INVITATION TO BID
NO. NE II-A1-2023-05

LOT 1. Supply, Installation, Testing and Commissioning of 20/25 MVA Power Transformer, 69/15kV Protection Equipment for Muñoz Substation

LOT 2. Civil Works

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GENERAL OVERVIEW

This tender document is developed for the **SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ.** This IFB consists of:

- the invitation to bid;
- the necessary instruction to bidders;
- the general and special conditions of contract;
- the bid forms and pro-forma contract;
- the schedules of requirements with a breakdown of the material requirements
- the Price Schedules which are to be completed by the Bidder for each of the schedules **of materials and equipment**. The Price Schedules contains an item number and a brief description.
- the Technical Specifications of items being procured. **The technical specification** provides a detailed description of the item, the testing and inspection requirements as well as standard references.

A checklist for the Bidders is attached to this General Overview as Annex A.

CHECKLIST OF ELIGIBILITY REQUIREMENTS

I. ELIGIBILITY REQUIREMENTS (Class "A" Documents)

A. LEGAL DOCUMENTS: FOLDER 1 (ENVELOPE 1)

1) DTI Business Name Registration/SEC Registration Certificate, whichever is appropriate under laws of the Philippines
2) Valid and Current Mayor's Permit/Municipal License (Principal Place of Business)
3) Taxpayer's Identification Number
4) BIR Value Added Tax Registration
5) Statement that the Bidder is not "Blacklisted" or banned from bidding by the government or any of its agencies, offices, corporation or LGUs, and other private corporations or electric cooperatives; including non-inclusion in the Consolidated Blacklisting Report issued by the Government Procurement Policy Board (GPPB), as provided in Section 69.4 of the IRR-A No. 9184
6) Compliance with E.O. # 398
    a. Proof of VAT Payments for the past 6 months
    b. Tax Clearance from the BIR to Prove Bidder's Full and Timely Payment of Taxes to the Government
    c. A Certification under Oath from the Bidders Responsible Officers that the Bidder is Free and Clear of All Liabilities with the Government

B. TECHNICAL DOCUMENTS: FOLDER 2 (ENVELOPE 1)

1) Statement in Matrix Form all ongoing and completed government and private contracts (service contracts, maintenance contracts, purchase orders, job orders, etc.) within the relevant period, where applicable, including contracts awarded but not yet started, if any. The Statement shall state whether each contract is:

    a. Ongoing, Completed or Awarded but not yet started; within the relevant period, where applicable. Each Contract should include the following:

        i. The name of the Contract;
        ii. Date of the Contract
        iii. Amount of the Contract and Value of Outstanding Contracts;
        iv. Date of Delivery
        v. End-user's Acceptance, if completed

    b. Similar or not similar in nature and complexity to the contract to be bid. For the procurement of goods, a contract shall be considered "similar" to the contract to be bid if it involves goods or related services of the same nature and complexity as those which are the subject of the public bidding is concerned.

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2) PCAB License (Philippine Contractor's Accreditation Board) License Category of at least "Category B – Electrical Works" and Registration Classification of at least "Medium A – Electrical Works

C. FINANCIAL DOCUMENTS: FOLDER 3 (ENVELOPE 1)

1) Complete set of Audited Financial Statements, stamped "received" by the BIR or its duly accredited and authorized institutions, for the immediate preceding year, showing, among others the prospective bidder's total and current assets and liabilities.

2) Complete set of Financial Statement includes the following:
   1. Balance Sheet
   2. Income Sheet
   3. Statement of Changes in Equity
   4. Cash Flow Statement
   5. Notes to Financial Statement
   6. Statement of Management Responsibility for Financial Statement

3) The prospective Bidder's computation for its Net Financial Contracting Capacity (NFCC) or a commitment from a universal or commercial bank to extend to it a credit line if awarded the contract to be bid, in an amount not lower than that set by the procuring entity, which shall be at least equal to ten percent (10%) of the Approved Budget for the Contract (ABC) to be bid.

CLASS "B" DOCUMENTS: FOLDER 4 (ENVELOPE 1)

1) Valid Joint venture Agreement, in case of joint venture. Each Member of the joint venture shall submit the required eligibility documents; and,
2) Letter authorizing the BAC or its duly authorized representative/s to verify any or all of the documents submitted for the eligibility check.
3) Notarized statement that each of the documents submitted in satisfaction of the eligibility requirements is an authentic and original copy, or a true and faithful reproduction or copy of the original, complete, and that all statements and information provided therein are true and correct.

D. BIDDER'S CHECKLIST: FOLDER 5 (ENVELOPE 1)

1) Eligibility and Source Statement for Bidder and Manufacturer
2) Power of Attorney
3) Letter of Authorization from the manufacturer to the Bidder/Trader to offer their material or equipment
4) Letter of Authorization from the Bidder to the Local Agent
5) Manufacturer and catalogue number of each offered item indicated
6) All additional data to be furnished by the bidder as per technical specifications
7) All deviations from the Specifications listed separately in the Form Deviation
8) All substitutions, if any, offered as an alternative Bid, clearly marked as such

II. BID PROPOSALS (ENVELOPE 2)

TECHNICAL PROPOSAL (FOLDER 1)

1) Bid Security as to form, amount and validity period
2) Authority of the Signatory
3) Confirming Statement of Delivery Schedule
4) Confirming Statement on Warranty Being Offered
5) Details of Technical Specification

FINANCIAL PROPOSAL (FOLDER 2)

1) Bid Prices in the prescribed bid form

☐ All pages and all changes initialled.
☐ Original and a Copy of all documents.

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ANNEX A: BIDDER'S CHECKLIST

- ☐ Authorized signature on the Bid (Form 1).
- ☐ All pages and all changes initialled.
- ☐ Bid Security.
- ☐ Bid Summary.
- ☐ Bid Schedules completed.
- ☐ Bidder's Information.
- ☐ Eligibility and Source Statement for Bidder and Manufacturer.
- ☐ Bidders Qualification, Sales History and Financial Data.
- ☐ Power of Attorney.
- ☐ Letter of Authorization from the manufacturer to the Bidder/Trader to offer their material or equipment.
- ☐ Letter of Authorization from the Bidder to the Local Agent.
- ☐ Delivery Schedule duly signed.
- ☐ Technical Data Sheets properly filled in for each offered item and duly signed.
- ☐ Manufacturer and catalogue number of each offered item indicated.
- ☐ All additional data to be furnished by the bidder as per technical specifications.
- ☐ All deviations from the Specifications listed separately in the Form Deviations.
- ☐ All substitutions, if any, offered as an alternative Bid, clearly marked as such.
- ☐ Original and three copies of all documents.

In the absence of any of the above requirements, the bidder's offer is considered to be non-responsive with major deviation from the bidding documents.

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ITB NO. NE II-A1-2023-05

NEECO II-AREA 1's Invitation to Bid No. NE-II-A1-2023-05

The Nueva Ecija II Electric Cooperative, Inc- Area 1 (NEECO II-Area 1) invites eligible Bidders for the following procurement activities based on Approved Annual Procurement Plan for the year 2023 and Board Resolution No. 02-03-23, Series of 2023.

Lot	Project	ABC	BID DOCS FEE (Non-refundable)	ACCREDITATION FEE (Non-refundable)
Lot 1	Supply, Installation, Testing and Commissioning of 20/25 MVA Power Transformer, 69/15kV Protection Equipment for Muñoz Substation	Php 61,161,657.87	50,000.00	
	20/25MVA, 67/13.2kV Power Transformer Three Phase, 60Hz, Conservator Type, ONAN/ONAF, Mineral Oil Filled, Outdoor Type, Off-load Tap Changer, Built and Tested in accordance to applicable IEC/IEEE Standards			5,000.00
	Power Transformer Positioning, Assembly and Oil Purification			
	69/15kV Protection Metering Equipment			
	69/15kV Metering Control and Protection Panel			
	Electrical Works			
	Supervision, Installation and Commissioning			
	PCAB License: License Category of at least "Category B – Electrical Works" and Registration Classification of at least "Medium A – Electrical Works			
Lot 2	Civil Works	Php 7,661,400.07	10,000.00	

Bidding Schedules (Lot 1 & 2):

Accreditation/Submission of LOI	:	until September 1, 2023
Prebid Conference	:	August 23, 2023 at 2:00PM
Note: To be attended by Bidders who paid Bid Docs Fee		
Bid Submission and Bid Opening	:	September 6, 2023 at 2:00PM

Participating bidders must be accredited by this Cooperative. Link for accreditation is available upon request to this email: bac_neeco2area1@yahoo.com.ph Interested bidders shall also submit Letter of Intent (LOI) and pay bid docs fee for the lot they will be participating. Only bidders who paid bid docs fee and submitted LOI shall receive the link for the pre-bid conference. Bidding document is available in electronic copy and will be posted in Coop's official website: www.neeco2area1.com to be downloaded by the bidders.

Further, **a two percent (2%) of ABC bidder's bond is mandatory**, which is to be returned immediately after the bid awarding.

NEECO II – Area 1 reserves the right to reject any or all bids, to waive any formality or technicality therein, to accept the bid that is deemed most advantageous and to annul the bidding process without incurring any liability to any bidder or party. Finally, NEECO II – Area 1 assumes no obligation to compensate any bidder or party for any loss or expense incurred in the preparation of the bid or participation in the bidding process.

For further inquiries, you may call (044)-411-1007 local 110 and/or email at bac_neeco2area1@yahoo.com.ph and look for Ms. Set Pauline Feliciano-Sarmiento.

Ms. Marife T. Salvador, CPA
BAC Chairman

Engr. Nelson M. Dela Cruz
General Manager

ITB NO. NE II-A1-2023-05

SECTION II. INSTRUCTION TO BIDDERS

TABLE OF CLAUSES

1. SOURCE OF FUNDS

1.1 The Nueva Ecija II Electric Cooperative, Inc.- Area 1 (NEECO II - Area 1) funded through 2023 Cash Operating Budget and Approved Annual Workplan the **SUPPLY, INSTALLATION AND COMMISSIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ** which is made available through Board Resolution No. 02-03-23, Series of 2023.

1.2 NEECO II - Area 1 requires that bidders and contractors observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy;

a. will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

b. will recognize a contractor as ineligible, for a period determined by the NEECO II Area 1, to be awarded a contract if it at any time determines that the contractor has engaged in corrupt or fraudulent practices in competing for, or in executing, another contract.

2. SCOPE OF BID

2.1 The Nueva Ecija II Electric Cooperative, Inc.- Area 1 (hereinafter referred to as **"the Purchaser"**) wishes to receive Bids for supply and delivery of the goods, materials and equipment hereof (hereinafter referred to as **"Goods"**).

2.2 All Bids are to be completed and returned to the Purchaser in accordance with these Instructions to Bidders.

3. ELIGIBLE BIDDERS

3.1 The Invitation for Bids is open to all suppliers from eligible bidders from eligible source countries meeting both of the following requirements:

a. a bidder (including all members of a joint venture) shall be from an eligible source of country; and

b. a bidder (including all members of a joint venture) shall not be one of the followings:

(i) a firm or an organization which has been engaged by the Purchaser to provide consulting services for the preparation related to procurement for or implementation of this project;

(ii) any associates/affiliates (inclusive of parent firms) of a firm or an organization mentioned in sub-paragraph (i) above;

(iii)a firm or an organization who lends, or temporarily seconds, its personnel to firms or organizations which are engaged in consulting services for the preparation related to procurement for or implementation of the project, if the personnel would be involved in any capacity on the same project.

4. ELIGIBLE GOODS

4.1 Any contract under which Goods are procured from countries other than the eligible source countries as required for the implementation of the project will be eligible if the combined costs of such Goods are less than fifty (50) percent of the price of the said contract.

4.2 At the Purchaser's request, bidders may be required to provide evidence documents of the origin of the goods.

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5. QUALIFICATION OF BIDDER

5.1 Qualification of the Bidder:

To be qualified for award of Contract, bidders shall:

a. submit a written power of attorney authorizing the signatory of the bid to commit the bidder; and

b. submit documentary evidence establishing that bidder has adequate experience, financial capacity, and technical capability to undertake the Contract.

5.2 Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements.

a. the bid, and in case of a successful bid, the form of Agreement, shall be signed so as to be legally binding on all partners;

b. one of the partners shall be authorized to be in charge; and this authorization shall evidence by submitting a power of attorney signed by legally authorized signatories of all the partners;

c. the partner in charge shall be authorized to incur liabilities, receive payments and receive instructions For and In Behalf of any or all partners of the joint venture;

d. all partners of the joint venture shall be jointly and severally liable for the execution of the contract in accordance with the contract terms, and a relevant statement to this effect shall be included in the authorization mentioned under (b) above as well as in the Bid Form and the Form of Agreement (in case of a successful bid); and

e. a copy of the agreement entered into by the joint venture partners shall be submitted with the bid.

6. ONE BID PER BIDDER

6.1 Each bidder shall submit only one bid either by itself, or as partner in a joint venture.

7. COST OF BIDDING

7.1 The bidder shall bear all costs associated with the preparation and delivery of its Bid, and the Purchaser will in no case be responsible or liable for those costs.

8. ASSURANCE

8.1 The successful bidder will be required to give satisfactory assurance of its ability and intention to deliver the Goods, pursuant to the Contract, within the time set forth therein.

9. CONTENTS OF BIDDING DOCUMENTS

9.1 The bidding documents are those stated below, and should be read in conjunction with any Addenda issued in accordance with Clause 11.

Invitation for Bid
Section I: Instructions to Bidders;
Section II: General Conditions of Contract;
Section III: Special Conditions of Contract;
Section IV: General Technical Conditions;
Section VI: Technical Specifications
Section VII: Sample Forms; and
a. Bid Form and Price Schedule
b. Bid Security Form

c. Contract Form
d. Performance Security Form

9.2 The bidder is expected to examine the Bidding Documents, including all instructions, forms, terms and specifications. Failure to furnish all information required by the Bidding documents or submission of a Bid not substantially responsive to the Bidding Documents, will result in the rejection of the Bid.

10. CLARIFICATION OF BIDDING DOCUMENTS

10.1 Prospective Bidders requiring any further information or clarification of the Bidding Documents may notify the Purchaser in writing or by fax at the Purchaser's mailing address indicated in the Invitation for Bids. The Purchaser will respond in writing to any request for information or clarification of the Bidding Documents, which it receives not later than three (3) days prior to the deadline for submission of Bids prescribed by the Purchaser. The purchaser's response will be sent in writing or by fax to all prospective bidders who have received the bidding documents.

11. AMENDMENT OF BIDDING DOCUMENTS

11.1 At any time prior to the deadline for submission of Bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by issuing an addendum.

11.2 The addendum shall be a part of the Bidding Documents, pursuant to Clause 9.1 and shall be communicated in writing or by fax to all prospective bidders who have received the Bidding Documents, and will be bidding on them.

11.3 In order to afford prospective Bidders reasonable time in which to take the addendum into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of Bids in accordance with Clause 24.

12. LANGUAGE OF BID

12.1 The Bid prepared by the bidder and all correspondence and documents relating to the Bid exchanged between the bidder and the Purchaser, shall be written in English Language.

13. DOCUMENTS COMPRISING THE BIDS

13.1 The Bid prepared by the bidder shall comprise the following components:

a. The bidder shall complete an original and 3 copies of the Bid Form and the appropriate Price Schedules furnished in the Bidding Documents, in accordance with Clauses 14 and 15;

b. documentary evidence establishing, in accordance with Clause 16, that the bidder is eligible to bid and that the Goods to be supplied by the bidder are eligible Goods;

c. documentary evidence establishing in accordance with Clause 17, that the bidder is qualified to perform the Contract if its Bids is accepted;

d. documentary evidence establishing, in accordance with Clause 18, that the Goods to be supplied by the bidder conform to the Bidding Documents;

e. bid security furnished in accordance with Clause 19; and

f. power of attorney.

14. BID PRICES

14.1 The bidder shall complete the appropriate Price Schedules included herein, stating the unit prices, total price per item, the total amount and the expected countries of origin of Goods to be supplied under the Contract.

14.2 (Alternative 1:) All Goods are grouped in Bid Packages. See list of Bid packages in Section VI, Specifications. Bid Packages shall not be divided into sub-packages for the purpose of bidding. Bidders are required to bid for the whole package only, otherwise the bid proposal will be considered non-responsive.

-OR-

(Alternative 2 :) The Goods are grouped in a single bid package and the bid package shall not be divided into sub-packages for the purpose of bidding. Bidders are required to bid for the whole package only, otherwise the bid proposal will be considered non-responsive.

14.3 Prices quoted in the Price Schedules should be entered separately in the following manner.

a. For Goods to be offered from within the Purchaser's country:

(i) the price of the Goods, quoted ex-factory, ex-warehouse or of-the shelf, as applicable, including all customs duties and sales and other taxes already paid or payable.

(ii) the price of inland transportation, insurance and other local incidental to delivery of the Goods to their final destination.

b. For Goods to be offered from outside the Purchaser's country:

(i) the price of the Goods, quoted CIF port of entry in the Purchaser's country;

(ii) the price of inland transportation, insurance and other local costs incidental to delivery of the Goods from the port of entry to their final destination;

(iii)the CIF price or, when the freight and insurance are itemized separately, the FOB price shall be indicated separately, the FOB price shall be indicated separately from any applicable import duties and taxes.

(iv)if the Goods, or portion of the Goods, are exempt from taxes of duties, this should be indicated below by the Purchaser.

14.4 Prices quoted by the bidder shall remain fixed and valid until completion of the Contract performance and will not be subject to variation on any account except as provided for in Clause 3.2 and 15.1 of the General Conditions of Contract, or if applicable, adjustment authorized in accordance with the price adjustment provisions specified in Clause 11 of the Special Conditions of Contract.

15. CURRENCIES OF BID AND PAYMENT

15.1 The unit rates and the prices shall be quoted by the bidder separately in;

a. US Dollar for those inputs to the Works which the bidder expects to supply from outside the Purchaser's country (referred to as "the foreign currency requirements"); and

b. Philippine Peso for those inputs to the Works which the bidder expects to supply from within the Philippines.

15.2 Payment of the contract price shall be made in the currency or currencies in which the bid price is expressed in the bid of the successful bidder.

15.3 The rates of exchange to be used by the bidder for currency conversion during bid preparation shall be the selling rates for similar transactions prevailing on the twenty eight (28) days prior to the date of bid opening, as published by Bangko Sentral ng Pilipinas.

15.4 All progress payment shall be subject to ten percent (10%) deduction for retention money.

16. DOCUMENTS ESTABLISHING ELIGIBILITY OF THE BIDDER AND THE GOODS

16.1 The bidder shall furnish, as part of its Bid, certification establishing both the bidder's eligibility to bid and that the origin of the Goods is an eligible source country, pursuant to Clause 3 and 4.

17. DOCUMENTS ESTABLISHING BIDDER'S QUALIFICATIONS TO PERFORM THE CONTRACT

17.1 The documentary evidence of the bidder's qualifications to perform the Contract, if its Bid is accepted, shall establish to the Purchaser's satisfaction prior to award of Contract:

(a) that, in the case of a bidder offering to supply Goods under the Contract which the bidder did not manufacture or otherwise produce, the bidder has been duly authorized by the Goods' manufacturer or producer to supply the Goods to or in the Purchaser's country;

(b) that the bidder has the financial, technical and production capability necessary to perform the Contract;

(c) that, in the case of a bidder not doing business within the Purchaser's country, the bidder is, or will be (if the Contract is awarded to it), represented by an agent in that country equipped and able to carry out the maintenance, repair and spare parts stocking obligations prescribed by the Contract.

18. DOCUMENTS ESTABLISHING THE GOODS' CONFORMITY TO THE BIDDING DOCUMENTS

18.1 The documentary evidence of the Good's conformity to the Bidding Documents maybe in the form of literature drawing and data, and shall furnish:

a. a detailed description of the Goods' essential technical and performance characteristics;

b. a list, giving full particulars, including available sources and current prices, of all spare parts, special tools, etc., necessary for the proper and continuing functioning of the Goods for a period of two (2) years; and

c. a clause-by-clause commentary on the specifications, demonstrating the Goods' responsiveness to those Specifications or a statement of deviations and exceptions of the provisions of the Specifications.

18.2 For purpose of the commentary to be furnished pursuant to sub-clause (c) above, the bidder shall note that standards for workmanship, material, and equipment, and references to brand names or catalogue numbers, designated by the Purchaser in the Specifications, are intended to be descriptive only and not restrictive. Equipment or materials meeting the internationally accepted standards which ensure quality to or higher than the standards specified will also be accepted. The bidder may substitute other acceptable standards, brand names and/or catalogue numbers in its Bid, provided that it demonstrates to the Purchaser's satisfaction that the substitution are equivalent or superior to those designated in the Specifications.

Brand names shall be specified only when specific spare parts are required or standardization is necessary.

18.2 Specifications for the procurement of goods shall be based on relevant characteristics and/or performance requirements. All equipment to be supplied shall be NEWLY MANUFACTURED,

i.e. to be manufactured this year 2023.

In order to prove that the Goods offered are of acceptable quality and standards, the bidders shall furnish the documentary evidence that the Goods offered have been in production for at least years and that a minimum of _____ units of similar capacity have been sold and have been in operation satisfactory to the end users for at least ____ years.

19. BID SECURITY

19.1 The bidder shall furnish, as part of its bid, a bid security equivalent to Two percent (2%) of the ABC or an equivalent amount in freely convertible currency.

19.2 The bid security shall be in form of a Manager's Check or cash.

19.3 **Any bid not accompanied by an acceptable bid security shall be rejected by the Purchaser as non-responsive.**

19.4 The bid securities of unsuccessful bidders will be returned as promptly as possible, after posting of Performance Security by the winning bidder.

19.5 The bid security of the successful bidder will be returned when the bidder has signed the Agreement and furnished the required performance security.

19.6 The bid security maybe forfeited;

a. if the bidder withdraws its bid during the period of bid validity; or

b. if the bidder does not accept the correction of its bid price,

c. in the case of a successful bidder, if it fails within the specified time limit to:

(i) sign the Agreement, or

(ii) furnish the required performance security.

20. PERIOD OF VALIDITY OF BIDS

20.1 Bids shall remain valid for ninety (90) days after the date of bid closing prescribed by the Purchaser, pursuant to Clause 24.

20.2 Notwithstanding Clause 20.1 above, the Purchaser may solicit bidder's consent to an extension of the period of bid validity. The request and the responses thereto shall be made in writing or by fax. If the bidders agree to the extension request, the validity of the bid security provided under Clause 19 shall also be suitably extended. A bidder may refuse the request without forfeiting its bid security. A bidder granting the request will not be required or permitted to modify its Bid.

21. ALTERNATIVE BIDS

21.1 Bidders shall submit Bids, which comply with the Bidding Documents. Alternative Bids will not be considered. The attention of bidders is drawn to the provisions of Clause 30.4 regarding the rejection of Bids, which are not substantially responsive to the requirement of the Bidding Documents.

22. FORMAT AND SIGNING OF BIDS

22.1 The original Bid Form and accompanying documents (as specified in Clause 13), clearly marked "Original Bid", plus three (3) copies must be received by the Purchaser at the date, time, and place specified pursuant to Clause 23 and 24. In the event of any discrepancy between the original and the copies, the original shall govern.

22.2 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the bidder or a person or persons duly authorized to sign on behalf of the bidder. Written power-of-attorney accompanying the Bid shall indicate such authorization. All pages of the Bid, except for un-amended printed literature, shall be initialled by the person or persons signing the Bid. The name and position held by each person signing must be typed or printed below the signature.

22.3 The Bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the bidder, in which case such corrections shall be initialled by the person or persons signing the Bid.

23. SEALING AND MARKING OF BIDS

23.1 The bidder shall seal the original and each copy of the Bid in an inner and an outer envelope duly marking the envelopes as "original" and "copy".

23.2 The inner and outer envelopes shall:

a. be addressed to the Purchaser at the following address

Ms. Marife T. Salvador, CPA, MBA
BAC Chairman
Nueva Ecija II Electric Cooperative, Inc.- Area 1
Calipahan, Talavera, Nueva Ecija; and

b. bear the words "**INVITATION TO BID No. NE-II-A1-2023-05 LOT. 1 SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ** or **INVITATION TO BID No. NE-II-A1-2023-05 LOT. 2. Civil Works** and the words "**DO NOT OPEN BEFORE 2:00 PM of September 6, 2023**".

23.3 In addition to the information required in sub-clauses (a) and (b) above, the inner envelope shall indicate the name and address of the bidder to enable the Bid to be returned unopened in case it is declared "Late" pursuant to Clause 26.

24. DEADLINE FOR SUBMISSIONS OF BIDS

24.1 The original Bid, together with the required copies, must be received by the Purchaser at the address specified in Clause 23.2 not later than **2:00 PM of September 6, 2023.**

24.2 The purchaser may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Documents in accordance with Clause 11, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

25. LATE BIDS

25.1 Any Bid received by the Purchaser after the deadline for submission of Bids prescribed by the Purchaser, pursuant to Clause 24 will be declared "Late" and rejected and returned unopened to the bidder.

26. MODIFICATION AND WITHDRAWAL OF BIDS

26.1 The bidder may modify or withdraw its Bid after the Bid's submission; provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of Bids.

26.2 The bidder's modification or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with provisions of Clause 23, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax but must be followed by a signed confirmation copy.

26.3 No Bid may be modified subsequent to the deadline for submission of Bids.

26.4 No Bid may be withdrawn in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified by the bidder on the Bid Form.

27. OPENING OF BIDS BY PURCHASER

27.1 The Purchaser will open the Bids, the technical proposal first, in the presence of bidders' representatives who choose to attend at **NEECO II-Area 1 Teofilo Hall on September 6, 2023.** The bidders' representatives who are present shall sign a register evidencing their attendance. The technical proposal will then be evaluated as per Clause 30.

27.2 Bidders found eligible technically will be informed subsequently and asked to be present during the opening of their financial proposals.

27.3 The bidders' names, bid prices, all discounts offered, modifications and bid withdrawals, and the presence or absence of the requisite bid security, and such other details as the Purchaser, at its discretion, may consider appropriate will be announced and recorded at the opening. Any bid price or discount, which is not read out and recorded at bid opening, will not be taken into account in bid evaluation. The bidder's representatives will be required to sign the record.

27.4 Withdrawal of a bid during the interval between the deadline for submission of bids and the expiration of the period of bid validity specified in the Form of Bid may result in the forfeiture of the bid security pursuant to Clause 17.

28. PROCESS TO BE CONFIDENTIAL

28.1 Information relating to the examination, clarification, evaluation and comparison of Bids and recommendations for award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process. Any efforts by a bidder to influence the Purchaser's processing of Bids or award decisions may result in the rejection of the bidder's Bid. The request for clarification and the response shall be in writing or by fax, but no change in the price or substance of the bid shall be sought, offered or permitted except as required to confirm the correction of arithmetic errors discovered by the Purchaser in the evaluation of the bids in accordance with sub-clauses 30.2/30.3.

29. CLARIFICATIONS OF BIDS

29.1 To assist in the examination, evaluation, and comparison of Bids, the Purchaser may, at its discretion, ask the bidder for a clarification of its Bid. All responses to request for clarification shall be in writing, and no change in the price or substance of the Bid shall be sought, offered or permitted.

30. PRELIMINARY EXAMINATION OF BIDS

Technical Evaluation:

30.1 The Purchaser will examine the bids to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

30.2 Prior to the detailed evaluation, pursuant to Clause 32, the Purchaser will determine the substantial responsiveness of each Bid to the Bidding Documents including acceptable quality of the Goods offered, pursuant to Clause 18.2. A substantially responsive Bid is one which conforms to all the terms and conditions of the Bidding Documents without material deviation.

30.3 A Bid determined as not substantially responsive will be rejected by the purchaser and may not subsequently be made responsive by the bidder by correction of the non-conformity.

Financial Evaluation:

30.4 Check the bidder's compliance to the financial documents required by the Purchaser.

30.5 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and total price per item that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price per item will be corrected. If there is a discrepancy between the Total Amount and the sum of the total price per item, the sum of the total price per item shall prevail and the Total Amount will be corrected.

30.3 The amount stated in the Form of Bid will be adjusted by the Purchaser in accordance with the above procedure for the correction of errors and, shall be considered as binding upon the bidder. If the bidder does not accept the corrected amount of bid, its bid will be rejected, and the bid security may be forfeited in accordance with Sub-Clause 19.6

31. CONVERSION TO SINGLE CURRENCY

31.1 The purchaser will convert the amounts in various currencies in which the Bid Price is payable to Philippine Peso at the selling exchange rates officially prescribed for similar transactions as established by Bangko Sentral ng Pilipinas on the date of bid opening.

32. EVALUATION AND COMPARISON OF BIDS

32.1 The Purchaser will evaluate and compare the bids previously determined to be substantially responsive, pursuant to Clause 30.

32.2 The Purchaser's evaluation of a Bid will exclude and not take into account:

(a) in the case of goods partially or wholly manufactured within the Purchaser's country or Goods of foreign origin already located in the Purchaser's country, sales and other similar taxes which may be levied on the finished Goods if the Contract is awarded to the bidder;

(b) in the case of goods to be offered from outside the Purchaser's country, customs duties and other similar import duties and taxes which be levied on the Goods if the Contract is awarded to the bidder; and

(c) any allowance for price adjustment during the period of execution of the contract, if provided in the bid.

32.3 The comparison shall be of:

(a) the ex-factory/ex-warehouse/off-the-shell price of the Goods to be offered from within the Purchaser's country (such price to include all costs as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the Goods): and

(b) the CIF port-of-entry price of the Goods to be offered from outside the Purchaser's country.

32.4 The evaluation of bids shall take into account the price and other commercial features of the offer. In addition, it may also take into account other criteria, such as those in the sample listed below.

* Contractual and Commercial Deviations
* Delivery Schedule
* Operating Costs
* Functional Guarantee of the Goods
* Local Handling and Transportation

33. CONTACTING THE PURCHASER

33.1 Subject to Clause 29, no bidder shall contact the Purchaser on any matter relating to its Bid, from the time of bid opening to the time the contract is awarded.

33.2 Any effort by a bidder to influence the Purchaser in the purchaser's decision in respect of bid

evaluation, bid comparison or Contract award will result in the rejection of the Bidder's Bid.

34. PURCHASER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

34.1 **The Purchaser reserves the right to accept or reject any Bid and to annul the bidding process and reject all Bids at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidders of the grounds for the Purchaser's action.**

35. POST QUALIFICATION AND AWARD

35.1 The Purchaser will determine to its satisfaction whether the Bidder selected as having submitted the lowest-evaluated, responsive bid is qualified to satisfactorily perform the Contract.

35.2 The determination will take into account the bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the bidder's qualification submitted by the bidder, pursuant to Clause 17, as well as such other information as the Purchaser deems necessary and appropriate.

35.3 An affirmative determination will be pre-requisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid.

35.4 The Purchaser will award the Contract to the successful bidder whose Bid has been determined to the lowest evaluated, responsive Bid, provided further that the bidder is determined to be qualified to satisfactorily perform the Contract.

36. NOTIFICATION OF AWARD

36.1 The Purchaser will notify the successful bidder in writing by email to be confirmed in writing by the winning bidder that its Bid has been accepted and on which basis the Bid has been accepted.

36.2 The notification of award will constitute the formation of a contract.

37. SIGNING OF AWARD

37.1 At the time of confirmation of award, the Purchaser will send the successful bidder the Contract Form, incorporating all agreements between the parties.

37.2 Within five (5) days of receipt of such Contract the successful bidder shall sign and date the Contract and return it to the Purchaser.

38. PERFORMANCE SECURITY

38.1 Within ten (10) days of the notification of award from the Purchaser, the successful bidder shall furnish the performance security.

38.2 Failure of successful bidder to comply with the requirements of Clause 37 or 38 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security.

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ANNEX A: BID EVALUATION PROCEDURE

Step 1 - Submittal of Bid

If a submittal is late, it should not be opened, but should be returned to the Bidder unopened.

Step 2 – Technical Bid Evaluation

During the Bid opening, preliminary examination shall begin by determining that the general conditions of the Bidding Documents have been met in the bid. The following items should be checked to determine whether the Bid is responsive.

- Bid does not show evidence of tampering.
- Bid is from a purchaser of the Bidding Documents.
- Bid Addendum received.
- Bid appears to be complete.
- Bid on all items per schedule.
- Bid contains Deviation Form duly filled in
- Bidder meets the required experience and number of sales
- Bidder is a registered company

a. The Bidder and the manufacturer are both from eligible source countries as defined in list of eligible source countries.

b. The Bid contains a manufacturer's name and catalogue number for each item in the completed bid schedule.

c. The Bid contains authorization from the manufacturer to supply the goods to the Bidder for this procurement.

d. The Bid contains a listing, for each item bid, showing the manufacturer's years of manufacture and the international sales for the required number of years. This is to include dollar volume, purchaser, and names and telephone numbers for purchaser contact person(s).

e. The Bid contains the Technical Data Sheets with the Bidder's guaranteed data duly stamped and signed by the Bidder.

f. The Bid contains supplementary technical information to determine if each item offered meets the Technical Specifications of the Bidding Documents.

In the absence of substantial compliance with all of the above items, the bids are incomplete, shall be declared non-responsive and has to be rejected.

Step 3 – Opening of the Financial Offer

During the opening of the financial proposal, the following information is to be read and recorded:

- Name of Bidder;
- Any discount offered;
- Name of Surety Company or Bank which issued the Bid Security;
- Bid security is present in the correct amount and acceptable form
- Validity of the Bid Security
- Validity of the Bid
- Bid security receipt is issued by the Surety Company
- Net financial contracting capacity is computed
- ITR of the bidder for the past three (3) years duly marked received by the BIR is submitted
- Financial Statements of the bidder for the past three (3) years is submitted

a. The Bid contains price schedule(s) that have the unit price shown for each item in the completed bid schedule. The price schedule is to be checked for arithmetic errors in the extensions and the additions.

b. Determine that the Bidder has filled out correctly the price schedule for what he is bidding.

c. The price schedule be checked to determine that the correct quantities are shown.

d. Calculate the amounts for the applicable penalties as provided in the Technical Specifications and add amounts to the Bid prices for evaluation purposes only.

e. After the special factor, additions and conversion of schedule total to Philippine Peso, determine which remaining bid, has the lowest price for this bid schedule.

f. Compare the price of the low bid, for this bid schedule.

Step 4 - Evaluation and Comparison of Bids

All bids for this schedule are then financially evaluated to determine whether the company has the financial capability to perform the contract. Bidders who are found to be financially not sound shall be rejected.

If any item in the low bid has only minor technical deviations from the specifications, this shall be clarified with the bidder.

If any item in the low bid does not meet the technical specifications, that bid is rejected. The evaluation process then continues to the next low bid for that schedule.

This procedure to continue until the low bid, meeting the technical specifications of this Bidding Documents for this schedule, is determined.

Step 5 - Ability to Perform and Recommend for Award

After the low bid meeting the technical specifications is determined, check on enough of his previous sales of similar materials to determine whether the Bidder has demonstrated that he is qualified to perform the Contract. If the low Bidder is found to have provided unsatisfactory materials of similar nature on other contracts, his bid is to be rejected. The evaluation process then continues to the next low bid for that schedule.

This procedure shall continue until the low Bidder qualified to perform the contract for this schedule is determined. The recommendations for the Award of Contract for this schedule to this lowest responsible and responsive Bidder is automatic.

Note:

"Lowest Calculated and Responsive Bid" is hereby defined as the Bid on a complete bid schedule that has the lowest total price after considering all factors and/or reference up to that point in the evaluation procedure.

SECTION III. GENERAL CONDITIONS OF CONTRACT

TABLE OF CLAUSES

I. DEFINITIONS

1.1 In this contract the following terms shall be interpreted as indicated:

(a) "The Contract" means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

(b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;

(c) "The Goods" means all of the equipment, machinery and/or other materials which the Supplier is required to supply to the Purchaser under the Contract;

(d) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the Supplier covered under the Contract;

(e) "The Purchaser" means the Nueva Ecija II Electric Cooperative, Inc.-Area 1

(f) "The Supplier" means the individual or firm supplying the Goods under this Contract;

2. APPLICATION

These General Conditions shall apply as part of the Contract which shall include the following documents and the priority of these documents shall be as follows:

a) Contract Agreement
b) Notification of Award
c) Special Conditions of Contract
d) General Conditions of the Contract
e) Bidding Documents
f) Forms and Schedules
g) Supplier's Bid

3. COUNTRY OF ORIGIN

3.1 All Goods and Services supplied under the Contract shall have their origin from the eligible source countries, as defined in Section II, Clause 3.

3.2 For purposes of this Clause 3, "origin" means the place where the Goods were mined, grown or produced, or from which the services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembling of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

3.3 The origin of Goods and Services is distinct from the nationality of the Supplier.

4. STANDARDS

4.1 The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to

the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

5. USE OF CONTRACT DOCUMENTS AND INFORMATION

5.1 The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.

5.2 The Supplier shall not, without the Purchaser's prior written consent make use of any document or information enumerated in para. 5.1 except for purposes of performing the Contract.

5.3 Any document, other than the Contract itself, enumerated in para. 5.1 shall remain the property of Purchaser and shall be returned (in all copies) to the Purchaser on completion of the Supplier's performance under the Contract if so, required by the Purchaser.

6. PATENT RIGHTS

6.1 The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in the Philippines.

7. PERFORMANCE SECURITY

7.1 Within 10 days after the Supplier's receipt of notification of award of the Contract, the Supplier shall furnish performance security to the Purchaser in the amount specified in the Special Conditions of Contract.

7.2 The proceeds of the Performance Security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract. The performance security shall be to the account of the Supplier who signed the Contract. The performance security shall also guarantee the enforcement of the warranty provision in Clause 15 of this section.

7.3 The Performance Security, which should be callable on demand shall be denominated in the currency of the Contract and shall be in one of the following forms:

(a) A bank guarantee or irrevocable Letter of Credit, issued by a bank in the Philippines or a bank abroad which has a jointly and severally liable correspondent bank in the Philippines, acceptable to the Purchaser, and in the form provided in the Bidding Documents or another form acceptable to the Purchaser. The Purchaser may request that said bank guarantee or irrevocable Letter of Credit be confirmed by a reputable bank acceptable to the EC.

Or

(b) A cashier's check, certified check, manager's check or cash.

7.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations, including any warranty obligation, under the Contract.

8. INSPECTIONS AND TESTS

8.1 The Purchaser or its designated third party inspector shall, at all reasonable times, be allowed free and ready access to the Supplier's premises and those of his sub-contractors for the purpose of inspecting the specified goods and obtaining information as to the progress of the work.

8.2 The Purchaser or its designated third party inspector shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract. The Special Conditions of Contract and/or the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing of the identity of any representatives retained for these purposes.

8.3 The inspections and tests may be conducted on the premises of the Supplier or its sub-contractor(s), at point of delivery and/or at the good's final destination. Where conducted on the premises of the Supplier or its sub-contractor(s), all reasonable facilities and assistance-including access, drawings and production data-shall be furnished two weeks before such tests take place to the inspectors at no charge to the Purchaser.

8.4 Should any inspected or tested Goods fail to conform to the Specification, the Purchaser may reject them, and the lot they represent, and the Supplier shall replace the rejected Goods within the life of the Contract or not later than ninety (90) days from receipt of notice of rejection, whichever comes first, or all alterations necessary to meet specification requirements free of cost to the Purchaser.

8.5 The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival in the Philippines shall in no way be limited or waived by reason of the Goods having previously been inspected, tested and passed by the Purchaser or its representative prior to the Goods shipment from the country of origin.

8.6 Test Certificates for all Goods shall be prepared by the Supplier, signed by both the Supplier and the Purchaser or third party inspectors. Also in case of no attendance of the tests by the Purchaser or third party inspector, test certificates signed by the Supplier are to be submitted to the Purchaser.

8.7 Nothing in Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

9. PACKING AND MARKING

9.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Special Conditions of Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit 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.

9.2 The packing, marking and documentation within and outside the package shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to Clause 18, in any subsequent instructions ordered by the Purchaser.

9.3 Proposal for packing and marking should be approved by the Purchaser.

10. DELIVERY AND DOCUMENTS

10.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified by the

Purchaser in its Schedule of Requirements and Special Conditions of Contract.

10.2 For purposes of the Contract, "FOB", "CIF" and other trade terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of the International Rules for the Interpretation of the Trade Terms published by the International Chamber of Commerce, Paris, and commonly referred to as INCOTERMS.

11. INSURANCE

11.1 The Goods supplied under the Contract shall be fully insured in the currency of the contract against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the Special Conditions of Contract.

12. TRANSPORTATION

12.1 Where the Supplier is required to effect delivery under any other terms, for example, by post or another address in the source country, the Supplier shall be required to meet all transport and storage expenses until delivery.

12.2 In all of the above cases, transportation of the Goods after delivery at the designated point of delivery shall be the responsibility of the Purchaser.

12.3 Ocean transportation shall be by vessels registered in eligible source countries, as defined in Clause 3 of the Instructions to Bidders, or belonging to shipping conferences in which shipping lines from such member countries hold the major share.

13. INCIDENTAL SERVICES

13.1 As specified in the Special Conditions of Contract, the Supplier may be required to provide any or all of the following services:

(a) Performance or supervision of on-sight assembly and/or start-up of the supplied Goods;

(b) Furnishing of tools required for assembly and/or maintenance of the supplied Goods;

(c) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;

(d) Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and

(e) Conduct of training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance and/or repair of the supplied Goods.

13.2 Prices charged by the Supplier for the preceding incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged by the Supplier to other parties for similar services.

14. SPARE PARTS

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14.1 As specified in the Special Conditions of Contract, the Supplier may be required to provide any or all of the following materials and notifications pertaining to spare parts manufactured or distributed by the Supplier:

(a) Such spare parts as the Purchaser may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under the Contract; and

(b) In the event of termination of production of the spare parts:

(i) advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and

(ii) following such termination, furnishing at no cost to the Purchaser, the blue prints, drawings, and specifications of the spare parts, if and when requested.

15. WARRANTY

15.1 The Supplier warrants that the Goods supplied under the Contract are new, unused, of the most recent or current models and incorporate all recent improvements in design and materials unless provided otherwise, in the Contract. The Supplier further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination.

15.2 This warranty shall remain valid for 12 months after the Goods or any portion thereof as the case maybe, have been delivered to the final destination and commissioned indicated in the Contract or for 18 months after the date of shipment to the port of entry in the Philippines, whichever period concludes earlier, unless specified otherwise in the Special Conditions of Contract or in the Technical Specifications.

15.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the Supplier shall repair or replace within 30 days of such notification the defective Goods or part thereof, without costs to the Purchaser other than, where applicable, the cost of inland delivery of the repaired or replace Goods or parts from the port of entry to the final destination.

15.5 If the Supplier, having been notified, fails to remedy the defect(s) within 30 days of such notification, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

16. PAYMENT

16.1 The method and conditions of payment to be made to the Supplier under the Contract shall be specified in the Special Conditions of Contract.

16.2 The currency in which payment is made to the Supplier under this Contract shall be specified in the Special Conditions of Contract.

16.3 No payment shall be due while the Supplier is in default in respect to any of the provisions of the contract. On the event that the Supplier is in default, the Purchaser reserve the right to instruct purchaser designated bank to withhold any or all payments.

17. PRICES

17.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not, with the exception of any price adjustments authorized by the Special Conditions of Contract, vary from the prices quoted by the Supplier in its bid.

18. CHANGE ORDERS

18.1 The Purchaser may at any time, by a written order given to the Supplier pursuant to Clause 31, General Conditions of Contract, make changes within the general scope of the Contract in any one or more of the following:

(a) drawings, designs or specifications where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;

(b) the method of shipment or packing;

(c) place of delivery; or

(d) the Services to be provided by the Supplier.

18.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any part of the work under the Contract whether changed or not changed by the order, an equitable adjustment shall be made to the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

19. CONTRACT AMENDMENTS

19.1 Subject to Clause 18, no variation or modification of the terms of the Contract shall be made except by written amendments signed by the parties.

20. ASSIGNMENT

20.1 The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

21. SUBCONTRACTS

21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under the Contract if not already specified in his bid. Such notification, in his original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.

21.2 Subcontracts must comply with the provisions of Clause 3.

22. DELAYS IN THE SUPPLIER'S PERFORMANCE

22.1 Delivery of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser in its Schedule of Requirements.

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22.2 A delay by the Supplier in the performance of its delivery obligations, for which either no amendment to the contract or no extension of the performance security was made, shall render the Supplier liable to any or all of the following sanctions:

22.2.1 forfeiture of its performance security,

22.2.2 imposition of liquidated damages,

22.2.3 and/or termination of the Contract for default.

22.3 If at any time during performance of the Contract, the Supplier or its sub-contractor(s) should encounter conditions impending timely delivery of the Goods and performance of the Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after the receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension shall be ratified by the parties by amendment of the Contract.

23. LIQUIDATED DAMAGES

23.1 Subject to Clause 25, if the Supplier fails to secure acceptance from the purchaser for the delivery of any or all of the Goods or performance of the Services within the delivery period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to one tenth of one percent (0.1 %) of the delivered price of the Goods or Services that were delivered early or delayed, for each day outside of the Contract schedule for deliveries, up to a maximum deduction of Ten (10%) percent of the Contract Price of the Goods or Services involved. Once the maximum is reached, the Purchaser may consider termination of the Contract.

24. TERMINATION FOR DEFAULT

24.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or in part:

(a) If the Supplier fails to deliver any or all of the Goods within the time period(s) specified in the Contract, or any extension thereof granted by the Purchaser pursuant to Clause 22; or

(b) If the Supplier fails to perform any other obligation(s) under the Contract.

24.2 In the event the Purchaser terminate the Contract in whole or in part, pursuant to para. 24.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods similar to those undelivered, and the Supplier shall be liable to the Purchaser for any additional cost of Goods for such similar Goods. However, the Supplier shall continue performance of the Contract to the extent not terminated.

25. FORCE MAJEURE

25.1 Notwithstanding the provisions of Clause 22, 23, 24, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

25.2 For purposes of this clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but not restricted

to wars or revolution, fires, floods, epidemics, quarantine restrictions and freight embargoes.

25.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier 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.

26. TERMINATION FOR INSOLVENCY

26.1 The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, without compensation to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent. Notwithstanding the above, such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

27. TERMINATION FOR CONVENIENCE

27.1 The Purchaser may, by written notice sent to the Supplier, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

27.2 The Goods that are complete and ready for shipment within thirty (30) days after the Supplier's receipt of notice of termination shall be purchased by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:

(a) to have any portion completed and delivered at the Contract terms and prices; and/or

(b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and for materials and parts previously procured by the Supplier for the use in this contract.

28. RESOLUTION OF DISPUTES

28.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

28.2 If, after thirty (30) days from the commencement of such informal negotiations, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanism specified in the Special Conditions of Contract. This mechanism may include, but is not restricted to, conciliation mediated by a third party, adjudication in an agreed national or international forum, and/or international arbitration. The mechanism shall be specified in the Special Conditions of Contract.

29. GOVERNING LANGUAGE

29.1 The Contract shall be written in the language of the bid, as specified by the Purchaser in the Instruction to Bidders. Subject to Clause 30, the language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in that same language.

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30. APPLICABLE LAW

30.1 The Contract shall be interpreted in accordance with the laws of the Philippines.

31. NOTICES

31.1 Any notice given by one party to the other pursuant to the Contract shall be sent in writing or by telegram, fax or telex/cable and confirmed in writing to the address specified for that purpose in the Special Conditions of Contract.

31.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

32. TAXES AND DUTIES

32.1 A Supplier providing imported goods shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Philippines.

32.2 A Supplier providing domestic goods shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the Contract Goods to the Purchaser. Value Added Tax (VAT) or similar local taxes on finished products shall be identified and shall be reimbursed to the Supplier by the Purchaser upon presentation of documentary evidence that taxes have been paid (Clause 11.2.3, Section IV - Special Conditions of Contract.

Calipahan, Talavera, Nueva Ecija
neeco2_area1@yahoo.com.ph
(044) 411-1007 loc. 117

SECTION IV. SPECIAL CONDITIONS OF CONTRACT

TABLE OF CLAUSES

ITB NO. NE II-A1-2023-05

1. GENERAL

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Condition of Contract. The corresponding clause number of the General Condition is indicated in parenthesis.

2. DEFINITION

2.1 The Purchaser is Nueva Ecija II Electric Cooperative, Inc. - Area I

2.2 The Supplier is (Name of Supplier)

2.3 EC or Coop is Electric Cooperative

3. COUNTRY OF ORIGIN

The countries of origin are defined in Section II, Clause 3.1, whereas the term "origin" is defined in Section III, Clause 3.

4. PERFORMANCE SECURITY

The Performance Security shall be in the amount of ten (10%) percent of the Contract Price and

4.1 shall be valid initially for a period covering the delivery and construction work schedule plus 90 calendar days; and

4.2 shall be extended with each delivery to cover also the warranty period of the delivered goods plus 30 calendar days.

5. INSPECTION AND TEST

The inspection and test procedures, required by the Purchaser, are described in Section V - General Technical Conditions as well as in Section VII - Technical Specifications.

When the Technical Specifications do not specify otherwise and 100 % testing is not required, the American Standard ANSI/ASQC Z1.4-1993 (Sampling Procedures and Tables for Inspection by Attributes) will be used as the guidelines for inspecting and/or testing of the goods and the Acceptable Quality Level to be 0.40.

Cost for a minimum of two (2) Purchaser's representative(s), such as travel cost, accommodation and living expenses shall be borne by the Supplier.

6. PACKING AND MARKING

6.1 Refer to Section V, Clause 8 and 9, for marking requirement

7. DELIVERY AND DOCUMENTS

7.1 Delivery Schedule:

For goods supplied within the Philippines counting will be from the date the Supply Contract is signed.

Delivery is considered complete when:

a) the specified quantity of goods is received at the Coops Headquarters or as specified by the Purchaser within the area coverage in accordance with all the requirements in the contract, or

b) the goods, to be delivered, at Manila warehouse/factory, have been loaded on the Supplier's truck, or

c) the goods, to be delivered to the Coop headquarters or as specified by the Purchaser within the area coverage, have been received by the Coop and a Receiving Report has been provided by the Coop.

7.2 Documents for Imported Goods Shipped to EC HQ.

Upon shipment, the Supplier shall notify the Purchaser and the Insurance Company by cable, fax or telex the full details of the shipment including Contract number, description of Goods, quantity, vessel, the bill of lading number and date, port of loading, date of shipment, port of discharge, estimated time of arrival, port of entry, etc. The Supplier shall send by courier the following documents to the Purchaser with a copy to the Insurance Company:

7.2.1 Original & six (6) copies of the Supplier's invoice showing Goods description, quantity, unit price, total amount. The cost of insurance and freight included in the total amount shall be itemized separately. The cost of inland freight, brokerage, handling and other incidental expenses within the Philippines, included in the total amount shall likewise be itemized separately.

7.2.2 Original and four (4) copies of the negotiable, clean on-board bill of lading of the final carrier/vessel to Philippines marked freight prepaid and two (2) copies of non-negotiable bill of lading;

7.2.3 Original & six (6) copies of packing list identifying contents of each package by serial number;

7.2.4 Original & three (3) copies of Insurance Certificate;

7.2.5 Original & three (3) copies of Manufacturer's/Supplier's guarantee certificate;

7.2.6 Original & three (3) copies of:

7.2.6.1 Inspection certificate issued by the EC or any authorized inspection agency or a certificate of waiver signed by the EC;

7.2.6.2 the Manufacturer's factory inspection report, and

7.2.6.3 Societe de Surveillance (SGS) pre-shipment Clean Report of Findings or number and date of issue.

7.2.7 Original & three (3) copies of Certificate of Origin endorsed by the Chamber of Commerce.

7.2.8 Original & three (3) copies of evidence showing that the Supplier has forwarded the shipping documents listed above to the Purchaser via an international document handling service similar to Federal Express or DHL. These documents shall reach the Purchaser not later than ten (10) calendar days after shipment as evidenced by the date of the Bill of Lading, except those shipping documents covering shipment of materials from Japan, Korea, Taiwan, Thailand and other eligible Asian source countries and air shipments, which shall reach the Purchaser not later than three (3) calendar days after shipment. Any expenditure incurred by the Purchaser (such as demurrage charges, storage fee, document reproduction costs and other similar charges/expenditure) as result of late receipt of required shipping documents, or incorrect shipping documents, shall be for the account of the Supplier. Filing fee being charged by the BOI, DOF and other government agencies for the tax and duty free importation of the goods shall be borne by the Supplier.

7.2.9 Original & three (3) copies of the extension for the Performance Security as per Clause 4.2.

7.3 Documents for Domestic Goods delivered to EC HQ.

The Supplier shall send the following documents to the EC with a copy to each the Purchaser and the insurance company:

7.3.1 Original & three (3) copies of the Supplier's invoice showing Goods description, quantity, unit price, total amount. The cost of freight from Supplier's Warehouse to designated destination shall be itemized separately.

7.3.2 Original & three (3) copies of packing list identifying contents of each package by serial number, Consignee & recipient Coop.

7.3.3 Original & three (3) copies of Insurance Certificate on any Goods shipped DDP to EC HQ.

7.3.4 Original & three (3) copies of Manufacturer's/Supplier's guarantee certificate;

7.3.5 Original & three (3) copies of Inspection certificate issued by:

7.3.5.1 An authorized inspection agency or a certificate of waiver signed by the EC, and

7.3.5.2 the Manufacturer's factory inspection report.

7.3.6 Original & three (3) copies of Certificate of Origin.

7.3.7 For wood products, a copy of the DENR logging permit under which the trees were cut in the Philippines.

7.3.8 Original & three (3) copies of the extension for the Performance Security as per Clause 4.2.

7.3.9 Original & three (3) copies of the certificates proving the amount for all costs as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the goods as stated in the price sheets.

Payments are limited to the amount stated in such certificates but shall not exceed the amount stated in the price sheets."

8. INSURANCE

The marine and inland insurance shall be in an amount equal to one hundred ten percent (110%) of the value of the Goods from "warehouse to recipient EC warehouse" on "All Risks" basis including War Risk, Civil Unrest, and Strike clauses and shall be valid for ninety (90) days after arrival of the equipment at designated EC HQ or as specified by the Purchaser within the area coverage.

The insurance shall be paid by the Supplier. It shall be the responsibility of the Supplier that the insurance coverage provided include the cost of conducting all necessary investigation of report of damage, loss or pilferage. Such investigation and preparation of report shall be done by the Supplier at no cost to the Purchaser.

9. INCIDENTAL SERVICES

The services covered under Clause 13, Section III, General Conditions of Contract, Sub-Clause 13.1 letters (c), (d), and that of those required in the Technical Specifications shall be furnished. The cost shall be included in the contract price.

10. SPARE PARTS

Suppliers shall carry sufficient inventories to assure ex-stock supply of consumable spares such as gaskets, plugs, washers, belts, etc. other spare parts and components shall be supplied as promptly as possible but in any case, shall not exceed one (1) month after placement of order and establishment of Letter of Credit or execution of Contract.

11. PAYMENT

11.1 For Goods and services supplied from countries other than the Philippines payment shall be made as follows:

11.1.1 Once a month or for an accomplishment of at least ₱ 1.0 million, the contractor may submit a request for payment for work accomplished. Such request for payment shall be verified and certified by the Coop project engineer, and approved by Coop Technical/Engineering Manager. Except as otherwise stipulated in the contract, materials and equipment delivered on the site but not completely put in place shall not be included for payment.

11.1.2 The Coop shall have the right to deduct from the contractor's progress billing such amount as may be necessary to cover third party liabilities, as well as uncorrected discovered defect in the project.

11.2 For Goods and Services supplied from within the Philippines, payment shall be made as follows:

11.2.1 Once a month or for an accomplishment of at least ₱ 1.0 million, the contractor may submit a request for payment for work accomplished. Such request for payment shall be verified and certified by the Coop project engineer, and approved by Coop Technical/Engineering Manager. Except as otherwise stipulated in the contract, materials and equipment delivered on the site but not completely put in place shall not be included for payment.

11.2.2 The Coop shall have the right to deduct from the contractor's progress billing such amount as may be necessary to cover third party liabilities, as well as uncorrected discovered defect in the project.

11.3 Should the Supplier fail to receive from Purchaser the Acceptance Certificate as specified in paragraphs 11.1.2 & 11.2.2 within (60) days following the date of delivery of the materials to Purchaser headquarters or as specified by the Purchaser within the area coverage, the Supplier may request for payment by submitting to Purchaser three (3) copies of the Voucher bearing the following certification:

I/we hereby certify that the materials and equipment covered by this invoice were delivered to the Purchaser headquarters or as specified by the Purchaser delivery point as specified in the Delivery Schedule prior to sixty (60) days before the date of this certification, that all warranties and guaranties, and final drawing have been delivered to Purchaser, that no objection of any kind has been received from Purchaser to the payment of the remaining ten (10%) percent of this equipment.

_____ _____
Date Supplier

ATTESTED BY: _____
Authorized Signature

_____

_____
Title

12. RESOLUTION OF DISPUTES

The dispute resolution mechanism to be applied pursuant to Clause 28 of the General Conditions shall be as follows:

12.1 in the case of a dispute between the Purchaser and a Supplier which is a national of the Philippines, the dispute shall be referred to adjudication/arbitration in accordance with the laws of the Philippines; and

12.2 in the case of a dispute between the Purchaser and a foreign Supplier, the dispute shall be settled by arbitration, held in Manila, in accordance with the provisions of the UNCITRAL Arbitration Rule

13. NOTICES

For the purpose of all notices, the following shall be the address of the Purchaser and Supplier.

Purchaser:

MS. MARIFE T. SALVADOR
BAC Chairman
Nueva Ecija II Electric Cooperative, Inc.- Area 1 (NEECO II-Area 1)
Calipahan, Talavera, Nueva Ecija
Philippines 3114
Tel./Fax 044 411 1007
e-mail: bac_neeco2area1@yahoo.com.ph

Supplier:

_____
(to be filled in at the time of contract signature)

Calipahan, Talavera, Nueva Ecija
neeco2_area1@ydhoo.com.ph
(044) 411-1007 loc. 117

SECTION V. GENERAL TECHNICAL CONDITIONS

TABLE OF CLAUSES

ITB NO. NE II-A1-2023-05

1. FORM OF SPECIFICATIONS

1.1 Abbreviated, outline type.

1.2 Determine components of specifications from Table of Contents.

2. SUBMITTAL OF INFORMATION

2.1 General: After award of Contract, submit information requested herein to location designated. All information shall be in English.

2.2 Updated Delivery Schedule:
Submit three (3) copies. (See Section IV)

2.3 Shipping Papers:
Submit three (3) copies, unless specified otherwise, of reports required in specifications and required by referenced codes and standards.

2.4 Test Reports:
Submit three (3) copies unless specified otherwise, of reports required in specifications and required by referenced codes and standards.

2.5 Instruction Manuals:
Submit two (2) complete sets of instruction manuals for each unit supplied; covering installation, operation and maintenance for equipment, auxiliary items and accessory devices furnished, and including assembly drawings descriptive literature and parts lists, with identification symbols, for all replaceable parts and assemblies including address, phone and fax number where spare parts shall be ordered.

2.5.1 Instruction manuals shall include nameplate information and shop order numbers for each item of equipment furnished.

2.5.2 Instruction manuals shall include a list of recommended spare parts.

2.5.3 Information manual shall be bound between hard covers and the contents shall be properly indexed.

2.6 Shop drawings and manufacturer's information:

2.6.1 Material requested herein or in specifications. Term "Shop Drawings" refers to an outline, general arrangements, and installation requirement drawings needed to ensure that equipment to be supplied is in accordance with the Contract Specifications. Term "Shop Drawings" does not include drawings prepared solely for the manufacturer's use in fabrication of equipment.

2.6.2 Initial Submittal:

2.6.2.1 Drawings not larger than 36" x 120": Submit three (3) copies of each drawing to purchaser. Copies of each drawings submitted by Supplier may be produced by any reproduction process except that producing blue-prints having white lines on a blue background.

2.6.2.2 Drawings larger than 36" x 120", printed catalogue information or brochures or other multiple page documents: Submit three (3) copies of each drawing to Purchaser.

2.6.2.3 The Supplier shall submit to the purchaser, shop drawing for each item in the contract, which requires drawing approval, within thirty (30) calendar days after the date of contract ratification.

2.6.3 Purchaser will review shop drawings, indicate action taken, and return one (1) copy to Supplier. The Purchaser within thirty (30) calendar days after receiving such drawings, shall signify his approval or otherwise.

2.6.4 Additional copies and transmittal:

2.6.4.1 If Supplier's copy is marked "RESUBMIT", Supplier shall, within 15 days of receipt thereof, recheck drawing and make necessary revisions in accordance with comments noted on shop drawing and/or in separate letter and resubmit three (3) copies to the Purchaser for review. The Purchaser has 15 days to notify Supplier of his action or it will be deemed that the Purchaser has approved the resubmitted drawings.

2.6.4.2 If Supplier's copy is marked "REVIEWED" OR "SUPPLEMENTAL REFERENCE", Supplier shall submit three (3) copies to the Purchaser for review. The Purchaser has 15 days to notify Supplier of his action or it will be deemed that the Purchaser has approved the resubmitted drawing.

2.6.5 Supplier's responsibility: Check shop drawings prior to submittal for errors, correctness of details and conformance with the Contract and for work detailed on the drawing.

2.6.6 Review of shop drawings by Purchaser does not relieve the Supplier of responsibility for errors, correctness of details or conformance with the Contract.

2.6.7 Supplier shall be responsible for making corrections to materials and equipment as required to obtain conformance with Contract requirements, whether such corrections are required during review of shop drawings, subsequent to release of drawings, data and information mentioned hereinafter, or after fabrication and shipment of materials and equipment.

2.6.8 Submit other information and/or samples as may be requested by the Purchaser within a reasonable time period.

3. CODES AND STANDARDS

3.1 Perform work in accordance with best present-day manufacturing practices.

3.2 Conform with and test in accordance with applicable sections of latest revisions of codes and standards listed in specifications.

3.3 Conflicts:

3.3.1 Between referenced codes and standards: Codes and standards establishing more stringent requirement shall be followed.

3.3.2 Between referenced codes and standards and specifications: One establishing more stringent requirements shall be followed.

3.4 For convenience in designation in the specifications, certain equipment, articles, materials or processes are designated by trade names of the manufacturer and/or catalogue names and numbers. Such designation shall be deemed to be followed by the words "equal or better" whether such words are shown or not. The Bidder may also offer alternative equipment, articles materials or processes provided that the alternative shall be equivalent or better in quality, suitability and convenience of use to that indicated or specified in the Contract Documents. Equipment articles, materials or processes meeting other standards which ensure an equal or higher quality than the standards mentioned will also be accepted at the discretion of the Purchaser. If the equipment, etc., are manufactured to standards other than shown in the bid documents, the bidder shall provide English Translation, by an accredited translation Agency, of the standard proposed in his bid at the time of submission of his bid proposal. It will be the bidder's responsibility to demonstrate and prove to the Purchaser's satisfaction that alternatives offered are substantially equivalent to the brand name identified.

The Bidder shall, in his bid, provide the name of the manufacturer and the catalogue number for each item of material listed on the Material Schedule plus the major items in the substations, and

shall also provide the guaranteed losses for each transformer size and type.

3.5 The following are the Sources of Standards referred to in this Bid:

ANSI - American National Standard Institute
1430 Broadway, New York, N.Y. 10018

ASTM - American Society for Testing and Materials
1916 Race Street, Philadelphia, Pa. 1910

AWPA - American Wood Preservers Association
P.O. Box 849
Stevensville, Maryland 21666
U. S. A.

EEI - Edison Electric Institute
750 Third Avenue, New York N.Y. 10017

IACS - International Annealed Copper Standard

IEC - International Electrotechnical Commission
3 Rue de Varembe, P.O. Box 131,
CH - 1211 Geneva 20, Switzerland

IEEE - Institute of Electrical and Electronic Engineers
345 East 47th Street, New York, N. Y. 10017

NEMA - National Electrical Manufacturers Association
2101 L Street, N.W., Washington, D.C. 20037

4. SPECIAL TOOLS

4.1 Provide any special tools, fixtures and instruments to EC which are necessary in assembly, operation and maintenance of equipment.

4.2 Special tools and devices are those designed for purpose and use of which are peculiar to the equipment furnished and which are not available from normal wholesale or retail outlets. Standard general-purpose tools are not included in this requirement.

4.3 Provide neat and substantial metal tool box with hinged cover and lifting handles or metal cabinet with hinged door, prominently marked box or cabinet "TOOLS FOR _____" for each set of tools furnished.

5. SHOP TESTS

5.1 Shop tests are specified and required by referenced codes and standards.

5.2 The Supplier shall provide Purchaser with certified copies of all test data and reports.

5.3 The Supplier shall withhold shipment until the Purchaser has examined and acknowledged the receipt of shop test data.

6. FACTORY TEST, INSPECTION AND TRAINING

6.1 **A minimum of two (2) Purchaser representative, at the expense of Supplier, shall have the right to inspect and/or test any material, equipment or supplies including attendance to appropriate training needs for logistics at the manufacturer site** (hereinafter collectively referred to in this clause as "Goods") furnished by the Supplier under this contract during manufacture and assembly and prior to packing for shipment and may reject any merchandise defective or unsuitable for the use and purpose intended, or not in accordance with the intent of the contract (see Section IV, Clause 5 for Sampling). The Supplier, upon demand by the Purchaser, shall remedy or replace at his expense such defective or unsuitable Goods.

6.2 The Supplier shall notify in writing the Purchaser at least sixty days (60) days in advance of the date Goods will be ready for inspection in the shop or warehouse. The Purchaser's inspector shall,

at all times during normal working hours, have access to all parts of the shop where Goods are being prepared and also shall be provided by the Supplier with all reasonable inspection and test facilities.

6.3 The fact that such factory inspection and/or test is made by the Purchaser, or fails to be made, shall not relieve the Supplier from full responsibility of the contract nor prejudice any claim, right, or privilege which the Purchaser may have because of the use of defective or unsatisfactory Goods.

6.4 The Purchaser shall be furnished written notice by the Supplier at least sixty (60) days in advance of the date that any test specifically identified in the Contract will be conducted. Failure on the Part of the Purchaser to witness any such test at the time and place indicated shall not delay the test or the orderly fulfilment of the provisions of the contract. Costs of all tests shall be on the account of the Supplier and included in the contract price.

6.5 The fact that the Purchaser shall have witnessed, or have failed to witness, such tests or any other test required by the conditions of the contract shall not constitute a waiver or release by the Purchaser of warranties under the contract. In the event that the Purchaser fails to witness test specified in the Contract after proper notice by the Supplier, the Supplier may deem such test as having been witnessed and proceed with the test, manufacture or shipment accordingly.

6.6 The manufacture and inspection of the material, equipment, or supplies are properly prepared for export shipment and the Supplier shall have furnished to the Purchaser an SGS pre-shipment Clean Report of Findings and a Certificate of Completion and Inspection to be included as Attachment.

6.7 Upon delivery, the Purchaser at its option may test the equipment for conformity to the specifications. If the Purchaser elects to perform tests and find the supplied equipment not in accordance with the specifications and/or with the test results provided by the Supplier, the equipment will be rejected.

7. DEFECTIVE EQUIPMENT AND MATERIALS

7.1 Defective equipment:

7.1.1 If equipment fails to conform to requirements of contract documents or to operate satisfactorily, the Supplier shall correct such defects promptly at no cost to the Purchaser.

7.1.2 Purchaser will have right to operate unsatisfactory equipment until it is replaced or corrected without cost to depreciation, use or wear.

7.1.3 Equipment will be removed from operation for examination, adjustment, alteration or change at times approved by Purchaser.

7.2 Defective material:

7.2.1 If the Purchaser deems material to be defective through standard conformance test or from reported failures in actual use, the Purchaser shall reject the material and equipment and request the Supplier to replace the same. The Supplier, upon receipt of such notification shall replace the defective materials promptly at no cost to the Purchaser. If the Supplier fails to comply to the satisfaction of the Purchaser, the Purchaser may at its option:

7.2.1.1 Replace such defective material and recover the extra cost so involved from the Supplier; or

7.2.1.2 Terminate the contract for default as provided herein.

7.2.2 Supplier shall replace defective materials only at times approved by Purchaser.

8. EXPORT PACKING

8.1 When applicable, the Supplier shall pack and crate all equipment for sea shipment in a manner suitable for export to a tropical humid climate in accordance with internationally accepted export practices and in such a manner to protect the equipment from damage and deterioration in transit by road, rail or sea. The Supplier shall be held responsible for all damages due to improper packing.

8.2 Lumber used in the fabrication of all shipping containers shall be new, sound and well-seasoned and free from knots and decay. Containers shall be sufficiently strong to prevent loss from pilferage or damage from stacking, shipment or handling.

8.3 Commodities subject to damage from the elements shall be preserved in a manner appropriate to the commodity and to the best commercial standards. Such commodities shall be packed in weatherproof crates or boxes with a waterproof liner.

8.4 Individual cartons or boxes shall be limited to approximately 50 kg to facilitate handling, unless individual items exceed this weight or unless stated otherwise in technical specifications. Commodities normally packed in cardboard containers shall be enclosed in weatherproof shipping crates or boxes with waterproof liners. All crates shall be skid mounted (100 mm minimum height) to allow handling by fork-lifts.

8.5 Because of fork-lift capacity, crates and pallets shall be limited to approximately 1,000 kg except where the unit weight of an item is in excess of 1,000 kg.

8.6 All material items shall be packed as specified or in manufacturers standard package quantities approved by the Purchaser if different than that specified. All packages (cartons) shall be packed as they would be when delivered to a retail supplier and packages (cartons) of an item shall contain the same number of pieces. Bulk shipment is specifically prohibited. Individual packages (cartons) shall be sufficiently strong to withstand normal warehousing handling and storage.

8.7 Refer to Section IV, Clause 6, for additional requirements.

9. EXPORT MARKING

9.1 All packages, cartons, cases, and crates shall be plainly marked to facilitate identification as follows:

Port of Shipment _____
Port of Destination _____
Consignor _____
Consignee _____
Contract No. _____
Gross Weight _____
Package/Case No. _____
Name of Coop _____
Quantity _____
Contents _____
Item No. _____

9.2 All external marking must be legibly and durably painted or stencilled on two sides and both ends (where applicable) of containers in letters at least one and one-half inches (1-1/2") high.

9.3 All crates from one Supplier, regardless of port of shipment, shall be consecutively numbered to facilitate identification and delivery verification with shipping documents.

9.4 Reels shall bear markings on an embossed metal tag on both sides of the reel. Coils shall have markings on metal tags, one tied over the water proof paper wrapping and one tag under the paper wrap. Reels and spools shall be externally marked legibly and indelibly (chalk or crayon prohibited) with the information specified. Internally, conductor and cable ends shall have weatherproof tags attached containing full conductor or cable description plus length. Length given should be in metric units.

9.5 Conductor and cable shall be furnished on export type non-returnable wood reels of standard dimensions as defined for overhead electrical conductors by the American Aluminum Association, or IEC Standard, or equivalent. Reels shall incorporate full one-inch thick lagging and be bound with galvanized steel straps. The reels shall be sufficiently sturdy to withstand normal service incident to ocean shipping, hauling and field installation.

All wood used in reels and spools shall be treated with an approved wood preservative.

The conductor or cable shall be tightly laid on reel and layer wound and both ends must be clamped to the reel flange. The use of paper liners is prohibited but liners of other materials such as expanded polystyrene or similar plastic is required.

For random lengths a maximum of ten (10%) percent of the total weight of the conductor of any order may be shipped in random lengths but no piece may be shorter than fifty (50%) percent of a standard length. No random lengths shall be wound on the same reel with a standard length.

9.6 In the individual material specification and Schedule of Requirements, additional marking requirements may be specified. Recipient ECs shall be indicated in the markings by codes.

9.7 For failure to comply with the marking requirements as identified in this IFB, payment to the Supplier shall be reduced by the following:

(a) 2% for failure to serially numbered all packages.

(b) 3% for failure to provide correct listing of consignee and recipient coop for each serially numbered crate, box or package.

(c) 5 % for marking package with wrong consignee or recipient coop.

NOTE: All percentages refer to the Contract price CIF of the Goods involved.

10. SAG AND TENSION TABLES

Suppliers of overhead conductor and aerial cable shall furnish, at their expense, reproducible sag and tension tables for both initial (stringing) and final (after stretch and creep) conditions. Sag and tension tables shall be based on achieving maximum tension without exceeding the limit set forth by the following criteria.

(1) Maximum Loaded Tension not to exceed fifty (50%) percent of ultimate tensile strength at -1 degree C, loaded under 44 kg/m^2 (9lb./ft2) wind pressure.

(2) Maximum Unloaded Initial Tension at -1 degree C not to exceed thirty five (35%) percent of ultimate tensile strength.

(3) Maximum Unloaded Final Tension at -1 degree C not to exceed twenty five (25%) percent of ultimate tensile strength.

Temperature Range of Tables:

For temperature range from -1 degree C to 50 degree C in increments of 2 degree C.

Span Length Range of Tables - Bare Conductor:

For Dead-end Spans of lengths ranging from 50 m through 600 m:

- in 10-meter increments for spans from 50 meters through 200 meter;
- in 25-meter increments for spans from 200 meters through 600 meters.

Span Length Range of Tables - Low Voltage and Power Cables:

For Dead-end Spans of lengths ranging from 20 meters through 150 meters: in 5-meter increments.

11. QUALIFIED MANUFACTURERS

11.1 A foreign or domestic manufacturer shall prove its qualification by attesting that he sold material, equipment or supplies of similar nature to that being proposed for at least the period of years and the quantities as required on the Certification Requirements for Material and Equipment. A foreign manufacturer shall prove additionally that he sold material, equipment or supplies of similar nature to that being proposed in foreign transactions in each of the last three years and in all of which the buyer still express satisfaction with the performance of the goods.

11.2 The manufacturing experience requirement can be met as follows:

a. The manufacturer has the required years of manufacturing the item and the required sales, or

b. The manufacturer is a licensed manufacturer with the licensor controlling the design and quality of the output, and the licensor meets the experience and sales requirements.

11.3 The bidder shall include in his bid, and attach to his bid response, certification that the manufacturer of the proposed material or equipment has manufactured material and equipment the same as or similar to the material being offered over the periods designated below for items contained in the respectively noted Material Specification. The bidder shall also include for each certification a list of at least three (3) previous purchasers outside the country of the manufacturer along with a description and the quantities of supplied material or equipment, same as or similar to that being offered, giving full names, addresses, phone and fax numbers of these purchasers.

12. STANDARDS AND SPECIFICATIONS

The Technical Specifications contain references to standards and specifications relevant to the particular item. A listing of such standards and specifications have been compiled below but might be not complete:

INTERNATIONAL STANDARDS	
ACI 318	American Concrete Institute, Building Code Requirements for Reinforced Concrete.
AEIC CS5-82	Specification for thermoplastic and cross-linked polyethylene insulated shielded power cables rated 5 KV through 46 KV.
AEIC CS6-86	Specification for polyethylene propylene rubber insulated shielded power cable rated 5 KV through 46 KV.
AISC	American Institute of Steel Construction Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings.
ANSI 05.1-1979	Specification and dimensions for wood poles.
ANSI 12.10-1987	American national standard for watt-hour meters.
ANSI/ASME B30.10-1982	Safety requirements for hooks.
ANSI/ASME B30.9-1984	American National Standards Institute, safety standard for slings.
ANSI/ASME B-94.52M-1984	Safety requirements for hacksaw blades.
ANSI/ASME B107.8-1984	Safety requirements for adjustable wrenches.
ANSI/ASME B107.11M-1983	Safety requirements for pliers, diagonal cutting and nippers, end cutting.
ANSI/ASME HST-2M-1983	Performance Standard for manually operated Chain Hoists.

ANSI/ASTM A153-82	Standard specification for zinc coating (hot-dip) on iron and steel hardware.
ANSI/ASTM B499-75 (1980)	Method for measurement of coating thickness by the magnetic method: Non-magnetic coatings on magnetic basis metals.
ANSI/ASTM D9-76E	American National Standard Definitions of Terms Relating to Timber.
ANSI/ASTM DI20-79A	Standard specification for rubber insulating gloves.
ANSI B1.1-1982	Unified inch screw threads, (UN and UNR thread form).
ANSI B18.2.1-1981	Square and hex bolts and screws, including square head bolts, hex cap screws and lag screws.
ANSI B18.2.2-1972	Square and hex nuts.
ANSI B18.5-1978	Round head bolts.
ANSI B18.21.1.-1972 (R1983)	Lock washers.
ANSI B94.11M-1979	American National Standards Institute, safety requirements for twist drills, straight shank and taper shank combination drills.
ANSI B107.1-1978	Safety requirements for hand socket wrench (inch).
ANSI B107.5-1978	Safety requirements for hand socket wrench (metric).
ANSI B107.10M-1982	Safety requirements for socket wrench, hand and attachment for hand (inch and metric).
ANSI B157.1-1978	Safety requirements for scales weighing devices and weighing systems.
ANSI B173.1-1982	Safety requirements for nail hammers.
ANSI B173.4-1979	Safety requirements for axes.
ANSI C12.1-1982	American National Standard code for electrical metering.
ANSI C12.7-1982	American National Standard requirements for watt-hour sockets.
ANSI C12.10-1982	American National Standard code for watt hour meters.
ANSI C12.11	American National Standard for Instrument metering purposes.
ANSI C29.1-1982	American National Standard for test methods for electrical power insulators.
ANSI C29.2-1983	American National Standard for insulators wet process porcelain and glass suspension type.
ANSI C29.3-1986	American National Standard for wet process porcelain insulators (spool type).
ANSI C29.5-1984	American National Standard for wet process porcelain insulators (low and medium voltage types).
ANSI C29.6-1977	American National Standard for wet process porcelain insulators (high voltage pin type).
ANSI C29.8-1980	American National Standard for wet process porcelain insulators (apparatus, cap and pin type).
ANSI C29.9-1983	American National Standard for wet process porcelain insulators (apparatus, post type).
ANSI C37.04	Rated structure for AC high voltage circuit breakers.
ANSI C37.06	Schedule of preferred ratings and related required capabilities for AC high voltage breakers.

ANSI C37.07	Interrrupting capability factors for reclosing service for A.C. high voltage circuit breakers.
ANSI C37.09	AC High Voltage breakers
ANSI C37.30-1971	American National Standard definitions and requirements for high voltage air switches, insulator and buss supports.
ANSI C37.32-1972	American National Standard schedules of preferred ratings, manufacturing specifications and application guide for high voltage air switches, bus supports and switch accessories.
ANSI C37-34-1971	American National Standard test code for high voltage air switches.
ANSI C37.40-1981	IEEE Standard service conditions and definitions for high voltage fuses and distribution enclosed single pole air switches.
ANSI C37.41-1981	American Standard design tests for distribution cutouts and fuse links, secondary fuses, distribution enclosed single pole air switches, power fuses, fuse disconnecting switches and accessories.
ANSI C37.42-1981	American National Standard specifications for distribution cutout links.
ANSI C37.60-1979	IEEE Standard for automatic circuit reclosers for alternating current systems.
ANSI C37.66-1969	American National Standard requirements for oil filled capacitor switches for AC systems.
ANSI C39.1-1981	Requirements for electrical analog indicating instruments.
ANSI C39.2	Direct-acting electrical recording instruments (switchboard and portable types).
ANSI C57.12.00	Test code for liquid immersed, distribution, power and regulating transformers.
ANSI C57.12.20	Requirements for over head type distribution transformers 67,000 volts and below 500 KVA and smaller.
ANSI C57.12.30-1977	Requirements for Load-tap-changing transformer 230,000 volts and below.
ANSI C57.12.90	General requirements for dry type distribution and power transformers.
ANSI C57.13-1978	American National Standard requirements for instrument transformers.
ANSI C57.92	Guide loading oil immersed Power transformer.
ANSI C62.1-1981	IEEE Standard for surge arrestors for AC power circuits.
ANSI C62.2-1981	American National Standard Guide for the application of valve-type surge arrestors for alternating current system.
ANSI C62.11	Standard for Metal-Oxide Surge Arrester for AC Power Circuits.
ANSI C63.2-1980	American National Standard specifications for electromagnetic noise and field strength instrumentation, 10 KHz to 1 GHz.
ANSI C76.1-1976	IEEE general requirements and test procedures for outdoor apparatus bushings.
ANSI C76.2-1975	Dimensions and related requirements for outdoor apparatus and bushings.
ANSI C135.1-1979	American National Standard for galvanized steel bolts and nuts for overhead line construction.

ANSI C135.2-1979	American National Standard for threaded galvanized ferrous strand-eye anchor rods and nuts for overhead line construction.
ANSI C135.4-1979	American National Standard for galvanized ferrous eyebolts and nuts for overhead line construction.
ANSI C135.5-1979	American National Standard for galvanized ferrous eye nuts and eyelets for overhead line construction.
ANSI C135.14-1979	American National Standard for staples with rolled on slash points for overhead line construction.
ANSI C135.17-1979	American National Standard for galvanized ferrous bolt-type insulator pins with lead threads for overhead line construction.
ANSI C135.22-1979	American National Standard for galvanized ferrous pole-top insulator pins with lead threads for overhead line construction.
ANSI C135.31-1980	American National Standard for galvanized ferrous single and double upset spool insulator bolts for overhead line construction.
ANSI C136.6-1984	Reflector assemblies and metal head inter-changeability.
ANSI C136.10-1979	Inter-changeability of photo control device plug and mating receptacle used in roadway lighting equipment.
ANSI C136.12-1979	Selection of mercury lamps.
ANSI C136.13-1979	Metal brackets for wood poles.
ANSI/IEEE 18-1980	Standard for shunt power capacitors.
ANSI/UL 299-1984	Safety standard for dry chemical fire extinguisher.
ANSI Z87.1-1979	Practice for occupational and educational eye and face protection.
ANSI Z89.1-1981	Requirements for protective headwear for industrial workers.
ANSI Z308.1-1978	Minimum requirements for industrial unit type first aid kits.
ASTM A36-81A	Standard specification for structural steel.
ASTM A47-77	Standard specification for malleable iron castings.
ASTM A109-83	Standard specification for steel, carbon cold-rolled strip.
ASTM A111-66 (1980)	Standard specification for zinc coated (galvanized) "iron" telephone and telegraph line wire.
ASTM A165-80	Standard specification for electro-deposited coatings on cadmium or steel.
ASTM A197-79	Standard specification for cupola malleable iron.
ASTM A242-81	Standard specification for high-strength low-alloy structural steel.
ASTM A363-72 (1980)	Standard specification for zinc coated (galvanized) steel overhead ground wire strand.
ASTM A413-82	Standard specification for carbon steel.
ASTM A475-78	Standard specification for zinc-coated steel wire stranded.
ASTM A564-81	Standard specification for hot-rolled and cold-finished age-hardening stainless and heat-rending steel bus, wire and shapes.
ASTM A510-82	Standard specification for general requirements for wire and coarse round wire, carbon steel.
ASTM A536-80	Standard specification for ductile iron castings.
ASTM A549-82	Standard specification for steel wire, carbon, cold heading quality, for wood screws.

ASTM A568-83	Standard specification for general requirements for steel, carbon and high strength low-alloy hot-rolled sheet.
ASTM A569-72 (R1979)	Standard specification for steel, carbon (0.15 maximum percent) hot-rolled sheet and strip, commercial quality.
ASTM A570-79	Standard specification for hot-rolled carbon steel sheet and strip, structural quality.
ASTM A575-81	Standard specification steel bars, carbon merchant quality, M-grade.
ASTM A576-81	Standard specification steel bars, carbon, hot wrought, special quality.
ASTM A635-81	Standard specification for hot-rolled carbon steel sheet and strip, commercial quality, heavy thickness coils (formerly plate).
ASTM A663-82	Standard specification for steel bars, carbon, merchant quality, mechanical properties.
ASTM A668-83	Standard specification for steel forgings, carbon and alloy, for general industrial use.
ASTM A675-82	Standard specification for steel bars, carbon, hot wrought, special quality, mechanical properties.
ASTM A705-80	Standard specification for age-hardening stainless and heat resistant steel forgings.
ASTM A24281	Standard specification for high strength low alloy structural steel.
ASTM B2-81	Standard specification for medium hard-drawn copper wire.
ASTM B3-74 (R-1980)	Standard specification for soft annealed copper wire.
ASTM B6-77 (1983)	Standard specification for zinc (slab zinc).
ASTM B8-81	Standard specification for concentric-lay-stranded copper conductors, hard, medium-hard or soft.
ASTM B99-81a	Standard specification for copper silicon alloy wire for general purposes.
ASTM B117-64	Method of salt spray (fog) testing.
ASTM B176-79	Standard specification for copper alloy die castings.
ASTM B193-78	Standard test method for resistivity of electrical conductor materials.
ASTM B221-85a	American National Standard for aluminum and aluminum alloy, extruded bars, rods, wire shapes and tubes.
ASTM B230-81	Standard specification for aluminum 1350-H-19 wire for electrical purposes.
ASTM B230-82	Standard specification for concentric-lay-stranded aluminum conductors, coated steel-reinforced (ACSR).
ASTM B230-82	Standard specification for aluminum 1350-H19 wire for electrical purposes.
ASTM B231-81	Standard specification for concentric-lay-stranded aluminum 1350 conductor.
ASTM B232	Standard Specification for concentric-lay-stranded aluminum conductors, coated steel-reimforced (ACSR).
ASTM B233-78	Standard specification for aluminum-alloy 1350 redrawn rod for electrical purposes.

ASTM B246-69 (R-1980)	Standard specification for tinned hard-drawn and medium hard-drawn copper wire for electrical purposes.
ASTM B317-83	Standard specification for aluminum-alloy extruded bar, rod, pipe and structural shapes for electrical purposes (bus conductor).
ASTM B396-83	Standard specification for aluminum alloy 5005 H-19 wire for electrical purposes.
ASTM B498-74 (R1979)	Standard specification for zinc-coated (galvanized) steel core wire for aluminum conductors, steel reinforced ACSR.
ASTM B531-78	Standard specification for aluminum alloy 5005 re-drawn rod for electrical purposes.
ASTM B557-84	Standard methods of tension testing wrought and cast aluminum and magnesium alloy products.
ASTM B584-85a	Standard specification for copper alloy sand castings for general purpose.
ASTM B597-83	Standard practice for heat treatment of aluminum alloys.
ASTM B609-81	Standard specification for aluminum 1350 round wire annealed and intermediate tempers, for electrical purposes.
ASTM B633-78	Standard specification for electro-deposited coatings of zinc on iron and steel.
ASTM B663-82	Standard specification for electro-deposited coatings of zinc or iron and steel.
ASTM B686-82	Standard specification for aluminum alloy castings, high strength.
ASTM D-117.66	Specifications of New Insulating Oil for transformer and Switch Gear
ASTM D470	Methods of testing crosslinked insulations and jackets for wire and cable.
ASTM-D877-84a	Standard test method for dielectric break-down voltage of insulating liquids using disk electrodes.
ASTM D1351	Standard specification for polyethylene insulation for electrical wire and cable.
ASTM-D1500-82	Standard test method for ASTM color of petroleum products.
ASTM D1816-84a	Standard test method of dielectric breakdown voltage of insulating oils petroleum origin using VDE electrodes.
ASTM D3487	Standard specification for mineral insulating oil used in electrical apparatus.
ASTM F711-83	Standard specification for fiberglass reinforced plastic (FRP) rod to be used in hot line maintenance tools.
ASTM F887-84 Vol. 10.03	Standard specifications for personal climbing equipment.
AWPA A2-85	Standard method for analysis of waterborne preservatives and fire retardent formulations.
AWPA A5-83	Standard methods for analysis of oil-borne preservatives.
AWPA A6-83	Determination of oil-type preservatives and water in wood.
AWPA A7-75	Standard wet ashing procedures for preparing wood for chemical analysis.
AWPA A9-86	Standard method for analysis of treated wood and treating solutions by x-ray.

AWPA A10-82	Analysis for CCA treating solutions and CCA treated wood by colorimetry.
AWPA A11-83	Analysis of treated wood and solutions by atomic absorption spectros-copy.
AWPA C1-84	All timber products-preservative treat by pressure processes.
AWPA C2-85	Lumber, timbers, bridge ties and mine ties-preservative treatment by pressure processes.
AWPA C4-81	Standard for preservative treatment of poles by pressure process.
AWPA C16-77	Wood used on farms: preservative treated by pressure process.
AWPA C25-85	Sawn crossarms-preservative treatment by pressure processes.
AWPA M2-83	Standard instructions for the inspection of preservative treatment of wood.
AWPA P5-85	Standard for water-borne preservatives.
AWPA P8-77	Standards for oil-borne preservatives.
AWPA P9-79	Standards for solvents for organic preservative systems.
AWPA M2-83	Standard instructions for the inspection of preservative treatment of wood.
AWS D1.1	American Welding Society, Structural Welding Code.
AWS D12.1	American Welding Society Recommended procedures for Welding, reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Constructions.
Federal Specification GGG-H-1426	Helmet, safety, electrical workers.
Federal Specification GGK-391a	Kits, first aid, burn treatment, snake bite and kit contents (unit type).
Federal Specification TT-W-571J	"Wood preservative: treatment practices".
Federal Supplementing Specification TT-W-571J	USADA forest service general technical report FPL-15-1977.
ICEA S-66-254	Cross-linked-thermosetting-polyethylene insulated wire and cable for the transmission and distribution of electric energy.
ICEA S-68-516	Polyethylene-propylene-rubber insulated wire and cable for the transmission and distribution of electrical energy.
IEC 51-2:1984	Part 2; Special requirements for ammeters and voltmeters.
IEC 51.3:1984	Part 3, special requirements for wattmeter and varmeter.
IEC 56:1987	High voltage alternating current circuit breakers.
IEC 70:1967	Power capacitors.
IEC 76-2:1976	Power transformers, temperature rise.
IEC 76-3:1980	Power transformers, insulation level and dielectric tests.
IEC 76-3-1:1987	Power transformers, insulation levels and dielectric tests. External clearances in air.
IEC 76-5:1976	Power transformers, ability to withstand short circuit.
IEC 99-4:1991	Metal oxide surge arresters without gaps for A.C. systems.
IEC 129:1984	Alternating current disconnectors and earthing switches.

IEC 137:184	Bushings for alternating voltage above 1000V.
IEC 156 (1963)	Method for the determination of the electric strength of insulating oils.
IEC 185:1987	Current transformers.
IEC 186:1987	Voltage transformers.
IEC 211:1966	Maximum demand indicators, class 1.0.
IEC 214:1989	On load top changers.
IEC 227	Polyvinyl chloride insulated cables of rated voltage up to and including 450/750 volts.
IEC 258:1968	Direct acting recording electrical measuring instruments and their accessories.
IEC 265-1:1983	High-voltage switches for rated voltage above 1kV and less than 52kV.
IEC 265-2:1988	High-voltage switch for rated voltage of 52kV and above.
IEC 273:1990	Characteristics of indoor and outdoor post insulator for systems with nominal voltage greater than 1,000V.
IEC 282-2:1970	Expulsion and similar fuses.
IEC 296:1982	Specification for unused mineral insulating oils for transformers and switchgear.
IEC 376:1971	Specifications and acceptance of new sulphur hexaflouride.
IEC 383:1983	Tests on insulators of ceramic material or glass for overhead lines.
IEC 473:1974	Dimensions for panel mounted indicating and recording electrical measuring instruments.
IEC 514:1975	Acceptance inspection of class 2 alternating current watt-hour meters.
IEC 521:1988	Class 0.5 and 2 alternating current watt-hour meters.
IEC 540 (1982)	Test methods for insulation and sheaths of electric cable and cord.
IEC 541 (1976)	Comparative information on IEC and North American flexible cord types.
IEC 551:1987	Determination of transformer and reactor sound levels.
IEC 662:1980	High-pressure sodium vapor lamps.
IEC 720:1981	Characteristics of line post insulators.
IEC 743:1983	Terminology for tools and equipment to be used in line working.
IEC 832:1988	Insulating poles and universal tool attachments for line working.
IEC 871	Shunt capacitors for ac power systems having a rated voltage above 600V.
IEC 888:1987	Zinc-coated steel wires for standard conductor.
IEC 889:1987	Hard drawn aluminum wire for overhead line conductors.
IEC 903:1988	Specifications for gloves and mitts of insulating material for live work.
IEC 923:1988	Ballasts for discharge lamps. Performance requirements.
IEC 1024-1:1990	Protection of structures against lightning.

IEEE 48-1975	Standard test procedures and requirements for high-voltage alternating-current cable terminations.
IEEE 404-1986	Standards for cable joints for use with extruded dielectric cable rated 5,000 V through 46,000 V and cable joints for use with laminated dielectric cable rated at 2,500 V through 500,000 V.
ISO 3941-1977	Classification of fires.
ISO 5923-1984	Fire-protection-fire extinguishing media-carbon dioxide.
NEMA Pub. No. CC3-1973 (R1978)	EEI-NEMA Standards for connectors for use between aluminum or aluminum-copper overhead conductors.
NEMA Pub. No. PH6-1970	EEI-NEMA Standard for metal crossarm braces.
NEMA Pub No. PH10-1977	NEMA Standards for galvanized ferrous washers.
NEMA Pub No. PH11-1979	NEMA Standards for galvanized ferrous guy attachments, wrap and formal guy hooks, guy strain plates and pole eye plates.
NEMA Pub. No. PH20-1979	NEMA Standards for galvanized ferrous insulator clevis.
NEMA Pub No. PH23-1964	NEMA Standards for steel and malleable iron guy clamps.
NEMA Pub. No. PH25	Standard for Secondary Extension Brackets
NEMA Pub No. PH31-1977	NEMA Standards for galvanized ferrous single and double upset spool insulator bolts.
NEMA Pub No. PH107-1964 (R1981)	NEMA Standards publication - methods for radio influence voltage (RIV) of high voltage apparatus.
NEMA Pub No. SG-1.501	NEMA Standards publication - temperature rise test for power connectors.
NEMA Pub No. SG-1.502	NEMA Standards publication - resistance test for power connectors.
NEMA Pub No. SG6-1974	Part 32 - Schedules of preferred ratings, manufacturing specifications, and application guide for high voltage air switches, bus supports and switch accessories.
NEMA Pub No. SG14-1958	NEMA Standards publication - electrical connectors for copper conductors.
NEMA Pub. No. TT-1	National Electrical Manufactures association, Tapered Tubular Steel Structures.
NEMA Pub. No. WC7-1982	Cross-linked thermosetting polyethylene-insulated.
OSHA 29CFR	Safety and health regulation for construction section 1926.959, lineman body belts, safety straps and lanyards.
OSHA 1920.158	Requirements for portable fire suppression equipment, fire extinguisher.
PCI MNL-116	Prestressed Concrete Institute Manual for Quality Control for Plants and Production of Processor Pre-stressed Concrete Products.
REA Bulletin 43-5	List of materials acceptable for use on system of REA electrical borrowers.
REA Bulletin 44-4	Quality control and inspection of timber products.
REA Specification DT-58-1977	Specification for wood cross arms (solid and laminated), transmission timbers and pole keys.

REA Spec. No. DT-5B:	Specification for Wood Cross arms, transmission timber and Pole Keys.
REA Specification DT-5C (revision) 1982	Specification for wood poles, stubs, and anchor logs and preservative of those materials.
USAS C57.15-1968	USA Standard requirements terminology and text code for step voltage and induction voltage regulators.
USAS C68.1-1968	USA and IEEE Standard techniques for dielectric tests.
ANSI B27.1-1965	
ANSI C55.1	
ANSI C57.15	
NEMA TR1	
ASTM D-120	
ASTM F469-80	
ASTM F 496	
NEMA EI17-1968	
NEMA EI20-1975	
NEMA Pub. No. LA 1	
NEMA Pub. No. PH3-1977	
NEMA OD3-1977	
NEMA OD4-1977	

13. MATERIAL SPECIFICATIONS LISTING

Each item of material is described in a Material Specification which has a descriptive title and an assigned reference number. This reference number is cross referenced on the Bill of Quantities, which is a listing of each item of material, with quantities, that is to be provided by the Contractor.

The Material Specifications describe the detailed technical requirements of materials, supplies, and equipment to be furnished under this proposal.

The bidder must quote prices on the Material Schedule which include the cost of all accessory or auxiliary parts (mounting brackets, terminal connectors, spare parts, gauges, etc.) that are specified in the Material Specifications to be furnished with the item, even though such accessory or auxiliary parts may not be specially mentioned in the brief item description contained on the Material Schedule.

SECTION VI. FORMS

TABLE OF FORMS

FORM 1: BID

Date: _____
Location: _____
Contract No: _____

TO : Bid and Awards Committee
Nueva Ecija II Electric Cooperative, Inc.- Area-1
Calipahan, Talavera
3114 Nueva Ecija

Gentlemen:

Having examined the Bidding Documents including Addenda Nos. (Insert Numbers), the receipt of which is hereby duly acknowledged, we, the undersigned, offer to construct (Description of project) in conformity with the said Bid Documents for the sum of (Total Bid Amount in Words and Figures) or such other sums as may be ascertained in accordance with the Price Schedules attached herewith and made part of this bid.

We undertake, if our bid is accepted, to commence construction within (Number) days to complete the project of all the items specified in the Contract within the (Number) days to be calculated from the date of receipt of your Notification of Award/effective Letter of Credit.

If our bid is accepted we will obtain the guarantee of a bank in a sum not exceeding (10)% of the Contract Price for the due performance of the Contract.

We agree to abide by this bid for a period of (Number) days from the date fixed for bid opening under Clause 19 of the Instruction to Bidders and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this _____ day of _____, 20__.

_____
Signature

_____
(In capacity of)

Duly authorized to sign bid for and on behalf of _____.

FORM 2: BID SECURITY

WHEREAS, _____ hereinafter called "the BIDDER" has submitted its bid dated for the construction of _____ (hereinafter called "the BID").

KNOW ALL MEN BY THESE PRESENTS:

That, WE, _____ of _____, having our registered office at (hereinafter called "the BANK") are the bound unto _____ (hereinafter called "the COOPERATIVE") in the sum of _____ for which payment will truly to be made to the said COOPERATIVE, the Bank binds itself, its successors and assigns by these presents.

Sealed with the common seal of the said Bank this _____ day of _____, 20__.

THE CONDITIONS of this obligation are:

1) If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
2) If the bidder, having been notified of the acceptance of its bid by the Cooperative during the period of validity:
    a. fails or refuses to execute the Contract Form, if required; or
    b. fails to refuses to furnish the Performance Security, in accordance with the Instructions to Bidders;

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

This guarantee will remain in force up to and including thirty (30) days after the period of bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

_____
(Signature)

FORM 3: POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS:

That we, _____, a company organized and existing under the laws of _____, having the principal office at _____ do hereby make, constitute, and appoint _____ our true and lawful attorneys-in-fact to act for us, on our behalf, and in name, by investing them with the following powers:

1. To make any proposal to and/or negotiate and execute the contract or any other agreement with (NEECO II-Area 1), its representative and/or agents, if any, relating to the bid of the SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ.
2. To receive, accept and acknowledge any notice issued under the contract, any other agreement and/or any other proposal.

3. To do any and all acts and things and execute any and all instruments, certificates and agreement which they may deem necessary or advisable, or which may be required for or in connection with the execution of the said contract.

IN WITNESS WHEREOF, we have cause this POWER OF ATTORNEY to be executed in our name by our _____, _____ thereunto duly authorized, in _____ this day of _____, 20____.

(CORPORATION)

by: PRINTED NAME
POSITION/TITLE

FORM 4a: LETTER OF AUTHORIZATION FROM THE MANUFACTURER TO THE BIDDER

SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ

INVITATION FOR BIDS NO. NE-II-A1-____-____

To whom it may concern:

We, _____, a juridical person, organized and existing under the laws of _____ having its principal business office at _____ hereby authorizes _____ having its registered office at _____ to offer and supply our goods to the _____Electric Coop., Inc.

This Letter of Authorization is effective from this _____ day of _____ 2023 and remains in full force until the completion of the contract.

(CORPORATION)

by: _____
PRINTED NAME

_____
POSITION / TITLE

Calipahan, Talavera, Nueva Ecija
neeco2_area1@yahoo.com.ph
(044) 411-1007 loc. 117

FORM 4b: LETTER OF AUTHORIZATION FROM THE BIDDER THE LOCAL AGENT

SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ

INVITATION FOR BIDS NO. NE-II-A1-_____-___

To whom it may concern:

We, _____(company)_____, a juridical person, organized and existing under the laws of _____(country)_____ having its principal business office at _____(address)_____ hereby appoint _____(company)_____ having its registered office at _____(address)_____ as our local agent/representative. In particular, our local agent/representative is authorized to _____
_____
_____

This Letter of Authorization is effective from this _____ day of _____ 199___ and remains in full force until the completion of the contract.

(CORPORATION)

by: _____
PRINTED NAME

_____
POSITION / TITLE

FORM 5: CONTRACT

CONTRACT FOR THE
SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ

INVITATION FOR BIDS NO. NE-II-A1-_____-____

KNOW ALL MEN BY THESE PRESENTS:

This Contract entered into this _____ day of _____, 2023 at Nueva Ecija II Area-1 Electric Cooperative, Inc. (NEECO II AREA-1) Main Office, Calipahan, Talavera, Nueva Ecija, by and between:

The Nueva Ecija II Electric Cooperative, Inc.- Area-1 (NEECO II-AREA 1), a duly organized electric cooperative and existing under and by virtue of the laws of the Philippines, with principal office at Calipahan, Talavera, Nueva Ecija, represented in this contract by _____and hereinafter referred as the "COOPERATIVE";

- and -

WITNESSETH

1) That, the COOPERATIVE has bid for the construction of the projects specified in the Invitation for Bid No. NE-II-A1-_____-_____;

2) That, the principal features of the works to be done under this Contract include but not limited to the description of works detailed in the Invitation to Bid and other documents referred to therein which are hereto attached and made to form part of this contract;

3) That, after evaluation of all the qualified bids, the bid of the CONTRACTOR has been found to be the lowest complying/calculated, responsive and most advantageous to the COOPERATIVE;

That, as per recommendation of the BAC as contained in the Resolution No. _____ dated _____the COOPERATIVE has approved the awards of the **SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ** to the CONTRACTOR;

NOWTHEREFORE, for and in consideration of the foregoing premises the parties hereto agree and contract as follows:

1) A copy of bid documents and the Invitation for Bid No. NE-II-A1-_____-___, authority of signing official, electrification schedule, project organizational chart, manpower schedule, equipment utilization schedule of all equipment and machineries which shall be used exclusively for the project, bid summary/ Contractor's bid price offered, detailed estimation of materials, notice of award, notice to proceed, performance security, and other documents establishing the eligibility of the Contractor, are hereto attached and made an integral part of this contract;

2) The CONTRACTOR agrees and binds itself to fully and faithfully provide for its accounts all provisions necessary in the completion of the _____ within ____ Days commencing on the date of issuance of Notice to Proceed and the turn- over of the project;

3) The CONTRACTOR will post a Performance Security Bond in the amount of _____ Pesos, equivalent to ___ of the Contractor's Bid Price which is to be returned to the Contractor not later than thirty (30) days following the date of the issuance of the Certificate of Completion of the Contractor's Performance under the Contract and in exchange thereof, shall post a Guarantee Bond equivalent to five percent (5%) of the Contract Price;

4) In the event of a delay in work caused by fortuitous events or force majeure, the CONTRACTOR may request for an extension of time, in writing, within three (3) days following the occurrence of the cause of delay. The grant of extension, which shall also be in writing, may not be unreasonably withheld. It shall be understood that the approval of the request for extension of time shall not be construed as to automatically entitle the CONTRACTOR to a cost adjustment;

5) The CONTRACTOR shall exert its best efforts to execute its obligations under the contract in accordance to all the documents made to form part of this contract.

6) The contract price shall be _____ broken down as shown in the bid form of the CONTRACTOR. The required down payment, if any, shall be made upon signing of this contract. The balance shall be by progress payments based on the estimated amount of work satisfactorily completed by the CONTRACTOR and accepted by the COOPERATIVE for every progress billing in accordance with Clause 8 of the General Conditions of the Contract.

7) Time is an essential feature of this contract in the event that the COOPERATIVE fails to complete the **SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ** within the stipulated time inclusive of any granted extension of time, the CONTRACTOR shall pay the COOPERATIVE, as liquidated damages for its calendar day of delay, an amount equivalent to be computed in accordance with Clause 10 of the General Conditions of the Contract.

8) The CONTRACTOR shall guarantee the quality of all materials it will supply, deliver and use in the **SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ** and shall make good all defect/s attributable to the quality of materials and workmanship which may be discovered within one (1) year reckoned from the date of issuance of certificate of completion.

9) The Cooperative shall, upon the written request of the Contractor, and after the Contractor's mobilization of materials, may be allowed to make a **DOWN PAYMENT** equivalent to _____ of the contract price. The balance from the Contract Price shall be paid by the Coop thru progress billings based on the estimated work satisfactorily completed by the Contractor and accepted by the Cooperative for every progress billing.

10) In the event that the Contractor fails to complete the construction within the stipulated time inclusive of the granted extension of time, if any, the Contractor shall pay the Cooperative, as **Liquidated Damages** for its calendar day of delay, an amount using the following formula under Section IV Clause 13 of the General Conditions of the Bid Documents which form part of the Contract:

LD = 0.75 X CP/CT

Where:

LD = Amount of liquidated damages for each calendar day of delay

CP = Total contract price minus the value of completed portions of the contract certified by the Coop Project Manager/Engineer as of the expiration of the contract time, in pesos.

CT = Contract time plus any time extension duly granted to the contractor, in calendar days.

11) Progress payments/ billings are subject to ten percent (10%) retention of the billings to answer for any uncorrected/ discovered defects and third-party liabilities and shall be released after all the discovered defects in the project has been corrected in accordance with Clause 8 of the general conditions of the contract;

12) The Contractor shall issue a Guarantee Bond in the form of Manager's Check in conformity with Clause 3 in the general conditions of the contract, equivalent to Five Percent (5%) of the contract price to serve as warranty against defective works and materials for a period of one (1) year reckoned from the date of Final Inspection and Acceptance. The Guarantee Bond shall be released at the end of the guarantee period provided there are no pending reservations for its release. Thereafter, the Contractor is relieved of all obligations under the Contract;

13) The CONTRACTOR Obligates to comply with the provisions of the existing laws, executive and administrative orders and rules and regulations issued or to be issued pertinent to the CONSTRUCTION OF THE PROJECTS;

14) The COOPERATIVE shall have the rights to automatically terminate the contract in the event that the

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CONTRACTOR incurs unjustified delays;

15) In case of litigation arising out of this contract, the parties hereto agree that its venue shall be in the proper court in Nueva Ecija, under the laws of the Philippines.

IN WITNESS WHEREOF, the parties have hereunto signed this contract on the date and place first above written.

NUEVA ECIJA II ELECTRIC COOPERATIVE, INC.- Area-1 (NEECO II AREA-1)	**CONTRACTOR**
By:	By:
ENGR. NELSON DELA CRUZ General Manager	
Signed in the Presence of:	

Approved:

REYNALDO VILLANUEVA
Board President

ACKNOWLEDGEMENT

REPUBLIC OF THE PHILIPPINES }
Municipality of Talavera } S.S.
PROVINCE OF NUEVA ECIJA }

BEFORE ME, a Notary Public for and in _____ Philippines, personally appeared the following persons with their respective proofs of identity, to wit:

	PROOF OF IDENTITY	PLACE / DATE ISSUED/EXPIRY
1.	REYNALDO V. VILLANUEVA	
2.	ENGR. NELSON M. DELA CRUZ	
3.		
4.		

who are known to me to be the same persons who executed and signed the Contract for the **SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ** ITB NE-II-A1-_____-____, and who acknowledged to me that the same are their free and voluntary acts and deeds, and that of the corporations which they respectively represent.

This instrument is consisting of three (3) pages including this page in which the acknowledgement is written. Pages one (1) and three (3) are signed on the left margin thereof and page two (2) is signed at the corresponding spaces provided therefore by the Parties and their instrumental witnesses and sealed with my notarial seal.

WITNESS MY HAND AND SEAL this_____day of_____
_____at _____, Philippines.

NOTARY PUBLIC

Doc. No. _____;
Page No. _____;
Book No. _____;
Series of 20_____.

FORM 7: PERFORMANCE SECURITY

TO : (Name of COOPERATIVE)

WHEREAS, (Name of Contractor) hereinafter called "the CONTRACTOR" has undertaken, in pursuance of Contract No. dated _____, 20____to construct (Description of Project) hereinafter called "the CONTRACT";

AND WHEREAS it has been stipulated by you in the said contract that the CONTRACTOR shall furnish you with a Bank Guarantee by recognized bank for the sum specified therein as a security for compliance with the CONTRACTOR's performance obligations in accordance with the Contract;

AND WHEREAS we have agreed to give the CONTRACTOR a Guarantee;

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the CONTRACTOR, up to a total of (Amount of the Guarantee in words and figures) and we undertake to pay you, upon your first written demand declaring the CONTRACTOR to be in default under the Contract and without cavil or argument, any sum of sums within the limits of (Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the day of , 20 .

Signature and seal of the Guarantors

_____
_____
_____

LOT 1 - Supply, Installation, Testing and Commissioning of 20/25 MVA Power Transformer, 69/15kV Protection Equipment for Muñoz Substation

1.1 Supply of 20/25MVA, 67/13.2kV Power Transformer

Item	Description	Qty	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.1.1	***20/25MVA, 67/13.2kV Three Phase Power Transformer*** *Off-Load Tap Changer* *Dyn 11 Vector Type* *60Hz Frequency, ONAN/ONAF,* *Conservator Type, Outdoor Type* *Mineral Oil Filled* ***(Manufactured in Europe, US and ASIA except China)***	1 set		
1.1.2	**Local Labor for Installation, Testing and Commissioning**			
	-Power Transformer positioning, assembly, installation, and testing -installation and positioning of equipment -equipment testing -commissioning and energization	1 lot		
	Sub-total	**PHP**		

1.2 Supply of 69kV Outdoor Protection Equipment

Item	Description	Qty	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.2.1	69kV, 2000A SF6 Gas Insulated, Live Tank Power Circuit Breaker with spring operated mechanism, 25kA/3secs. ***(Manufactured in Europe or US)***	1 set		
1.2.2	69kV Current Transformer, 200-100-50/5/5/5A, 0.3 B-2@200A, 2 x C100@200A, dry type ***(Manufactured in Europe or US)***	3 units		
1.2.3	69kV, 2000A, Motorized Double Side Break Disconnect Switch ***(Manufactured in Europe or US)***	1 set		
1.2.4	60kV, 48kV MCOV Surge Arresters, Class 3 Includes: - surge counter ***(Manufactured in Europe or US)***	6 units		
	Sub-total	**PHP**		

1.3 Supply of 15kV Indoor Protection Equipment

Item	Description	Qty	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.3.1	**15kV, SF6 Standard Vacuum Circuit-Breaker** Incoming Cubicle. Rated Busbar Current: 1250A, Rated Outgoing Current:1250A Accessories: -2 sets 24kV Elbow Connector for 240 mm² cable (3pcs/set) -1 set 24kV coupling connector for 240 mm² cable (3pcs/set) -3 pcs ring type current transformer 1200/600:5A, 10VA, cl. 0.3, 140 mm, RF 1.2 - for Metering, -6 pcs ring type current transformer 1200/600:5A, 10P10, 140 mm, RF 1.2 - for Protection -3 pcs plug-in type busbar metering voltage transformer 70:1, 0.3 WXY ***(Manufactured in Europe or US)***	1 set		
1.3.2	**15kV, SF6 Standard Vacuum Circuit-Breaker** Feeder Cubicle. Rated Busbar Current: 1250A, Rated Outgoing Current:630A Accessories: -1 set 24kV Elbow Connector for 240 mm² cable (3pcs/set) -3 pcs ring type current transformer 600/300:5A, 10VA, cl. 0.3, 90 mm, RF 1.2 (3pcs/set) - for Metering -3 pcs ring type current transformer 600/300:5A, 10P10, 90 mm, RF 1.0 (3pcs/set) - for Protection ***(Manufactured in Europe or US)***	4 sets		
Sub-total		**PHP**		

1.4 Supply of 69/15 kV Control and Protection Panel

Item	Description	QTY.	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.4.1	**69kV/15kV Metering, Control and Protection Panel:**	1 Assy		

	Factory tested metal enclosure (imported materials, locally wired and assembled) cubicle in accordance with NEMA standard, consisting of three (3) adjacent panels. One for 69kV control/protection panel, one for 15kV control/protection panel and one for 15kV Feeder metering /monitoring panel. Indoor installation, expandable, tightly sealed with front glazed door protection, mounting plates, rear metal door, lifting eyebolts, grounding provision, enclosure light, zinc plated or chromated and spray finish equipped with the following protection relay, meters, and accessories: -5 pcs Multifunction Energy Meter, Class 0.2 ***(Manufactured in Europe or US)*** -1 pc. Multifunction, Protection and Control Relay ***(Manufactured in Europe or US)*** - 5 pcs Overcurrent/ Voltage Relay ***(Manufactured in Europe or US)*** -1 pc. Differential Transformer Protection and Control ***(Manufactured in Europe or US)*** -Control wiring and Pilot Lamps, Annunciators with Tripping and Warning Lamps; Reset Button -Auxiliary Relays, Terminal Lugs, Connectors, Test Blocks, Test Plug, Terminal Blocks, Fuse Terminals, Computer Tray, DC Supply Wires and other accessories			
Sub-total		**PHP**		

1.5 Supply of Auxiliary Power Supply

Item	Description	Qty	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.5.1	Maintenance Free Battery Cells, 12V, 100Ah with inter-unit connectors. ***(Manufactured in Europe or US)***	10 pcs		
1.5.2	**Battery Charger, 1 phase, 230 VAC, 125VDC, 30 A** ***(Manufactured in Europe or US)***	1 set		
Sub-total		**PHP**		

1.6 Supply of 12kV Outdoor Surge Arrester

Item	Description	Qty	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.6.1	**12kV Station Type Surge Arrester, metal oxide, 9.6kV MCOV** ***(Manufactured in Europe or US)***	15 pcs		
Sub-total		**PHP**		

1.7 Supply of XLPE cables and accessories

Item	Description	Qty	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.7.1	15kV XLPE Power Cables 240 mm²	520 meters		
1.7.2	15kV XLPE Power Cables 95 mm²	35 meters		
1.7.3	24kV Outdoor Termination Kits for 240 mm² (3pcs/set)	6 sets		
1.7.4	24kV Outdoor Termination Kits for 95 mm² (3pcs/set)	1 set		
Sub-total		**PHP**		

1.8 Supply of Local Materials/Labor

Item	Description	QTY.	DDP NEECO II-Area 1 in PHP	
			Unit Cost	Total
1.8.1	**Control Cables**			
	Control cable 4 x 4.0 sq.mm. copper - Control cables 12 x 1.5 sq.mm. copper - Control cable 7 x 4.0 sq.mm. copper - 35 sq. mm copper fine stranded cable - THHN AWG #8 & #12 Wire	1 lot		
1.8.2	**Wires (ACSR & Grounding Wires):**			
	-Bare Conductor Wire, #336.4 MCM ACSR, Linnet -Overhead Ground Wire (OHGW) Aluminum Clad Steel type: 7/8 AWG (22 sqmm) -Grounding Wire 95 sqmm Hard Drawn Bare Copper -Grounding Wire 95 sqmm Hard Drawn Insulated Copper -Wire 100 sqmm Soft Drawn Insulated Copper	1 lot		
1.8.3	**Substation Steel Structures:**			
	- 69 kV Receiving Tower Steel Structure, 2 legged - 69 kV Current/Potential Transformer Steel Structure (NGCP Metering) - 69KV CT Steel Structure (Protection) - 69 kV Power Circuit Breaker Steel Structure - 69 kV Disconnecting Switch Mounting Support Structure - Control cable & XLPE Support Structures - Battery Rack - Grounding mesh for 69 kV DS - 69/12kV surge arrester and counter mounting support Structure	1 lot		
1.8.4	**Grounding**			
	Grounding Materials w/o wires	1 lot		
1.8.5	**Others**			

	Other Materials Needed, Wiring Accessories, Consumables	1 lot		
1.8.6	**Line Hardwares/Connectors**			
	Connectors, Insulators, Strain Clamp, etc..	1 lot		
1.8.7	**13.2kV Substation Equipment Accessories**			
	13.2kV Substation Equipment Accessories	1 lot		
1.8.8	**69kV Substation Equipment Accessories**			
	69kV Substation Equipment Accessories	1 lot		
1.8.9	**Local Labor for Installation, Testing and Commissioning**			
	-installation and positioning of equipment -grounding installation -line hardware installation, OHGW Installation -cable laying and termination (Class 1) -equipment testing -commissioning and energization	1 lot		
	Sub-total	**PHP**		

GRAND TOTAL AMOUNT (VAT Inclusive)		***PHP***	

LOT 2 - Civil Works

2.1	**Control House and Foundations**			
	- Construction of Substation Perimeter Fence including Gate and Ramp -Construction of Control House (10m x 5m). -1 set 69kV Receiving Tower Foundation (2 Legged) -2 sets 69kV Current Transformer Foundation -1 set 69kV Potential Transformer Foundation -1 set 69kV Disconnecting Switch Foundation -1 set 69kV Power Circuit Breaker Foundation -1 set Power Transformer Pad Foundation - Construction of Pedestal for 13.2KV Take Off (2 sets, 3 meters in height) - Construction of Outdoor Cable Trench - Gravel Bedding - Oil and Water Separator - Septic Tank Others: Soil Testing Heavy equipment usage Labor works Control House Electrical Wiring including Perimeter Lighting and Floodlights Painting Works Temporary Facilities Temporary Power and Water Supply	1 lot		

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Sub-total		**PHP**	
GRAND TOTAL AMOUNT (VAT Inclusive)		***PHP***	

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SECTION VII. TECHNICAL SPECIFICATION

TABLE OF CLAUSES

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SCOPE OF WORKS FOR THE SUPPLY, INSTALLATION AND COMMISIONING OF 20/25 MVA POWER TRANSFORMER AND ITS RELATED APPURTENANCES AT BRGY BANTUG, SCIENCE CITY OF MUNOZ

- Supply of 1 unit 20/25MVA, 67/13.2KV Power Transformer with Off-load Tap changer.
- Supply of 1 set SF6 Gas Insulated, Live Tank Power Circuit Breaker.
- Supply of 1 set 69KV Current Transformer for Protection.
- Supply of 1 set 69KV, 2000A, Double Side Break Disconnector.
- Supply of 6 units 60KV, 48KV MCOV Surge Arresters, Class 3.
- Supply of 15KV, SF6 Gas Insulated Modular Switchgear Equipment.
  - 1 set 15KV, 1250A, SF6 Vacuum Circuit Breaker Cubicle – Incoming Cubicle.
  - 4 sets 15KV, 630A, SF6 Vacuum Circuit Breaker Cubicle – Feeder Cubicle.
- Supply of 69KV/15KV Metering, Control and Protection Panel with the following Relays;

  Meters and accessories:

  - 1 set Multi-function Protection and Control Relay for Primary.
  - 1 set Differential Protection and Control Relay.
  - 5 sets Overcurrent/Overvoltage Relay for 15KV Switchgears.
  - 5 sets Multi-Function Three Phase Energy Meters.
  - Control wiring and pilot lamps, annunciators with tripping and warning lamps; reset button.
  - Auxiliary relays, terminal lugs, test blocks, test plugs, terminal blocks, fuse terminals, computer tray, dc supply wire and other accessories.

  (Note: SCADA Ready)
- Supply of 1 set 125VDC, 12V/block, 100Ah Maintenance Free Battery.
- Supply of 1 set 230VAC, 125VDC, 30A Single Phase Battery Charger.
- Supply of 15 units 12KV Station Type Surge Arresters.
- Supply of 3 units Ring Type Current Transformer for Main Breaker Metering.
- Supply of 6 units Ring Type Current Transformer for Main Breaker Protection.
- Supply of 12 units Ring Type Current Transformer for Feeder Breaker Metering.
- Supply of 12 units Ring Type Current Transformer for Feeder Breaker Protection.
- Supply of 3 units 15KV Potential Transformer.
- Supply of 6 sets 24KV T-shape Screw-on Type Connector.
- Supply of 1 set 24KV Coupling Termination.
- Supply of 6 sets Outdoor Termination Kit for 240 mm^2 XLPE Power Cable.
- Supply of 1 set Outdoor Termination Kit for 95 mm^2 XLPE Power Cable.
- Supply of 520 meters, 15KV, 240 mm^2 XLPE Power Cable.
- Supply of 35 meters, 15KV, 95 mm^2 XLPE Power Cable.
- Supply of Grounding wires and others.
- Supply of Substation Steel Structures, Control Cables and Wires.

- **Supply of Civil Works:**

  - Construction of Control House (10m x 5m).
  - Construction of Substation Perimeter Fence including Retaining Wall, Gate and Ramp.
  - 1 set 69kV Receiving Tower Foundation.
  - 2 sets 69kV Current Transformer Foundation
  - 1 set 69kV Potential Transformer Foundation

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- 1 set 69kV Disconnecting Switch Foundation.
- 1 set 69kV Power Circuit Breaker Foundation.
- 1 set Power Transformer Pad Foundation.
- Construction of Pedestal for 13.2KV Take Off (2 sets, 3 meters in height)
- Construction of Outdoor Cable Trench.
- Gravel Bedding.
- Oil and Water Separator Tank.
- Septic Tank.

Others:

- Soil Testing
- Heavy Equipment usage
- Labor works
- Control House Electrical Wiring including Perimeter Lighting and Floodlights
- Painting Works
- Temporary Facilities
- Temporary Power and Water Supply

- **Installation, Testing and Commissioning.**

TECHNICAL SPECIFICATION

1.0	20/25MVA, 67/13.2kV Power Transformer, *Off-Load Tap Changer*	1 set

Three Phase, 60Hz, Conservator Type, ONAN/ONAF, Mineral Oil Filled, Outdoor Type, Built and Tested in accordance to applicable IEC/IEEE Standards.

Manufacturer	:	Manufactured in Europe, US and ASIA except China
Model	:	
Installation	:	Outdoor
Type	:	Three-phase, conservator, mineral oil-filled
Rated Power	:	20/25 MVA
Voltages	:	67/13.2 kV
Vector Group	:	Dyn11
Voltage Regulation	:	HV (±3x2.5%) Off-load
Cooling Type	:	ONAN/ONAF
Frequency	:	60Hz
Short Circuit Impedance @25 MVA	:	8%
Applicable Standard	:	IEC 60076
No-load Losses @ Vr	:	≤20 kW
Load Losses @Vr, 75°C	:	≤94
kW@25MVA/≤61kW@20MVA No-load Current		:
0.2%		
Sound Pressure Level @ 2m ONAF	:	65 dBA
Temperature Rises (Oil/ Winding)	:	60/65 K
Max. Ambient Temperature	:	40°C
Operational Altitude	:	<1,000 m
Insulation Level Lightning	:	350 kV (HV)
	:	110 kV (LV)
Insulation Level Power Frequency	:	140 kV (HV)

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	:	38 kV (LV)
Bushings	:	OIP Porcelain (HV)
	:	DIN Porcelain (LV, LV-N)
Width	:	3,800 mm
Length	:	5,400 mm
Height	:	4,800 mm
Total Weight	:	42,000 kg
Oil Weight	:	9,000 kg
Active Part	:	20,000 kg
Transport Weight	:	32,000 kg (w/o oil & radiators)

Standard Accessories:

Silica gel breather – 2pcs
Oil level indicator – 2 pcs
Buchholz relay – 2pcs (tank & conservator)
Pressure relief device – 1pc
Gas sampling device – 1pc
Control panel – 1pc
Oil temperature indicator – 1pc
Winding temperature indicator – 1pc
Drain Valve with Oil Sampling Device
Lifting and Jacking Provisions
Access Ladder
Surge Arrester Support
Nameplate
Cooling Fans
Conservator Tank

2.0	69kV Outdoor Protection Equipment

2.1	69kV SF6 Power Circuit Breaker	1 set

SF6 Power Circuit Breaker in Live-tank design according to IEC standards for Outdoor installation with spring operated mechanism with following technical data:

Manufacturer	:	US or European Made
Type	:	
Rated Voltage	:	72.5 kV
Rated Frequency	:	60 Hz
Rated power-frequency withstand voltage	:	140 kV rms
B.I.L. (peak)	:	350 kV
Rated Current	:	2,000 A
Max. Interrupting Current @ rated voltage	:	25 kA
Rated duration of short circuit	:	3 s
Momentary Current	:	40 kA (ANSI)
Opening time	:	40 ms

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Total break time	:	60 ms
Closing time	:	90 ms
Ambient air temp. range	:	-30ºC up to +40ºC

Supplied with NEMA terminal Pad

Features of 72.5 kV Power Circuit Breaker:

- suitable for three-phase auto-reclosing
- creepage distance: 1,810 mm
- color of porcelain: brown (RAL 8016)
- protection class IP 54
- phase center distance: 1,050 mm
- six A1 high voltage terminal pads, drilled according to NEMA
- circuit breaker poles will be delivered with 0.02 - 0.05 MPa SF6 pressure
- SF6 density monitor with color and graduated scale (MPa/bar)
- Nameplate in English

Features of Spring Operating Mechanism:

- operating voltage of auxiliary circuits : DC 125 V
- 1 universal motor per operating mechanism : DC 125 V
- alternate-current circuit (heating, lighting) : AC 230 V
- operating range of coils: Trip 70 % / Close 85 % (IEC)
- anti-condensation heater, permanently
- red / green position indicator lamps included
- A.C. supply protected with M.C.B.
- SF6-density control included
- two independent trip coils, one closing coil
- mechanically coupled auxiliary switch with 13 NC, 11 NO and 1 wiping contact free
- local mechanical and local electrical C/O-operation with local/off/remote selector switch
- without motor protection
- wiring 1.5 sqmm, stranded wire with ferrules
- terminal strip UK5 with 16 sqmm earthing terminal
- no numbering ferrules
- lighting of operating mechanism housing included
- with socket (outlet)
- door of housing lockable
- mechanical interlock Ronis included
- "I/O" position indicator red - green included

Surface Protection:

- aluminum alloy parts will not be painted
- ferrous parts are hot dip galvanized
- flanges of insulators are anodized
- aluminum sheets and operating mechanisms get two protective coats of paint (RAL 7044).

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2.2	69kV Current Transformer for Protection	3 units

Current Transformers offered are single-phase units, with paper-mineral oil insulation. The coil respective core data will be properly designed with protection and metering system.

Manufacturer	:	US or European Made
Model	:	
Installation	:	Outdoor
Type	:	Oil Immersed, Porcelain
Rated Voltage	:	72.5/140/325 kV
Ratio	:	300-200-100/5A
Reconnection	:	Secondary
Withstand sec. winding voltage	:	2.5 kV
Metering Core	:	0.3 B-1 @200/100; 0.3 B-2 @300
Protection Cores		
Core 1	:	C100@300A
Core 2	:	C100@300A
I-Therm	:	30-20 kA /1s
I-Dyn	:	81-54 kA
Rating factor	:	1.2
Frequency	:	60 Hz
Creepage distance	:	2,250 mm
Terminal	:	Primary – 4 Hole NEMA Pad for connection with AL conductor
	:	Secondary – for connection with Cu conductor
	:	Grounding – for connection with Cu conductor
Terminal Box	:	2 secondary terminal box with 1-1/4" NPT (1 for metering and 1 for protection)
Color	:	Brown
Standard	:	IEEE C57.13-2016

2.3	69 kV Double Side Break Disconnector	1 set

Double Side Break Disconnector, 69 kV, three-pole disconnectors, three-columns type, horizontal double side break and equipped with *motor-operated* drive mechanism for disconnector:

Manufacturer	:	US or European Made
Model	:	
Design Voltage	:	72.5 kV
Rated Current	:	2000 A
Frequency	:	60 Hz
B.I.L.	:	350 kV
Peak Withstand Current	:	100 kA
Short-Circuit Capacity	:	40 kA- 3 secs.

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Technical Data of Disconnectors

1. Disconnectors will be designed and tested in accordance with IEC-129/694 specifications. Has a quality assurance system in operation as per ISO 9001, certified by KEMA.

2. The disconnectors offered are equipped with insulators having the following characteristics:
   - 72.5 kV, type C4-325, creepage distance 1,800 mm

3. Motor Operating Drive Type MT150 for Disconnector are provided with following auxiliary equipment:
   - 8NO/ 8NC aux. Contacts wired to terminals
   - Interlocking coil 125 VDC
   - Heater 230VAC
   - Undrilled Gland Plate
   - Terminal Pads – Flat 4-Hole NEMA Standard

2.4	60kV Surge Arresters	6 units

Polymeric housed metal oxide surge arrester having a duty cycle rating of 10 kA. The arrester is self-supporting, suitable for outdoor installation and base mounting only.

Manufacturer	:	US or European Made
Model	:	
Standard	:	IEC 99-4
Rated voltage	:	60 kV r.m.s. max.
M.C.O.V.	:	48 kV r.m.s. max
Line discharge class	:	3
Nominal discharge current	:	10 kA
Specific energy withstand		
acc. to IEC 99-4	:	4 kJ/kV Ur
double impulse3000 µs	:	8 kJ/kV Ur
Pressure relief withstand	:	40 kA
Creepage Distance	:	1277 mm +/- 5%

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3.0	15 kV, SF6 Gas Insulated Modular Switchgear Equipment

ELECTRICAL CHARACTERISTICS	
Switchgear model	US or European Made
Installation type	Indoor
Rated voltage	24 kV
Nominal rated voltage	13.2 kV
Rated frequency	60 Hz
Protection degree for the cubicle assembly	IP3X
Protection degree for the cubicle low voltage compartment	IP2X
Protection degree for the gas tank	IP65
Annual gas loss	< 0,1 %
Power frequency insulation level 1 min.	
- To Earth & between phases [kV]	50 kV
- Across the isolating distance [kV]	60 kV
Lightning impulse insulation level	
- To Earth & between phases [kV]	125 kV
- Across the isolating distance [kV]	145 kV
Maximum rated current	
- Main busbar	1250 A
- Incoming cubicle	1250 A
- Feeder Cubicle	630 A
Short time withstand current (Ith)	25 kA
Rated short circuit duration	3 s
Rated peak short circuit current	65 kA
Internal arc classification according to IEC 62271-200	IAC AFL 25kA/1s

DESIGN CHARACTERISTICS

- GIS cubicle with integral insulation in all live parts:
  - Integral isolation of all the active parts of the medium voltage circuit.
- Cubicles are according to the following standards:
  - IEC 62271-1: Common specifications for high-voltage switchgear and control gear.
  - IEC 62271-200: AC metal-enclosed switchgear and control gear for rated voltages above 1 kV and up to and including 52 kV.
  - IEC 62271-100: Alternating-current circuit-breakers.

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- IEC 62271-102: Alternating current disconnectors and earthing switches.
- IEC 62271-105: Alternating current switch-fuse combination.

➢ Modular design:
- The replacement of a cubicle or the expansion of the cubicles set is carried out without gas handling and without displacement of the adjacent cubicles.

➢ Operation safety:
- Safe and reliable operation system through electrical and mechanical interlocks, in accordance with the IEC 62271-200 standard.

➢ *Routine tests at the factory:*
- The routine tests indicated in the IEC 62271 standard (including test of partial discharges) to all positions of the set of cubicles.

➢ *Vacuum circuit breaker:*
- High mechanical and electrical endurance E2 / M2 (extended class). Vacuum bottle capacity > 10.000 operations.
- Operation cycle: O-0,3s-CO-15s-CO.
- Vacuum opening capacity with a high level of asymmetry. Opening time less than 50msec.

➢ *Three positions disconnector:*
- Mechanical endurance: M1 (2.000 operations).
- Optional independent motorization for both the line disconnector and the earthing switch. Endurance M1 / E1 (2.000 operations)

3.1	15 kV Vacuum Circuit Breaker Cubicle – Incoming Cubicle	1 set

Vacuum interrupting and SF6 gas fully insulated GIS modular cubicle according to international IEC 62271 standards. Maintenance free gas envelope and sealed for life technology.

Manufacturer : US or European Made
Type :

each circuit breaker panel is equipped with:

➢ Three – pole disconnector with earthing position
- manual operation
- auxiliary contacts: 4NO/4NC

➢ Vacuum interrupting three-pole circuit breaker
- motor and manual charge
- one closing and two opening coils
- operation counter
- aux. contacts: 6NO/6NC

➢ Busbar metering set, containing three (3) units of plug-in type voltage transformers without primary disconnector, connected to the main busbar, rated voltage 15,5 kV, proper ratio 8400/120 V (70/1), 0.3 WXM rated characteristics, voltage factor 1,9 Un during 8h.

➢ Voltage presence detection system with permanent light indication.

➢ Pressure gauge with one potential free contact.

➢ Insulated main copper busbar rated current 1250 A, designed to withstand short time current 25kA/3s.

➢ Earthing copper busbar.

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3.2	15 kV Vacuum Circuit Breaker Cubicle – Feeder Cubicle	4 sets

Vacuum Interrupting and SF6 gas fully insulated GIS modular cubicle according to international IEC 62271 standards. Maintenance free gas envelope and sealed for life technology.

Manufacturer : US or European Made
Type :

each circuit breaker panel is equipped with:

- Three – pole disconnector with earthing position
  - manual operation
  - auxiliary contacts: 4NO/4NC
- Vacuum interrupting three-pole circuit breaker
  - motor and manual charge
  - one closing and two opening coils
  - operation counter
  - aux. contacts: 6NO/6NC
- Voltage presence detection system with permanent light indication.
- Pressure gauge with one potential free contact.
- Insulated main copper busbar rated current 1250 A, designed to withstand short time current 25kA/3s.
- Earthing copper busbar.

4.0	69kV/15kV Metering, Protection and Control Panel

Factory tested indoor metal enclosure (imported materials, locally wired and assembled) cubicle consisting of three (3) adjacent panels. One for 69kV control/protection panel, one for 15kV protection panel and one for 15kV feeder metering/monitoring panel, particularly described below:

<u>69kV Protection and Control Panel</u>

Factory tested metal enclosure cubicle in accordance with NEMA standard, indoor installation, expandable, tightly sealed with front glazed door protection, mounting plates, rear metal door, lifting eyebolts, grounding provision, enclosure light, zinc plated or chromated and spray finish designed to contain the following:

1. Multifunction Protection and Control Relay – US or European Made
2. Transformer Differential Protection and Control Relay – US or European Made
3. Circuit breaker control switches with mimic diagram
4. Pilot lamps
5. Terminal lugs and connectors
6. DC supply wires
7. Auxiliary relays
8. Annunciators with tripping and warning lamps; reset button
9. Test blocks, test plug, terminal blocks, fuse terminals, computer tray and accessories.

<u>15kV Protection Panel</u>

Factory tested metal enclosure cubicle in accordance with NEMA standard, indoor installation, expandable, tightly sealed with front glazed door protection, mounting plates, rear metal door, lifting

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eyebolts, grounding provision, enclosure light, zinc plated or chromated and spray finish designed to contain the following:

1. Multifunction Protection Relay – US or European Made
2. DC supply wires
3. Auxiliary relays

Feeder Metering and Protection Panel

Factory tested metal enclosure cubicle in accordance with NEMA standard, indoor installation, expandable, tightly sealed with front glazed door protection, mounting plates, rear metal door, lifting eyebolts, grounding provision, enclosure light, zinc plated or chromated and spray finish designed to contain the following:

1. Multifunction Energy Meter – US or European Made
2. Terminal lugs and connectors
3. DC supply wires
4. Auxiliary relays

4.1	Multi-function Protection & Control Relay for Primary	1 set

Manufacturer	:	US or European Made
Model	:	
Front Communication Port / Protocol	:	RJ45 + USB / IEC-61850, DNP3.0 & MODBUS
Rear Communication Port / Protocol	:	1xRJ45 + 1xRS485 / IEC-61850, DNP3.0 & MODBUS
Digital Input / Output Module	:	17DI + 13DO

Protection functions:

27 Undervoltage
59 Overvoltage
59N Neutral overvoltage
47 V2 overvoltage protection
Frequency (81M/m) (81R)
3x50/51 (67)
50N/51N (67N)
50NS/51NS. (67NS)
Sensitive neutral overcurrent
50G/51G. Earthing overcurrent.
67IS Isolated neutral directional
67IS Compensated neutral
50CSC Second harmonic restraint
37 Undercurrent
49 Thermal image
32 Power units
HCL
50V/51V supervision
87R Restricted earth
Monitoring Units
68FF Fuse failure
Fault locator
Breaker Monitoring
kI2 breaker monitoring per pole
Closing and trip circuit monitoring
Excessive number of trips
50BF Basic breaker failure
Automatic Operations
Synchronism
Recloser
Frequency recloser
Data Acquisition Functions
metering
Phase and synchronism voltage metering
Active and reactive power
Active and reactive energy
Chronological historical event, incident and fault recording
Switch monitoring
Oscillography
Metering logs

directional	Dead line / open pole
46TOC (67Q), 46IOC(67Q)	detector
46BC Open phase	Breaker status logic

Auxiliary power supply

110-125-220Vdc

Direct range	:	85 – 300 Vdc
Alternate range	:	85 – 265 Vac
Burden	:	20 W + 0.7 W per activated relay

Current circuits

Thermal capacity for phase/neutral/polarization (unified rated change 1/5A)

Measurement range	:	0.02 A to 200 A
Permanent	:	20 A
Thermal current for 10 sec	:	50 A
Short term (1s)	:	500 A
Very short term (1/2 cycles)	:	1250 A
Burden at In= 5 A	:	<0.2 VA
Burden at In= 1 A	:	<0.02 VA

Thermal capacity for sensitive neutral and isolated neutral I (unified rated current 0.025/1)

Measurement range	:	0.001 A to 10 A
Permanent	:	20 A
Short term (1s)	:	500 A
Burden at In= 0.025 A	:	<0.015 VA
Burden at In= 1 A	:	<0.02 VA

Voltage circuits

Thermal capacity

Measurement range	:	1 to 200 Vac
Rated voltages	:	63.5/120 Vac
Thermal capacity		
Permanent	:	250 Vca
Short term	:	300 Vca (1sec.)
Burden at 63.5 V	:	<0.015 VA
Burden at 100 VA	:	<0.03 VA

Digital inputs and outputs in simple power supply module

Number of inputs	:	6
Number of outputs	:	4

Digital outputs

Independent standard and trip outputs

The characteristics of the independent contact outputs are as follows:

Carry (permanent)	:	8 A at 25 ºC
I make and carry (1s)	:	30 A
Connection capacity	:	2500 W at 250 Vdc
Breaking or cut out capacity with		
Inductive load (L/R=40 ms)		
220 Vdc	:	0.7 A
125 Vdc	:	1.0 A
48 Vdc	:	1.5 A

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Breaking capacity with resistive load

220 Vdc	:	1.0 A
125 Vdc	:	1.5 A
48 Vdc	:	2.0 A
Activity time	:	5 msec ON, 8 msec OFF

The compliance of the common point outputs is the same as that of the independent outputs. However, due to sharing a common point, only 2 relays can be activated simultaneously.

3-contact switched, common point signal outputs

Carry (permanent)	:	5 A at 25 ºC
I make and carry (1s)	:	20 A
I make and carry (1/2s)	:	30 A
Breaking capacity (L/R=40 ms)		
220 Vdc	:	0.1 A
125 Vdc	:	0.2 A
48 Vdc	:	0.5 A
Resistive breaking capacity		
220 Vdc	:	0.2 A
125 Vdc	:	0.4 A
48 Vdc	:	1 A
Activity time	:	8 ms ON/OFF

Frequency

Programmable system frequency	:	60 Hz
Operating range	:	Fn ± 5 Hz

Measurement accuracy

Current

Measurement range (0 to 1.2 x In)		
With In=1/5A	:	0.5 % FS
Protection range (0 to 200A)		
Accuracy	:	1% over measurement or 2 mA

Voltage

Measurement range (0 to 1.2x Vn)		
With Vn=63.5/120 Vac)	:	0.5 % FS
Protection range (0 to 200 Vac)		
Accuracy	:	1% over measurement or 50 mV

Real Power

Measurement range (0 a1.2xIn x 1.2xVn)		
With In=1A	:	Class 1 (1%_of Pn)
With In=5A	:	Class 0.5 (0.5%_of Pn)

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4.2	Differential Transformer Protection & Control Relay	1 set

Manufacturer	:	US or European Made
Model	:	
Front Communication Port / Protocol	:	RJ45 + USB / IEC-61850, DNP3.0 & MODBUS
Rear Communication Port / Protocol	:	2xRJ45 + 1xRS485 / IEC-61850, DNP3.0 & MODBUS
Digital Input / Output Module	:	17DI + 13DO

Protection Functions
Differential transformer protection 2/3 windings
87R restricted ground protection
5th harmonic overexcitation
V/f overexcitation

Voltage and Frequency Functions
27 Undervoltage.
59 Overvoltage.
81 Maximum and minimum frequency
81R Frequency rate of change

Current Functions
3x50/51 (67).
50N/51N (67N).
50G/51G. Earthing overcurrent.
46TOC (67Q), 46IOC(67Q)
49 Thermal image
32 Power units

Monitoring Units
kI2 breaker monitoring per pole.
Closing and trip circuit monitoring
Excessive number of trips.
50BF Breaker failure

Dead line / open pole detector
Breaker status logic

Data Acquisition Functions
Phase and neutral current metering
Differential measurements
Active and reactive power
Active and reactive energy
Chronological historical event, incident and fault recording
Breaker monitoring
Oscillography
Metering logs

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Auxiliary power supply
110-125-220Vdc

DC Operating range	:	85 – 300 Vcc
AC Operating range	:	85 – 265 Vca
Burden	:	20 W + 0.5 W per active relay

Current circuits
Phases/neutral/polarization current thermal capacity (unified rated current 1/5A)

Measurement range	:	0.02 A to 200 A
Permanent	:	20 A
Thermal current for 10 sec	:	50 A Short
term (1s)	:	500 A
Very short term (1/2 cycles)	:	1,250 A
Burden at In= 5 A	:	<0.2 VA
Burden at In= 1 A	:	<0.02 VA

Sensitive neutral Current thermal Capacity (unified rated current 0.025/1A)

Measurement range	:	0.001 A to 10 A
Permanent	:	20 A
Short term (1s)	:	500 A
Burden at In= 0.025 A	:	<0.015 VA
Burden at In= 1 A	:	<0.02 VA

Voltage circuits
Thermal capacity

Measurement range	:	1 to 200 Vac
Rated voltages	:	63.5/120 Vac
Thermal capacity		
Permanent	:	250 Vca
Short term	:	300 Vca (1sec.)
Burden at 63.5 V	:	<0.015 VA
Burden at 100 VA	:	<0.03 VA

Closed terminal for the voltage & current Input (optional)

Termal Pitch	:	7.62mm (staggered)

Battery Voltage Measurement (optional)

Range	:	85-350Vcc
Accuracy	:	2%FS

Mechanical Features:

½ 19" chassis & 5 U Models weight	:	3.8kg
½ 19" chassis & 5 U Models approximate weight with packaging & documentation	:	4.5kg
19" chassis & 4 U Models weight	:	depending on the boards config.
19" chassis & 5 U Models approximate weight with packaging & documentation	:	depending on the boards config.
Front IP	:	IP30
Optional Front IP	:	IP54

Environmental Condition:

Operating Temperature	:	-40 to 85°C
Storage Temperature	:	-40 to 85°C
Relative Humidity	:	up to 955 without Condensation

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Digital Output:
Independent standard and trip outputs

Carry (permanent)	:	8A at 25°C	
Make (1sec)	:	30A	
Connection Capacity	:	2500W @ 250Vcc	
	220Vcc	125Vcc	48Vcc
Trip or close capacity (L/R=40ms)	0.7A	1.0A	1.5A
With resistive load	1.0A	1.5A	2.0A
Operating Time	:	5ms ON, 8ms OFF	

3-Contact switched, common point signal outputs

Carry (permanent)	:	5A @ 25°C	
Make 1sec	:	20A	
Make ½ sec	:	30A	
	220Vcc	125Vcc	48Vcc
Trip or close capacity (L/R=40ms)	0.1A	0.2A	0.5A
With resistive load	0.2A	0.4A	1A
Operating Time	:	8ms ON/OFF	

Front Communication ports
Ethernet RJ45

RJ45 connector	:	RJ45 female
Cable Type	:	Shielded
Cable Length	:	100 m max.
Insulation	:	500V
Communication Speed	:	10/100Mbps

USB

Version	:	Compatible w/ USB 2.0
Operating mode	:	Master
Speed	:	480 Mbps (high speed)
Insulation	:	500V

Rear Communication port
RS232

RS232 Connector	:	9 pin type D female DTE
Cable Type	:	Shielded
Cable length	:	15 m max.
Insulation	:	500V

Ethernet RJ45

RJ45 connector	:	RJ45 connector
Cable type	:	Shielded
Cable length	:	100 m max.
Insulation	:	500V
Communication Speed	:	10/100Mbps

Irig-B Input

IRIG-B output		
Input	:	Demodulated
Input Level	:	TTL
Cable Type	:	2 shielded wires
Insulation	:	2,000V

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Measurements Accuracy		
Current		
Measurement Range (0 to 1.2x In)		
At In=1/5A	:	0.5% FS
Protection Range (0 to 200A)		
Accuracy	:	1% over measurement or 2mA
Voltage		
Measurement Range (0 to 1.2 x Vn)		
At Vn=63.5/120Vac	:	0.5 % FS
Protection Range (0 to 200Vac)		
Accuracy	:	1% over the measurement or 50mV
Angle of Phase Different		
Accuracy	:	+/- 1%
Real Power		
Measurement Range (0 to 1.2x In x 1.2 x Vn)		
At In=1A	:	Class 1 (1 % of Pn)
At In=5A	:	Class 0.5 (0.5% of Pn)

4.3	Overcurrent/Overvoltage Relay for 15kV Switchgears	5 sets

Manufacturer	:	US or European Made
Model	:	
Front Communication Port / Protocol	:	RJ45 + USB / IEC-61850, DNP3.0 & MODBUS
Rear Communication Port / Protocol	:	2xRJ45 + 1xRS485 / IEC-61850, DNP3.0 & MODBUS
Digital Input / Output Module	:	12DI + 10DO

Protection functions:

50/51 (67)
50N/51N (67N)
50SN/51SN. (67SN) (SEF) (optional)
46TOC (67Q), 46IOC (67Q)
46BC Broken conductor
2nd harmonic restraint
27, 59 Under and overvoltage
59N Neutral overvoltage
47 V2 overvoltage
81M/m
81R Rate of Change of Frequency (ROCOF)
HCL High current locking
CLP Cold load pickup
HLT Hot Line Tag
49 Thermal image
50BF Breaker Failure
Optic Arc Flash protection
Fault locator
Breaker Monitoring
68FF Fuse failure monitoring
Breaker Monitoring
kI2 per pole
Closing and trip circuit monitoring
Excessive number of trips
Breaker status logic
Data Acquisition Functions
Phase and neutral current metering
Phase and synchronism voltage metering
Active and reactive power
Active and reactive energy
Chronological historical event, incident and fault recording
Switch monitoring
Oscillography
Metering logs

Auxiliary power supply

110-125-220Vdc

Direct range	:	85 – 300 Vdc
Alternate range	:	85 – 265 Vac
Burden	:	10 W + 0.5 W per activated relay

Current circuits

Thermal capacity for phase/neutral/polarization (unified rated change 1/5A)

Measurement range	:	0.02 A to 200 A
Permanent	:	20 A
Thermal current for 10 sec	:	50 A
Short term (1s)	:	500 A
Very short term (1/2 cycles)	:	1250 A
Burden at In= 5 A	:	<0.2 VA
Burden at In= 1 A	:	<0.02 VA

Thermal capacity for sensitive neutral and isolated neutral I (unified rated current 0.025/1)

Measurement range	:	0.001 A to 6 A
Permanent	:	20 A Short
term (1s)	:	500 A Burden at
In= 0.025 A	:	<0.015 VA Burden at
In= 1 A	:	<0.02 VA

Voltage circuits

Thermal capacity

Measurement range	:	1 to 230 Vac
Rated voltages	:	63.5/120 Vac
Thermal capacity		
Permanent	:	250 Vca
Short term	:	300 Vca (1sec.)
Burden at 63.5 V	:	<0.015 VA
Burden at 100 VA	:	<0.03 VA

Digital inputs and outputs in simple power supply module

Number of inputs	:	8
Number of outputs	:	5

Digital outputs

Independent standard and trip outputs

The characteristics of the independent contact outputs are as follows:

Carry (permanent)	:	5 A at 25 ºC
I make and carry (1s)	:	30 A
Connection capacity	:	2500 W at 250 Vdc
Breaking or cut out capacity with		
Inductive load (L/R=20 ms)		
220 Vdc	:	10 A
125 Vdc	:	10 A
48 Vdc	:	10 A
Breaking capacity with resistive load		
220 Vdc	:	10 A
125 Vdc	:	10 A

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48 Vdc	:	10 A
Activity time	:	3 usec ON, 5 msec OFF

4.4	Multi-Function Energy Meter	5 sets

0.2% accuracy class, for three phase four wires circuit or three phase three wires circuit, with no-power read option and modular communication devices and with the following specifications:

Manufacturer	:	US or European Made
Connection Type	:	Transformer Operated
Measured Quantities	:	Active and reactive energy
Construction	:	with integrated interface
Tarrification	:	Energy and demand rates, Internal control via time switch (additionally possible via control inputs)
Tariff Functions	:	Average Demand Time of Use (TOU) tables Programmable matrix-based mixed control
Measured Quantities	:	Power Factor Instantaneous Values for current for phase angle for frequency for power factor
Recording	:	24 demand registers 2 independent Load Profile 2 power factor registers 26-channel profile memory 8 measurement channels with total register 32 energy register Stored values register 9 operating time registers Event Log
Special Functions	:	Monitors for demand (current & p.f.) Backlit LCD display
Nominal Current	:	5A
Voltage	:	Autovolt
Rated Accuracy	:	class 0.2s
Voltage Interruption (Power Down)		
bridging time accdg to IEC	:	0.5s
data storage	:	after another 0.2s
switch off	:	after approx. 2.5s
Voltage Restoration (Power Up)		

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function standby 3 phases	:	after 2s
detection of energy direction + phase voltage	:	after 2 to 3 s
Radio Interference Suppression accdg to IEC/CISPR22	:	Class B
Impulse Voltage 1.2/50µs to IEC 62053-11		
Current and voltage circuits	:	8kV
Auxiliary circuits	:	6kV
Calendar Clock Accuracy	:	< 5 ppm
Backup Time (Power Reverse)		
with supercap	:	> 20days
loading time for max back up time	:	300 h
with battery (optional)	:	10 years
battery type	:	CR-P2
Control Inputs		
Control Voltage (Us)	:	100...240V AC
Input Current	:	< 2 mA ohmic at 230V AC
Output Contacts		
Type	:	solid state relay
Voltage	:	12...240 CV AC/DC
Max. Current	:	100mA
Max. Pulse Frequency	:	25Hz (pulse length 20ms)
Display		
Type	:	LCD liquid crystal display
Digit size in value field	:	8mm
No. of position in value field	:	up to 8
Digit size in index field	:	6mm
No. of positions in index field	:	up to 8
Weight	:	approx. 1.5kg
Width	:	177mm
Height (with short terminal cover)	:	244mm
Height (with standard terminal cover)	:	281.5mm
Depth	:	75mm
Communication Module	:	Ethernet interface with RS232 and RS485/RS422, Type CU-XE

5.0	125 Volts DC Standby Supply	

5.1	125 VDC Maintenance Free Battery	1 set

Manufacturer	:	US or European Made
Battery Cell Capacity (1.8V/cell, 20°C)	:	100 Ah

Nominal Voltage of Battery Cell	:	12 V / block
Number of Plate (+) per cell	:	2
Short Circuit Current of the Battery Cell	:	1.96kA Internal
Resistance of Battery Cell	:	1.06 mΩ/cell
Types and Number of Poles	:	M10/ 2
Charging		
IU-characteristic	:	I_{max} without limitation U = 2.23 V/cell ± 1 %, between 10 °C and 30 °C (50 °F and 86 °F) in the monthly average, otherwise, DU/DT = -0.003 V/K
Boost charge	:	U = 2.33 to 2.40 V/cell, time Limited
Operational data		
IEC 60896-11 cycles	:	>1,200
Self-discharge	:	approx. 3 % per month at 20 °C (68 °F)
Battery temperature	:	-20 °C to 55 °C (-4 °F to 131 °F), recommended 10 °C to 30 °C (50 °F to 86 °F)
Standard	:	DIN 40736-1 (except * marked cells)
Tests according to	:	IEC 60896-11
Safety standard, ventilation	:	EN 50272-2

5.2	125 VDC Single Phase Battery Charger	1 set

Manufacturer : US or European Made

- 1-phase input (model dependent)
- Internal isolation transformer at input
- Full controlled conventional rectifier
- Smart control and high reliability with DSP (Digital Signal Processor)
- Float charge, equalizing charge and boost charge modes
- Low output voltage ripple and high reliability
- 2x16 character LCD display, showing measurements, status, and alarm message
- Soft start
- Led displays for easy observation of Rectifier status. Audible alarm.
- Programmable current limitation
- Operation as voltage source or current source
- Calibration of measurements from front panel
- DC Low/High, Line Failure, Over Temperature, Short Circuits protections
- Ability to program all operation parameters (password protected)
- Programmable alarm relay contact outputs
- Possibility of monitor and control over RS232-RS485

- Modbus communication
- Log records with date and time stamp up the 200 events
- 24V / 48V / 110V/ 220V output options

INPUT

Nominal Voltage	:	110VAC/ 127VAC/ 208VAC/ 220VAC/ 240VAC
Nominal Frequency	:	50 or 60 Hz
ITHD	:	<45-50% standard

OUTPUT

Floating Output Voltage	:	12VDC / 24VDC/ 48VDC/ 110VDC/ 220VDC
Output Voltage Adjustment	:	70% top 130% of Nominal Output Voltage
Output Current Adjustment	:	0-100% of Nominal Output Current
Battery Charging Current	:	0-100% of Nominal Output Current
Boost Charger Voltage	:	100% to 120% of Floating Output Current
Nominal Output Current	:	0 to 100A
Max. Output Current	:	110% of nominal output current

6.0	Accessories for Secondary MV Metering and Protection

6.1	12kV Station Type Surge Arrester	15 units

Polymeric housed metal oxide surge arrester station type having a duty cycle rating of 10 kA with the following specifications.

Manufacturer	:	US or European Made
Model	:	
Standard	:	IEC 99-4
Rated voltage	:	12 kV r.m.s. max.
M.C.O.V.	:	9.6 kV r.m.s. max
Line discharge class	:	3
Nominal discharge current	:	10 kA
Pressure relief withstand	:	40 kA
Creepage distance	:	249 mm

6.2	Ring Type Current Transformer for Main Breaker Metering	3 units

Ring Current Transformer for metering applications

Manufacturer	:	US or European Made
Type	:	
Installation	:	Indoor
Rated Burden	:	10 VA

Ratio	:	1200/600:5A
Class	:	0.3
Rating factor	:	1.2
Short Circuit Capacity	:	100xIn
Frequency	:	60 Hz
BIL	:	10 kV
Standard	:	IEC 61869-2
Description	:	140 mm hole diameter

6.3	Ring Type Current Transformer for Main Breaker Protection	6 units

Ring Current Transformer for protection applications

Manufacturer	:	US or European Made
Type	:	
Installation	:	Indoor
Rated Burden	:	10 VA
Ratio	:	1200/600:5A
Class	:	10P10
Rating factor	:	1.2
Short Circuit Capacity	:	100xIn
Frequency	:	60 Hz
BIL	:	10 kV
Standard	:	IEC 61869-2
Description	:	140 mm hole diameter

6.4	Ring Type Current Transformer for Feeder Breaker Metering	12 units

Ring Current Transformer for metering applications

Manufacturer	:	US or European Made
Type	:	
Installation	:	Indoor
Rated Burden	:	10 VA
Ratio	:	600/300:5A
Class	:	0.3
Rating factor	:	1.2
Short Circuit Capacity	:	100xIn
Frequency	:	60 Hz
BIL	:	10 kV
Standard	:	IEC 61869-2
Description	:	90 mm hole diameter

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6.5	Ring Type Current Transformer for Feeder Breaker Protection	12 units

Ring Current Transformer for protection applications

Manufacturer	:	US or European Made
Type	:	
Installation	:	Indoor
Rated Burden	:	10 VA
Ratio		
: 600/300:5A Class		
: 10P10		
Rating factor	:	1.2
Short Circuit Capacity		
: 100xIn Frequency		
: 60 Hz BIL		
: 10 kV		
Standard	:	IEC 61869-2
Description	:	90 mm hole diameter

6.6	15KV Potential Transformer	3 units

Indoor Potential Transformer with Dry-type Cycloaliphatic Epoxy Resin Insulation for monitoring, control and protection of 15kV main feeder line and power transformer, a component of the above 15kV Metering Cubicle with the following specifications:

Manufacturer	:	US or European Made
Model	:	
Installation	:	Indoor
Type	:	Dry-type, Cast Resin Insulated
Frequency	:	60 Hz
Rated Voltage	:	15 kV
B.I.L.	:	110 kV
Core 1:		
Ratio	:	70:1
Class	:	0.3, W,X,Y
Core 2:		
Ratio	:	70:1
Class	:	0.3, W,X,Y
Thermal Burden	:	690VA @ 30 deg ambient temp.

6.7	24kV T-shape Screw–on Type Connector	6 sets

T-shaped Screw-on type Connector, for 95 up to 240 sq.mm XLPE Cable is

suitable for bushings according to DIN EN 50180 and DIN EN 50181, interface type C, rated current 630A/1250A.

Manufacturer	:	US or European Made
Voltage Class	:	24kV
Rated Current	:	630A

T-shaped plug-in termination SEHDT, Um up to 24 kV

- Conductor connection for compression connections.
- Available with conductive coating only.
- Optionally with additional metal housing.
- Each cross section is assigned an insulating body size.
- Suitable for double connection for a total current of 1250 A, whereas each individual plug may have a maximum current of 630 A.
- Capacitive voltage tap.

6.8	24kV Coupling Termination	1 set

Coupling Termination, for 95 up to 240 sq.mm XLPE Cable is suitable for bushings according to DIN EN
50180 and DIN EN 50181, interface type C, rated current 630A/1250A.

Manufacturer	:	US or European Made
Voltage Class		
:	24kV Rated Current	
:	630A	

Coupling termination SEHDK, Um up to 24 kV

- Conductor connection for a special clamping bolt suitable for Aluminum and copper conductors.
- Available with conductive coating only.
- Optionally with additional metal housing.
- Each cross section is assigned an insulating body size.

	6.9 Outdoor Termination Kit for 240 sq. mm. XLPE	6 sets

Heat-shrink type termination kit, for 240 sq. mm. XLPE Cable is suitable for up to 1250A.

Manufacturer	:	US or European Made
Installation	:	Outdoor
Voltage Rating	:	24kV

6.10	Outdoor Termination Kit for 95 sq. mm. XLPE	1 set

Heat-shrink type termination kit, for 95 sq. mm. XLPE Cable is suitable for up to 1250A.

Manufacturer	:	US or European Made
Installation	:	Outdoor
Voltage Rating	:	24kV

6.11	15kV, 240 sq. mm XLPE Power Cable	520 mtrs

Single core 240mm² copper stranded conductor, CTS-Copper Tape Screen, PVC UV resistant black outer sheath, 133% I.L., black intended for outdoor use.

Manufacturer	:	US or European Made
Rated Voltage	:	24kV
Insulation Level	:	133%
Shape of Conductor	:	Circular Stranded Compacted
Material of Conductor	:	Copper Class 2
Number of Wires	:	34
Material of Conductor Screen	:	Semi-conductive Compound
Material of Insulation Screen	:	Strippable Semi-conductive Compound
Material Screen	:	Copper Tape
Material of Sheath	:	PVC, black
Overall Diameter (approx.)	:	42.5mm

6.12	15kV, 95 sq. mm XLPE Power Cable	35 mtrs

Single core 95mm² copper stranded conductor, CTS-Copper Tape Screen, PVC UV resistant black outer sheath, 133% I.L., black intended for outdoor use.

Manufacturer	:	US or European Made
Rated Voltage	:	24kV
Insulation Level	:	133%
Shape of Conductor	:	Circular Stranded Compacted
Material of Conductor	:	Copper Class 2
Number of Wires	:	15
Material of Conductor Screen	:	Semi-conductive Compound
Material of Insulation Screen	:	Strippable Semi-conductive Compound
Material of Screen	:	Copper Tape
Material of Sheath	:	PVC, Black
Overall Diameter (approx.)	:	29 mm

7.0 Civil Works

Architectural Finishes

Roofs Framing/Roofing Sheets

Roof frames shall be made of angular steel with 2" x 4" C Purlins and complete with all other accessories such as sagrods,cross braces,anchor plates and etc. All structural steel sections,rolled shapes and plates shall conform to ASTM A36.
Roofing sheets shall be coloroof longspan,ribbed type Ga. 26 ,Gutter and ridge roll shall also be coloroof, but Ga 24. Color of roofing sheets and accessories shall be as per finished color desired by owner.

Ceiling and Finishes

Ceiling shall be of 6mm thick marine plywood on 2" x 2" Wood nailers. Wall to ceiling corners shall be provided with 2" wood cornice.
All ceiling and its parts shall be painted to desired color finish with one coat primer and three coats finish paint. All lumber framings shall be treated with termite protection agents of any brand approved by owner.

Walls and Finishes

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Exterior and interior walls shall be of 6" and 4" CHB respectively, non-load bearing.
Exterior walls shall be reinforced with 12 mm vertical bars and 10 mm horizontal bars while interior walls shall be reinforced with 10 mm deformed bars both for vertical and horizontal reinforcements; spacings as indicated on plans. All walls shall be painted to desired finish with surface preparation, one coat primer and three coats finish. Base board paints shall also be provided on all walls to floor corners.

Floors and Finishes

Floor shall be 100 mm thick concrete reinforced with 10 mm diameter deformed bars spaced as indicated on plans.
Floor finishes shall be provided with 400mm x 400mm granite tiles with 1mm space for grout .Also all door openings shall be provided with 8" wide granite tile threshold.
Finish floor for Control Room shall be elevated than the rest of the perimeter
Facilities at least by 200 mm.

Doors

All doors shall be made of steel frame (2" x 2" MS tubular) with Ga. 22 GI plain sheet (Door leaf cover),both sides on Steel jambs (2" x 6" C Purlins,Ga 18 with ¾" x ¾" square bar nosings on jambs.
Doors shall be provided with heavy duty hinges and door locks.For main door,
Foot and overhead bolts shall be provided.All door openings shall be provided
Concrete mouldings (casings) as shown on plans.

Windows

Windows at Front and two sides shall be sliding glass on analok frame while window at rear shall be 6" x 8" concrete louvers.All window openings shall be provided with concrete mouldings (casings) as shown on plans.

Wood Materials

All wood materials shall be treated with termite protection specifically for ceiling Joists and bridgings.

Painting

All paints to be used shall be Boysen or Dutchboy whether latex or enamel.

8.0 Environmental Compliance Certificate (ECC) and Discharge Permit and all other necessary Licenses and Permits required by DENR