O-Ring	JIS B2401 G85, D= Φ 84.4, d= Φ 3.1 for OIL Safety Valve	Y401536 NO 612/00RBG85	2	NOS	H598711, 15/48 SL NO 178
48	O-Ring	JIS B2401 P11 D= Φ 10.8, d= Φ 2.4 for OIL Safety Valve	Y401536 NO 626,679/00RBP11	4	NOS	H598711, 15/48 SL NO 179
49	O-Ring	JIS B2401 G40 D= Φ 39.4, d= Φ 3.1 for OIL Safety Valve	Y401536 NO 652/00RBG40	2	NOS	H598711, 15/48 SL NO 180
50	O-Ring	JIS B2401 G25, D= Φ 24.4, d= Φ 3.1 for OIL Safety Valve	Y401536 NO 677/00RBG25	2	NOS	H598711, 16/48 SL NO 181
51	O-Ring	JIS B2401 P20, D= Φ 19.8, d= Φ 2.4 for OIL Safety Valve	Y401536 NO 687/00RBP20	4	NOS	H598711, 16/48 SL NO 182
52	O-Ring	JIS B2401 G30, D= Φ 29.4, d= Φ 3.1 for OIL Safety Valve	Y401536 NO 689/00RBG30	2	NOS	H598711, 16/48 SL NO 183
53	O-Ring	JIS B2401 G60, D= Φ 59.4, d= Φ 3.1 for Companion FLANGE	00RBG60	4	NOS	H598711, 16/48 SL NO 184
54	Asbestors Packing	t=1*80x70 for Companion Flange	Y401536 NO 675/509289	2	NOS	H598711, 16/48 SL NO 185
55	Copper Packing	T=1, D= Φ 30, d= Φ 22. for Companion Flange	Y401536 NO 666/0TB22	2	NOS	H598711, 16/48 SL NO 186
56	O-Ring	CR Φ 145.6x Φ 3.5 for Oil Level indicator	CW01-145/NO 18	1	NOS	H598711, 16/48 SL NO 187
57	O-Ring	CR Φ 124.4x Φ 3.1 for Oil Level indicator	CW01-145/NO 12	1	NOS	H598711, 16/48 SL NO 188
58	O-Ring	CR Φ 33.8x Φ 1.7 for Cap	CW01-145	1	NOS	H598711, 16/48 SL NO 189
59	Asbestors Packing	V#1500, 6- Φ 5.5, T=1.5* Φ 151 for Cap	CW01-145/NO 19	1	NOS	H598711, 16/48 SL NO 190

60	Packing	NBR PACKING T=1.5, L=106xB=91 for Terminal Box	CW01-145	1	NOS	H598711, 16/48 SL NO 191
61	Packing	NBR PCACKING T=1.5 L=131xB=66 for Side cover	CW01-145	1	NOS	H598711, 16/48 SL NO 192
62	Asbestors Packing	Seat Packing, V#1500, 4-Φ19, T=1.5, Φ 180 for Oil level indicator	CW01-145/JIS5K-80A	1	NOS	H598711, 17/48 SL NO 193
63	O-Ring FOR CHECK STOP VALVE DEVICE	Φ74.4, Φ3.1, HS 90 No V15ab HS90	ES-3881/NO126A,JIS B2401-IB G-75	4	NOS	H598711, 17/48 SL NO 194
64	O-Ring FOR Stop Valve	D=Φ59.6,d=Φ5.7 , HS70 No V15ab	ES-3881/NO126B,JIS B2401-IA P60	2	NOS	H598711, 17/48 SL NO 195
65	O-Ring FOR Stop Valve	D=Φ88.4,d=Φ3.1, HS 90 No V15ab,	ES-3881/NO126C,JIS B2401-IB G85	2	NOS	H598711, 17/48 SL NO 196
66	O-Ring FOR Stop Valve	D=Φ21.8,d=Φ2.4, No V15ab	ES-3881 NO126D, JISB2401-IB G85	2	NOS	H598711, 17/48 SL NO 197
67	O-Ring FOR Stop Valve	D=Φ39.4,d=Φ3.1, HS90 No V15ab	ES-3881 NO126E JIS B2401-IB G40	2	NOS	H598711, 17/48 SL NO 198
68	O-Ring FOR Stop Valve	D=Φ94.4,d=Φ3.1, No V15ab	ES-3881 NO126F, JIS B2401-IB G95	2	NOS	H598711, 17/48 SL NO 199
69	Backup Ring FOR Stop Valve Teflon	T=1.25, Φ 85, A=2.5 for Oil level indicator	ES-3881 NO125A, JIS B2407-T2G85	4	NOS	H598711, 17/48 SL NO 200
70	Backup Ring FOR Stop Valve Teflon	T=1.25, Φ22, A=2, for Oil level indicator	ES-3881 NO125B, JIS B2407-T2P22	2	NOS	H598711, 17/48 SL NO 201
71	Aesbestos Packing	T=2, D=Φ250 8-ΦC, Φ23 for Piping oil sump tank	JIS 10KFF-125A	2	NOS	H598711, 17/48 SL NO 202
72	Asbestors Packing	T=2, D=Φ210, C=Φ19 for Piping oil sump tank	JIS 10KFF-100A	42	NOS	H598711, 17/48 SL NO 203
73	Asbestors Packing V1500	D=Φ155 4-Φ19, t=2 for Piping oil sump tank	JIS 10KFF-50A	5	NOS	H598711, 17/48 SL NO 204
74	Asbestors Packing V1500	D=Φ125 4-Φ19, t=2 for Piping oil sump tank	JIS 10KFF-25A	4	NOS	H598711, 18/48 SL NO 205

75	Asbestors Packing V1500	D=Φ180, t=2 for Piping oil sump tank	JIS 10KFF-80A	4	NOS	H598711, 18/48 SL NO 206
76	O-Ring NBR	D=Φ34.4, d=Φ3.1	JIS B2401-IBG35	4	NOS	H598711, 18/48 SL NO 207
77	O-Ring NBR	D=Φ59.4, d=Φ3.1	JIS B2401-IBG60	6	NOS	H598711, 18/48 SL NO 208
78	O-Ring NBR	D=Φ74.4, d=Φ3.1	JIS B2401-IBG75	8	NOS	H598711, 18/48 SL NO 209
79	O-Ring NBR	D=Φ84.4, d=Φ3.1	JIS B2401-IBG85	2	NOS	H598711, 18/48 SL NO 210
80	Packing C1100P-1/2H	D=Φ35.5, d=Φ26.6,T=1.6 for unloader valve device no - 109ab	KHS675-01C1,PF3/4	2	NOS	H598711, 18/48 SL NO 237
81	Packing C1100P-1/2H	D=Φ22, d=Φ13.4,T=1.6 for unloader valve device no - 109ab	KHS675-01C1,PF1/4	2	NOS	H598711, 18/48 SL NO 238
82	O-Ring	D=Φ44.7, d=Φ3.5 for Unloader Valve No.109ab	JIS B2401 P45	4	NOS	H598711, 20/48 SL NO 239
83	O-Ring	D=Φ69.4, d=Φ3.1 for Unloader Valve No.109ab	JIS B2401 G70	8	NOS	H598711, 20/48 SL NO 240
84	Packing Asbestos	L=310xB=180 t=1.5 for Unloader Valve No.109ab	H577663	4	NOS	H598711, 21/48 SL NO 241
85	O-Ring for Control Valve	Φ 9.25x Φ 1.78	for Oil Pressure Supply System	16	NOS	
86	Control Valve (Brake) Dev No-56	Kaneko sangyo ltd,1/2Bx1/2Bx1B(BC-S 30K) 29kgf/cm2, Air=PF11/2,oil=PF1/4	for Oil Pressure Supply System	1	NOS	H5A1875,5/8
87	O-Ring	D=Φ79.4, d=Φ3.1 for Control Valve No.110ab	JIS B2401 G80	1	NOS	H598711, 21/48 SL NO 242
88	O-Ring	D=Φ22, d=Φ13.4,T=1.6 for Control Valve No.110ab	KHS675-01C1PF1/4	4	NOS	H598711, 21/48 SL NO 243
89	O-Ring	D=Φ19.8, d=Φ2.4 P20-N for Control Valve No.110ab	JIS B2401 P20	1	NOS	H598711, 21/48 SL NO 244
90	O-Ring	D=Φ29.4, d=Φ3.1 G30-N for Control Valve No.110ab	JIS B2401 P30	2	NOS	H598711, 21/48 SL NO 245
E	For Pressure Relief Valve (Overhauling Parts,Seals & Gaskets of PRV)					
	ITEM	Description	Location	Q'ty		Remarks

1	U-seal	D*d*W=160*140*11.5 UD140	H217560 P15	1	NOS	H598711, 37/48 SL NO 1
2	U-seal	D*d*W=160*140*11.5 UD140	H217560 P35	1	NOS	H598711, 37/48 SL NO 2
3	U-seal	D*d*W=830*800*17.5 UD800	H217560 P38	1	NOS	H598711, 37/48 SL NO 3
4	U-seal	D*d*W=280*255*14.5 UD255	H217560 P52	2	NOS	H598711, 37/48 SL NO 4
5	U-seal	D*d*W=105*90*9 UD90	H217560 P60	2	NOS	H598711, 37/48 SL NO 5
6	U-seal	D*d*W=290*265*14.5 UD265	H217560 P64	2	NOS	H598711, 37/48 SL NO 6
7	U-seal	D*d*W=63*50*7.5 RW50	H217560 P79	1	NOS	H598711, 37/48 SL NO 7
8	Dust seal	D*d*W=63*50*7.1	H217560 P72	1	NOS	H598711, 37/48 SL NO 8
9	Seat rubber	D*d*W=777*727*17.75	H217560 P10	1	NOS	H598711, 37/48 SL NO 9
10	O-Ring	NBR d=680, w=6 (d=dia. of the ring, w=cross dia.of the material)	H217560 P11	2	NOS	H598711, 37/48 SL NO 12
11	O-Ring JIS324C1 G170	d*w=170*5.7 (d=dia. of the ring, w=cross dia.of the material)	H217560P14	1	NOS	H598711, 38/48 SL NO 13
12	O-Ring	d*w=1830*7 (d=dia. of the ring, w=cross dia.of the material)	H217560P19	1	NOS	H598711, 38/48 SL NO 14
13	O-Ring	d*w=1830*7 (d=dia. of the ring, w=cross dia.of the material)	H217560P21	1	NOS	H598711, 38/48 SL NO 15
14	O-Ring P170	d*w=170*8.4 (d=dia. of the ring, w=cross dia.of the material)	H217560P36	1	NOS	H598711, 38/48 SL NO 16
15	O-Ring	d*w=870*7 (d=dia. of the ring, w=cross dia.of the material)	H217560P39	1	NOS	H598711, 38/48 SL NO 17
16	O-Ring	d*w=880*7 (d=dia. of the ring, w=cross dia.of the material)	H217560P42	1	NOS	H598711, 38/48 SL NO 18
17	O-Ring G95	d*w=95*3.1 (d=dia. of the ring, w=cross dia.of the material)	H217560P50	1	NOS	H598711, 38/48 SL NO 19

18	O-Ring G300	d*w=300*5.7 (d=dia. of the ring, w=cross dia.of the material)	H217560P55	1	NOS	H598711, 38/48 SL NO 20
19	O-Ring G115	d*w=115*3.1 (d=dia. of the ring, w=cross dia.of the material)	H217560P61	2	NOS	H598711, 38/48 SL NO 21
20	O-Ring G65	d*w=65*3.1 (d=dia. of the ring, w=cross dia.of the material)	H217560P62	1	NOS	H598711, 38/48 SL NO 22
21	O-Ring G300	d*w=300*5.7 (d=dia. of the ring, w=cross dia.of the material)	H217560P66	1	NOS	H598711, 38/48 SL NO 23
22	O-Ring G300	d*w=300*5.7 (d=dia. of the ring, w=cross dia.of the material)	H217560P68	1	NOS	H598711, 38/48 SL NO 24
23	O-Ring G75	d*w=75*3.1 (d=dia. of the ring, w=cross dia.of the material)	H217560P94	2	NOS	H598711, 39/48 SL NO 25
24	Distributing Valve	H=560,W=365,Depth=365, Φ =50, Φ 80, Φ 15, 30 kgf/cm ²	H5A1875,8/8	1	NOS	
25	O-Ring G115	JIS B201 G115 for Distributing Valve	For Pressure Relief Valve	2	NOS	H598711, 40/48 SL NO 37
26	O-Ring G145	JIS B201 G145 for Distributing Valve	For Pressure Relief Valve	1	NOS	H598711, 40/48 SL NO 38
27	O-Ring P50	JIS B201 P50 for Distributing Valve	For Pressure Relief Valve	1	NOS	H598711, 46/48 SL NO 37
28	O-Ring G30	JIS B201 G30 for Distributing Valve	For Pressure Relief Valve	2	NOS	H598711, 46/48 SL NO 38
29	O-Ring P7	JIS B201 P7 for Distributing Valve	For Pressure Relief Valve	1	NOS	H598711, 46/48 SL NO 39
30	O-Ring	Φ 9.5X 1.78 for Control Valve	For Pressure Relief Valve	2	NOS	H598711, 46/48 SL NO 40
31	Connecting Rod	L=150	For Pressure Relief Valve	1	NOS	Reverse Engineering
32	O-Ring G55	D= Φ 54.4, d= Φ 3.1	Y401536 N0-610,00RBG55	2	NOS	H598711, 15/48 SL NO 177
33	O-Ring G85	D= Φ 84.4, d= Φ 3.1	Y401536 N0-612,00RBG85	2	NOS	H598711, 15/48 SL NO 178

34	O-Ring P11	D=Φ10.8, d=Φ2.4	Y401536 N0-626,679,00RBP11	4	NOS	H598711, 15/48 SL NO 179
35	O-Ring G40	D=Φ39.4, d=Φ3.1	Y401536 N0-652,00RBG40	2	NOS	H598711, 15/48 SL NO 180
36	O-Ring G25	D=Φ24.4, d=Φ3.1	Y401536 N0-677,00RBG25	2	NOS	H598711, 16/48 SL NO 181
37	O-Ring P20	D=Φ19.8, d=Φ2.4	Y401536 N0-687,00RBP20	4	NOS	H598711, 16/48 SL NO 182
38	O-Ring G30	D=Φ29.4, d=Φ3.1	Y401536 N0-689,00RBG30	2	NOS	H598711, 16/48 SL NO 183
39	O-Ring G60 For Companion Flange	D=Φ59.4, d=Φ3.1	00RBG60	4	NOS	H598711, 16/48 SL NO 184
F	For Compressed Air System (Air Compressor) (Overhauling parts for air compressor)					
	Item	Description	Location	Quantity	UOM	Remarks
1	Safty Valve for Comp.1,2	For Press. air tank <312> Set prr 34kgf/cm2 Make:Fukui Saisakusho Co. Ltd, RGX-SO INLET PT3/4, OUTLE/3/4 CAPACITY 680KG/HR	H217135,H5A1136 15/	2	NOS	
2	Pressure Gauge for Comp.1,2	For Press. air tank <313> Make -Daito Co., Ltd. Size - 100 mm,(0~50 kgf/cm2),PF 3/8	H5A1136 15/20	2	NOS	
3	Air Filter for compressor 1	For Press. air tank <314>Make- Hasoda Mfg. Co. Ltd., Type- Y,Prr-35kgf/cm2,Mesh-100, connection-GIS30K-15mm	H5A1136 16/21	2	NOS	
4	Pressure Gauge	For Press. air tank <316>,AU1/4	H217134	1	NOS	
5	Pressure Gauge	For Press. air tank <317>,AU1/4	H217134	1	NOS	
6	Safty Valve for BRAKE Com	For Press. air tank <412> Make:Fukui Saisakusho Co. Ltd, RGX-SO INLET PT3/4, OUTLE/3/4 CAPACITY	H5A1136 19/20	1	NOS	

7	Pressure Gauge for brake	For Press. air tank <413> Make- Daito Co., Ltd. Size - 100 mm,(0~50 kgf/cm2),PF 3/8	H5A1136 19/20	1	NOS	
8	Air Filter for brake compres	For Press. air tank <414>Make- Hasoda Mfg. Co. Ltd., Type- Y,Prr-35kgf/cm2,Mesh-100, connection-GIS30K-15mm	For Compressed Air Supply System	2	NOS	
9	Solenoid valve,Dev No 20AQ for compressor 2	Maker- B-N Seiki Co.Ltd. Type- MR102,Connection- PT1/4",Max Prss - 10kgf/cm2,AC 230volt,50Hz	H5A1136 16/20	1	NOS	
10	Stop Valve For compressor 1,2,3	1/2"JIS 30K RF	H217134,H217135	10	NOS	
11	Stop Valve For compressor 1,2,3	3/8" PT 30K	H217134,H217135	3	NOS	
12	Stop Valve For compressor 1,2,3	1/4" PT 30K	H217134,H217135	3	NOS	
13	Stop Valve For compressor 1,2,3	1/2" PT 30K	H217134,H217135	3	NOS	
14	Stop Valve For compressor 1,2,3	1/2" PT 30K	H217134,H217135	3	NOS	
G	For Cooling Water (CW) System (Overhauling parts CW system)					
	Item	Description	Location	Quantity	UOM	Remarks
1	Bearing	For Cooling water pump	Part No 9 on drawing no H216725	3	NOS	Strainer Drawing h216725
2	Rubber Packing	Φ7x2420 for Cooling Water Strainer	H216832 P18	2	NOS	H598711, 7/48 SL NO 73
3	Rubber Packing	Φ5x Φ89 for Cooling Water Strainer	H216832 P19	2	NOS	H598711, 7/48 SL NO 74
4	V-Packing	F70-3-M1,F1 (Φ70,Φ90) for Cooling Water Strainer	H314973AP9	2	SET	Strainer Drawing h216725
5	Packing F # 1100	110 t=1 for F Type Packing Tombo Water Strainer	Y-58024	2	NOS	H598711, 8/48 SL NO 85
6	Fiber Packing	Φ28 t=1.5 for F Type Water Strainer	Y-58024	2	NOS	H598711, 8/48 SL NO 86

7	Fiber Packing	Φ10 t=1 for F Type Water Strainer	Y-58024	2	NOS	H598711, 8/48 SL NO 88
8	O-Ring	JIS B2401 P15 for F Type Water Strainer	Y-58024	4	NOS	H598711, 8/48 SL NO 87
9	ASBESTOS SHEET PACKING	Φ25.5 Φ16.9 T=1.6MM	h314973AP6	2	NOS	H598711, 8/48 SL NO 75
10	Packing C1100P 1/2H	Φ25.5 Φ16.9 T=1.6MM	h314973AP6	2	NOS	H598711, 8/48 SL NO 77
11	FLOW RELAY	Reverse Engineering	M705-804821	6	NOS	

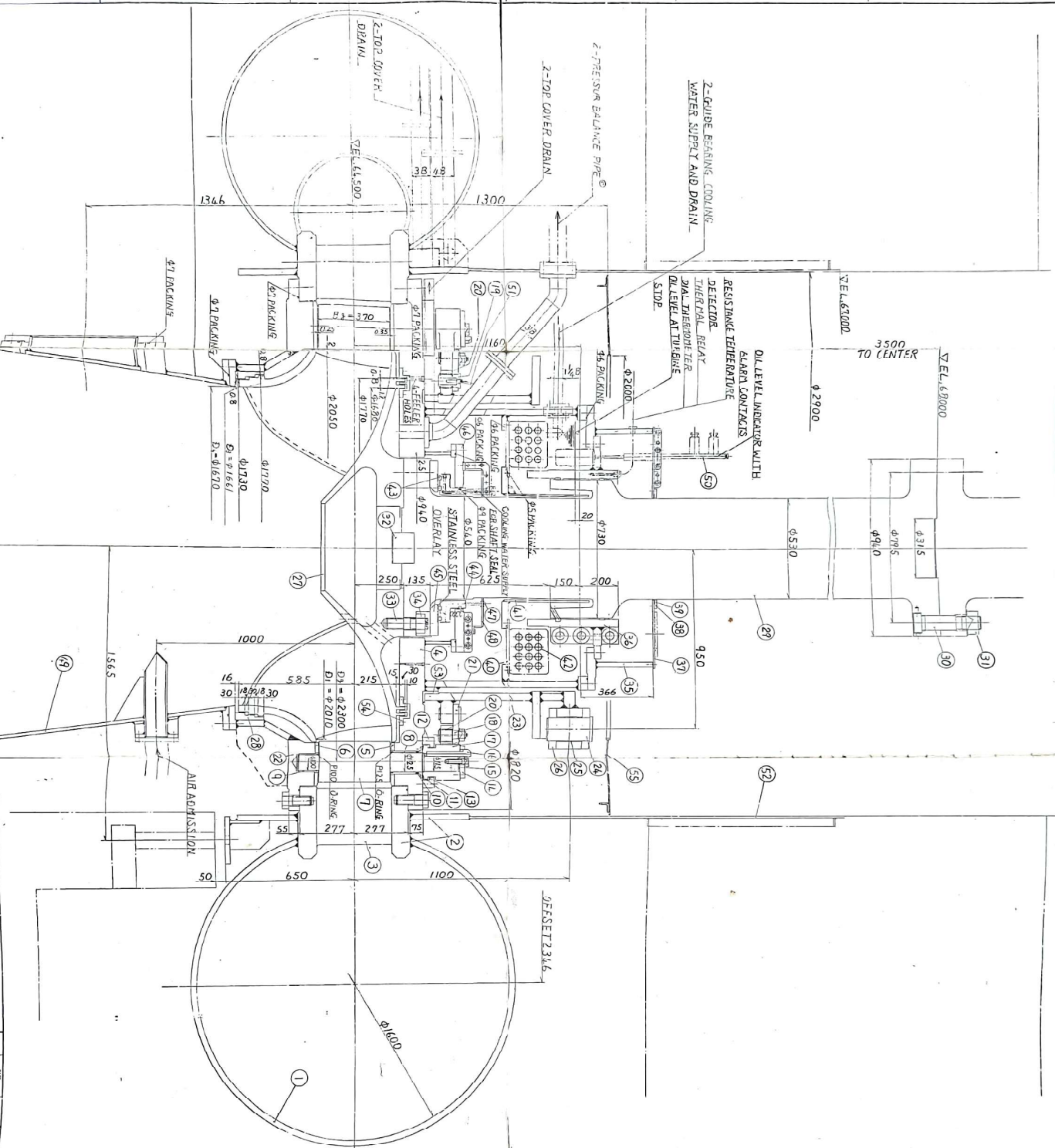
Annexure-C
Supply / Consumables for Air Cooler and Shalft Seal Assembly

Sl. No	Description of materials	Size(in mm.)	Total Quantity
1	Round rubber packing (Water strainer)	7mm	8 metres
2	Round rubber packing (Spiral casing manhole)	7mm	3 metres
3	Round rubber packing (Draft tube manhole)	7 mm	3 meters
4	Round rubber packing (Lower bracket)	7mm	20 metres
5	Round rubber packing for Turbine Bearing Support	6 mm	8 meters
6	Round Rubber Packing for Turbine Oil Guide Pan (Inner Ring)	5 mm	6 meters
7	Round Rubber Packing for Turbine Oil Guide Pan (Outer Ring)	6 mm	8 meters
8	Round Rubber Packing for shaft seal Housing	6 mm	6 meters
9	Round rubber packing for UGB oil cooler	9mm	2metre
10	Turbine Guide bearing felt packing	5 mm	3 meters

11	Round Rubber packing for Turbine Oil cooler Flange	4 mm	2metre
12	Round Rubber Packing for shaft seal Strainer	4 mm	2metre
13	Filler Gauge (12 inch)	0.02 to 2.00 mm	1 set
14	Loctite 401	20 gram	1 bottle
15	Loctite 648	50ml	1 bottle
16	Shaft seal water supply Hose Pipe	Pipe L= 1300 mm, Outer Dia = 21 mm, Inner dia = 3/4 inch, Pressure(Water Pressure) = 25 Bar; Hexagonal Nut D= 46 mm, One end Nipple: Hole Dia = 15.6 mm, Outer Dia = 32 mm; Other End Nipple: Hole Dia= 10 mm, Outer Dia= 21mm	5 Nos.
17	Nylon reinforced rubber packing for Air cooler (Type- A)	T=2mm	2 Sheet (1500mmX1200mm)
18	Nylon reinforced rubber packing for Air cooler (Type- B)	T=2mm	2 Sheet (1500mmX1200mm)
19	Anabond 666T-Max RTV silicon sealant.	100 gms	15 nos.

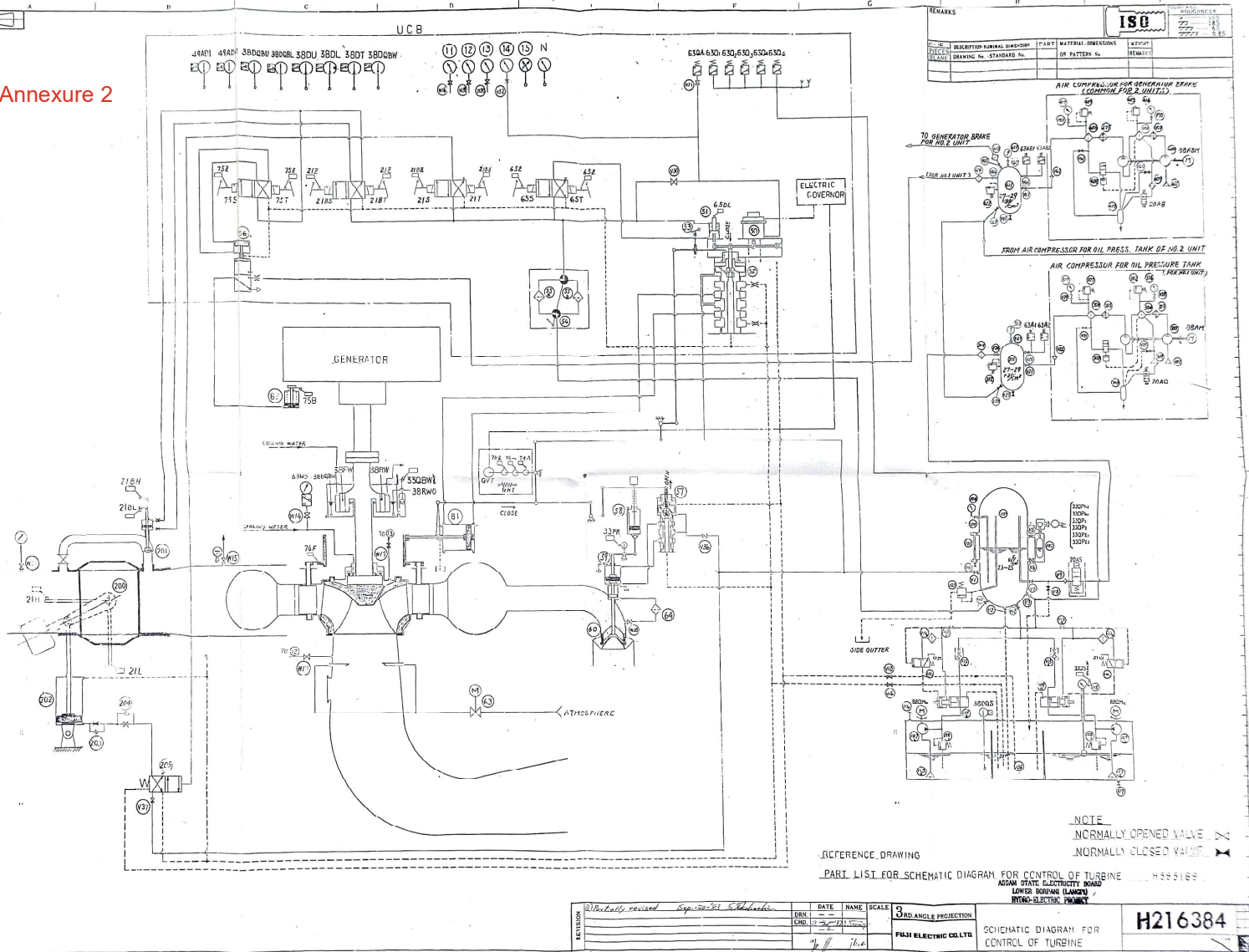
20	Anabond Auto-gasket marker High Temp. RTV silicon (Red)	85 gms	2 nos.
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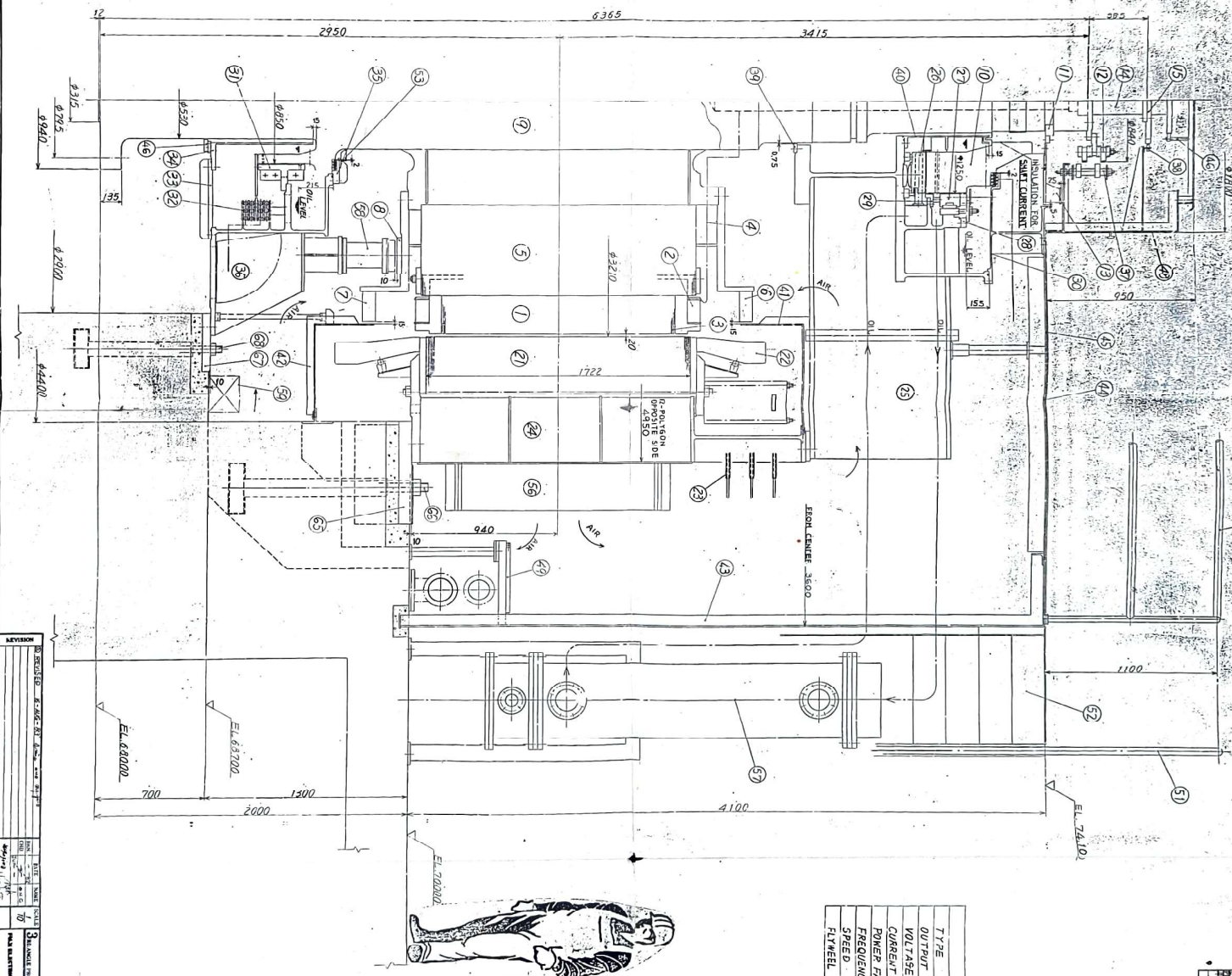
Part	NAME OF PARTS	MATERIAL	P.C.S.	NOTE
1	SPRAL CASING	SS41A	1	2 SECTIONALIZED
2	STAR RING	SS41A	1	
3	STAR WAVE	SS41A	20	
4	TOP COVER	SS41A+SS41		
5	LOWER FACING PLATE	SUS304HP		
6	LOCKING PLATE	SUS304HP		
7	WICKET GATE LEVER	SS41	20	
8	UPPER BEARING BUSH	BRONZE+SS41 LUBRICANT	20	OILS 5000 P/L
9	LOWER BEARING BUSH	BRONZE+SS41 LUBRICANT	20	OILS 5000 P/L
10	UPPER BEARING	SYNTHETIC RUBBER	20	OILS 5000 P/L
11	LOWER BEARING	BRONZE+SS41 LUBRICANT	20	OILS 5000 P/L
12	THROAT BEARING	SS41	20	2 SECTIONALIZED
13	THROAT BEARING LINER	BRONZE+SS41 LUBRICANT	20	2 SECTIONALIZED
14	OVER PLATE	SS41	20	
15	ADJUSTING LINER	SS41	20	
16	NET	SS41	20	
17	WICKET GATE LEVER	SS41+SS25C	20	
18	ECCENTRIC PIN	SS41	20	
19	SHEAR PIN	SS41	20	
20	LINK FOR LINK PIN	SS41	20	20 BY BR/BLANKING
21	LINK	SS41	20	
22	ROTATION RING	SS41	1	
23	GATE RING	SS41	1	
24	CONNECTING PIN	SS41	2	
25	BEARING BUSH	SS41	2	
26	CONNECTING LINK	SS41	2	20 BY BR/BLANKING
27	SPACER	SS41	1	
28	LOWER WEARING RING	SS41	2	
29	COUPLING BOLT	SS41	1	
30	TURBINE SHAFT	SS41	1	
31	WOT	SS41	1	
32	BEARING SUPPORT	SS41	1	
33	GUIDE BEARING	SS41	1	
34	PACKING COVER	SS41	1	
35	PACKING	SS41	1	
36	OUTER OIL RESERVOIR	SS41	1	
37	INNER OIL RESERVOIR	SS41	1	
38	COOLING PIPE	SS41	1	
39	CARBON RING	SS41	1	
40	SLIDING PLATE	SS41	1	
41	HOUSING FOR SHAFT SEAL	SS41	1	
42	HOUSING	SS41	1	
43	UPPER SPACER TUBE LUBRICATION	SS41	1	
44	OIL LEVEL INDICATOR	SS41	1	
45	UPPER BEARING BUSH	SS41	1	
46	LOWER BEARING BUSH	SS41	1	
47	UPPER BEARING	SS41	1	
48	LOWER BEARING	SS41	1	
49	ADJUSTING LINER	SS41	1	
50	WICKET GATE LEVER	SS41	1	
51	ECCENTRIC PIN	SS41	1	
52	SHEAR PIN	SS41	1	
53	LINK FOR LINK PIN	SS41	1	
54	LINK	SS41	1	
55	GATE RING	SS41	1	
56	CONNECTING PIN	SS41	1	
57	CONNECTING LINK	SS41	1	
58	INNER WEARING RING	SS41	1	
59	COUPLING BOLT	SS41	1	
60	TURBINE KEY	SS41	1	
61	SHOULDER KEY	SS41	1	
62	BEARING SUPPORT	SS41	1	
63	GUIDE BEARING	SS41	1	
64	PACKING COVER	SS41	1	
65	PACKING	SS41	1	
66	OUTER OIL RESERVOIR	SS41	1	
67	INNER OIL RESERVOIR	SS41	1	
68	COOLING PIPE	SS41	1	
69	CARBON RING	SS41	1	
70	SLIDING PLATE	SS41	1	
71	HOUSING FOR SHAFT SEAL	SS41	1	
72	HOUSING	SS41	1	
73	UPPER SPACER TUBE LUBRICATION	SS41	1	
74	OIL LEVEL INDICATOR	SS41	1	
75	UPPER BEARING BUSH	SS41	1	
76	LOWER BEARING BUSH	SS41	1	
77	UPPER BEARING	SS41	1	
78	LOWER BEARING	SS41	1	
79	ADJUSTING LINER	SS41	1	
80	WICKET GATE LEVER	SS41	1	
81	ECCENTRIC PIN	SS41	1	
82	SHEAR PIN	SS41	1	
83	LINK FOR LINK PIN	SS41	1	
84	LINK	SS41	1	
85	GATE RING	SS41	1	
86	CONNECTING PIN	SS41	1	
87	CONNECTING LINK	SS41	1	
88	INNER WEARING RING	SS41	1	
89	COUPLING BOLT	SS41	1	
90	TURBINE KEY	SS41	1	
91	SHOULDER KEY	SS41	1	
92	BEARING SUPPORT	SS41	1	
93	GUIDE BEARING	SS41	1	
94	PACKING COVER	SS41	1	
95	PACKING	SS41	1	
96	OUTER OIL RESERVOIR	SS41	1	
97	INNER OIL RESERVOIR	SS41	1	
98	COOLING PIPE	SS41	1	
99	CARBON RING	SS41	1	
100	SLIDING PLATE	SS41	1	
101	HOUSING FOR SHAFT SEAL	SS41	1	
102	HOUSING	SS41	1	
103	UPPER SPACER TUBE LUBRICATION	SS41	1	
104	OIL LEVEL INDICATOR	SS41	1	
105	UPPER BEARING BUSH	SS41	1	
106	LOWER BEARING BUSH	SS41	1	
107	UPPER BEARING	SS41	1	
108	LOWER BEARING	SS41	1	
109	ADJUSTING LINER	SS41	1	
110	WICKET GATE LEVER	SS41	1	
111	ECCENTRIC PIN	SS41	1	
112	SHEAR PIN	SS41	1	
113	LINK FOR LINK PIN	SS41	1	
114	LINK	SS41	1	
115	GATE RING	SS41	1	
116	CONNECTING PIN	SS41	1	
117	CONNECTING LINK	SS41	1	
118	INNER WEARING RING	SS41	1	
119	COUPLING BOLT	SS41	1	
120	TURBINE KEY	SS41	1	
121	SHOULDER KEY	SS41	1	
122	BEARING SUPPORT	SS41	1	
123	GUIDE BEARING	SS41	1	
124	PACKING COVER	SS41	1	
125	PACKING	SS41	1	
126	OUTER OIL RESERVOIR	SS41	1	
127	INNER OIL RESERVOIR	SS41	1	
128	COOLING PIPE	SS41	1	
129	CARBON RING	SS41	1	
130	SLIDING PLATE	SS41	1	
131	HOUSING FOR SHAFT SEAL	SS41	1	
132	HOUSING	SS41	1	
133	UPPER SPACER TUBE LUBRICATION	SS41	1	
134	OIL LEVEL INDICATOR	SS41	1	
135	UPPER BEARING BUSH	SS41	1	
136	LOWER BEARING BUSH	SS41	1	
137	UPPER BEARING	SS41	1	
138	LOWER BEARING	SS41	1	
139	ADJUSTING LINER	SS41	1	
140	WICKET GATE LEVER	SS41	1	
141	ECCENTRIC PIN	SS41	1	
142	SHEAR PIN	SS41	1	
143	LINK FOR LINK PIN	SS41	1	
144	LINK	SS41	1	
145	GATE RING	SS41	1	
146	CONNECTING PIN	SS41	1	
147	CONNECTING LINK	SS41	1	
148	INNER WEARING RING	SS41	1	
149	COUPLING BOLT	SS41	1	
150	TURBINE KEY	SS41	1	
151	SHOULDER KEY	SS41	1	
152	BEARING SUPPORT	SS41	1	
153	GUIDE BEARING	SS41	1	
154	PACKING COVER	SS41	1	
155	PACKING	SS41	1	
156	OUTER OIL RESERVOIR	SS41	1	
157	INNER OIL RESERVOIR	SS41	1	
158	COOLING PIPE	SS41	1	
159	CARBON RING	SS41	1	
160	SLIDING PLATE	SS41	1	
161	HOUSING FOR SHAFT SEAL	SS41	1	
162	HOUSING	SS41	1	
163	UPPER SPACER TUBE LUBRICATION	SS41	1	
164	OIL LEVEL INDICATOR	SS41	1	
165	UPPER BEARING BUSH	SS41	1	
166	LOWER BEARING BUSH	SS41	1	
167	UPPER BEARING	SS41	1	
168	LOWER BEARING	SS41	1	
169	ADJUSTING LINER	SS41	1	
170	WICKET GATE LEVER	SS41	1	
171	ECCENTRIC PIN	SS41	1	
172	SHEAR PIN	SS41	1	
173	LINK FOR LINK PIN	SS41	1	
174	LINK	SS41	1	
175	GATE RING	SS41	1	
176	CONNECTING PIN	SS41	1	
177	CONNECTING LINK	SS41	1	
178	INNER WEARING RING	SS41	1	
179	COUPLING BOLT	SS41	1	
180	TURBINE KEY	SS41	1	
181	SHOULDER KEY	SS41	1	
182	BEARING SUPPORT	SS41	1	
183	GUIDE BEARING	SS41	1	
184	PACKING COVER	SS41	1	
185	PACKING	SS41	1	
186	OUTER OIL RESERVOIR	SS41	1	
187	INNER OIL RESERVOIR	SS41	1	
188	COOLING PIPE	SS41	1	
189	CARBON RING	SS41	1	
190	SLIDING PLATE	SS41	1	
191	HOUSING FOR SHAFT SEAL	SS41	1	
192	HOUSING	SS41	1	
193	UPPER SPACER TUBE LUBRICATION	SS41	1	
194	OIL LEVEL INDICATOR	SS41	1	
195	UPPER BEARING BUSH	SS41	1	
196	LOWER BEARING BUSH	SS41	1	
197	UPPER BEARING	SS41	1	
198	LOWER BEARING	SS41	1	
199	ADJUSTING LINER	SS41	1	
200	WICKET GATE LEVER	SS41	1	
201	ECCENTRIC PIN	SS41	1	
202	SHEAR PIN	SS41	1	
203	LINK FOR LINK PIN	SS41	1	
204	LINK	SS41	1	
205	GATE RING	SS41	1	
206	CONNECTING PIN	SS41	1	
207	CONNECTING LINK	SS41	1	
208	INNER WEARING RING	SS41	1	
209	COUPLING BOLT	SS41	1	
210	TURBINE KEY	SS41	1	
211	SHOULDER KEY	SS41	1	
212	BEARING SUPPORT	SS41	1	
213	GUIDE BEARING	SS41	1	
214	PACKING COVER	SS41	1	
215	PACKING	SS41	1	
216	OUTER OIL RESERVOIR	SS41	1	
217	INNER OIL RESERVOIR	SS41	1	
218	COOLING PIPE	SS41	1	
219	CARBON RING	SS41	1	
220	SLIDING PLATE	SS41	1	
221	HOUSING FOR SHAFT SEAL	SS41	1	
222	HOUSING	SS41	1	
223	UPPER SPACER TUBE LUBRICATION	SS41	1	
224	OIL LEVEL INDICATOR	SS41	1	
225	UPPER BEARING BUSH	SS41	1	
226	LOWER BEARING BUSH	SS41	1	
227	UPPER BEARING	SS41	1	
228	LOWER BEARING	SS41	1	
229	ADJUSTING LINER	SS41	1	
230	WICKET GATE LEVER	SS41	1	
231	ECCENTRIC PIN	SS41	1	
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234	LINK	SS41	1	
235	GATE RING	SS41	1	
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237	CONNECTING LINK	SS41	1	
238	INNER WEARING RING	SS41	1	
239	COUPLING BOLT	SS41	1	
240	TURBINE KEY	SS41	1	
241	SHOULDER KEY	SS41	1	
242	BEARING SUPPORT	SS41	1	
243	GUIDE BEARING	SS41	1	
244	PACKING COVER	SS41	1	
245	PACKING	SS41	1	
246	OUTER OIL RESERVOIR	SS41	1	
247	INNER OIL RESERVOIR	SS41	1	
248	COOLING PIPE	SS41	1	
249	CARBON RING	SS41	1	
250	SLIDING PLATE	SS41	1	
251	HOUSING FOR SHAFT SEAL	SS41	1	
252	HOUSING	SS41	1	
253	UPPER SPACER TUBE LUBRICATION	SS41	1	
254	OIL LEVEL INDICATOR	SS41	1	
255	UPPER BEARING BUSH	SS41	1	
256	LOWER BEARING BUSH	SS41	1	
257	UPPER BEARING	SS41	1	
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260	WICKET GATE LEVER	SS41	1	
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268	INNER WEARING RING	SS41	1	
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270	TURBINE KEY	SS41	1	
271	SHOULDER KEY	SS41	1	
272	BEARING SUPPORT	SS41	1	
273	GUIDE BEARING	SS41	1	
274	PACKING COVER	SS41	1	
275	PACKING	SS41	1	
276	OUTER OIL RESERVOIR	SS41	1	
277	INNER OIL RESERVOIR	SS41	1	
278	COOLING PIPE	SS41	1	
279	CARBON RING	SS41	1	
280	SLIDING PLATE	SS41	1	
281	HOUSING FOR SHAFT SEAL	SS41	1	
282	HOUSING	SS41	1	
283	UPPER SPACER TUBE LUBRICATION	SS41	1	
284	OIL LEVEL INDICATOR	SS41	1	
285	UPPER BEARING BUSH	SS41	1	
286	LOWER BEARING BUSH	SS41	1	
287	UPPER BEARING	SS41	1	
288	LOWER BEARING	SS41	1	
289	ADJUSTING LINER	SS41	1	
290	WICKET GATE LEVER	SS41	1	
291	ECCENTRIC PIN	SS41	1	
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293	LINK FOR LINK PIN	SS41	1	
294	LINK	SS41	1	
295	GATE RING	SS41	1	
296	CONNECTING PIN	SS41	1	
297	CONNECTING LINK	SS41	1	
298	INNER WEARING RING	SS41	1	
299	COUPLING BOLT	SS41	1	
300	TURBINE KEY	SS41	1	
301	SHOULDER KEY	SS41	1	
302	BEARING SUPPORT	SS41	1	
303	GUIDE BEARING	SS41	1	
304	PACKING COVER	SS41	1	
305	PACKING	SS41	1	
306	OUTER OIL RESERVOIR	SS41	1	
307	INNER OIL RESERVOIR	SS41	1	
308	COOLING PIPE	SS41	1	
309	CARBON RING	SS41	1	

Annexure 2



Annexure-4

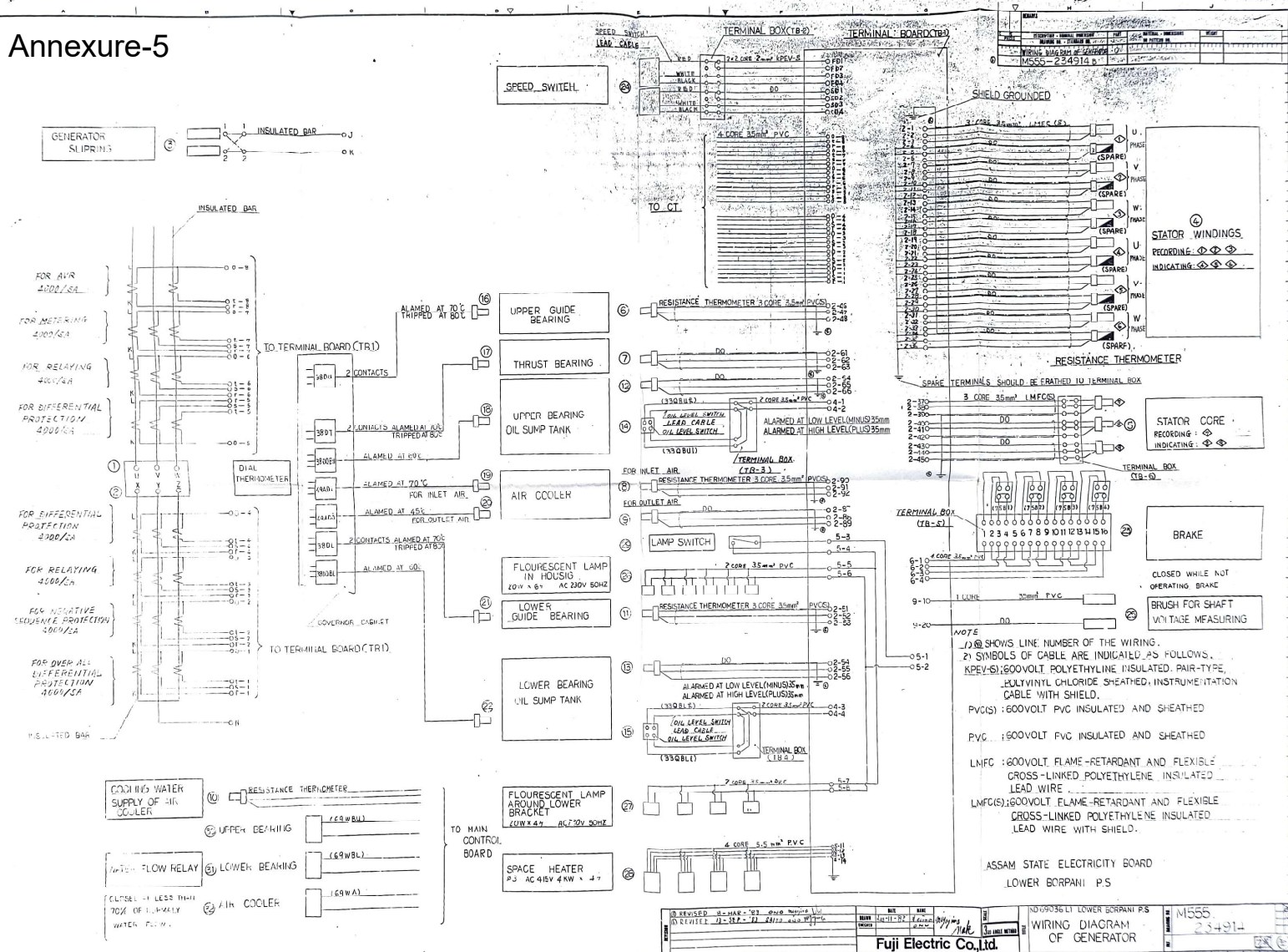
GENERATOR	
TYPE	GH 0043-06
OUTPUT	6350 KVA
VOLTAGE	11000 V
CURRENT	3280 A
POWER FACTOR	0.8
FREQUENCY	50 Hz
SPEED	500 RPM
FLYWHEEL EFFECT	500 t-m ²



ASSAM STATE ELECTRICITY BOARD
LOWER GENERATOR BOARD

NO.	NAME OF PART	P.C.	MATERIAL	NOTE
1	FIELD POLE	12	POLE BOLT SHEET	
2	FIELD COIL	12	ELEC. COPPER + INS.	
3	ARMATURE WINDING	1	COPPER	
4	ARMATURE WINDING LEAD	1	COPPER + INS. OTHERS	
5	ROTOR RIM	1	HIGH TENSION STEEL	
6	UPPER FAN	1	SS41	
7	LOWER FAN	1	SS41	
8	BRAKE RING	1	SS41	
9	MAIN SHAFT	1	FORGED STEEL	
10	THROUST COLLAR	1	FORGED STEEL	
11	SLIP KEY	1	STAINLESS STEEL	
12	SLIP KEY	1	STAINLESS STEEL	
13	AUXILIARY FAN	1	SS41	
14	UPPER SHAFT	1	SS41	
15	SPEED SWITCH RUNNER	1	SS41	
16				
17				
18				
19				
20	STATOR CORE	1	WILSON STEEL SHEET	
21	STATOR WINDING	1	ELEC. COPPER + INS.	
22	STATOR WINDING LEAD	1	SS41	
23	STATOR FRAME	1	SS41	
24	UPPER BRACKET	10	SS41 + W23	
25	THROUST BEARING	10	SS41 + W23	
26	UPPER GUIDE BEARING	10	SS41 + W23	
27	UPPER GUIDE BEARING	10	SS41 + W23	
28	UPPER GUIDE BEARING	10	SS41 + W23	
29	UPPER GUIDE BEARING	10	SS41 + W23	
30	UPPER GUIDE BEARING	10	SS41 + W23	
31	UPPER GUIDE BEARING	10	SS41 + W23	
32	UPPER GUIDE BEARING	10	SS41 + W23	
33	UPPER GUIDE BEARING	10	SS41 + W23	
34	UPPER GUIDE BEARING	10	SS41 + W23	
35	UPPER GUIDE BEARING	10	SS41 + W23	
36	UPPER GUIDE BEARING	10	SS41 + W23	
37	UPPER GUIDE BEARING	10	SS41 + W23	
38	UPPER GUIDE BEARING	10	SS41 + W23	
39	UPPER GUIDE BEARING	10	SS41 + W23	
40	UPPER GUIDE BEARING	10	SS41 + W23	
41	UPPER GUIDE BEARING	10	SS41 + W23	
42	UPPER GUIDE BEARING	10	SS41 + W23	
43	UPPER GUIDE BEARING	10	SS41 + W23	
44	UPPER GUIDE BEARING	10	SS41 + W23	
45	UPPER GUIDE BEARING	10	SS41 + W23	
46	UPPER GUIDE BEARING	10	SS41 + W23	
47	UPPER GUIDE BEARING	10	SS41 + W23	
48	UPPER GUIDE BEARING	10	SS41 + W23	
49	UPPER GUIDE BEARING	10	SS41 + W23	
50	UPPER GUIDE BEARING	10	SS41 + W23	
51	UPPER GUIDE BEARING	10	SS41 + W23	
52	UPPER GUIDE BEARING	10	SS41 + W23	
53	UPPER GUIDE BEARING	10	SS41 + W23	
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55	UPPER GUIDE BEARING	10	SS41 + W23	
56	UPPER GUIDE BEARING	10	SS41 + W23	
57	UPPER GUIDE BEARING	10	SS41 + W23	
58	UPPER GUIDE BEARING	10	SS41 + W23	
59	UPPER GUIDE BEARING	10	SS41 + W23	
60	UPPER GUIDE BEARING	10	SS41 + W23	
61	UPPER GUIDE BEARING	10	SS41 + W23	
62	UPPER GUIDE BEARING	10	SS41 + W23	

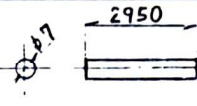
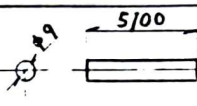
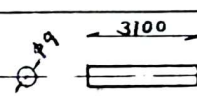
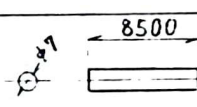
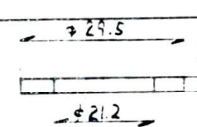
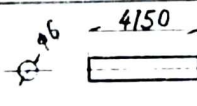
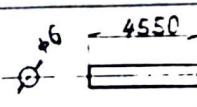
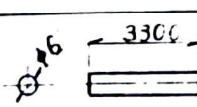
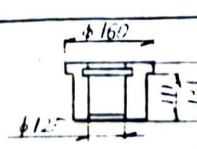
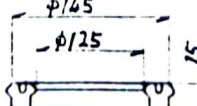
Annexure-5



ANNEXURE-3:
List of Valves to be replaced (Supply of valves for various headers and discharge.)

Used/Location	Type	Valve No	Size/ Drawing Ref	Specification as per Name Plate	Materials	Quantity
Duplex twin strainer	Butterfly	W5 a-d	10K - 200 (h216327 and h594958-2/3)	Supero 10K-200A 150LB-8B	FC	8
Cooling Water Pump	Butterfly	W2 a-d	10K - 200 (h216327 and h594958-2/3)	Supero 10K-200A 150LB-8B	FC	8
Drainage Header Outlet	Butterfly	W22 a,b	10K - 200 (h216327 and h594958-2/3)	Supero 10K-200A 150LB-8B	FC	2
Water Strainer for Shaft Seal	Gate	W10 a,b ; W11 a-d; W12 a-d	10K-40 (h216327 and h594958-2/3)	10K 40S 42X06	FC	8
DRAIN VALVE for fo Shaft Seal Water Strainer				10k-1		4
Duplex twin strainer drain	Gate	W7 a-d	10K-80 (h216327 and h594958-2/3)	10K -80	FC	4
TGB Cooler Supply Header	Gate	W9 a,b	10K-40 (h216327 and h594958-2/3)	10K-40	FC	2
UGB Water Supply Header				10K-65	FC	2
GT Water Supply Header	Gate	W8 a-d	10K-100 (h216327 and h594958-2/3)	10K-100	FC	1
LGB Water Supply Header				10K-40		1
GT Air Cooler Water Supply Header				10K-150	FC	2
shaft seal supply Header				10k-40 FC		1
PENSTOCK DRAINAGE				6, WCB, P6988		2
PENSTOCK DRAINAGE-Add Bypass				20k-6, WCB H1735L		4
Spiral Casing Drain Valve				4, WCB H0043P		2
Generator Air Cooler Inlet/outlet valve	Gate		10K-65		FC	24
TGB flow Relay Drainage Header				40MM, IS778, CLASS-1.		2
Gen. Air Cooler flow Relay Drainage Header				10k-150		2
LGB flow Relay Drainage Header				40MM, IS778, CLASS-1.		2
UGB flow Relay Drainage Header				65mm, IS778,, CLASS-1		2

THE LIST OF SPARE PARTS (予備品表及予備品送状明細表) PAGE 1/48

ITEM NO. 契約番号	SECTION 1	CHECK NO. 機種別番号	QUANT 台数	CUSTOMER 御注文主			
QUANTITY 品名	1) TURBIN			最終受取家	A.S.E.B LOWER BORPANI HEP.		
POS. NO. 番号	QUANT 数量	NAME OF PART 部品名	OUT LINE 略 図	DRAWING 提出図	REMARKS 備 考	SPARE BOX No.	
GROUP 項番	SPARE 予備	PERSET 1台当たり	PER STATION	MATERIAL-SIZE 材質寸法	作業図		
3 STB 11X	1	1	2	(9112マ1LJ4) RUBBER PACKING NR φ7 x 2950		USED FOR SPIRAL CASE H321738 P8	
4 STB 11X	1	1	2	(9112マ1LJ4) RUBBER PACKING NR φ9 x 5100		USED FOR SPIRAL CASE H321735 P42	
5 STB 11X	1	1	2	(9112マ1LJ4) RUBBER PACKING NR φ9 x 3100		USED FOR SPIRAL CASE H321735 P43	
6 STB 11X	1	1	2	(9112マ1LJ4) RUBBER PACKING NR φ7 x 8500		USED FOR STAY RING H216189 P23	
7 STC 11X	1	1	2	(1711V. PF 1/2) PACKING C1100-1/2H PF 1/2		USED FOR HEAD COVER H216194 P15	
8 STC 11X	1	1	2	(9112マ1LJ4) RUBBER PACKING NR φ6 x 4150		USED FOR HEAD COVER H216194 P16	
9 STC 11X	1	1	2	(9112マ1LJ4) RUBBER PACKING NR φ6 x 4550		USED FOR HEAD COVER H216194 P17	
10 STC 11X	1	1	2	(9112マ1LJ4) RUBBER PACKING NR φ6 x 3300		USED FOR HEAD COVER H216194 P18	
11 STC 14X	20	20	40	(1711V. PF 1/2) UPPER BEARING BUSH		H594371	
12 STC 15X	20	20	40	(UPH. 125-145) O-TYPE PACKING SYNTHETIC RUBBER UPH. 125-145-15		KHS.675-12	

F.T.S.
NAME

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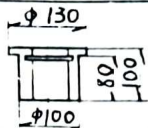
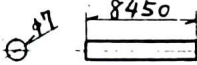
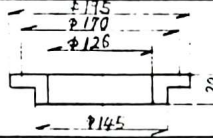
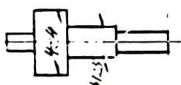
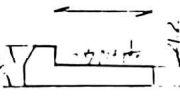
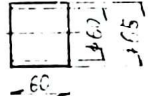
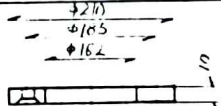
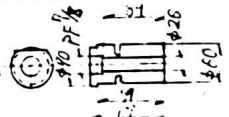
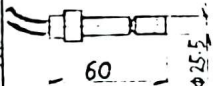
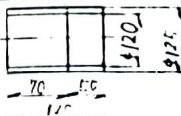
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H598711

ITEM NO. 契約番号	SECTION I	CHECK NO. 機種別番号	QUANT 台数	CUSTOMER 御注文主		
COMMODITY 品名	i) TURBIN			最終需要家	LOWER BORPANI H.E.P.	
POS NO. 番号	QUANT 数量	NAME OF PART 部品名	OUT LINE 略 図	DRAWING 提出区	REMARKS 備 考	SPARE BOX NO
GROUP 項番	SPARE 予備	PER SET 1台当り	PER STATION	MATERIAL 材質	SIZE 寸 法	
13 STC 41X	20	20	40	(下側カイトベーンワッシュ) LOWER BEARING BUSH		USED FOR LOWER BEARING BUSH H594372
14 STC 44X	1	1	2	(タイユマルゴム) RUBBER PACKING NR φ7 x 8450		USED FOR BOTTOM RING H216195 P9
15 STC 54X	20	20	40	(ライナ) LINER		H437669 A
16 STG 11X	20	20	40	(カイトベーン) WICKET GATE		H215790
17 STG 11X	20	20	40	(ヤリガタワッショ) KEY		H518676 A
19 STG 22X	40	40	80	(ワッシュ) LINK PIN BUSH DU DRY BEARING		H594376
20 STG 24X	20	20	40	(カイトベーンスライダ) THRUST LINER		H477071
21 STG 41X	20	20	40	(シヤクテニン) SHER PIN		H595627
22 STG 42X	20	20	40	(弱点ピン折損警報素子) SHER PIN BREAK MONITORING DEVICE		H594051
24 STG 52X	2	2	4	(ワッシュ) LINK PIN BUSH DU DRY BEARING		H595742

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NAME

FUJI ELECTRIC CO, LTD

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H598711

4P

ITEM NO. 契約番号	SECTION 1	CHECK NO. 機種別番号	900	PLANT 台数	2	CUSTOMER 御注文主	A.S.E.B	
QUANTITY 品名	1) TURBINE				最終需要家	LOWER BORPANT H.E.P.		
PART NO. 品番	QUANT 数量	PER SET 1台当たり	PER 台数	NAME OF PART 部品名	OUT LINE 略図	DRAWING 提出図 作業図	REMARKS 備要	SPARE BOX NO
25 STJ 21X	1	1	2	(シュニクライト) TURBIN GUIDE BEARING		H216404.A		
26 STJ 21X	4	4	8	(チーボリー-マスタット) STUD BOLT		H578016C.P2		✓
27 STJ 32X	2	2	4	(パッキン) PACKING ASBESTOS SHEET		H432331AP3	USED FOR GUIDE BEAR- ING COVER	✓
28 STJ 32X	1	1	2	(パッキン) PACKING ASBESTOS SHEET		H595526	USED FOR GUIDE BEAR- ING COVER	✓
29 STJ 32X	1	1	2	(フェルトパッキン) PACKING FELT		H437667.P3	USED FOR GUIDE BEARING COVER (INSPECTION COVER)	✓
30 STJ 33X	1	1	2	(741エマルジョン) RUBBER PACKING NR φ5 x 2650		H21620.P6	USED FOR INTERNAL RESE- -VIR	✓
31 STJ 41X	1	1	2	(パッキン) PACKING ASBESTOS SHEET		H216402.P6	USED FOR COOLING PIPE	✓
32 STJ 41X	1	1	2	(パッキン) PACKING ASBESTOS SHEET		H216402.P7	USED FOR COOLING PIPE	✓
33 STJ 41X	1	1	2	(パッキン) PACKING ASBESTOS SHEET		H216402.P8	USED FOR COOLING PIPE	✓
34 STJ 41X	2	2	4	(Oリング G55-N) O RING NBR JIS-B2401 G55		H216402.P15	USED FOR COOLING PIPE	✓
35 STJ 54X	1	1	2	(741エマルジョン) RUBBER RING NR φ9 x 2000		H216550.P9	USED FOR CARBON RING HOLDER	✓
36 STJ 55X	2	1	2	(カーボンリング) CARBON RING CARBON		H439212	4 SECTIONALIZ- ED	

DR. S. NAME FUJI ELECTRIC CO., LTD

DATE 21

NAME 21 KD69036H90

DRW 16

H598711 3/48

THE LIST OF SPARE PARTS (予備品表兼予備品送状明細表) PAGE 4/48

ITEM NO. 契約番号	SECTION 1	CHECK NO. 機種別番号	900	QUANT 台数	2	CUSTOMER 御注文主	A.S.E.B	
COMMODITY 品名	i) TURBINE				最終需要家	LOWER BORPANI HEP.		
FIG. NO. 番号	QUANT 数量	PERSET PER	PER TATION	NAME OF PART 部品名	OUT LINE 略 図	DRAWING 提出図	REMARKS 摘 要	SPARE BOX NO
GROUP 項番	予備	相当	95 TATION	MATERIAL SIZE 材質寸法		作業図		
37 STS 11X	2	2	4	(トウパ, PF 3/8) PACKING C1100P - 1/2H PF 3/8		H216203 P8	USED FOR SERVOMOTOR (CYLINDER)	
38 STS 12X	2	2	4	(O) リンク P112-N) O RING NBR JIS-B2401 P112		H43670(A.P2	USED FOR CYLINDER COVER (BUSH)	
39 STS 12X	1	1	2	(SDR77L-N) SCRAPER SYNTHETIC RUBBER		H216204 P5	USED FOR CYLINDER COVER	✓
40 STS 12X	1	1	2	(O) リンク O RING NR 8.4 x 459.5		H216204 P5	USED FOR CYLINDER COVER	✓
41 STS 12X	1	1	2	(トウパ, PF 3/8) PACKING C1100P - 1/2H PF 3/8		H216204 P11	USED FOR 9V SERVOMOTOR (CYLINDER COVER)	✓
42 STS 13X	1	1	2	(トウパ, PF 3/8) PACKING C1100P - 1/2H PF 3/8		H437665 P4	USED FOR 9V SERVOMOTOR (CYLINDER COVER)	
43 STS 13X	1	1	2	(O) リンク O RING NR 8.4 x 459.5		H437665 P5	USED FOR 9V SERVOMOTOR (BUSH)	✓
44 STS 14X	4	2	4	(ピストンリング) PISTON RING		H436626 P2	USED FOR 9V SERVOMOTOR (PISTON)	✓
45 STS 14X	1	1	2	(O) リンク G90-N) O RING NBR JIS-B2401 G90		H438626 P3	USED FOR 9V SERVOMOTOR (PISTON)	✓
46 STS 21X	2	2	4	(ブッシュ) LINK PIN BUSH DU DRY BEARING		H592931		
47 STS 21X	2	2	4	(ブッシュ) LINK PIN BUSH		H595742		
48 STS 22X	1	1	2	(ブッシュ) BUSH		H595861		

FUJ I ELECTRIC CO, LTD

DATE

製造

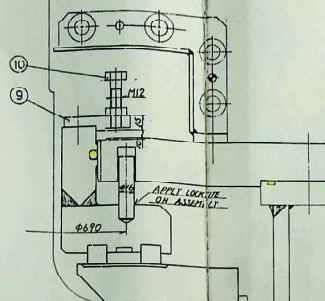
NAME 1n

RD69036H90

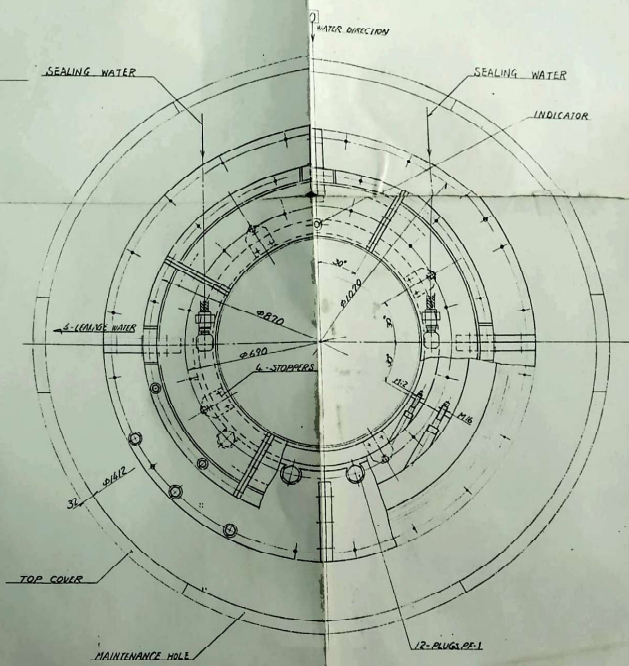
DRW

H598711

富士電機製造株式会社 川崎工場



PART	NAME OF PARTS	MATERIAL	PARTS	REMARKS
1	HOUSING FOR JET PUMP	SS-16 - CARBIDE	1	4. SK. FURNISHED
2	CARBON RING	SS-16 - CARBON RING	1	"
3	COVER	SS-16	1	"
4	3/16" DIA. PLATE	SS-16 - 1/2" X 3/16"	1	"
5	CARBON RING	CARBON	2	"
6	SPRING	SS-16 - 3/16" DIA	2	"
7	PLUG	SS-16 - 3/16"	12	"
8	JOINT	7/24" (W. ALLOY CASTING)	2	"
9	3/16" DIA.	SS-16	4	"
10	3/16" DIA. PLATE	SS-16	4	"
11	INDICATOR	SS-16	1	"



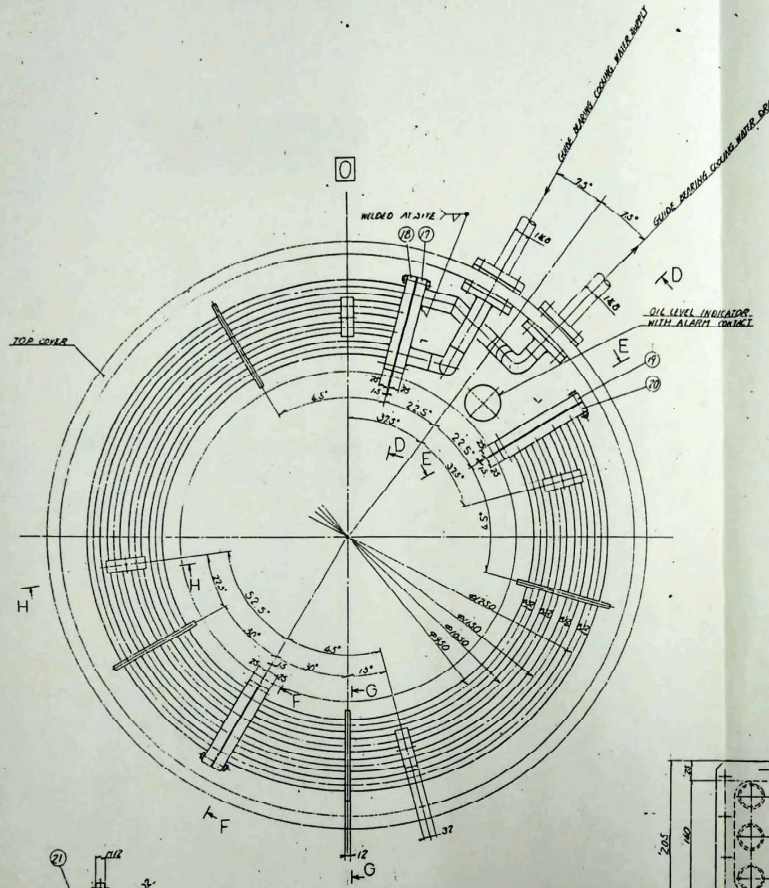
ASSAM STATE ELECTRICITY BOARD
LOWER BORDANI (LANOPI)
HYDRO-ELECTRIC PROJECT

Fuji Electric Co., Ltd.

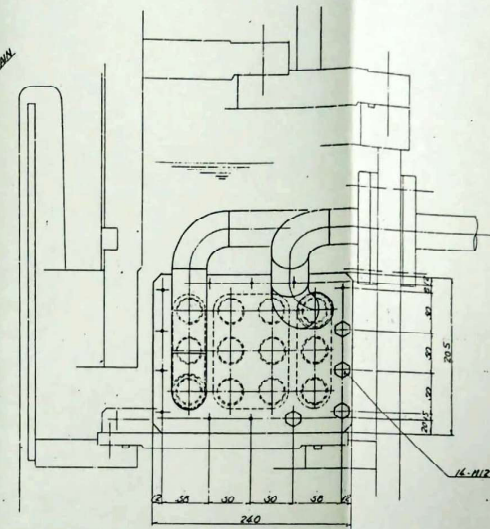
▶ ASSEMBLY OF TURBINE
SHAFT SEAL

H216405

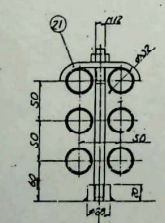
NAME	2173	DATE		REVISION		DATE	
DESIGNED BY		CHECKED BY		APPROVED BY		DATE	
22-1777/94		0		H216198			



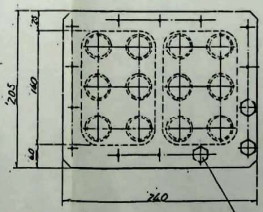
SECTION C.C.
(COOLING PIPE UNIT ASSEMBLY)



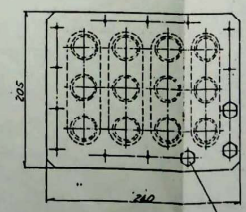
SECTION D.D.



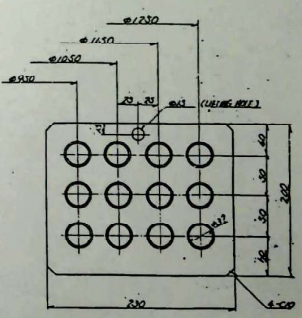
SECTION H.H.



SECTION E.E.



SECTION F.F.



SECTION G.G.

ASSEMBLY OF GUIDE BEARING (SHEET 1) H216197

NAME	2173	DATE		REVISION		DATE	
DESIGNED BY		CHECKED BY		APPROVED BY		DATE	
22-1777/94		0		H216198			

Fuji Electric Co. Ltd.

ASSEMBLY OF GUIDE BEARING (SHEET 2)	H216198
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ANNEXURE-II

No. 12/34/2020-T&R
Government of India / Bharat Sarkar
Ministry of Power / Vidyut Mantralaya
(T&R Division)

"F" Wing, 2nd Floor, Nirman Bhawan,
New Delhi, Dated the 24th December, 2021.

ORDER

Subject: Testing of power system equipment for use in the Supply System and Network in the country for Cyber Security – reg.

Reference is invited to this Ministry's Order No.12/34/2020-T&R dated 8th June, 2021 on the above mentioned subject. The above Order stands revised to the extent attached in Annexure 1 to Annexure 4.

2. The above Order dated 8th June, 2021, shall be applicable for imported products as listed in Annexure-1 for orders placed on or after 8th June 2021.
3. The subject order will be reviewed and updated as needed and the same will be notified as and when any changes / updates are implemented.
4. This issues with the approval of the competent authority.

Encl: Annexure 1 to 4.


(Ujjwal Kumar Sinha)
Deputy Secretary to the Govt. of India
Tel: 23063497

To

1. All Ministries/Departments of Government of India (As per list)
2. Secretary (Coordination), Cabinet Secretariat
3. Vice Chairman, NITI Aayog
4. Comptroller and Auditor General of India
5. Chairperson, CEA
6. Secretary (Power/ Electricity), all State Governments & Union Territory Administration as per mailing list.
7. Chairman of all State Power Utilities as per mailing list.
8. CMDs of CPSEs/ Chairman. of DVC & BBMB/ MD, EESL/ DG, NPTI/ DG, CPRI/ DG, BEE
9. All ASs / JSs / EA, MoP

Copy to:

1. PS to Hon'ble PM, Prime Minister's Office
2. PS to Hon'ble MoP for Power and NRE
3. PS to Hon'ble MoS for Power and Heavy Industries
4. Sr. PPS to Secretary (Power)

Annexure – 1

List of designated laboratories for cyber security conformance testing

Table -A. Field Equipment /Operational Technology (OT)

Sl. No.	Equipment	Communication Protocol Conformance Standards	Protocol Security Conformance Standards	Designated Laboratories
1	Remote Terminal Units (RTUs) / Feeder / Field RTUs (FRTUs)&PLCs with IEC communications protocols	IEC 60870-5 -101 / IEC 60870-5 -104 (Test Details-Annexure 2)	IEC 60870-5- 7 Security extension &IEC 62351 series (specifically IEC 62351-100 parts 1& 3) (Test Details Annexure-2)	Central Power Research Institute (CPRI), Prof Sir C V Raman Road, Sadashiva Nagar PO, Bengaluru - 560080, Karnataka
2	Intelligent Electronic Device (IED) / Equipment / Numerical Protection Relays / Bay Control Units / Bay Protection Units, Gateways, Transformer Tap controller/ changer with IEC 61850 communication protocol	IEC 61850-5 to IEC 61850-10 (Test Details-Annexure 2)		CPRI
3	Smart meters with IEC 62056communication protocols	IS 15959 series and IS 16444 series (Test details-Annexure 2)	IS 15959 series and IS 16444 series (Test Details Annexure 2)	1. CPRI 2. Electrical Research and Development Association (ERDA), ERDA Road, GIDC, Makarpura, Vadodara - 390 010 Gujarat 3. Yadav Measurements Pvt. Ltd. (YMPL) 373-375, RIICO Bhamashah Industrial Area Kaladwas 313003 Udaipur – Rajasthan

Information Technology (IT) Equipment (Main / Backup / Disaster recovery (DR) Control Centre / Substation control centre IT equipment)

All IT products procured /supplied shall have a valid Certificate of Common Criteria as per ISO/IEC 15408 issued by signatories of the Common Criteria Recognition Agreement (CCRA)

www.commoncriteriaportal.org

Import/procurement/supplied from vendors sourcing from prior reference countries, the Certificate for Common Criteria shall be from Government Laboratories in India according to the IC3S scheme operated by Ministry of Electronics and Information Technology, which is a signatory to CCRA.

<https://www.commoncriteria-india.gov.in/>

A handwritten signature in blue ink, consisting of a circular loop followed by a series of connected strokes, ending with a small checkmark-like flourish.

Details of tests for various identified products

Remote Terminal Units (RTUs)/ Feeder / Field RTUs (FRTUs) & PLC's (Sl. No. 1 of Table - A of Annexure - 1)

Test protocol:

Utilities / manufacturers will submit the sample along with all the required technical documentation for taking up testing to the designated laboratory.

Reference standards

- 1) IEC 60870-5-101 & IEC 60870-5-104 as applicable
- 2) IEC 60870-5-7 Telecontrol equipment and systems - Part 5-7: Transmission protocols - Security extensions to IEC 60870-5-101 and IEC 60870-5-104 protocols (applying IEC 62351)
- 3) IEC 62351-100-1 & IEC 62351-100-3 and other cross referenced standards

Test cases

Extract from standard (IEC 62351-100-1)

The conformance test cases are divided into four clauses:

- Clause 5: Verification of configuration parameters. This clause contains the configuration parameters affecting the message contents and/or the protocol behaviour.
- Clause 6: Verification of communication. The goal of this clause is to verify that Device Under Test (DUT) is able to implement the security extension messages as described in IEC TS 60870-5-7.
- Clause 7: Verification of procedures. The goal of this clause is to verify that DUT is able to execute the security extension procedures as described in IEC TS 62351-5.
- Clause 8: Test result chart. This clause contains the results of the test cases listed in Clauses 6 and 7 for each supported value of the configuration parameters listed in Clause 5.

The test cases are organized in tables. They are numbered; their numbering syntax is: Sub clause number (where the Table is located) + test case number.

In the column 'reference' each test case has a direct reference to IEC TS 62351-5 or IEC TS 60870-5-7 where the clause under test is defined.

Test cases are mandatory depending on the description in the column 'Required'. The following situations are possible:

M= Mandatory test case. The test is referencing a clause that is mandatory in IEC TS 62351-5 or IEC TS 60870-5-7.

Protocol Information Conformance Statement (PICS) x, x = Mandatory test case if the functionality is enabled in the PICS (by marking the applicable check box), with a reference to the section number of the PICS (x.x).

Conformance testing of security extension procedures

The security extension procedures can be summarized as follows:

- User management
- Update key maintenance
- Session key maintenance
- Challenge/Reply authentication
- Aggressive Mode authentication

Extract from standard (IEC 62351-100-3)

IEC 62351-3 defines the requirements related to the authentication/encryption protocol, procedures and methods to be implemented at TCP/IP (transport) level.

The conformance test cases are divided into three clauses:

- Clause 5: Verification of configuration parameters. This clause contains the parameters specified by the standards referencing IEC 62351-3 (see IEC 62351-3:2014/AMD1:2018, Clause 7) and affecting the protocol behaviour.
- Clause 6: Verification of IEC 62351-3 requirements. The goal of this clause is to verify that DUT is conformant to the requirements of the IEC 62351-3.
- Clause 7: Test result chart. This clause contains the results of the test cases listed in Clause 6 for each supported value of the configuration parameters listed in Clause 5.

The test cases are organized in tables. They are numbered, their numbering syntax is: Sub clause number (where the table is located) + test case number.

In the column 'Reference' each test case has a direct reference to IEC 62351-3 where the clause under test is defined. PICS or Protocol Implementation eXtra Information for Testing (PIXIT) could be found in the "Reference" column for some test cases whenever the execution of the test case shall take into account specific parameter values declared in the PICS or PIXIT of the DUT.

Test cases are mandatory depending on the description in the column 'Required'. The following situations are possible:

M = Mandatory test case. The test is referencing to a clause that is mandatory in IEC 62351-3.

PICS

or

PIXIT = Mandatory test case if the functionality is enabled in the PICS or PIXIT by marking the applicable check box or declaring the applicable value.

Testing Criteria

1) Supply from Trusted Sources

The sample size shall be as specified by CEA as per the approved criteria for Trusted Vendors

2) Supply from other than trusted vendors

For RTUs /FRTUs and IEDs, the sample size for testing shall be minimum one number from each make and having same firmware version for the supply lot size of 200 numbers or less. For every additional supply lot of upto 200 numbers, one sample having the same firmware version as that of the first lot shall be tested for randomly selected test cases. For smart meters, the sample size for testing shall be minimum one number from each make and having same firmware version for the supply lot size of 5000 numbers or less. For every additional supply lot of upto 5000 numbers, one sample having the same firmware version as that of the first lot shall be tested for randomly selected test cases. The manufacturer shall submit request to the Nodal agency along with vendor's / manufacturer's certifications for supply chain management system practices and secure product development process implementations based on any one or more of standards ISO / IEC 27036, ISO / IEC 20243, IEC 62443 for verification.

After scrutiny of vendor's / manufacturer's proof and certifications the supplier / utilities shall be asked to submit product to the designated laboratory for communication and cyber security conformance testing. All certifications shall be valid as on the date of submission of samples for testing and product certifications / type test reports shall not be older than 5 years.

The entire supply lot shall stand rejected on failure of any sample drawn from the lot to comply with the test requirements.

3) Supply from prior reference countries

The utility shall obtain prior permission from the Government of India for importing the product / system from prior reference countries.

The sample size shall be 5% of the supply lot / ordered quantity (minimum one) from each make and having same firmware version for each supply lot shall be tested. The manufacturer shall submit request to the Nodal agency along with vendor's / manufacturer's certifications for supply chain management system practices and secure product development process implementations based on any one or more of standards ISO / IEC 27036, ISO / IEC 20243, IEC 62443 for verification. All certifications shall be valid as on the date of submission of samples for testing and product certifications / type test reports shall not be older than 5 years.

After scrutiny of vendor's / manufacturer's proof and certifications the supplier / utilities shall be asked to submit product to the designated Government / Government controlled Autonomous laboratory for type tests (Annexure - 4) and for communication & cyber security conformance testing (Annexure 1 and Annexure 2).

The entire supply lot shall stand rejected on failure of any sample drawn from the lot to comply with the test requirements.

A handwritten signature in blue ink, consisting of a circle followed by stylized letters, possibly 'MLO'.

Type Tests

Products imported from prior reference countries shall also undergo type testing (one sample) as per following standards in addition to communication protocol and security conformance testing at the designated Government / Government controlled Autonomous laboratory:

Type test standards for RTUs/ FRTUs

1. IEC 60870-1-2 1989 Telecontrol equipment and systems. Part 1: General considerations. Section Two: Guide for specifications.
2. IEC 60870-2-1:1995 Telecontrol equipment and systems - Part 2; Operating conditions - Section 1: Power supply and electromagnetic compatibility.
3. IEC 60870-2-2:1996 Telecontrol equipment and systems - Part 2: Operating conditions - Section 2: Environmental conditions (climatic, mechanical and other non-electrical influences).
4. IEC 60870-3: 1989 Telecontrol equipment and systems. Part 3: Interfaces (electrical characteristics)

Type test standard for IEDs / Numerical Protection Relays / Bay controls units

1. The applicable testing standards for Protection Relays, Sensors, Tap Changer Control, Bay Protection Units, Measurement Equipment is IEC60255-1 (Common Requirements), -21 (Vibration, Shock & Bump), -26 (Electromagnetic Compatibility) and - 27 (Safety) for Measurement Relays and Protection Equipment.
2. IEC 61850-3: 2013, Ed. 2 Communication networks and systems for power utility automation - Part 3: General requirements.

Type test standards for Smart meters

1. IS 16444: 2015 AC static direct connected watthour smart meter class 1 and 2 - Specification.
2. IS 16444 Part 2: 2017 AC static transformer operated watthour and var - Hour smart meters, class 0.2 S, 0.5 S and 1.0 S: Part 2 specification transformer operated smart meters.

Note:

1. All above referred standards shall be latest with amendments if any at the time of submission of sample(s) for testing.
2. Type tests generally covers functionality, environmental, mechanical, EMI/ EMC and electrical safety related tests.
3. All certifications shall be valid as on the date of submission of samples for testing and product certifications/type test reports shall not be older than 5 years.

ANNEXURE-III

No. 25-10/72/2024-PG
Government of India
Ministry of Power
(PG Desk)

Shram Shakti Bhawan, Rafi Marg,
New Delhi, dated the 06th August, 2025

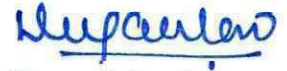
ORDER

Subject: Testing of power system equipment for use in the Supply System and Network in the country for Cyber Security - reg.

Reference is invited to this Ministry's Order No.12/34/2020-T&R dated 24th December 2021 (copy enclosed) on the above-mentioned subject. The above Order stands amended to include products, whose smart and programmable components are imported and assembled in India, for use in the power System and Network.

2. The Order dated 06th August, 2025, shall be applicable for all products as listed in Annexure-1 for orders placed on or after 06th August, 2025
3. The subject order will be reviewed and updated as needed.
4. This issues with the approval of Competent Authority.

Encl: As above



(Deepak Rao)
Director

Tele No. 23354399

- i. All Ministries/Departments of Government of India (As per list)
- ii. Secretary (Coordination), Cabinet Secretariat, New Delhi
- iii. Vice Chairman, NITI Aayog , New Delhi.
- iv. Comptroller and Auditor General of India, New Delhi.
- v. Chairperson, CEA , New Delhi
- vi. Secretary (Power/ Electricity), all State Governments & Union Territory Administration as per mailing list.
- vii. Chairman of all State Power Utilities as per mailing list.
- viii. CMDs of CPSEs/ Chairman of DVC & BBMB/ MD, EESL/ DG, NPTI/ DG, CPRI/ DG, BEE.
- ix. All ASs / JSs /CE, Ministry of Power, New Delhi

Copy to:

- i. PS to Hon'ble PM, Prime Minister's Office
- ii. PS to Hon'ble Minister of Power and Ministry of Housing and Urban Affairs.
- iii. PS to Hon'ble Minister of State for Power.
- iv. PPS to Secretary (Power).

Annexure-IV



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
सूचना प्रौद्योगिकी एवं साइबर सुरक्षा प्रभाग
Information Technology & Cyber Security Division

विषय : CEA (Cyber Security in Power Sector) Guidelines, 2021.

CEA is mandated to prepare 'Guidelines on Cyber Security' in Power Sector under the provision of regulation (10) of the Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019. Guidelines on Cyber Security in Power Sector incorporating the cardinal principles has been prepared by CEA. In compliance to the provision of the above regulation, **CEA (Cyber Security in Power Sector) Guidelines, 2021** are issued for compliance by all entities listed in the clause 2.3 (Applicability of the Guidelines) of the guidelines.

Encl: Guidelines on Cyber Security


०७/१०/२१
(V.K Mishra)
Secretary CEA

CEA (Cyber Security in Power Sector) Guidelines, 2021

1.0 Background

- 1.1 Cyber intrusion attempts and Cyber-attacks in any critical sector are carried out with a malicious intent. In Power Sector it's either to compromise the Power Supply System or to render the grid operation in-secure. Any such compromise, may result in mal-operations of equipments, equipment damages or even in a cascading grid brownout/blackout. The much hyped air gap myth between IT and OT Systems now stands shattered. The artificial air gap created by deploying firewalls between any IT and OT System can be jumped by any insider or an outsider through social engineering. Cyber-attacks are staged through tactics & techniques of Initial Access, Execution, Persistence, Privilege Escalation, Defence Evasion, Command and Control, Exfiltration. After gaining the entry inside the system through privilege escalation, the control of IT network and operations of OT systems can be taken over even remotely by any cyber adversary. The gain of sensitive operational data through such intrusions may help the Nation/State sponsored or non-sponsored adversaries and cyber attackers to design more sinister and advanced cyber-attacks.
- 1.2 Government of India has set up the Indian Computer Emergency Response Team (CERT-In) for Early Warning and Response to cyber security incidents and to have collaboration at National and International level for information sharing on mitigation of cyber threats. CERT-In regularly issues advisories on safeguarding computer systems and publishes Security Guidelines which are widely circulated for compliances. All Central Government Ministries/ Departments and State/Union Territory Governments have been advised to conduct cyber security audit of their entire Cyber Infrastructure including websites at regular interval through CERT-In empanelled Auditors so as to identify gaps and appropriate corrective actions to be taken in cyber security practices. CERT-In extends supports to enable Responsible Entity in conducting cyber security mock drills and in assessment of their preparation to withstand cyber-attacks. The Responsible Entity must submit Reports of Cyber Audit of cyber security controls, architecture, vulnerability management, network security and periodic cyber security drills to sectoral CERT as well as CERT-In. Team of experts shall review these reports and shortcomings if any in the compliances shall be flagged by them. CERT-In on regular basis also conducts workshops and training programs to enhance Cyber awareness of all Stakeholders.
- 1.3 Ministry of Power has created 6(six) sectoral CERTs namely Thermal, Hydro, Transmission, Grid Operation, RE and Distribution for ensuring cyber security in Indian Power Sector. Each Sectoral CERT has prepared their sub-sector specific model Cyber Crisis Management Plan(C-CMP) for countering cyber-attacks and cyber terrorism. Each Sectoral CERT has circulated their model C-CMPs for preparation and implementation of organization specific C-CMP by each of their Constituent Utility.
- 1.4 All Responsible Entities, Service Providers, Equipment Suppliers/Vendors and Consultants engaged in Power Sector are equally responsible for ensuring cyber security of the Indian Power Supply System. They are to act timely upon each threat intelligence,

advisories and other inputs received from authenticated sources, for continuous improvement in their cyber security posture.

- 1.5 In the current Indian scenario though many cyber security directives and guidelines exists, but none of them are power sector specific. Ministry of Power has directed CEA to prepare Regulation on Cyber Security in Power Sector. And as an interim measures CEA has been directed to issue Guideline on Cyber Security in Power Sector, under the provision of Regulation 10 on Cyber Security in the “Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019”.
- 1.6 The Guidelines on Cyber Security, in the form of Articles written below, requires mandatory Compliance by all Responsible Entities. The Guidelines shall come into effect from the date of issue by Central Electricity Authority, New Delhi.
- 2.0 Hereby the Guidelines on Cyber Security are drawn in the form of Articles for compliance by the Requester as well as User under the following provision of Regulation 10 on Cyber Security, in the “Central Electricity Authority (Technical Standards for Connectivity to the Grid) (Amendment) Regulations, 2019”.

“The requester and the user shall comply with cyber security guidelines issued by the Central Government, from time to time, and the technical standards for communication system in Power Sector laid down by the Authority.”

- 2.1 **Objective of issuing Guideline:**
 - a) Creating cyber security awareness
 - b) Creating a secure cyber ecosystem,
 - c) Creating a cyber-assurance framework,
 - d) Strengthening the regulatory framework,
 - e) Creating mechanisms for security threat early warning, vulnerability management and response to security threats,
 - f) Securing remote operations and services,
 - g) Protection and resilience of critical information infrastructure,
 - h) Reducing cyber supply chain risks,
 - i) Encouraging use of open standards,
 - j) Promotion of research and development in cyber security,
 - k) Human resource development in the domain of Cyber Security,
 - l) Developing effective public private partnerships,
 - m) Information sharing and cooperation
 - n) Operationalization of the National Cyber Security Policy
- 2.2 Within the text of these Articles, ‘**Responsible Entity**’ shall mean all:
 - a) Transmission Utilities as well as Transmission Licensees,
 - b) Load despatch centres (State, Regional and National),
 - c) Generation utilities (Hydro, Thermal, Nuclear, RE),
 - d) Distribution Utilities
 - e) Generation Aggregators,
 - f) Trading Exchanges,
 - g) Regional Power Committees, and
 - h) Regulatory Commissions.

2.3 **Applicability:**

All Responsible Entities as well as System Integrators, Equipment Manufacturers, Suppliers/Vendors, Service Providers, IT Hardware and Software OEMs engaged in the Indian Power Supply System.

2.4 **Scope:**

2.4.1 **Control Systems for System Operation and Operation Management.**

- a) Grid Control and Management Systems,
- b) Power Plant Control Systems,
- c) Central Systems used to monitor and control of distributed generation and loads e.g. virtual power plants, storage management, central control rooms for hydroelectric plants, photovoltaic/wind power installations,
- d) Systems for fault management and work force management,
- e) Metering and measurement management systems,
- f) Data archiving systems,
- g) Parameterisation, configuration and programming systems,
- h) Supporting systems required for operation of the above mentioned systems,

2.4.2 **Communication System.**

- a) Routers switches and firewalls,
- b) Communication technology-related network components,
- c) Wireless digital systems.
- d) Control Centre to Control Centre Communications for data exchange on ICCP.
(IEC 61850/60850-5/TASE.2/)

2.4.3 **Secondary, Automation and Tele control technologies**

- a) Control and Automation components,
- b) Control and field devices,
- c) Tele control devices,
- d) Programmable logic controllers / Remote Terminal Units, including digital sensor and actuators elements,
- e) Protection devices,
- f) Safety components,
- g) Digital measurement and metering installations,
- h) Synchronisation devices,
- i) Excitation Systems,

3.0 **Definition of Terms:**

- 1. **Access Management:** shall mean set of policies and procedures of the Responsible Entity for allowing Personnel, devices and IoT to securely perform a broad range of operational, maintenance, and asset management tasks either on site or remotely as laid down in Clause 5.2.5 of IS 16335.
- 2. **Accreditation:** shall mean the process of verifying that an organisation is capable of conducting the tests and assessments against a product/process that are required to be certified.

3. **Accreditation Body:** shall mean an organisation that has been accredited to verify the credentials and capabilities of the organisations that wish to become a certification body.
4. **Act:** shall mean the Information Technology Act, 2000 (21 of 2000)
5. **Asset:** shall mean anything that has value to the organization.
6. **Certification:** shall mean the process of verifying that a product has been manufactured in conformance with a set of predefined standards and/or regulations by an organisation, that is accredited to conduct the certification process
7. **Certification Body:** shall mean an organisation that has been accredited by an accreditation body to certify products / process against a certification scheme.
8. **Certification Scheme:** shall mean the processes, paperwork, tools, and documentation that define how a product or manufacturer is certified
9. **Chief Information Security Officer:** shall mean the designated employee of Senior management level directly reporting to Managing Director/Chief Executive Officer/Secretary of the Responsible Entity, having knowledge of Information Security and related issues, responsible for cyber security efforts and initiatives including planning, developing, maintaining, reviewing and implementation of Information Security Policies
10. **Critical Assets:** shall mean the facilities, systems and equipment which, if destroyed, degraded or otherwise declared unavailable, would affect the reliability or operability of the Power Supply System.
11. **Critical System:** shall mean cyber assets essential to the reliable operation of critical asset. Critical System consists of those cyber assets that have at least one of the following characteristics:
 - a) The cyber asset uses a routable protocol to communicate outside the electronic security perimeter.
 - b) The cyber asset uses a routable protocol within a control centre.
 - c) The cyber asset is dial-up accessible.
12. **Critical Information Infrastructure:** shall mean Critical Information Infrastructure as defined in explanation of sub-section (1) of Section 70 of the Act.
13. **Cyber Assets:** shall mean the programmable electronic devices, including the hardware, software and data in those devices that are connected over a network, such as LAN, WAN and HAN.
14. **Cyber Crisis Management Plan:** shall mean a framework for dealing with cyber related incidents for a coordinated, multi-disciplinary and broad-based approach for rapid identification, information exchange, swift response and remedial actions to mitigate and recover from malicious cyber related incidents impacting critical processes.
15. **Cyber Security Breach:** shall mean any cyber incident or cyber security violation that results in unauthorized or illegitimate access or use by a person as well as an entity, of data, applications, services, networks and/or devices through bypass of the underlying cyber security protocols, policies and mechanisms resulting in the compromise of the confidentiality, integrity or availability of data/information maintained in a computer resource or cyber asset.
16. **Cyber Security Incident:** shall mean any real or suspected adverse cyber security event that violates, explicitly or implicitly, cyber security policy of Responsible Entity resulting in unauthorized access, denial of service or disruption, unauthorized use of computer resource for processing or storage of information or changes to data or information

without authorization, leading to harm to the power grid or its critical sub-sectoral elements Generation, Transmission and Distribution.

17. **Cyber Security Policy:** shall mean documented set of business rules and processes for protecting information, computer resources, networks, devices, Industrial Control Systems and other OT resources.
18. **Electronic Security Perimeter:** shall mean the logical border surrounding a network to which the Cyber Systems of Power Supply System are connected using a routable protocol.
19. **Information Security Division:** shall mean a division accountable for cyber security and protection of the Critical System of the Responsible Entity.
20. **Protected System:** shall mean any computer, computer system or computer network of the Responsible Entity notified under section 70 of the Act, in the official gazette by appropriate Government.
21. **Security Architecture:** shall mean a framework and guidance to implement and operate a system using the appropriate security controls with the goal to maintain the system's quality attributes like confidentiality, integrity, availability, accountability and assurance.
22. **Vulnerability:** shall mean intrinsic properties of something resulting in susceptibility to a risk source that can lead to an event with a consequence
23. **Vulnerability Assessment:** shall mean a process of identifying and quantifying vulnerabilities

4.0 Standards

Reference	Description
ISO/IEC 15408	Common Criteria Certification Standard
ISO/IEC 17011	General requirements for accreditation bodies accrediting conformity assessment bodies
ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
ISO/IEC 21827	Systems Security Engineering - Capability Maturity Model (SSE-CMM)
ISO/IEC 24748-1	Systems and software engineering — Life cycle management — Part 1: Guidelines for life cycle management.
ISO 27001/2	Information Security Management
ISO/ IEC 27019	Information technology — Security techniques — Information Security controls for the energy utility industry
ISO/IEC 61508	Functional Safety of Electrical / Electronic / Programmable Electronic Safety-related Systems
IEC 61850	Communication networks and systems for power utility automation
IEC 62351	Standards for Securing Power System Communications
IEC 62443	Cyber Security for Industrial Control Systems
IS 16335	Power Control Systems – Security Requirements.

5.0 Abbreviations

Abbreviations	Description
a) BES	Bulk Electric System

b)	CDAC	Centre for Development of Advanced Computing
c)	CEA	Central Electricity Authority
d)	CERC	Central Electricity Regulatory Commission
e)	CERT	Computer Emergency Response Team
f)	CERT-In	Indian Computer Emergency Response Team
g)	CII	Critical Information Infrastructure
h)	CISO	Chief Information Security Officer
i)	CSK	Cyber Swachhta Kendra
j)	COTS	Commercial off-the Shelf
k)	ESP	Electronic Security perimeter
l)	ICS	Industrial Control Systems
m)	ICT	Information and Communications Technology
n)	IEC	International Electro Technical Commission
o)	ISAC	Information Sharing and Analysis Centre
p)	ISD	Information Security Division
q)	ISO	International Organization for Standardization
r)	ISMS	Information Security Management System
s)	IT	Information Technology
t)	FAT	Factory Acceptance Test
u)	NABL	National Accreditation Board for Testing and Calibration Laboratories
v)	NCIIPC	National Critical Information Infrastructure Protection Centre
w)	NLDC	National Load Dispatch Centre
x)	NPTI	National Power Training Institute
y)	NSCS	National Security Council Secretariat
z)	OEM	Original Equipment Manufacturer
aa)	OT	Operational Technology
bb)	RLDC	Regional Load Dispatch Centres
cc)	SAT	Site Acceptance Test
dd)	SERC	State Electricity Regulatory Commission
ee)	SCADA	Supervisory Control and Data Acquisition Systems
ff)	SIEM	Security Information and Event Management
gg)	SLA	Service Level Agreement
hh)	SLDC	State Load Dispatch Centre
ii)	QCI	Quality Council of India

CEA (Cyber Security in Power Sector) Guidelines, 2021

Article 1. Cyber Security Policy.

a. Cardinal Principles: The Responsible entity will strictly adhere to following cardinal principles while framing cyber security policy:

- i. There is hard isolation of their OT Systems from any internet facing IT system.
 - ii. May keep only one of their IT systems with internet facing at any of their site/location if required which is isolated from all OT zones and kept in a separate room under the security and control of CISO.
 - iii. Downloading/Uploading of any data/information from their internet facing IT system is done only through an identifiable whitelisted device followed by scanning of both for any vulnerability/malware as per the SOP laid down and for all such activities digital logs are maintained and retained under the custody of CISO for at least 6 months. The log shall be readily to carry out the forensic analysis if asked by investigation agency.
 - iv. List of whitelisted IP addresses for each firewall is maintained by CISO and each firewall is configured for allowing communication with the whitelisted IP addresses only.
 - v. Communication between OT equipment/systems is done through the secure channel preferably of POWERTEL through the fibre optic cable. Security configuration of the communication channel is also to be ensured.
 - vi. All ICT based equipment/system deployed in infrastructure/system mandatorily CII are sourced from the list of the “Trusted Sources” as and when drawn by MoP/CEA.
- b. The Responsible Entity shall be ISO/IEC 27001 certified (including sector specific controls as per ISO/IEC 27019).
 - c. The Responsible Entity shall have a Cyber Security Policy drawn upon the guidelines issued by NCIIPC.
 - d. The Responsible Entity shall ensure annual review of their Cyber Security Policy by subject matter expert and changes shall be made therein only after obtaining the due approval from Board of Directors.
 - e. The process of Access Management for all Cyber Assets owned or under control of the Responsible Entity shall be detailed in the Cyber Security Policy.
 - f. The Cyber Security Policy shall leverage state-of-art cyber security technologies and relevant processes at multiple layers to mitigate the cyber security risks.
 - g. The Responsible Entity shall be solely responsible to get Cyber Security Policy implemented through its Information Security Division (ISD).
 - h. The CISO shall record the reason(s) for exemption required, if any, in case, unable to comply with any of the provision(s) of the Cyber Security Policy. Any exception shall be allowed only after an approval of provisions of compensatory control(s) to mitigate residual cyber security risks.

- i. The CISO shall record the exemptions sought in statement of applicability controls, while getting the ISO 27001 certified. All exemptions and its justification need to be in conformance with Cyber Security Policy of the Responsible Entity.
- j. The Responsible Entity shall allocate sufficient Annual budget for enhancing cyber security posture, enhanced year over year.
- k. The Responsible Entity shall work in collaboration with other Industry Stakeholders as well as Academia to promote R&D activity in the domain of cyber security.
- l. The Responsible Entity shall ensure that cyber security issues are taken up as agenda items in their Board meetings once in every three months.

Article 2 Appointment of CISO.

- a) The Responsible Entity shall mandatorily appoint a CISO and shall confirm to qualification, if any, **laid** by Quality Council of India (QCI). In absence, the work of CISO shall be looked upon by Alternate CISO. In case qualification for appointment of Alternate CISO has been relaxed for reasons recorded thereof, Alternate CISO has to mandatorily acquire the minimum required cyber security skill sets within six months from the date of his appointment.
- b) The Responsible Entity shall regularly update details of CISO and Alternate CISO, with the Sectoral CERT, as well as on ISAC-Power Portal.
- c) Roles and Responsibility of CISOs shall be as laid by CERT-In and ring-fenced to ensure cyber security of the Cyber Assets of the Responsible Entity.

Article 3: Identification of Critical Information Infrastructure (CII).

- a) The Responsible Entity shall submit to NCIIPC through Sectoral CERT, details of Cyber Assets which uses a routable protocol to communicate outside the Electronic Security Perimeter drawn by the Responsible Entity or a routable protocol within a control centre and dial-up accessible Cyber Assets, within 30 days from the date of their commissioning in the System.
- b) The Responsible Entity shall submit details of Critical Business Processes and underlying information infrastructure along with mapped impact and Risk Profile to NCIIPC and shall get their CIIs identified in consultation with NCIIPC. The process of the notification/declaration by Appropriate Government shall follow thereafter.
- c) The Responsible Entity shall review their declared/notified CIIs at least once a year to examine changes if any in the functional dependencies, protocols and technologies or upon any change in security architecture. The Responsible Entity shall review their declared/notified CIIs once in every 6 months, in case if NCIIPC has directed them to constitute an Information Security Steering Committee.
- d) The Responsible Entity shall ensure that all cyber assets of their identified/notified CIIs are recorded in the asset register and considered for risk assessment as well as for finalization of controls in statement of applicability.

Article 4. Electronic Security Perimeter

- a) The Responsible Entity shall identify and document the Electronic Security Perimeter(s) and all Access Points to the perimeter(s).

- b) The Responsible Entity shall follow procedure of identifying “Electronic Security Perimeter” in case of distributed and/or hybrid information infrastructure, as per IEC 62443 / IS16335 (as amended from time to time).
- c) The Responsible Entity shall ensure that every Critical System resides within an Electronic Security Perimeter.
- d) The Responsible Entity shall perform a cyber-Vulnerability Assessment of each electronic Access Points to the Electronic Security Perimeter(s) at least once in every 6 (six) months and/or after any change in Security Architecture.
- e) The Responsible Entity shall ensure that all critical, high and medium vulnerabilities identified as a result of cyber Vulnerability Assessment shall be closed and verified for the effective closure.

Article 5. Cyber Security Requirements

- a) The Responsible Entity shall have an Information Security Division (ISD), headed by CISO.
- b) The Responsible Entity shall ensure that the ISD must be functional on 24x7x365 basis and is manned by sufficient numbers of Engineers having valid certificate of successful completion of course on cyber security of Power Sector from the Training Institutes designated by CEA.
- c) The Responsible Entity shall ensure that ISD
 - 1) has on-boarded Cyber Swachhta Kendra(CSK) of CERT-In, if they have public IPs.
 - 2) has timely acted upon the advisories, guidelines and directive of NCIIPC, CSK, CERT-In and Sectoral CERTs,
 - 3) has deployed an Intrusion Detection System and Intrusion Prevention System capable of identifying behavioural anomaly in both IT as well as OT Systems.
 - 4) shares reports on incident response and targeted malware samples with CERT-In,
 - 5) updates the firmware/software with the digitally signed OEM validated patches only.
 - 6) enables only those ports and services that are required for normal operations. In case of any emergency the procedure as laid in Access management be followed.
 - 7) maintains firewall logs for the last 6 months duration. Firewall logs shall be analysed and all critical and high severity comments shall be addressed for effective closure.
 - 8) retains document of FAT, SAT test results and report/ certificate of cyber tests carried out for compliance of Government Orders and Cyber Security Audit.*
 - 9) maintains all cyber logs and cyber forensic records of any incident for at least** 90 days.

* FAT, SAT must include comprehensive cyber security tests of the component/equipment/system to be delivered/delivered at site.

** 90 days from date of the commissioning of the system/recovery from any incident, whichever is later.

- d) The Responsible Entity shall routinely audit and test security properties of the Critical System and must act upon, in case if any new vulnerabilities is identified through testing or by the equipment manufacturer.

- e) The Responsible Entity shall design a secure architecture for control system appropriate for their process control environment*.
- f) All State Load Dispatch Centres(SLDCs) shall comply with the directions issued by the National Load Dispatch Centre(NLDC) as well as Regional Load Dispatch Centres(RLDCs) U/s 29 (1) of the Electricity Act, 2003 to ensure stability and cyber security of grid operation and achieve efficiency in the grid operation. In case of any non-compliance, the Head of SLDC shall be responsible and shall be liable for Penalty as per the provision of CERC/SERC.

*There are so many different types of systems in existence and so many possible solutions, it is important that the selection process ensures that the level of protection is commensurate with the business risk and the Responsible Entity shall not rely on one single security measure for its defence. *(Reference IEC/TR62351-10 Edition1.0 2012-10 Power systems management and associated information exchange –Data and communications security – Part 10: Security architecture guidelines).*

Article 6 Cyber Risk Assessment and Mitigation Plan

- a) The Responsible Entity shall document in their Cyber Security Policy a Cyber Risk Assessment and Mitigation Plans drawn upon the best practises being followed in the Power Sector, and the same shall be approved by Board of Directors.
- b) The Cyber Risk Assessment and Mitigation Plans shall clearly define the matrix for assessing the cyber risk of both IT and OT environment and risk acceptance criteria.
- c) The Cyber Risk Assessment Plan shall be capable to demonstrate that repeated cyber security risk assessment delivers consistent, valid and comparable results.
- d) The review of cyber risk assessment shall be carried out at least once in a Quarter. The actionability of risk treatment and mitigation shall be tracked in this review for their effectiveness.
- e) The CISO shall be responsible for implementation and regular review, on the basis of internal and external feedbacks, of the Cyber Risk Assessment and Mitigation Plans.

Article 7 Phasing out of Legacy System

- a) As the life cycle of the Power System Equipment/System is longer than that of IT Systems deployed therein, the Responsible Entity shall ensure that all IT technologies in the Power System Equipment/System should have the ability to be upgraded.
- b) The Responsible Entity shall ensure that the Information Security Division shall draw the list of all communicable equipments/systems nearing end life or are left without support from OEM. Thereafter CISO shall identify equipment/systems to be phased out from the list drawn, firm up their replacement plan and put up the replacement plan for approval before the Board of Directors.
- c) The CISO shall ensure that till equipments/systems nearing end life or left without support from OEM are not replaced, their cyber security is hardened and ensured through additional controls provisioned in consultation with the OEM or alternate Supplier(s)*.
*e.g. Use of CDAC developed AppSamvid and whitelisting of applications installed may be explored across all legacy systems.
- d) The Responsible Entity shall document in their Cyber Security Policy a Standard Operating Procedure for safe and secure disposal of outlived or legacy devices.

Article 8. Cyber Security Training.

- a) The Responsible Entity shall establish, document, implement, and maintain an annual cyber security training program for personnel having authorized cyber or authorized physical access (unescorted or escorted) to their Critical Systems.
- b) The Responsible Entity shall review annually their cyber security training program and shall update it whenever necessary. Annual Review shall record evaluation of the effectiveness of the trainings held.
- c) The Responsible Entity shall ensure that Cyber Security training program designed for their IT as well as OT O&M Personnel must include following topics and as per their functional requirements and security concerns additional topics shall be added:
 - 1) User authentication and authorization.
 - 2) Cyber Security and Protection mechanisms of IT/OT/ICS Systems.
 - 3) Introduction to various standards i.e. ISO/IEC:15408, ISO/IEC:24748-1, ISO: 27001, ISO: 27002, ISO 27019, IS 16335, IEC/ISO:62443.
 - 4) Training on implementation of ISO/IEC 27001 and awareness on IEC 62443.
 - 5) Vulnerability Assessment in the Critical System.
 - 6) Monitoring and preserving of electronic logs of access of Critical Assets.
 - 7) Detecting cyber-attacks on SCADA and ICS systems
 - 8) The handling of Critical System during cyber crisis.
 - 9) Action plans and procedures to recover or re-establish normal functioning of Critical Assets and access thereto following a Cyber Security Incident.
 - 10) Hands on SCADA operation at any of the Regional Load Dispatch Centre.
 - 11) Handling of risks involved in the procurement of COTS Products.
- d) All Personnel engaged in O&M of IT & OT Systems shall mandatorily undergo courses on cyber security of Power Sector from any of the training institute designated by CEA, immediately within 90 days from the notification of CEA Guidelines on Cyber Security in Power Sector.
- e) The Responsible Entity shall ensure that none of their newly hired or the current Personnel have access to the Critical System, prior to the satisfactory completion of cyber security training programme from the Training Institutes designated in India, except in specified circumstances such as cyber crisis or an emergency.
- f) NPTI in consultation with CEA shall identify and design domain specific courses on Cyber Security for different target groups. The “Governing Board for PSO Training and Certification” shall approve the content, duration etc of these courses and shall review it Annually. NPTI shall conduct these courses at all of their branches on regular basis and shall maintain the list of the Participants successfully completing the course.

Article 9 Cyber Supply Chain Risk Management

- a) The Responsible Entity shall ensure that, as and when Ministry of Power, Government of India notifies the Model Contractual Clauses on cyber security, these clauses are included in their every Bid invited for procurement of any ICT based components/equipments/System to be used for Power System.
- b) The Responsible Entity shall ensure that all the Communicable Intelligent Equipments and the Service Level Agreements (SLAs) for their Critical Systems shall be sourced from the list of the “Trusted Sources” as and when drawn by MoP/CEA.

- c) The Responsible Entity shall ensure that, in case, for the any Communicable Intelligent Devices, if no Trusted Source has been identified, then the successful bidder in compliance with the provisions made in MoP order dated 2.7.2020 and any other relevant MoP order has got the product cyber tested for any kind of embedded malware/Trojan/cyber threat and for adherence to Indian Standards at the designated lab.
- d) The Responsible Entity shall ensure that the essential cyber security tests are carried out successfully during FAT, SAT as detailed in **Annexure A**. The equipment/System besides for functionality shall also be tested in the factory for vulnerabilities, design flaws, parts being counterfeit or tainted, so as to minimize problems during on-site-testing and installation. Cyber Security Conformance Testing are to be carried out in the designated Lab as listed in **Annexure-I of MoP Order No. 12/13/2020-T&R dt. 8th June, 2021(Ordere at Annexure-B)**.
- e) The Responsible Entity shall ensure that the Equipment/System supplied by the successful bidder shall accompany with a certificate^{\$, #} obtained by OEM from a certification body accredited to assess devices and process for conformance to IEC 62443-4 standards during design and manufacture. The Responsible Entity shall accept the certificate submitted along with the supplied Equipment/System only if it's in line with the Testing Protocol as notified by Ministry of Power, Government of India, from time to time.
- f) The Responsible Entity in compliance to the requirement of Article 9(e) shall also accept, till the setting up of an adequate certification facility in the India, a digitally signed self-declaration of conformance to the IEC 62443-4 standards during design and manufacture of the equipment/system, if submitted by the OEM.
- g) The Responsible Entity shall dispose all unserviceable or obsolete Communicable Intelligent Devices as per the procedure laid in their Cyber Risk Assessment and Mitigation Plans which shall be in line with the prevailing best practices.

\$ The National & International certification may be specified in the tender for critical systems/sub-systems being procured by the Responsible Entity.

Certification Schemes:

Embedded Device Security Assurance Certification is for an individual product,
System Security Assurance Certification is for a set of products in a system
 (possibly from different vendors)

Security Development Lifecycle Assurance Certification is for the development processes that a manufacturer uses for developing products.

Article 10 Cyber Security Incident Report and Response Plan

- a) The CISO of the Responsible Entity shall report in the formats prescribed by CERT-In, all Cyber Security Incidents, classified as reportable events.
- b) Root cause analysis for all reportable events shall be carried out and corrective action taken, so as to ensure that any re-occurrence of such event can be managed with ease.
- c) The Responsible Entity shall mandatorily define in their Cyber Security Policy, criteria(s) identified on the basis of impact analysis, for declaring the occurrence of

Cyber Security Incident(s) as a Cyber Crisis in the System owned or controlled by them.

- d) The Responsible Entity shall mandatorily designate an Officer along with his/her standby by name and designation and empower them to declare an occurrence of the incident(s) as “Cyber Crisis”. The contact details of these Officers shall be updated in the C-CMP within 15 days of changes if any due to transfer or superannuation etc.
- e) The CISO shall ensure that during any Cyber Security Incident, ISD monitors and minutely records every details of cyber security events and incidents in both IT as well as the OT System owned or controlled by the Responsible Entity.
- f) The CISO shall ensure that each cyber incident is handled strictly as per Cyber Security Incident Response Plan detailed in the latest C-CMP approved by the Board of Directors.
- g) The Responsible Entity shall ensure that the efficacy of the Cyber Security Incident Response Plan is tested annually through mock drill(s) carried out, if feasible, as simulation exercise(s) or as table top exercise(s) with wider participation of their employees, in consultation with CERT-In and sectoral CERT. In case if any shortcoming is observed in the Cyber Security Incident Response Plan suitable changes shall be made in it.
- h) The Responsible Entity shall ensure that the CISO compiles details of incident detection, incident handling, learnings from each incident and damage claims made if any and shall report to CERT-In as well as upload information on ISAC-Power Portal.

Article 11 Cyber Crisis Management Plan(C-CMP)

- a) The Responsible Entity shall prepare a Cyber Crisis Management Plan and submit to their sectoral-CERT for review with intimation to Ministry of Power/CISO-MoP. Responsible Entity shall update their C-CMP on the basis of comments made by sectoral-CERT and then submit for vetting to CERT-In. The C-CMP shall be updated once again to include the observations made by CERT-In before seeking approval of Board of Directors for implementation of C-CMP.
- b) The Responsible Entity shall ensure that the C-CMP is reviewed at least annually. The CISO shall ensure that all changes are made in C-CMP only with the due approval of Board of Directors and the changes made in C-CMP have been communicated through a verifiable means to all the concerned Personnel of the Responsible Entity.
- c) The CISOs shall be the custodian of all the cyber security related documents including Cyber Crisis Management Plan, Risk Treatment Plan, Statement of Applicability of controls, and compliance to regulator’s requirement.
- d) The CISO shall be accountable for ensuring enforcement of C-CMP by Information Security Division of the Responsible Entity, during a cyber-crisis, as and when declared by the designated Officer. (refer Article 10(d))

Article 12: Sabotage Reporting%

- a) The Responsible Entity shall incorporate procedure for identifying and reporting of sabotage in their Cyber Security Policy within 30 days from issue of the Guidelines, or grant of licence under the appropriate legal provisions to the Responsible Entity.
- b) The CISO shall be held liable for non-reporting of identified sabotage(s) as per procedure laid for identifying and reporting of sabotage in the Cyber Security Policy of the Responsible Entity.

- c) The CISO shall prepare a detailed report on disturbances or unusual occurrences, identified, suspected or determined to be caused by sabotage in the Critical System of the Responsible Entity, and shall submit the report to the Sectoral CERT as well as to CERT-In within 24 hours of its occurrence.
- d) The CISO shall submit to NCIIPC within 24 hours of occurrence the report on every sabotage classified as cyber incidents(s) on "Protected System".
- e) The CISO upon occurrence on every sabotage shall take custody of all log records as well as digital forensic records of affected Cyber Assets, Intrusion Detection System, Intrusion Protection System, SIEM and shall preserve them for at least 90 days and shall make them available as and when called upon for investigation by the concerned Agencies.

%Disturbances or unusual occurrences, suspected or determined to be caused by sabotage.

Sabotage e.g. can be a forced intrusion in un-manned/manned facility and taking control of operation of Critical System through a communicating device.

Article 13 Security and Testing of Cyber Assets

- a) The Responsible Entity shall ensure security of all in-service phase as well as standby Cyber Assets through regular firmware/Software updates and patching, Vulnerability management, Penetration testing (of combined installations), securing configuration, supplementing security controls. CISO shall maintain details of update version of each firmware and software and their certification if received from OEMs.
- b) The Responsible Entity shall carry out regularly Vulnerability Assessment of all Cyber Assets owned or under their control. If a Cyber Asset is found vulnerable to any exploits or upon any patch updates or major configuration changes, then further Penetration Testing may be carried out offline or in a suitably configured laboratory test-bed to determine other vulnerabilities that may have not been identified so far.
- c) The Responsible Entity shall specify security requirement and evaluation criteria during each phase of their procurement Process.
- d) The Responsible Entity shall ensure that all Cyber Assets being procured shall conform to the type tests as mentioned in the specification for type testing listed in the bid document. Type test reports of tests conducted in NABL accredited Labs or internationally accredited labs (with in last 5 years from the date of bid opening) shall be mandated to be submitted along with bid. In case, the submitted Type Test reports are not as per specification, the re-tests shall be conducted without any cost implication to the Responsible Entity.
- e) The Responsible Entity shall ensure that all Communicable devices are tested for communication protocol as per the ISO/IEC/IS standards listed in **MoP Order No. 12/13/2020-T&R dated 8th June, 2021(Annexure-B).**
- f) The Responsible Entity shall ensure that all Critical Systems designed with Open Source Software are adequately cyber secured.
- g) The Responsible Entity as a best practise upon any incidence of Cyber Security Breach shall carry out cyber security tests at any lab designated for cyber testing by Ministry of Power. These tests shall be similar to Pre Commissioning Security Test and those essential for carrying out Post Incident Forensics Analysis.

Article 14 Cyber Security Audit

- a) The Responsible Entity shall implement Information Security Management System (ISMS) covering all its Critical Systems.
- b) The Responsible Entity shall through a CERT-In Empanelled Cyber Security OT Auditor shall get their IT as well as OT System audited at least once in every 6 (six) months and shall close all critical and high vulnerabilities within a period of one month and medium as well as low non-conformity before the next audit. Effective closure of all non-conformities shall be verified during the next audit.
- c) The Cyber Security Audit shall be as per ISO/IEC 27001 along with sector specific standard ISO/IEC 27019, IS 16335 and other guidelines issued by appropriate Authority if any. These mentioned standards shall be current with all amendments if any and in case if any standard is superseded, the new standard shall be applicable. CISO shall ensure immediate closure of non-conformance, based on the criticality and by means all non-conformances are to be closed before the next audit.
- d) The Responsible Entity shall ensure that CISO has all the required systems and documents in place, as mandated by NSCS for base line cyber security audit.

FAT & SAT

1. During FAT stage, the customer has to verify all types test reports / certificates including Communication protocol and security conformance tests of the devices offered for FAT.
2. FAT of SCADA involves testing as a whole system in the integrated scale down set up. For SCADA, Indian standard IS 15953: 2011 “SCADA System for Power System Applications” provides definition and guidelines for the specification, performance analysis and application of SCADA systems for use in electrical utilities (for transmission & Distribution) including guidance on Tests and inspections.
3. The SAT will be done at customer site as per the SAT document mutually agreed by buyer and supplier. For SAT also, guidance from IS 15953: 2011 need to be applied.
4. IEC 61850-10-3 Communication Networks and Systems For Power Utility Automation- Functional testing of IEC 61850 systems (in draft stage - CDTR) covers testing of applications within substations covering
 - a. A methodical approach to the verification and validation of a substation solution
 - b. The use of IEC 61850 resources for testing in Edition 2.1
 - c. Recommended testing practices for different use cases
 - d. Definition of the process for testing of IEC 61850 based devices and systems using communications instead of hard wired system interfaces (ex. GOOSE and SV instead of hardwired interfaces)
 - e. Use cases related to protection and control functions verification and testing.

This standard may be used as a guidelines for FAT & SAT for Substation Automation System (SAS) based on IEC 61850.

Annexure - B**Annexure – 1****List of designated laboratories for cyber security conformance testing****Table -A. Field Equipment /Operational Technology (OT)**

Sl. No.	Equipment	Communication Protocol Conformance Standards	Protocol Security Conformance Standards	Designated Laboratories
1	Remote Terminal Units (RTUs) & PLCs with IEC communications protocols	IEC 60870-5 -101 / IEC 60870-5 -104 (Test Details Annexure 2)	IEC 60870-5- 7 Security extension & IEC 62351 series (specifically IEC 62351-100 parts 1 & 3) (Test Details Annexure-2	Central Power Research Institute (CPRI), Prof Sir C V Raman Road, Sadashivanagar P O, Bengaluru – 560080, Karnataka
2	Intelligent Electronic Equipment / Numerical Protection Relays / Bay Control Units / Bay Protection Units, Gateways, Transformer Tap controller/ changer, etc. with IEC 61850 communication protocol	IEC 61850 – 5 to IEC 61850 – 10 (Test Details Annexure 2)		CPRI
3	Smart meters with IEC 62056 communication protocols	IEC 62056 series / DLMS & IS 15959 series and IS 16444 series (Test details Annexure 2)	IEC 62056 series / DLMS & IS 15959 series and IS 16444 series (Test Details Annexure 2)	1. CPRI 2. Electrical Research and Development Association (ERDA), ERDA Road, GIDC, Makarpura, Vadodara - 390 010 Gujarat 3. Yadav Measurements Pvt. Ltd. (YMPL) 373-375, RIICO Bhamashah Industrial Area Kaladwas 313003 Udaipur – Rajasthan

Information Technology (IT) Equipment (Main / Backup / Disaster recovery (DR) Control Centre / Substation control centre IT equipment)

All IT products procured /supplied shall have a valid Certificate of Common Criteria as per ISO/IEC 15408 issued by signatories of the Common Criteria Recognition Agreement (CCRA) (www.commoncriteriaportal.org).

Import/procurement/supplied from vendors sourcing from prior reference countries, the Certificate for Common Criteria shall be from Government Laboratories in India according to the IC3S scheme operated by Ministry of Electronics and Information Technology, which is a signatory to CCRA.

<https://www.commoncriteria-india.gov.in/>

Details of tests for various identified products

Remote Terminal Units (RTUs) (Sl. No. 1 of Table – A of Annexure – 1)

Test protocol:

Utilities / manufacturers will submit the sample along with all the required technical documentation for taking up testing to the designated laboratory.

Reference standards

- 1) IEC 60870-5-101 & IEC 60870-5-104 as applicable
- 2) IEC 60870-5-7 Telecontrol equipment and systems - Part 5-7: Transmission protocols - Security extensions to IEC 60870-5-101 and IEC 60870-5-104 protocols (applying IEC 62351)
- 3) IEC 62351-100-1 & IEC 62351-100-3 and other cross referenced standards.

Test cases

Extract from standard (IEC 62351-100-1)

The conformance test cases are divided into four clauses:

- Clause 5: Verification of configuration parameters. This clause contains the configuration parameters affecting the message contents and/or the protocol behaviour.
- Clause 6: Verification of communication. The goal of this clause is to verify that Device Under Test (DUT) is able to implement the security extension messages as described in IEC TS 60870-5-7.
- Clause 7: Verification of procedures. The goal of this clause is to verify that DUT is able to execute the security extension procedures as described in IEC TS 62351-5.
- Clause 8: Test result chart. This clause contains the results of the test cases listed in Clauses 6 and 7 for each supported value of the configuration parameters listed in Clause 5.

The test cases are organized in tables. They are numbered; their numbering syntax is: Subclause number (where the Table is located) + test case number.

In the column ‘reference’ each test case has a direct reference to IEC TS 62351-5 or IEC TS 60870-5-7 where the clause under test is defined.

Test cases are mandatory depending on the description in the column ‘Required’. The following situations are possible:

M= Mandatory test case. The test is referencing a clause that is mandatory in IEC TS 62351-5 or IEC TS 60870-5-7.

Protocol Information Conformance Statement (PICS) x, x = Mandatory test case if the functionality is enabled in the PICS (by marking the applicable check box), with a reference to the section number of the PICS (x.x).

Conformance testing of security extension procedures

The security extension procedures can be summarized as follows:

- User management
- Update key maintenance
- Session key maintenance
- Challenge/Reply authentication
- Aggressive Mode authentication

Extract from standard (IEC 62351-100-3)

IEC 62351-3 defines the requirements related to the authentication/encryption protocol, procedures and methods to be implemented at TCP/IP (transport) level.

The conformance test cases are divided into three clauses:

- Clause 5: Verification of configuration parameters. This clause contains the parameters specified by the standards referencing IEC 62351-3 (see IEC 62351-3:2014/AMD1:2018, Clause 7) and affecting the protocol behaviour.
- Clause 6: Verification of IEC 62351-3 requirements. The goal of this clause is to verify that DUT is conformant to the requirements of the IEC 62351-3.
- Clause 7: Test result chart. This clause contains the results of the test cases listed in Clause 6 for each supported value of the configuration parameters listed in Clause 5.

The test cases are organized in tables. They are numbered, their numbering syntax is: Subclause number (where the table is located) + test case number.

In the column ‘Reference’ each test case has a direct reference to IEC 62351-3 where the clause under test is defined. PICS or Protocol Implementation eXtra Information for Testing (PIXIT) could be found in the “Reference” column for some test cases whenever the execution of the test case shall take into account specific parameter values declared in the PICS or PIXIT of the DUT.

Test cases are mandatory depending on the description in the column ‘Required’. The following situations are possible:

M = Mandatory test case. The test is referencing to a clause that is mandatory in IEC 62351-3.

PICS

or

PIXIT = Mandatory test case if the functionality is enabled in the PICS or PIXIT by marking the applicable check box or declaring the applicable value.

Intelligent Electronic Devices (IEDs) (Sl. No. 2 of Table – A of Annexure – 1)

Utilities / manufacturers will submit the sample along with all the required technical documentation for taking up testing to the designated laboratory.

Reference standards

IEC 61850 series

Specifically IEC 61850-5, IEC 61850-6, IEC 61850-7, IEC 61850-8, IEC 61850-9 and IEC 61850-10

Test cases

Communication protocol conformance as per IEC 61850 -10. This part of standard defines methods and abstract test cases for conformance testing of client, server and sampled values devices used in power utility automation systems, the methods and abstract test cases for conformance testing of engineering tools used in power utility automation systems, and the metrics to be measured within devices according to the requirements defined in IEC 61850-5. Further this part of standard specifies standard techniques for testing of conformance of client, server and sampled value devices and engineering tools, as well as specific measurement techniques to be applied when declaring performance parameters. The use of these techniques will enhance the ability of the system integrator to integrate IEDs easily, operate IEDs correctly, and support the applications as intended.

Smart Meters (Sl. No. 3 of Table – A of Annexure – 1)

Utilities / manufacturers will submit the sample along with all the required technical documentation for taking up testing to the designated laboratory.

IEC 62056 series of standards (Electricity metering data exchange – The DLMS/COSEM suite) specifies details of communication protocol requirements, conformance testing and security requirements. The Part 5-3 (DLMS/COSEM application layer) specifies the DLMS/COSEM application layer in terms of structure, services and protocols for DLMS/COSEM clients and servers, and defines rules to specify the DLMS/COSEM communication profiles. It defines services for establishing and releasing application associations, and data communication services for accessing the methods and attributes of COSEM interface objects, defined in IEC 62056-6-2 using either logical name (LN) or short name (SN) referencing.

Clause 5 and sub clauses specifies security requirements. It cover security concepts, Identification and authentication, Cryptographic algorithms, Cryptographic keys – overview, Key used with symmetric key algorithms, Keys used with public key algorithms and Applying cryptographic protection.

Note: All above referred standards shall be latest with amendments if any at the time of submission of sample(s) for testing.

Testing Criteria

1) Supply from Trusted Sources

The sample size shall be as specified by CEA as per the approved criteria for Trusted Vendors

2) Supply from other than trusted vendors

The sample size shall be 5% of the supply lot / ordered quantity (minimum one). The manufacturer shall submit request to the Nodal agency along with vendor's / manufacturer's certifications for supply chain management system practices and secure product development process implementations based on any one or more of standards ISO / IEC 27036, ISO / IEC 20243, IEC 62443 for verification.

After scrutiny of vendor's / manufacturer's certifications the supplier / utilities shall be asked to submit product to the designated laboratory for communication and cyber security conformance testing.

The supply lot shall stand rejected on failure to comply with the test requirements.

3) Supply from prior reference countries

The utility shall obtain prior permission from the Government of India for importing the product / system from prior reference countries.

The sample size shall be 10 % of the supply lot / ordered quantity (minimum one). The manufacturer shall submit request to the Nodal agency along with vendor's / manufacturer's certifications for supply chain management system practices and secure product development process implementations based on any one or more of standards ISO / IEC 27036, ISO / IEC 20243, IEC 62443 for verification.

After scrutiny of vendor's / manufacturer's certifications the supplier / utilities shall be asked to submit product to the designated Government / Government controlled Autonomous laboratory for type tests (Annexure – 4) and communication & cyber security conformance testing.

The supply lot shall stand rejected on failure to comply with the test requirements.

Type Tests

Products imported from prior reference countries shall also undergo type testing as per following standards in addition to communication protocol and security conformance testing at the designated Government / Government controlled Autonomous laboratory:

Type test standards for RTUs

1. IEC 60870-1-2:1989 Telecontrol equipment and systems. Part 1: General considerations. Section Two: Guide for specifications.
2. IEC 60870-2-1:1995 Telecontrol equipment and systems - Part 2: Operating conditions - Section 1: Power supply and electromagnetic compatibility.
3. EC 60870-2-2:1996 Telecontrol equipment and systems - Part 2: Operating conditions -Section 2: Environmental conditions (climatic, mechanical and other non-electrical influences).
4. IEC 60870-3:1989 Telecontrol equipment and systems. Part 3: Interfaces (electrical characteristics)

Type test standard for IEDs / Numerical Protection Relays / Bay controls units

1. IEC 61850-3: 2013, Ed. 2 Communication networks and systems for power utility automation – Part 3: General requirements.

Type test standards for Smart meters

1. IS 16444: 2015 AC static direct connected watthour smart meter class 1 and 2 – Specification.
2. IS 16444 Part 2: 2017 AC static transformer operated watthour and var - Hour smart meters, class 0.2 S, 0.5 S and 1.0 S: Part 2 specification transformer operated smart meters.

Note:

1. All above referred standards shall be latest with amendments if any at the time of submission of sample(s) for testing.
2. Type tests generally covers functionality, environmental, mechanical, EMI/ EMC and electrical safety related tests.

ANNEXURE- V

GOVERNMENT OF ASSAM
FINANCE (TAXATION) DEPARTMENT
JANATA BHAWAN, DISPUR, GUWAHATI-6
Email - eoffice.fintax@assam.gov.in, financetaxation@yahoo.in

eCF No.803347/20

Dated Dispur 11-07-2026

From : Smti. Sanghamitra Bhagawati, ACS,
 Deputy Secretary to the Govt. of Assam,
 Finance (Taxation) Department

To : 1) The Senior Most Secretary, Public Works (Building & NH) /
 Public Works (Health & Education) / Public Works (Roads) /
 Irrigation / Water Resource / Public Health Engineering
 Department, Janata Bhawan, Dispur, Guwahati - 781006.

✓ 2) The Managing Director,
 Assam Electricity Grid Corporation Limited (AEGCL) /
 Assam Power Generation Corporation Limited (APGCL)/
 Assam Power Distribution Company Limited (APDCL).

Subject : Guidelines regarding determination of maximum permissible
 Input Tax Credit (ITC) utilization ratios in respect of works contracts
 executed under Works Departments and Public Sector Undertakings of
 the Government of Assam.

Ref : Record of discussion of the meeting with various Works
 Department held on 25th June 2026 (Copy enclosed).

Sir,

With reference to the subject cited above, I am directed to state
 that with a view to ensuring uniformity, transparency and proper
 verification of Input Tax Credit (ITC) utilization by contractors
 executing Government works, the following instructions shall be
 complied with by all concerned Works Departments:

1. Maximum acceptable ITC utilization ratios

#	Department	Type of work	Key inputs /	Maximum
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			process involved	acceptable ITC utilisation ratio
i.	Public Works Department - Building, Health & Education	RCC Building	• Civil work (cement, brick, sand, Steel, Stone chips, Tiles, paint, etc.) • Electrical work • Plumbing • Water supply • Mechanical	70%
		Stadiums	• Civil work (cement, brick, sand, Steel, Stone chips, Tiles, paint, etc.) • Electrical work • Plumbing • Water supply • Site development	55%
(ii)	Public Works Department - Roads	Bituminous roads or Paver blocks	• Road work (bitumen/ paver block, gravel, sand, etc.)	30% (if contractor has own quarry) 40% (if contractor does not have own quarry)
			• ICBP Road work (ICBP, gravel, sand, Road Furnisher etc.)	40% (if contractor has own quarry) 50% (if contractor does not have own quarry)

			quarry)
		• Drain work (cement, sand, chips, steel, etc.)	60%
		Build-up girder (BUG)/ Steel Bridge (primarily over water bodies) • Steel • Cement • Chips • Sand • Gravel	75%
		Fly Overs / RCC Bridge • Cement • Steel • Chips • Sand • Gravel • Others	70%
		Mixed Contracts (Road and Bridge/Road and Drain etc) As applicable	As per weightage of the component in the estimate
(iii)	Department of Irrigation	Flow Irrigation Scheme (FIS) • Concrete work (cement, steel, sand) • Earthwork • Mechanical work (steel plates, channel) • Solar/Electrical work	60%
		Lift Irrigation System (LIS) • Concrete work • Mechanical work • Solar/Electrical work • Distribution	60%

			System	
		Tube Wells	• Concrete work • Pipe network • Pump (solar or electrical) • Gravel	45%
(iv)	Assam Electricity Grid Corporation Limited (AEGCL)	EHV Grid Su-Station	• Material supply • Freight & Insurance • Erection and civil works	80%
		EHV Transmission Lines	• Material supply • Freight & Insurance • Erection and civil works	80%
(v)	Assam Power Generation Corporation Limited (APGCL)	Hydro Project	• Civil work • Electro-Mechanical work • Hydro-mechanical work • Colony / Roads	70%
		Thermal Project	• Civil work • Electro-mechanical	75%
		Solar Projects	• Panel Supply • Civil work	80%
(vi)	Assam Power Distribution Company Limited (APDCL)	Construction of 33kV Sub-Station/ DTR Substation	• Material Supply for Electrical/Civil Works • Fright & Insurance	80%
			• Poles (PSC/Steel	

		Power Distribution Network (LT/HT)	Tubular Pole), GI Channel, GI Angle, LA, Hardware Fittings • Conductor, AB Cable/ MVCC Covered Conductor	80%
(vii)	Water Resources Department	Embankment	• Earthwork • Geo-bags • Tarping works	30%
(viii)	Public Health Engineering Department	Water supply	• Civil work (steel, cement, pipes) • Electrical work (transformer, cable work) • Mechanical Work (tubewell, pumps)	70%

- i. Contractors utilizing ITC beyond the prescribed benchmark shall be identified and verified by the Procuring entity for verification without fail.
- ii. Where ITC claims are found genuine after verification, no further action shall be taken; otherwise appropriate action shall be initiated under GST law contractual provisions and Assam Public Procurement Framework..
- iii. Where fake ITC/bogus billing is detected or payment of inputs in cash is found, the concerned Works Department shall take action including blacklisting/debarment as permissible. Suitable tender clauses shall be incorporated in current and future tenders by the Procuring Entity

- IV. For bituminous works, procurement shall be made only from authorized empaneled vendors.
- V. Applications of private bitumen vendors shall be vetted by PWD (Roads) after verification by GST department. PWD (Roads) shall ensure an adequate panel of authorized vendors and incorporate suitable tender provisions. Empanelment shall be cancelled if GST norms not followed by vendors.

2. The above instructions shall be implemented by all concerned Departments/Organizations subject to the following conditions:

- I. A suitable provision may be incorporated to relax the prescribed maximum permissible ITC utilization ratio in exceptional cases where a genuine and justifiable requirement exists, particularly where the labour component of the work is substantially outsourced.
- II. It shall be clearly stipulated that the prescribed maximum permissible ITC utilization ratio represents only the upper ceiling and shall not be construed as the standard or automatic entitlement. The concerned Procuring entity shall determine the admissible ITC utilization ratio on a case-to-case basis after due examination and shall ensure that the prescribed ceiling is not misused.
- III. The concerned Procuring entity shall obtain a certificate from the contractor confirming compliance with the applicable provisions of the GST Acts, Rules and other relevant statutory requirements. To implement this, a standard format is also *enclosed* for ready reference.
- IV. The prescribed maximum permissible ITC utilization ratios shall be incorporated in the bid documents and form part of

all future contracts. Existing contracts may also be suitably amended, wherever legally permissible. However, provision may be kept for relaxation in exceptional cases where genuine and justifiable reasons exist.

- v. Tender/contract documents shall contain appropriate provisions for debarment or blacklisting of contractors, after following due process, where they are found to have availed fake ITC, indulged in bogus billing, payment of inputs in cash or committed any other serious violation of the Assam GST Framework or Procurement Framework.

This has the approval of the Competent Authority.

Yours faithfully,

Encl : As stated above

**Digitally signed by
Sanghamitra Bhagawati
Date: 11-07-2026**

14.22.11
Deputy Secretary to the Govt. of Assam,
Finance (Taxation) Department

Memo eCF No.803347/20-A Dated Dispur 11-07-2026

Copy for information and necessary action to:

1. The Commissioner of Taxes, Assam, Kar Bhawan, Dispur, Guwahati - 781006.
2. The Staff Officer to Chief Secretary, Assam, Lok Sewa Bhawan, Dispur, Guwahati - 781006.
3. OSD to the Hon'ble Finance Minister, Assam, Janata Bhawan, Dispur, Guwahati - 781006, for kind appraisal of Hon'ble Minister.
4. PS to the Additional Chief Secretary to Chief Minister, Assam, Lok Sewa Bhawan, Dispur, Guwahati - 781006, for kind appraisal of Additional Chief Secretary.
5. PS to the Sr Most Secretary to the Govt. of Assam, Finance

Department, Janata Bhawan, Dispur, Guwahati - 781006, for kind appraisal of Sr Most Secretary.

e-signed

Deputy Secretary to the Govt. of Assam,
Finance (Taxation) Department