REQUEST FOR PROPOSAL (herein RFP)

for the procurement of

ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15KV INDOOR METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES AND SUPPLIES.

RFP Opening

September 20, 2014

8:00 A.M. At the offices of the Chuuk Public Utility Corporation (CPUC)

PO Box 910, Weno, Chuuk State, FM 96942

Federated States of Micronesia

Attention: Chief Executive Officer

RFP # CPUC/PG/01

The CPUC issues this Request for Proposal (RFP) to result in a contract solution for the procurement of ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15KV INDOOR METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES, AND SUPPLIES.

RFP documents may be obtained from Mark Waite by e-mail at “cpuc_pgen@cpuc.fm” or by letter of request to Mark Waite, PO Box 910, Weno, Chuuk State, FM 96942, Federated States of Micronesia. Proposals will be received until September 19, 2014 at 4:30 p.m. at the above address and opened September 20, 2014 at 8:00 A.M.

Direct questions regarding this RFP to: Mark Waite at “cpuc_pgen@cpuc.fm” Methods and guidelines for submitting questions are detailed within the RFP documents.

RFP Timeline

July 21, 2014

Notice of RFP Issued

July 31, 2014

Pre-Proposal Meeting (Venue – GMP Office, Tamuning, Guam – details to be provided on issue of RFP document)

September 10, 2014

Deadline for RFP requests and questions

September 19, 2014

Deadline for Submission of Proposals

September 20, 2014

Opening of Proposals
# TABLE OF CONTENTS

1. INTRODUCTION ........................................................................................................4  
   A. Scope of This RFP ...............................................................................................4  
   B. Expectations for Equipment/Products and Services Being Proposed ...............5  
   C. Inquiry Period ..................................................................................................6  
      I. Pre-Proposal Conference ..............................................................................7  
2. DEFINITIONS ..........................................................................................................7  
   A. Proposer – Vendor ............................................................................................7  
   B. Contract ...........................................................................................................7  
   C. Time ..................................................................................................................7  
   D. Proposer’s Response .......................................................................................7  
   E. Currency ..........................................................................................................7  
   F. FOB .................................................................................................................8  
   G. Anti Corruption ..............................................................................................8  
3. INSTRUCTIONS FOR PREPARING YOUR PROPOSAL ..............................................8  
   A. Pre-Proposal Conference ...............................................................................8  
   B. Identification of Key Personnel ....................................................................9  
   C. Proposer’s Exceptions to Terms and Conditions ......................................9  
   D. Formal Instructions to Proposers ................................................................9  
   E. Questions and Answers About This RFP ...................................................10  
   F. Modification or Withdrawal of a Submitted Proposal .............................11  
   G. Value Added Attributes, Products/Services .............................................12  
   H. Certificate of Insurance ..............................................................................12  
   I. Bid Bond ......................................................................................................13  
4. PRICING STRATEGIES ...........................................................................................13  
   A. Requesting Product and Service Additions/Deletions after Award .............13  
   B. Requesting Pricing Changes .......................................................................14  
   C. Price and Product Changes Format .............................................................15  
   D. Single Statement of Pricing – Historical Record of Pricing .....................15  
   E. Payment Terms ..............................................................................................16  
   F. Sales Tax .......................................................................................................16  
   G. Shipping and Shipping Program .................................................................16  
   H. Normal Working Hours ...............................................................................17  
5. PROPOSAL OPENING PROCEDURE ...................................................................17  
6. EVALUATION OF PROPOSALS ...........................................................................18  
   A. Proposal Evaluation Process ......................................................................18  
   B. Proposer Responsiveness ............................................................................19  
   C. Proposal Evaluation Criteria .....................................................................19  
   D. Other Consideration ....................................................................................21  
   E. Cost Comparison ..........................................................................................22  
   F. Product Testing ..............................................................................................22  
   G. Past Performance Information ....................................................................22  
   H. Waiver of Formalities ..................................................................................22
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. TERMINATION</td>
<td>23</td>
</tr>
<tr>
<td>8. GENERAL TERMS AND CONDITIONS</td>
<td>24</td>
</tr>
<tr>
<td>A. Applicable Law</td>
<td>24</td>
</tr>
<tr>
<td>B. Assignment of Contract</td>
<td>25</td>
</tr>
<tr>
<td>C. List of Proposers</td>
<td>25</td>
</tr>
<tr>
<td>D. Captions, Headings, and Illustrations</td>
<td>25</td>
</tr>
<tr>
<td>E. Data Practices</td>
<td>26</td>
</tr>
<tr>
<td>F. Entire Agreement</td>
<td>26</td>
</tr>
<tr>
<td>G. Force Majeure</td>
<td>26</td>
</tr>
<tr>
<td>H. Gratuities</td>
<td>27</td>
</tr>
<tr>
<td>I. Hazardous Substances</td>
<td>27</td>
</tr>
<tr>
<td>J. Legal Remedies</td>
<td>27</td>
</tr>
<tr>
<td>K. Licenses</td>
<td>27</td>
</tr>
<tr>
<td>L. Material Suppliers and Sub-Contractors</td>
<td>27</td>
</tr>
<tr>
<td>M. Non-Waiver of Rights</td>
<td>28</td>
</tr>
<tr>
<td>N. Protests of Awards Made</td>
<td>28</td>
</tr>
<tr>
<td>O. Provisions Required by Law</td>
<td>28</td>
</tr>
<tr>
<td>P. Right to Assurance</td>
<td>28</td>
</tr>
<tr>
<td>Q. Suspension or Disbarment Status</td>
<td>29</td>
</tr>
<tr>
<td>R. Severability</td>
<td>29</td>
</tr>
<tr>
<td>S. Relationship of Parties</td>
<td>29</td>
</tr>
<tr>
<td>T. Performance Bond</td>
<td>29</td>
</tr>
<tr>
<td>U. Bribes and Kickbacks</td>
<td>29</td>
</tr>
<tr>
<td>V. Right to Audit &amp; Record Keeping</td>
<td>30</td>
</tr>
<tr>
<td>9. TECHNICAL REQUIREMENTS OF ELECTRICAL ENERGY GENERATION EQUIPMENT</td>
<td>30</td>
</tr>
<tr>
<td>10. TECHNICAL REQUIREMENTS OF 15KV INDOOR METALCLAD SWITCHGEAR</td>
<td>42</td>
</tr>
<tr>
<td>11. PRE-SUBMISSION CHECKLIST</td>
<td>74</td>
</tr>
</tbody>
</table>

**ATTACHMENTS**

- Form A: Proposer Questionnaire – General Business Information
- Form B: Proposer Information
- Form C: Exceptions to Proposal, Terms, Conditions, and Solutions Request
- Form D: Formal Offering of Proposal
- Form E: Contract Acceptance and Award
- Form F: Proposer Assurance of Compliance
- Form G: Overall Evaluation and Criteria
- Form H: Insurance Schedule
- Form I: Proposer Questionnaire – Products/Equipment, Pricing, Sector Specific, Services, Terms and Warranty
- Form J: CPUC Vendor Price and Product Change Request Form
1. INTRODUCTION

A. SCOPE OF THIS RFP

1.1 The scope, goal and intent of this RFP is to award a contract to a qualifying vendor defined as a manufacturer, provider, or dealer/distributor, established as a Proposer, and deemed responsive through our open and competitive proposal process. Vendors will be awarded contracts based on the proposal and responders demonstrated ability to meet the expectations of the RFP and demonstrate the overall highest valued solutions which meet and/or exceed the current and future needs and requirements of the CPUC within the scope of ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15KV INDOOR METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES, AND SUPPLIES. Qualifying Proposers who are able to anticipate the current and future needs and requirements of the CPUC and demonstrate the knowledge of any and all applicable industry standards, laws and Regulations are deemed responsive. All proposals deemed responsive will be evaluated based on their ability to provide the overall highest value to the CPUC.

1.2 Best and Most Responsive – Responsible Proposer: It is the intent of the CPUC to award a Contract to the best and most responsible and responsive Proposer(s) offering the best overall quality and selection of equipment/products and services meeting the commonly requested specifications, provided the Proposer’s Response has been submitted in accordance with the requirements of this RFP.

1.3 Sealed Proposals: The CPUC will receive sealed proposal responses to this RFP in accordance with accepted standards set forth in The CPUC Procurement Code. Awards may be made to responsible and responsive Proposers whose proposals are determined in writing to be the most advantageous to the CPUC.

1.4 Use of Contract: Any Contract resulting from this solicitation shall be awarded with the understanding that it is for the sole convenience of the CPUC and it reserves its right to obtain like product/equipment and services solely from this Contract or from another contract source of their choice or from a contract resulting from their own procurement process.

1.5 Awarded Vendor’s interest in a contract resulting from this RFP: Awarded Vendor will be able to offer to the CPUC, only those products/equipment and services specifically awarded on their Contract. Awarded Vendors may not offer as “contract compliant”, products/equipment and services which are not specifically identified and priced in their Contract.

1.6 Manufacturer as a Proposer: If the Proposer is a Manufacturer or wholesale distributor, the response received will be evaluated on the basis of a response made in conjunction with that Manufacturer’s authorized Dealer Network. Unless stated otherwise, a Manufacturer or wholesale distributor Proposer is assumed to have a documented relationship with their Dealer Network where that Dealer Network is informed of, and authorized to accept, purchase orders
pursuant to any Contract resulting from this RFP on behalf of the Manufacturer or wholesale distributor Proposer. Any such dealer will be considered a sub-contractor of the Proposer/Vendor. The relationship between the Manufacturer and wholesale distributor Proposer and its Dealer Network may be proposed at the time of the proposed submission if that fact is properly identified.

1.7 Dealer/Re-seller as a Proposer: If the Proposer is a dealer or re-seller of the products and/or services being proposed, the response will be evaluated based on the Proposer’s authorization to provide those products and services from their manufacturer. Where appropriate, Proposers must document their authority to offer those products and/or services.

1.8 Contract Term: At CPUC’s option a contract resulting from this RFP will become effective on the date awarded by the CPUC.

1.9 The CPUC is seeking a Contract base term of four years subject to annual renewals as allowed by FSM and/or Chuuk Contracting Law. Full term is expected, however will only occur through successful annual renewals. One additional one-year renewal-extension may be offered by the CPUC to Vendor beyond the original four year term if the CPUC deems such action to be in its best interests.

B. EXPECTATIONS FOR EQUIPMENT/PRODUCTS AND SERVICES BEING PROPOSED

1.10 Industry Standards: Except as contained herein, the specifications or solutions for this RFP shall be those accepted guidelines set forth by the ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15 KV INDOOR METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES, AND SUPPLIES. industry, as they are generally understood and accepted within that industry. Submitted products/equipment, related services, and their warranties and assurances are required to meet and/or exceed all current, traditional and anticipated needs and requirements of the CPUC.

1.10.1 Deviations from industry standards must be identified by the Proposer and explained how, in their opinion, the equipment/products and services they propose will render equivalent functionality, coverage, performance, and/or related services. Failure to detail all such deviations may comprise sufficient grounds for rejection of the entire proposal.

1.10.2 Technical Descriptions/Specifications. Proposers must supply sufficient information to:
• Demonstrate the Proposer’s knowledge of industry standards, and
• Identify the equipment/products and services being proposed, and
• Differentiate those products and services from others.
Excessive technical descriptions and specifications which, in the opinion of the CPUC unduly enlarge the proposal response may reduce evaluation points awarded on Form G.
1.11 **Important Note:** The CPUC does not typically provide product and service specifications; rather is requesting an industry standard or accepted specification for the requested product/equipment and services. Where specific line items are specified, those line items should be considered the minimum which can be expanded by the Proposer to deliver the Proposer’s “Solution” to the CPUC.

1.12 **Commonly used Product/Equipment and Services:** It is important that the equipment/products and services submitted are the equipment/products and services commonly used by public sector entities.

1.13 **New Current Model Product/Equipment:** Proposals submitted shall be for new, current model products and services.

1.14 **Compliance with laws and standards:** All items supplied on this Contract shall comply with any current applicable safety or regulatory standards or codes.

1.15 **Delivered and Operational:** Products/equipment offered herein are to be proposed based upon being delivered and operational at the CPUC’s site. Exceptions to “delivered and operational” must be explicitly disclosed in the “Total Cost of Acquisition” section of your proposal response.

1.16 **Warranty:** The Proposer warrants that all products, equipment, supplies, and services delivered under this Contract shall be covered by the industry standard or better warranty. All products and equipment should carry a minimum industry standard manufacturer’s warranty that includes materials and labor. The Proposer has the primary responsibility to submit product specific warranty as required and accepted by industry standards. Dealer/Distributors agree to assist the purchaser in reaching a solution in a dispute over warranty’s terms with the manufacturer. Any manufacturer’s warranty which is effective past the expiration of the warranty will be passed on to the CPUC. Failure to submit a minimum warranty may result in non-award.

1.17 **Proposer’s Warrants:** The Proposer warrants all products/equipment and related services furnished hereunder will be free from liens and encumbrances; defects in design, materials, and workmanship; and will conform in all respects to the terms of this RFP including any specifications or standards. In addition, Proposer/Vendor warrants the products/equipment and related services are suitable for and will perform in accordance with the purposes for which they were intended.

C. **INQUIRY PERIOD**

1.18 The inquiry period shall begin at the date of first advertisement and continue to the “Deadline for Requests”. RFP packages shall be distributed to Potential Bidders during the inquiry period. The purpose for the defined “Inquiry Period” is to provide a finite group of Potential Bidders to invite to, and attend the pre-bid conference.
I. PRE-PROPOSAL CONFERENCE

1.19 All Potential Bidders inquiring during the inquiry period will be invited to the OPTIONAL “Pre-Bid Conference” via the e-mail address used to make their inquiry. The purpose of the pre-bid conference is to allow Potential Bidders to ask questions and hear answers from their own questions and the questions of other Potential Bidders.

2. DEFINITIONS

A. PROPOSER - VENDOR

2.1 Exclusive Vendor- A sole Vendor awarded in a product category.

2.2 Potential Proposer- A person or entity requesting a copy of this RFP.

2.3 Proposer- A company, person, or entity delivering a timely response to this RFP.

2.4 Vendor- One of a number of Proposers whose proposal has been awarded a contract pursuant to this RFP.

2.5 Request for Proposal- Herein referred to as RFP

B. CONTRACT

2.6 “Contract” as used herein shall mean cumulative documentation consisting of this RFP, fully executed forms C, D, F, H, & P from the Proposer’s response pursuant to this RFP, and a fully executed form E, “Acceptance and Award” with final terms and conditions. Form E will be executed on or after award and will provide final clarification of terms and conditions of the award.

C. TIME

2.7 Periods of time, stated as number of days, shall be in calendar days.

D. PROPOSER’S RESPONSE

2.8 A Proposer’s Response is the entire collection of documents as they are received by the CPUC from a Potential Proposer in response to this RFP.

E. CURRENCY

2.9 All transactions are payable in U.S. dollars. All administrative fees are to be paid in U.S. dollars.
F. FOB

2.10 FOB stands for “Freight On Board” and defines the point at which responsibility for loss and damage of product/equipment purchased is transferred from Seller to Buyer. “FOB Destination” defines that transfer of responsibility for loss is transferred from Seller to Buyer at the Buyer’s designated delivery point. That point of designated delivery is the Chuuk Port of Weno.

2.11 FOB does not identify who is responsible for the costs of shipping. The responsibility for the costs of shipping is addressed elsewhere in this document.

G. ANTI CORRUPTION

2.12 “Kickback” is the offering, promising to make, making, taking or receiving of any money, fee, commission, credit, gift, gratuity, thing of value or compensation of any kind, which is provided directly or indirectly to any prime contractor, prime contractor employee, subcontractor or subcontractor employee for any corrupt purpose, or improperly obtaining or rewarding favorable treatment in connection with a transaction contemplated by or entered into by the Proposer/Vender.

2.13 “Corrupt” or “Improper” act or purpose means anything having improper motive and shall include payments of any kind intended to influence CPUC, government official, customer, supplier or vendor to misuse his/her official position to secure any improper advantage or commit nonfeasance or influence any official act (or failure to act) in violation of his/her proper or lawful duty.

2.14 “Bribe” is the offering, promising to make, making, taking or receiving of a payment or inducement of monetary or non-monetary value for an improper or corrupt purpose.

3. INSTRUCTIONS FOR PREPARING YOUR PROPOSAL

A. PRE-PROPOSAL CONFERENCE

3.1 A non-mandatory pre-proposal conference will be held at the date and time specified in the time line on page one of this RFP. Conference call and web connection information will be sent to all Potential Proposers through the same means employed in their inquiry. The purpose of this conference call is to allow Potential Proposers to ask questions regarding this RFP. Only answers issued in writing by the CPUC to questions asked before or during the Pre-proposal Conference shall be considered binding.
B. IDENTIFICATION OF KEY PERSONNEL

3.2 Vendor will designate one senior staff individual who will represent the awarded Vendor to the CPUC. This contact person will correspond with members for technical assistance, questions or problems that may arise.

3.3 Individuals should also be identified (if applicable) as the primary contacts for the contents of this proposal, marketing, sales, and any other area deemed essential by the Proposer.

C. PROPOSER’S EXCEPTIONS TO TERMS AND CONDITIONS

3.4 Any exceptions, deviations, or contingencies a Proposer may have to the terms and conditions contained herein must be documented on Form C.

3.5 Exceptions, deviations or contingencies stipulated in Proposer’s Response, while possibly necessary in the view of the Proposer, may result in disqualification of a Proposal Response.

D. FORMAL INSTRUCTIONS TO PROPOSERS

3.6 It is the responsibility of all Proposers to examine the entire RFP package, to seek clarification of any item or requirement that may not be clear and to check all responses for accuracy before submitting a Proposal. Negligence in preparing a Proposal confers no right of withdrawal after the deadline for submission of proposals.

3.7 All proposals must be sent to “The CPUC PO Box 910, Weno, Chuuk State, FM 96942, Federated States of Micronesia.

3.8 Format for proposal response: All proposals must be physically delivered to the CPUC at the above address in the following format:

3.8.1 Hard copy original signed, completed, and dated forms C, D, F, H and hard copy signed signature page only from forms A and P from this RFP,

3.8.2 Hard copies of all addenda issued for the RFP with original counter signed by the Proposer.

3.8.3 Certificate of insurance verifying the coverage identified in this RFP.

3.8.4 Two complete copies of your response on a CD (Compact Disc) or flash drive. The first copy shall be identified as the “Evaluation Copy” and the second copy will be identified as the “Public Records” copy. Both copies shall contain completed Forms A, B, C, D, F, H, & P, your statement of products and pricing together with all appropriate attachments, a copy of your audited financial statements from last three years (or an unaudited copy if an audited copy is not
available). However, your “Public Record Copy” shall have all “Nonpublic information” redacted. You will be responsible for citing specific legal authority for each redaction as identified herein upon submission of your Response.

3.9 All Proposal forms must be submitted in English and be legible. All appropriate forms must be executed by an authorized signatory of the Proposer. Blue ink is preferred for signatures.

3.10 Proposal submissions should be prepared using the electronic forms provided. If a Proposer chooses to use alternative documents for their response, the proposer will be responsible for ensuring the content is effectively equal to the CPUC form and the document is in a format readable by the CPUC.

3.11 It is the responsibility of the Proposer to be certain the proposal submittal is in the physical possession of the CPUC on or prior to the deadline for submission of proposals.

3.11.1 Proposals must be submitted in a sealed envelope or box properly addressed to the CPUC and prominently identifying the proposal number, proposal category name, the message “Hold for Proposal Opening”, and the deadline for proposal submission. The CPUC cannot be responsible for late receipt of proposals. Proposals received by the correct deadline for proposal submission will be opened and the name of each Proposer and other appropriate information will be publicly read.

3.12 Corrections, erasures, and interlineations on a Proposer’s Response must be initialed by the authorized signer in original ink on all copies to be considered.

3.13 Addendums to the RFP: The Proposer is responsible for ensuring receipt of all addendums to this RFP.

3.13.1 Proposer’s are responsible for checking directly with the CPUC for addendums to this RFP.

3.13.2 Addendums to this RFP can change terms and conditions of the RFP including the deadline for submission of proposals.

E. QUESTIONS AND ANSWERS ABOUT THIS RFP

3.14 Upon examination of this RFP document, Proposer shall promptly notify the CPUC of any ambiguity, inconsistency, or error they may discover. Interpretations, corrections and changes to this RFP will be made by the CPUC through addendum. Interpretations, corrections, or changes made in any other manner will not be binding and Proposer shall not rely upon such.
3.15 Submit all questions about this RFP, in writing, referencing “ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15KV INDOOR METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES, AND SUPPLIES” to Mark Waite, PO Box 910, Weno, Chuuk State, FM 96942, Federated States of Micronesia or cpuc-pgen@cpuc.fm. Requests for additional information or interpretation of instructions to Proposers or technical specifications shall also be addressed to Mark Waite. The CPUC urges Potential Proposers to communicate all concerns well in advance of the deadline to avoid misunderstandings. Questions received less than ten (10) days ending at 4:00 p.m. of the tenth calendar day prior to proposal due-date cannot be answered.

3.16 If the answer to a question is deemed by the CPUC to have a material impact on other potential proposers or the RFP itself, the answer to the question will become an addendum to this RFP.

3.17 If the answer to a question is deemed by the CPUC to be a clarification of existing terms and conditions and does not have a material impact on other potential proposers or the RFP itself, no further documentation of that question is required.

3.18 As used in this solicitation, clarification means communication with a Potential Proposer for the sole purpose of eliminating minor irregularities, informalities, or apparent clerical mistakes in the RFP.

3.19 Addenda are written instruments issued by the CPUC that modify or interpret the RFP. All addenda issued by the CPUC shall become a part of the RFP. Addenda will be delivered to all Potential Proposers using the same method of delivery of the original RFP material. The CPUC accepts no liability in connection with the delivery of said materials. Copies of addenda will also be made available on the CPUC website at www.cpuc.fm by clicking on “Current and Pending Solicitations” and from the CPUC offices. No questions will be accepted by the CPUC later than ten (10) days prior to the deadline for receipt of proposals, except an addendum withdrawing the request for proposals or one that includes postponement of the date of receipt of proposals. Each Potential Proposer shall ascertain prior to submitting a Proposal that it has received all addenda issued, and the Proposer shall acknowledge their receipt in its Proposal Response.

3.20 An amendment to a submitted proposal must be in writing and delivered to CPUC no later than the time specified for submission of all proposals.

F. MODIFICATION OR WITHDRAWAL OF A SUBMITTED PROPOSAL

3.21 A submitted proposal may not be modified, withdrawn from or cancelled by the Proposer for a period of ninety (90) days following the date proposals were opened regarding this RFP. Prior to the deadline for submission of proposals, any proposal submitted may be modified or withdrawn by notice to the CPUC CEO. Such notice shall be submitted in writing and include the signature of the Proposer and shall be delivered to the CPUC prior to the deadline for
submission of proposals and it shall be so worded as not to reveal the content of the original proposal. However, the original proposal shall not be physically returned to the Potential Proposer until after the official proposal opening. Withdrawn proposals may be resubmitted up to the time designated for the receipt of the proposals if they are then fully in conformance with the Instructions to Proposer.

G. VALUE ADDED ATTRIBUTES, PRODUCTS/SERVICES

3.22 Examples of Value Added Attributes: Value-Added attributes, products and services are items offered in addition to the products and services being proposed which adds value to those items being proposed. The availability of a contract for maintenance or service after the initial sale, installation, and set-up may, for instance, be “Value Added Services” for products where a typical buyer may not have the ability to perform these functions.

3.23 Where to document Value Added Attributes: The opportunity to indicate value added dimensions and such advancements will be available in the Proposer’s Questionnaire and Proposer’s product and service submittal.

3.24 Value added equipment/products and services and expanded services, as they relate to this RFP, will be given positive consideration in the award selection. Consideration will be given to an expanded selection of “ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15KV INDOOR METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES, AND SUPPLIES.”, and advances to provide products/services, supplies meeting and/or exceeding today’s industry standards and expectations. A value added would include a program or service that further serves the CPUC’s needs above and possibly beyond standard expectation and complements the equipment/products and services and training. Value added could include areas of product and service, sales, ordering, delivery, performance, maintenance, technology, and service that furthers the functionality and effectiveness of the procurement process while remaining within the scope of this RFP.

3.25 On-Line Requisitioning systems: When applicable, on-line requisitioning systems will be viewed as a value-added characteristic. Proposer shall include documentation about user interfaces that make online ordering easy for the CPUC.

3.26 Financing: The ability of the Proposer to provide financing options for the products and services being proposed will be viewed as a Value Added Attribute.

H. CERTIFICATE OF INSURANCE

3.27 Vendors must review the insurance requirements specified in Form H, Insurance Schedule. Proposer shall provide evidence of liability insurance coverage identified below in the form of an ACCORD binder form with their proposal. Upon Award issued pursuant to this contract, and prior to the execution of any commerce relating to such award, Vendor will be responsible for providing verification, in the form of an ACCORD binder identifying the
coverage required below and identifying the CPUC as a “Certificate Holder” and an “Additional Insured”. Vendor will be responsible to maintain such insurance coverage at their own expense throughout the term of any contract resulting from this solicitation.

3.28 Any exceptions and/or assumptions to the insurance requirements must be identified on Attachment C. Exceptions and/or assumptions will be taken into consideration as part of the evaluation process; however, vendors must be specific. If vendors do not specify any exceptions and/or assumptions at time of proposal submission, the CPUC will not consider any additional exceptions and/or assumptions during negotiations. Upon contract award, the successful vendor must provide the Certificate of Insurance identifying the coverages as specified in Form H, Insurance Schedule for RFP.

3.29 The awarded vendor must maintain, for the duration of its contract, insurance coverages as set forth in the Insurance Schedule of the contract form appended to this RFP. Work on the contract shall not begin until after the awarded vendor has submitted acceptable evidence of the required insurance coverages. Failure to maintain any required insurance coverage or acceptable alternative method of insurance will be deemed a breach of contract.

I. BID BOND

3.30 A Bid Bond shall be included in the RFP package amounting to 2% of the Proposer’s submitted total cost for this RFP. Upon selection of the successful Proposer, the Bid Bonds for those Proposers not selected shall be promptly returned. The Bid Bond for the selected Proposer will be returned at the time of contract execution.

4. PRICING STRATEGIES

A. REQUESTING PRODUCT/EQUIPMENT AND RELATED SERVICE ADDITIONS/DELETIONS AFTER AWARD

4.1 Requests for product/equipment and related services, price changes, additions, deletions, or any related contract changes must be made in written form and shall be subject to approval by CPUC.

4.2 New equipment/products and related services may be added to a Contract resulting from this RFP at any time during that Contract to the extent those equipment/products and related services are within the scope of this RFP. Those requests are subject to review and approval of the CPUC. Allowable new equipment/products and related services generally include new updated models of equipment/products and related services and or enhanced services previously offered which could reflect new technology and improved functionality.

4.3 Proposers representing multiple manufacturers, or carrying multiple related product lines may also request the addition of new manufacturers or product lines to their Contract to the extent they remain within the scope of this RFP.
4.4 CPUC’s due diligence in analyzing any request for change is to determine if approval of the request is 1) within the scope of the original RFP, and 2) in the “Best Interests of the CPUC”. We are looking for consistent pricing and delivery mechanisms and an understanding of what value the proposal brings to the CPUC.

4.5 Documenting the “Best Interests of the CPUC” when outdated equipment is being deleted is fairly straightforward since the product is no longer available and not relevant to the procurement Contract.

4.6 Requests must be in the form of 1) a cover letter to the CPUC a) asking to add the product/equipment line, b) making a general statement identifying how the products to be added are within the scope of the original RFP, and c) making a general statement identifying that, if appropriate, the pricing is consistent with the existing Contract pricing and 2) the detail as to what is being added at what price will then be an attachment to that cover letter. Pending approval of your request by the CPUC you will need to provide a complete re-statement of all pricing including all new prices/products AND existing prices and products/equipment.

4.7 CPUC’s intent is to encourage Proposers to provide and document CPUC’s due diligence in a clear and concise one page format on which we can approve and sign our acknowledgment and acceptance. This information must ultimately come from Proposers, and the CPUC is requiring it in this format.

B. REQUESTING PRICING CHANGES

4.8 Price Decreases: Requests for standard Contract price decrease adjustments (percentage discount increases) are encouraged and will be allowed at any time based on market place efficiencies, market place competitiveness, improved technologies and/or improved methods of delivery or if Vendor engages in innovative procurement practices such as strategic sourcing, aggregate and volume purchasing. CPUC expects Vendors to propose their very best prices and anticipates price reductions due to the advancement of technologies and market place efficiencies. Documenting the “Best Interests of the CPUC” is highly valued when we are documenting price reductions.

4.9 Price increases: Requests for standard contract price increases (or the inclusion of new generation products/equipment/services at higher prices) can be made at any time. These requests will again be evaluated by the CPUC based on the best interests of the CPUC. As an example, typically acceptable requests for price increases for existing equipment/products and services may cite increases to the Vendor of input costs such as petroleum or other applicable commodities. Typically acceptable requests for price increases for new equipment/products and services enhance or improve on the current solutions currently offered as well as cite increases in utility of the new compared to the old. Vendors are requested to reasonably document the claims cited in their requests. Your written request for a price increase,
therefore, is an exercise in describing what you need, and a justification for why you need it in sufficient detail for the CPUC to deem such change to be in the best interests of ourselves.

4.10 **Price Change Request Format**: An awarded Proposer will use the format of a cover letter requesting price increases in general terms (a 5% increase in product line X) and stating their justification for that price increase (due to the recent increase in petroleum or raw material costs) by product category. Specific details for the requested price change must be attached to the request letter identifying product/services where appropriate, both current and proposed pricing. Attachments such as letters from suppliers announcing price increases are appropriate for documenting your requests here.

C. PRICE AND PRODUCT CHANGES FORMAT

4.11 All price and product change requests must be submitted using the **CPUC VENDOR PRICE AND PRODUCT CHANGE REQUEST FORM** found at the very end of this solicitation. CPUC’s due diligence regarding product and price change requests is to consider the reasonableness of the request and document consideration on behalf of our members. Submit the following documentation to request a pricing change:

4.11.1 An excel spreadsheet identifying all equipment/products and services being offered and their pricing. Each subsequent pricing update will be saved using the naming convention of “(Vendor Name) pricing effective XX/XX/XXXX.”

a. Include all equipment/products and services regardless of whether their prices have changed. By observing this convention we will:

   i. Reduce confusion by providing a single, easy to find, current pricing sheet for each Vendor.

   ii. Create a historical record of pricing.

CPUC VENDOR PRICE AND PRODUCT CHANGE REQUEST FORM

D. SINGLE STATEMENT OF PRICING/HISTORICAL RECORD OF PRICING

4.12 Initially; and again with each request for product addition, deletion, and/or pricing change; you must state all pricing for all equipment/products and services available. The request for price changes described above will serve as the documentation for those requested changes. Each complete pricing list will be identified by its “Effective Date.” Each successive price listing identified by its “Effective Date” will create a “Product and Price History” for the Contract.

4.13 Proposers may use the multiple tabs available in an Excel workbook to separately list logical product groupings or to separately list product and service pricing as they see fit.
4.14 All equipment/products and services together with their pricing, whether changed within
the request or remaining unchanged, will be stated on each “Pricing” sheet created as a result of
each request for product, service, or pricing change.

4.15 Each subsequent “Single Statement of Product and Pricing” will be archived by its
effective date therefore creating a product and price history for any Contract resulting from this
RFP. Proposers are required to create a historical record of pricing annually by submitting
updated pricing referred to as a “Single Statement of Product/Equipment and Related Services
Contract Price Update”. This pricing update is required at a minimum of once per contract
year.

E. PAYMENT TERMS

4.16 Payment terms will be defined by the Proposer in the Proposer’s Response. Proposers are
encouraged to offer payment terms applicable to the customary method of procurement relating
to the contracted product/equipment and related services.

F. SALES TAX

4.17 Sales and other taxes, where applicable, shall not be included in the prices quoted.
Vendor will charge local sales and other taxes on items for which a valid tax exemption
certification has not been provided.

G. SHIPPING AND SHIPPING PROGRAM

4.18 Shipping program for material only proposals, or sections of proposals, must be defined
as a part of the cost of product/equipment.

4.19 Additional costs for expedited deliveries will be at the additional shipping or handling
expense to the CPUC.

4.20 Proposer agrees shipping errors will be at the expense of the Vendor. For example, if a
Vendor ships a product that was not ordered by the member, it is the responsibility of the
Vendor to pay for return mail or shipment at the convenience of the CPUC.

4.21 Unless specifically stated otherwise in the “Shipping Program” of a Proposer’s
Response, all prices quoted must be F.O.B. destination with the freight prepaid by the Vendor.
Delivery effectiveness is very important aspect of this Contract. If completed deliveries are
not made at the time agreed, the CPUC reserves the right to cancel and purchase elsewhere and
hold Vendor accountable. If delivery dates cannot be met, Vendor agrees to advise the CPUC
of the earliest possible shipping date for acceptance by the CPUC.

4.22 Delivered products/equipment must be properly packaged. Damaged
products/equipment will not be accepted, or if the damage is not readily apparent at the time of
delivery, the products/equipment shall be returned at no cost to the CPUC. The CPUC reserves the right to inspect the product/equipment at a reasonable time subsequent to delivery where circumstances or conditions prevent effective inspection of the product/equipment at the time of delivery.

4.23 Vendor shall deliver Contract conforming products/equipment in each shipment and may not substitute products/equipment without approval from the CPUC.

4.24 CPUC reserves the right to declare a breach of Contract if the Vendor intentionally delivers substandard or inferior products/equipment which are not under Contract and described in its paper or electronic price lists. In the event of the delivery of a non-conforming product/equipment, the CPUC will immediately notify Vendor and the Vendor will replace non-conforming product/equipment with conforming product/equipment acceptable to the CPUC.

4.25 Throughout the term of the Contract, Proposer agrees to pay for return shipment on product/equipment that arrives in a defective or inoperable condition. Proposer must arrange for the return shipment of damaged product/equipment.

4.26 Unless contrary to other parts of this solicitation, if the product/equipment or the tender of delivery fail in any respect to conform to this Contract, the CPUC may: 1) reject the whole, 2) accept the whole or 3) accept any commercial unit or units and reject the rest.

H. NORMAL WORKING HOURS

4.27 Prices quoted are for equipment/products and services delivered during normal business hours. Normal Business hours will be as specifically defined herein, defined through industry standards or defined through statement contained in the purchase/work order issued pursuant to a Contract resulting from this RFP.

5. PROPOSAL OPENING PROCEDURE

5.1 Sealed and properly identified Proposer’s Responses for this RFP entitled “ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15KV INDOOE METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES, AND SUPPLIES” will be received by Mark Waite CEO, at the CPUC Office, Box 910, Weno, Chuuk State, FM 96942, Federated States of Micronesia until the deadline for receipt of, and proposal opening identified on page one of this RFP. We document the receipt by electronically time and date stamping all Proposals immediately upon receipt. The CPUC CEO, will then read the Proposer’s names aloud. A summary of the responses to this RFP will be made available for public inspection in the CPUC office in Weno, Chuuk. A letter or e-mail request is required to receive a complete RFP package. Send or communicate all requests to the attention of Mark Waite, PO Box 910, Weno, Chuuk State, FM 96942, Federated States of Micronesia, or by e-mail at cpuc-pgen@cpuc.fm to receive a complete copy of this RFP.
Method of delivery needs to be indicated in the request; an email address is required for electronic transmission. Oral, facsimile, telephone or telegraphic Proposal Submissions or requests for this RFP are invalid and will not receive consideration. All Proposal Responses must be submitted in a sealed package. The outside of the package shall plainly identify “ELECTRICAL ENERGY GENERATION EQUIPMENT AND 15KV INDOOR METALCLAD SWITCHGEAR WITH RELATED ACCESSORIES, SERVICES, AND SUPPLIES.” To avoid premature opening, it is the responsibility of the Proposer to label the Proposal Response properly.

6. EVALUATION OF PROPOSALS

A. PROPOSAL EVALUATION PROCESS

6.1 Overall Evaluation (FORM G) - The CPUC will evaluate proposals received based on a 1,000 point evaluation system. The CPUC will establish both the evaluation criteria and designate the relative importance of those criteria by assigning possible scores for each category.

6.2 The CPUC will use a 1,000 Point Evaluation System to help determine the best overall Proposer(s).

6.2.1. Bonus Evaluation Points- Bonus evaluation points may be awarded by the CPUC based on criteria identified as being both “optional” and “having additional value.”

6.3 The CPUC shall use a final overall scoring system to include consideration for best price and cost evaluation. The total possible score is 1,000 points. CPUC reserves the right to assign any number of point awards or penalties it considers warranted if a Proposer stipulates exceptions, exclusions, or limitations of liabilities.

6.4 Responses will be evaluated first for responsiveness and thereafter for content. The CPUC will make awards to the selected Proposer(s) based on the recommendations of the Proposal Evaluation Committee.

6.5 To qualify for the final evaluation, a Proposer must have been deemed responsive as a result of the criteria set forth under “Proposer Responsiveness.”

6.6 CPUC uses a variety of evaluation methodologies, including but not limited to a cost comparison of specific and deemed to be like equipment/products. These processes establish final points for submitted price levels.

6.7 The procurement activities of the CPUC Proposal Evaluation Committee are limited to document preparation, answering Proposer questions, advertising the solicitation, distribution of this RFP upon request, conducting an evaluation and making recommendation for possible approval to CPUC CEO.
B. PROPOSER RESPONSIVENESS

6.8 Proposer’s Response received after the deadline for submission will be invalid and returned to the Potential Proposer unopened.

6.9 An essential part of the proposal evaluation process is an evaluation to qualify the Proposer being considered. All proposals must contain answers or responses to the information requested in the proposal forms. Any Proposer failing to provide the required documentation may be considered non-responsive.

6.10 Deviations or exceptions stipulated in Proposer’s Response may result in the proposal being classified as non-responsive.

6.11 To qualify for evaluation, a proposal must have been submitted on time and materially satisfy all mandatory requirements identified in this document. A proposal must reasonably and substantially conform to all the terms and conditions in the solicitation to be considered responsive.

6.12 The Proposal Evaluation Committee shall utilize the following criteria to evaluate all proposals received. Items 1-4 constitute the test for “Level One Responsiveness” and are determined on the proposal opening date. “Level 2” responsiveness is determined through the evaluation of the remaining items listed under Proposal Evaluation Criteria. These items are not arranged in order of importance and each item may encompass multiple areas of information requested.

1. The proposal response is received prior to the deadline for submission.
2. The proposal package was properly addressed and identified as a sealed proposal with a specific opening date and time.
3. The proposal response contains the required certificate of liability insurance.
4. The proposal response contains original signatures on all documents requiring such.

C. PROPOSAL EVALUATION CRITERIA

6.13 Reduction of Evaluation Points. The following items will be sufficient cause to reduce evaluation points.

6.13.1 If a manufacturer or supplier chooses not to produce or supply a full selection and representation of product/equipment and related services it has available which fall within the scope of this RFP, such action will be considered sufficient cause to reduce evaluation points.
6.14 Evaluation Criteria. Evaluation of each Proposer’s Response will take into consideration as a minimum response but not necessarily limited to the following:

1. Adherence to all requirements of this RFP as defined by industry standards.
2. Prior knowledge of and experience with a Proposer in terms of past performance and market place success.
3. Capability of meeting or exceeding current and future needs or requirements of CPUC.
4. Evaluation of Proposer’s ability to market to and provide service to the CPUC.
5. Financial condition of the Proposer.
7. Quality of products, equipment, and services offered including value added related services.
8. History of member service to CPUC type customers.
9. Overall ability to perform sales, solutions and contract support as submitted.
10. Ability to meet service and warranty needs.
11. History of meeting shipping and delivery expectations of contracted products/services.
12. Technology advancements and related provisions.
13. Ability to market and promote the Contract within current business practices.
14. Willingness to develop and enter into CPUC Contract and business relations.
15. Favorable bond rating and applicable industry standard licensing ability.
16. Past market place successes and brand recognition.
17. Demonstrated warranty and product/service responsibility.
18. Possesses qualifications as a responding Proposer that meets or exceeds those set within the solicitation.
19. Information from government references and past performance information including past CPUC approval.
20. Demonstrates that they offer the most current industry standard equipment/products and related services.
21. Demonstrates financial stability as a company and a favorable banking line of credit.
22. Demonstrates their equipment/products and related services proposed meet and/or exceed industry standards accepted by governmental agencies world wide.
23. Demonstrates market place success and their past performance exhibits an acceptable reputation world wide within the government market place.
24. Demonstrates that the company possesses the background, knowledge, capacity, and ability to sell, deliver, and support equipment/products and related services offered to government and related agencies.
25. Proposer’s conformance to terms and conditions as described in the solicitation, including documentation.
26. Has provided all of the required and applicable documentation required i.e. insurance certificates, licenses, and/or registration certificates required to do business in Chuuk.
D. OTHER CONSIDERATION

6.15 Consideration will be given in the award based on the completion and degree of information provided regarding available products/equipment, and accessories, and related services as well as, applicable parts of the Proposer Information and Questionnaire.

6.16 The Proposer is required to have extensive knowledge and at least three (3) years of experience with the related activities surrounding the selling of the product/equipment, related services or related products/equipment offered.

6.17 CPUC reserves the right to accept or reject newly formed companies solely based on information provided in the proposal and/or its own investigation of the company.

6.18 The fact a manufacturer or supplier chooses not to produce or provide equipment products or services to meet the intent and scope of this RFP will not be considered sufficient cause to adjudge this RFP as restrictive. The technical requirements are provided in Section 11 and Section 12.

6.19 Consideration will be given in the proposal evaluation based upon the selection, variety, technological advances, and demonstrated quality of products submitted, technological advances, and pricing. A positive review will reflect the ability of the Proposer to communicate the value of these factors and to demonstrate how the depth and breadth of their product and service offerings provide CPUC comfort and assurance understanding that the proposer accepts the sole source of responsibility of the response to the scope of this RFP. The technical requirements are provided in Section 11.

6.20 Consideration will also be given to proposals demonstrating technological advances, provide increased efficiencies, expanded service and other related improvements beyond today’s CPUC’s needs and applicable standards.

6.21 Strong consideration will be given to a Proposer’s past performance.

6.22 Strong consideration will be given to the best price as it relates to the quality of the product and service. However, price is ultimately only one of the factors taken into consideration in the evaluation and award.

6.23 The Proposer’s ability to follow the proposal preparation instructions set forth in this solicitation will also be considered to be an indicator of the Proposer’s ability to follow other future instructions should they receive an award as a result of this solicitation. Any Contract between CPUC and a Proposer requires the delivery of information and data. The quality of organization and writing reflected in the proposal will be considered an indication of the quality of organization and writing which would be prevalent if a Contract was awarded. As a result, the proposal will be evaluated as a sample of data submission.
The Proposer’s audited financial statements from last three years (or an unaudited copy if an audited copy is not available) are requested and reviewed to get a general feel for the size, strength, and probable scope of the Proposer.

CPUC reserves the right to reject the Proposer’s Response of the apparent successful Proposer where the available evidence or information does not exhibit the ability or intent to satisfy CPUC that the potential Vendor is unable to properly carry out the terms of this RFP and potential Contract.

CPUC shall reserve the right to reject any or all proposals. CPUC also reserves the right to reject a proposal not accompanied by required certificate of insurance, other data required by this RFP, or if a Proposer’s Response is incomplete, irregular, or untimely. The CPUC shall reject all proposals where there is evidence satisfactory to CPUC of collusion among the Proposers.

E. COST COMPARISON

CPUC reserves the right to use this process in the event the Proposal Evaluation Committee feels it is necessary to make a final determination.

F. PRODUCT TESTING

CPUC reserves the right to request and test equipment/products and related services from the apparent successful Proposer. Prior to the award of the Contract, the apparent successful Proposer, if requested by the CPUC, shall furnish current information and data regarding the Proposer’s resources, personnel, and organization within three (3) days.

G. PAST PERFORMANCE INFORMATION

Past performance information is relevant information regarding a Proposer’s actions under previously awarded contracts to schools, local, state, and governmental agencies and non-profit agencies. It includes the Proposer’s record of conforming to specifications and standards of good workmanship. The Proposer’s history for reasonable and cooperative behavior and commitment to client satisfaction shall be under evaluation. Ultimately, Past Performance Information can be defined as the Proposer’s business like concern for the interests of the CPUC.

H. WAIVER OF FORMALITIES

CPUC reserves the right to waive any minor formalities or irregularities in any proposal and to accept proposals, which, in its discretion and according to the law, may be in the best interest of the CPUC.
7. TERMINATION

7.1 CPUC reserves the right to cancel the whole or any part of a resulting Contract due to failure by the Vendor to carry out any obligation, term or condition as described in the below procedure. Prior to any termination for cause, the CPUC will provide written notice to the Vendor, opportunity to respond and opportunity to cure according to the steps in the procedure in this Cancellation Section. Some examples of material breach are the following:

- The Vendor provides products/equipment or related services that does not meet reasonable quality standards and is not remedied under the warranty;
- The Vendor fails to ship the products/equipment or related services or provide the delivery and services within a reasonable amount of time;
- CPUC has reason to believe the Vendor will not or cannot perform to the requirements or expectations of the Contract and issues a request for assurance as described herein and Vendor fails to respond;
- The Vendor fails to observe any of the material terms and conditions of the Contract;
- The Vendor fails to follow the established procedure for purchase orders, invoices and/or receipt of funds as established by the CPUC and the Vendor in the Contract.

7.2 Each party shall follow the below procedure if the Contract is to be terminated for violations or non-performance issues:

**Step 1:** Issue a letter of concern outlining the violations and/or non-performance and state the acceptable length of time to provide a response and correct the problem(s) within the time frame.

**Step 2:** Issue a letter of intent to cancel Contract, if the problem(s) is not resolved within fifty (50) days.

**Step 3:** Issue letter canceling Contract for cause.

7.3 Upon receipt of the written notice of concern, the Vendor shall have ten (10) business days to provide a satisfactory response to the CPUC. Failure on the part of the Vendor to reasonably address all issues of concern may result in Contract cancellation, without penalty or recourse, pursuant to this Section.

7.4 CPUC reserves the right to cancel or suspend the use of any Contract resulting from this RFP if the Vendor files for bankruptcy protection or is acquired by an independent third party. Awarded Vendor will be responsible for disclosing to CPUC any litigation, bankruptcy or suspensions/disbarments that occur during the contract period. Failure to disclose may result in an immediate termination of the contract. Prior to commencing services under this Contract, the Proposer/Vendor must furnish CPUC certification from insurer(s) proving level of coverage usual and customary to the specific industry. The coverage is to be maintained in full effect during the Contract period.

7.5 CPUC may cancel any Contract resulting from this solicitation without any further obligation if any CPUC employee significantly involved in initiating, negotiating, securing, drafting or creating the Contract on behalf of the CPUC is found to be in collusion with any
Proposer to this RFP for their personal gain. Such cancellation shall be effective upon written notice from the CPUC or a later date if so designated in the notice given. A terminated Contract shall not relieve either party of financial, product or service obligations due to the CPUC.

7.6 Events of Automatic termination to include:
• Vendor’s failure to remedy a material breach of a Contract resulting from this RFP within sixty (60) days of receipt of notice from CPUC specifying in reasonable detail the nature of such breach; and/or,
• Receipt of written information from any authorized agency finding activities of Vendors engaged in pursuant to a Contract resulting from this RFP to be in violation of the law.

7.7 The CPUC also reserves the right to terminate the Contract without default by the Vendor in the performance of the Contract. In such case the Vendor shall receive a written notice of termination. Within seven days of receipt of such notice the Vendor shall submit to the Construction Manager and the CPUC a request for payment for all Work executed in accordance with the Contract Documents and for any proven loss sustained for any materials, equipment, tools, construction equipment and machinery, including a reasonable profit for all work executed.

8. GENERAL TERMS AND CONDITIONS

A. APPLICABLE LAW

8.1 CPUC Compliance with FSM and/or Chuuk Procurement Law: Contracts awarded through CPUC are intended to meet the procurement laws of Chuuk and/or the FSM.

8.2 Governing Law with respect to delivery and acceptance: All applicable portions of the FSM and/or Chuuk laws and rules of delivery and inspection of the Federal Acquisition Regulations (FAR) laws shall govern CPUC contracts resulting from this solicitation.

8.3 Jurisdiction: Any claims pertaining to this RFP and any resulting Contract that develop between CPUC and any other party must be brought forth only in FSM and/or Chuuk courts.

8.3.1 Purchase Orders issued pursuant to a contract resulting from this solicitation shall be construed in accordance with, and governed by, the laws of a competent jurisdiction with respect to the purchaser.

8.4 Vendor Compliance with applicable law: Vendor(s) shall comply with all FSM and/or Chuuk laws applicable to or pertaining to the transaction, acquisition, manufacturer, suppliers or the sale of the equipment/products and relating services resulting from this RFP including compliance with all standards, orders or requirements issued under local environmental laws.
8.5 Applicable Laws: All applicable laws whether or not herein contained, shall be included by this reference. It shall be Proposer’s/Vendor’s responsibility to determine the applicability and requirements of any such laws and to abide by them.

8.6 Indemnity: Each party agrees it will be responsible for its own acts and the result thereof to the extent authorized by law and shall not be responsible for the acts of the other party and the results thereof. CPUC’s liability shall be governed by the provisions of the Chuuk Tort Claims Act and other applicable law.

8.7 Prevailing Wage: It shall be the responsibility of the Vendor to comply, when applicable, with prevailing wage legislation in effect in the jurisdiction of the purchaser (CPUC). It shall be the responsibility of the Vendor to monitor the prevailing wage rates as established by the Chuuk department of labor for any increase in rates during the term of this Contract and adjust wage rates accordingly.

8.8 Patent and Copyright infringement: If an article sold and delivered to CPUC hereunder shall be protected by any applicable patent or copyright, the Vendor agrees to indemnify and save harmless CPUC against any and all suits, claims, judgments, and costs instituted or recovered against it by any person whosoever on account of the use or sale of such articles by CPUC in violation or right under such patent or copyright.

B. ASSIGNMENT OF CONTRACT

8.9 No right or interest in this Contract shall be assigned or transferred by the Vendor without prior written permission by the CPUC. No delegation of any duty of the Vendor shall be made without prior written permission of the CPUC. The CPUC shall notify the members within fifteen (15) days of receipt of written notice by the Vendor. After issuance the awarded Contract may be reassigned to a comparable and acceptable Vendor at the discretion of CPUC.

8.10 If the original Vendor sells or transfers all assets or the entire portion of the assets used to perform this Contract, a successor in interest must guarantee to perform all obligations under this Contract. CPUC reserves the right to reject the acquiring person or entity as a Vendor. A simple change of name agreement will not change the contractual obligations of the Vendor.

C. LIST OF PROPOSERS

8.11 All interested proposers must respond to the solicitation as a result of CPUC solicitation advertisements indicated.

D. CAPTIONS, HEADINGS, AND ILLUSTRATIONS

8.12 The captions, illustrations, headings, and subheadings in this solicitation are for convenience and ease of understanding and in no way define or limit the scope or intent of this request.
E. DATA PRACTICES

8.13 All materials submitted in response to this RFP will become property of the CPUC and will become public record in accordance with Chuuk Law, after the evaluation process is completed. If the Responder submits information in response to this RFP that it believes to be nonpublic information, the Responder must:

- clearly mark all nonpublic information in its response at the time the response is submitted,
- defend any action seeking release of the materials it believes to be nonpublic information, and indemnify and hold harmless the CPUC, its agents and employees, from any judgments or damages awarded against the CPUC in favor of the party requesting the materials, and any and all costs connected with that defense.

This indemnification survives the CPUC’s award of a contract. In submitting a response to this RFP, the Responder agrees that this indemnification survives as long as the confidential information are in possession of the CPUC. Proposer can redact additional nonpublic information at any time after the evaluation process if appropriate legal justification is provided.

F. ENTIRE AGREEMENT

8.14 The Contract, as defined herein, shall constitute the entire understanding between the parties to that Contract.

8.15 A Contract resulting from this RFP is formed when the CPUC approves and signs the applicable Contract Award Form document (see Form E).

G. FORCE MAJEURE

8.16 Except for payments of sums due, neither party shall be liable to the other nor deemed in default under this Contract if and to the extent that such party’s performance of this Contract is prevented due to force majeure. The term “force majeure” means an occurrence that is beyond the control of the party affected and occurs without its fault or negligence including, but not limited to, the following: acts of God, acts of the public enemy, war, riots, strikes, mobilization, labor disputes, civil disorders, fire, flood, snow, earthquakes, tornadoes or violent wind, tsunamis, wind shears, squalls, Chinooks, blizzards, hail storms, volcanic eruptions, meteor strikes, famine, sink holes, avalanches, lockouts, injunctions/intervention-acts, terrorist events or failures or refusals to act by government authority and/or other similar occurrences where such party is unable to prevent by exercising reasonable diligence. The force majeure shall be deemed to commence when the party declaring force majeure notifies the other party of the existence of the force majeure and shall be deemed to continue as long as the results or effects of the force majeure prevent the party from resuming performance in accordance with a Contract resulting from this RFP. Force majeure shall not include late deliveries of equipment/products and services caused by congestion at a manufacturer’s plant or elsewhere, an oversold condition of the market, inefficiencies, or other similar occurrences. If either
party is delayed at any time by force majeure, then the delayed party shall notify the other party of such delay within forty-eight (48) hours.

H. GRATUITIES

8.17 CPUC may cancel an awarded Contract by written notice if it is found that gratuities, in the form of entertainment, gifts or otherwise, were offered or given by the Vendor or any agent or representative of the Vendor, to any employee of the CPUC are deemed to be excessive with a view or demonstrated intent toward securing a contract or with respect to the performance of a pending or awarded Contract.

I. HAZARDOUS SUBSTANCES

8.18 Proper and applicable Material Safety Data Sheets (MSDS) that are in full compliance with OSHA’s Hazard Communication Standard must be provided by the Vendor to CPUC at the time of purchase.

J. LEGAL REMEDIES

8.19 All claims and controversies between CPUC and Vendor shall be subject to FSM and/or Chuuk laws.

K. LICENSES

8.20 Proposer shall maintain a current status on all required FSM and/or Chuuk licenses, bonds and permits required for the operation of the business that is anticipated to be conducted with CPUC by the Proposer.

8.21 All responding Proposers must be licensed (where required) and have the authority to sell and distribute offered equipment/products and related services to the CPUC. Documentation of required said licenses and authorities, if applicable, is requested to be included in the proposer’s response.

L. MATERIAL SUPPLIERS AND SUB-CONTRACTORS

8.22 The awarded Vendor shall be required to supply the names and addresses of sourcing suppliers and sub-contractors as a part of the contract when requested by the CPUC.

8.23 Awarded Vendors under this RFP will be the sole source of responsibility for transactions originating that award. The Awarded Vendor is solely responsible for equipment/products and related services and products/equipment and related services provided by third-party sourcing or service providers.
M. NON-WAIVER OF RIGHTS

8.24 No failure of either party to exercise any power given to it hereunder, nor to insistence upon strict compliance by the other party with its obligations hereunder, and no custom or practice of the parties at variance with the terms hereof, nor any payment under a Contract resulting from this RFP shall constitute a waiver of either party’s right to demand exact compliance with the terms hereof. Failure by CPUC to take action or assert any right hereunder shall not be deemed as waiver of such right.

N. PROTESTS OF AWARDS MADE

8.25 Protests shall be filed with the CPUC’s Chief Executive Officer and shall be resolved in accordance with FSM and/or Chuuk laws. Protests will only be accepted from Proposers. A protest must be in writing and filed with CPUC. A protest of an award or proposed award must be filed within ten (10) days after the public notice or announcement of the award. No protest shall lie for a claim that the selected Proposer is not a responsible Proposer. A protest must include:

1. The name, address and telephone number of the protester;
2. The original signature of the protester or its representative (you must document the authority of the Representative);
3. Identification of the solicitation by RFP number;
4. Identification of the statute or procedure that is alleged to have been violated;
5. A precise statement of the relevant facts;
6. Identification of the issues to be resolved;
7. The aggrieved party’s argument and supporting documentation;
8. The aggrieved party’s statement of potential financial damages;
9. A protest bond in the name of CPUC and in the amount of 10% of the aggrieved party’s statement of potential financial damages.

O. PROVISIONS REQUIRED BY LAW

8.26 Proposer agrees in the performance of a Contract resulting from this RFP, it has complied with or will comply with all applicable FSM and/or Chuuk laws.

P. RIGHT TO ASSURANCE

8.27 Whenever one party to the awarded Contract has reason to question the other party’s intent to perform, he/she may demand a written assurance of this intent. In the event a demand is made and no written assurance is given within 10 days, the demanding party may treat this failure as an anticipatory repudiation of the Contract provided, however, in order to be effective, any such demand shall be addressed to the authorized signer for the party from whom the assurance is being sought, and sent via, certified mail, return receipt requested or national overnight delivery service with proof of delivery.
Q. SUSPENSION OR DISBARMENT STATUS

8.28 If within the past five (5) years, any firm, business, person or Proposer responding to CPUC solicitation and submitting a proposal has been lawfully terminated, suspended or precluded from participating in any public procurement activity the Proposer must include a letter with its response setting forth the name and address of the public procurement unit, the effective date of the suspension or debarment, the duration of the suspension or debarment and the relevant circumstances relating to the suspension or debarment. Any failure to supply such a letter or to disclose pertinent information may result in the cancellation of any Contract. By signing the proposal affidavit, the Proposer certifies that no current suspension or debarment exists.

R. SEVERABILITY

8.29 In the event that any of the terms of a Contract resulting from this RFP are in conflict with any FSM and/or Chuuk law, such terms shall be deemed stricken from an awarded Contract resulting from this RFP, but such invalidity or unenforceability shall not invalidate any of the other terms of an awarded Contract resulting from this RFP.

S. RELATIONSHIP OF PARTIES

8.30 No Contract resulting from this RFP shall be considered a contract of employment. The relationship between CPUC and an Awarded Contractor is one of independent contractors each free to exercise judgment and discretion with regard to the conduct of their respective businesses. The parties do not intend the proposed Contract to create, or is to be construed as creating a partnership, joint venture, master-servant, principal–agent, or any other relationship. Except as provided elsewhere in this RFP, neither party may be held liable for acts of omission or commission of the other party and neither party is authorized or has the power to obligate the other party by contract, agreement, warranty, representation or otherwise in any manner whatsoever except as may be expressly provided herein.

T. PERFORMANCE BOND

8.31 The Awarded Contractor shall submit a Performance Bond amounting to 100% of the submitted total cost for this RFP prior to contract execution.

U. BRIBES AND KICKBACKS

8.32 Bribes, Kickbacks and other similar payments or inducements directly or indirectly offered, promised, paid to or conferred upon CPUC or government officials are prohibited and is reason alone to end all negotiations/solicitations or terminate the contract.

The prohibition or Bribes or Kickbacks is not limited to cash payments and includes without limitation any corrupt or improper:
(a) In-kind contributions;
(b) Business, employment or investment opportunities;
(c) Personal discounts or credits;
(d) Loans, loan guarantees or other extension of credit;
(e) Uncompensated use of services, facilities or property; and
(f) Other benefits, both tangible and intangible.

V. RIGHT TO AUDIT AND RECORD KEEPING

8.33 Contractor shall establish and maintain a reasonable accounting system that enables CPUC to readily identify Contractor’s assets, expenses, costs of goods, and use of funds. CPUC and its authorized representatives shall have the right to audit, to examine, and to make copies of or extracts from all financial and related records (in whatever form they may be kept, whether written, electronic, or other) relating to or pertaining to this Contract kept by or under the control of the Contractor, including, but not limited to those kept by the Contractor, its employees, agents, assigns, successors, and subcontractors. Such records shall include, but not be limited to, accounting records, written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); all paid vouchers including those for out-of-pocket expenses; other reimbursement supported by invoices; ledgers; cancelled checks; deposit slips; bank statements; journals; original estimates; estimating work sheets; contract amendments and change order files; backcharge logs and supporting documentation; insurance documents; payroll documents; timesheets; memoranda; and correspondence.

Contractor shall, at all times during the term of this Contract and for a period of three years after the completion of this Contract, maintain such records, together with such supporting or underlying documents and materials. The Contractor shall at any time requested by CPUC, whether during or after completion of this Contract, and at Contractor’s own expense make such records available for inspection and audit (including copies and extracts of records as required) by CPUC. Such records shall be made available to CPUC during normal business hours at the Contractor’s office or place of business and subject to a three day written notice. In the event that no such location is available, then the financial records, together with the supporting or underlying documents and records, shall be made available for audit at a time and location that is convenient for CPUC.

9. TECHNICAL REQUIREMENTS OF ELECTRICAL ENERGY GENERATION EQUIPMENT

Intent

CPUC intends to directly procure electrical generating equipment by this RFP and have this equipment installed by a general contractor as government furnished according to the specifications and under the supervision of the equipment manufacturer or its representative.
9.1 GENERAL REQUIREMENT

Provide Two (2) Each Medium Speed Diesel Generating Power Equipment Sets (Operating at 900 RPM or Less) to provide sufficient power to meet the current power demands as noted in the Weekday Average Load Chart and data contained in exhibit #1 and an expected 20% increase in power demand within the next 10 years at 2% per year. Each Generating Power Equipment Set is required to meet a minimum availability of 85%. If either set fails to meet the 85% operational usage rate, the Contractor agrees to reimburse the CPUC actual costs for operating the existing back-up generators in excess of the allowed 15% down time. Existing generator model number and capacity are provided in exhibit #2.

US EPA tier 1 through tier 4 emission standards do not apply to Chuuk State. Engines shall be programmed for the best fuel efficiency.

Table 9.1
Engine – Generator Parameter Schedule

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Factor</td>
<td>0.8 lagging</td>
</tr>
<tr>
<td>Engine-Generator Applications</td>
<td>parallel with other generators on an isolated bus</td>
</tr>
<tr>
<td>Maximum Speed</td>
<td>900 rpm</td>
</tr>
<tr>
<td>Heat exchanger Type</td>
<td>fin-tube (radiator)</td>
</tr>
<tr>
<td>Voltage Regulation (No Load to Full Load) (Stand Alone)</td>
<td>± 2 percent (maximum)</td>
</tr>
<tr>
<td>Voltage Bandwidth (steady state)</td>
<td>2 percent</td>
</tr>
<tr>
<td>Frequency</td>
<td>60 Hz</td>
</tr>
<tr>
<td>Voltage</td>
<td>13.8 volts</td>
</tr>
<tr>
<td>Phases</td>
<td>3 Phase, Wye</td>
</tr>
<tr>
<td>Max Step Load Increase</td>
<td>100 percent of Service Load at 0.8 PF</td>
</tr>
<tr>
<td>Transient Recovery Time with Step Load Increase (Voltage)</td>
<td>15 seconds</td>
</tr>
<tr>
<td>Transient Recovery Time with Step Load Increase (Frequency)</td>
<td>15 seconds</td>
</tr>
<tr>
<td>Maximum Voltage Deviation with Step Load Increase</td>
<td>30 percent of rated voltage</td>
</tr>
<tr>
<td>Maximum Frequency Deviation with Step Load Increase</td>
<td>5 percent of rated frequency</td>
</tr>
<tr>
<td>Max Step Load Decrease (without shutdown)</td>
<td>100 percent of Service Load at 0.8 PF</td>
</tr>
<tr>
<td>Max Time to Start and be Ready to Assume Load</td>
<td>20 seconds</td>
</tr>
<tr>
<td>Max Summer Outdoor Temp (Ambient)</td>
<td>31 degrees C</td>
</tr>
<tr>
<td>Min Winter Outdoor Temp (Ambient)</td>
<td>24 degrees C</td>
</tr>
<tr>
<td>Installation Elevation</td>
<td>10m above sea level</td>
</tr>
<tr>
<td>Normal Step Load Decrease</td>
<td>100 percent of Service Load</td>
</tr>
<tr>
<td>Transient Recovery Time with Step Load</td>
<td>15 seconds</td>
</tr>
</tbody>
</table>
### Decrease (Voltage)

<table>
<thead>
<tr>
<th>Decrease (Voltage)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Transient Recovery Time with Step Load Decrease (Frequency)</td>
<td>15 seconds</td>
</tr>
<tr>
<td>Maximum Voltage Deviation with Step Load</td>
<td>30 percent of rated voltage</td>
</tr>
<tr>
<td>Maximum Frequency Deviation with Step Load Decrease</td>
<td>5 percent of rated frequency</td>
</tr>
</tbody>
</table>

| Day Tank                                                                         | The accumulative day tank capacity shall not exceed the limit set by NFPA 37 now and in the future when two identical generators will be installed in the powerhouse |
| Generator Armature Winding                                                       | ⅔ pitch to limit 3rd harmonies |

---

**9.2 SPECIFIC REQUIREMENT**

The technical Section of the Proposal should be structured around a 10-year life cycle cost analysis (LCCA). This LCCA should be provided for the purchase (including delivery, installation and training as specified below), operation and Manufacturer’s Representative Maintenance Service Costs of both units with load increasing at 2% per year on current load (tabulated and graphed herein).

The LCCA should include a component breakdown of all major cost items, including but not necessarily limited to: fuel, lubrication, annual recurring maintenance, non-annual recurring engine and alternator overhauls.

**9.2.1 EQUIPMENT SUPPLY**

A prospective list of these items are provided for reference only and should not be construed as all inclusive to the Proposer.

- Complete Gen Set with Engine including day tank and its accessories
- Neutral Earthing Resistor
- Generator Alternator output 13.8 kV
- Air Starting System consisting of two (2) air compressors and one (1) air receiver
- Standard Manufacturers Factory Genset Test
- Engine/Generator Control Panel
- MV Generator Circuit Breaker Panel (1 per set)
- Air Blast Radiator, Remote Mounting for High and Low Temperature Coolant Circuits, VFD fan drive, tube and fins factory coated with corrosion resistant film
- Expansion Tank/Pressurizing Vessel for Engine High and Low Temperature Coolant Circuits
- Standard On-Engine Air Filter (one year supply)
- Exhaust Gas Silencer with Expansion Bellows
9.2.2 MATERIAL AND BUILD STANDARDS

Material and build quality shall at a minimum conform to the following standards. The vendor shall submit certification that compliance with standards printed in **bold font** have been met after contract award. Standards for testing in *italicized font* shall be implemented for acceptance of work performed by the installation contractor.

**AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)**

**ANSI C39.1** (1981; R 1992) Requirements for Electrical Analog Indicating Instruments

**ASME INTERNATIONAL (ASME)**

**ASME B16.11** (2011) Forged Fittings, Socket-Welding and Threaded

**ASME B16.3** (2011) Malleable Iron Threaded Fittings, Classes 150 and 300


**ASME B31.1** (2012; INT 2-6, 8-10, 13, 15, 17-25, 27-31 and 42-46) Power Piping

**ASME BPVC SEC IX** (2010) BPVC Section IX-Welding and Brazing Qualifications

**ASME BPVC SEC VIII D1** 2010) BPVC Section VIII-Rules for Construction of Pressure Vessels Division 1

**ASSOCIATION OF EDISON ILLUMINATING COMPANIES (AEIC)**

**AEIC CS8** (2007) specification for Extruded Dielectric Shielded Power Cables Rated 5 Through 46 kV

**ASTM INTERNATIONAL (ASTM)**


ELECTRICAL GENERATING SYSTEMS ASSOCIATION (EGSA)


INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)


IEEE 404 (2012) Standard for Extruded and Laminated Dielectric Shielded Cable Joints Rated 2500 V to 500,000 V


IEEE 48 (2009) Standard for Test Procedures and Requirements for Alternating-Current Cable Terminations Used on Shielded Cables Having Laminated Insulation Rated 2.5 kV through 765 kV or Extruded Insulation Rated 2.5 kV through 500 kV
IEEE 484  
(2002; R 2008) Recommended Practice for Installation Design and Implementation of Vented Lead-Acid Batteries for Stationary Applications

IEEE 485  
(2010) Recommended Practice for Sizing Lead-Acid Batteries for Stationary Applications

IEEE 519  
(1992; R 1993; Errata 2004) Recommended Practices and Requirements for Harmonic Control in Electrical Power Systems

IEEE 81  

IEEE C2  

IEEE C57.13  

IEEE C57.13.1  

IEEE Stds Dictionary  

MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY (MSS)

MSS SP-58  

MSS SP-69  
(2003; Notice 2012) Pipe Hangers and Supports - Selection and Application (ANSI Approved American National Standard)

MSS SP-80  
(2013) Bronze Gate, Globe, Angle and Check Valves
<table>
<thead>
<tr>
<th>Standard</th>
<th>Editions and Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)</strong></td>
<td></td>
</tr>
<tr>
<td>NEMA ICS 2</td>
<td>(2000; R 2005; Errata 2008) Standard for Controllers, Contactors, and Overload Relays Rated 600 V</td>
</tr>
<tr>
<td>NEMA ICS 6</td>
<td>(1993; R 2011) Enclosures</td>
</tr>
<tr>
<td>NEMA MG 1</td>
<td>(2011; Errata 2012) Motors and Generators</td>
</tr>
<tr>
<td>NEMA PB 1</td>
<td>(2011) Panelboards</td>
</tr>
<tr>
<td>NEMA PB 2</td>
<td>(2011) Deadfront Distribution Switchboards</td>
</tr>
<tr>
<td>NEMA/ANSI C12.11</td>
<td>(2007) Instrument Transformers for Revenue Metering, 10 kV BIL through 350 kV BIL (0.6 kV NSV through 69 kV NSV)</td>
</tr>
<tr>
<td><strong>NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)</strong></td>
<td></td>
</tr>
<tr>
<td>NFPA 30</td>
<td>(2012; Errata 2011; Errata 2011) Flammable and Combustible Liquids Code</td>
</tr>
<tr>
<td>NFPA 37</td>
<td>(2010; TIA 10-1; TIA 13-2; TIA 13-3) Standard for the Installation and Use of Stationary Combustion Engines and Gas Turbines</td>
</tr>
<tr>
<td>NFPA 70</td>
<td>(2014; AMD 1 2013; Errata 2013; AMD 2 2013) National Electrical Code</td>
</tr>
<tr>
<td><strong>SOCIETY OF AUTOMOTIVE ENGINEERS INTERNATIONAL (SAE)</strong></td>
<td></td>
</tr>
<tr>
<td>SAE J537</td>
<td>(2011) Storage Batteries</td>
</tr>
<tr>
<td><strong>UNDERWRITERS LABORATORIES (UL)</strong></td>
<td></td>
</tr>
<tr>
<td>UL 1236</td>
<td>(2006; Reprint Jul 2011) Standard for Battery Chargers for Charging Engine-Starter Batteries</td>
</tr>
<tr>
<td>UL 891</td>
<td>(2005; Reprint Oct 2012) Switchboards</td>
</tr>
</tbody>
</table>
9.2.3 FUEL

The total fuel consumption should be based on current loads and the expected 2% per annum increase in load over the projected ten-year life cycle. Diesel fuel cost shall be $4.50 per gallon and remain constant over the ten-year life cycle. Fuel consumption shall be calculated from factory test reports on the proposed engines. If test results have been corrected to SAE J1995, ISO 3046-2 & 8665 & 2288 & 9249 & 1585, EEC 80/1269 and DIN70020 standard reference conditions, brake specific fuel consumption (BSFC) shall be increased by 4.5%. Engines shall be equipped with standard accessories lube oil, fuel pump and jacket water pump when tested.

9.2.4 MAINTENANCE

Provide Manufacturer’s Representative Maintenance Service Costs in a projected 10-year LCCA.

a) Routine Maintenance Costs:

This includes oil use at a lube oil cost of US $14.15 per US Gallon and all parts such as filters that are replaced annually to maintain satisfactory operation between non-annual recurring maintenance such as overhauls.

b) Overhaul Maintenance Costs:

Overhaul material costs shall be broken down into minor and major overhaul events, identifying the trigger for the overhaul work to be undertaken and parts to be replaced at each overhaul event assuming normal wear at each overhaul stage. Present costs shall be used for the 10-year cycle.

9.2.5 ACCESSORIES, SERVICES AND SUPPLIES

Additional accessories, services and supplies shall be provided in accordance with the RFP in support of the two generating power equipment sets.

- Standard Manufacturers Factory Genset Test
- Alternator efficiency under varying load
- Commissioning
- Standard Spare Parts for Engine (one year supply)
- Standard Tools for Engine Maintenance (1 set)
- General Arrangement Drawings of Supplied Equipment
- Operation and Maintenance Manual
- Performance Data and Heat Balance for Genset
- Piping Schedules/Isometrics etc
- Cable Schedules/Wiring Diagrams etc
9.2.6 SOUND LEVELS

The Proposer shall provide sound pressure levels for the exhaust and mechanical equipment at the frequencies indicated below when measured in a free field at a radial distance of 22.9 ft at 45 degrees apart in all directions. The levels shall be for the generator operating at 100 percent load.

<table>
<thead>
<tr>
<th>Table 9.2</th>
<th>Required Frequency Bands (HZ)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>63</td>
</tr>
</tbody>
</table>

9.2.7 Emissions

The proposer shall provide emission data for the pollutants in the units listed in the following table when the generator is operating at 100 percent load.

<table>
<thead>
<tr>
<th>Table 9.3</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pollutant</td>
<td>Total</td>
<td>Total</td>
<td>Total</td>
<td>Particulate</td>
</tr>
<tr>
<td>NOX (as NO2)</td>
<td>CO</td>
<td>HC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Units</td>
<td>G/HR</td>
<td>G/HR</td>
<td>G/HR</td>
<td>G/HR</td>
</tr>
</tbody>
</table>

Emission Data shall be calculated based upon the no.2 diesel used at the Chuuk power plant whose properties are listed in the following data.

<table>
<thead>
<tr>
<th>Table 9.4</th>
<th>Diesel / Gasoil (15 ppm Sulfur)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property</td>
<td>Test Method</td>
</tr>
<tr>
<td>Appearance at Ambient Temp</td>
<td>ASTM D4176, Proc 2</td>
</tr>
<tr>
<td>Ash</td>
<td>ASTM D482</td>
</tr>
<tr>
<td>Water &amp; Sediment</td>
<td>ASTM D2709</td>
</tr>
<tr>
<td>Carbon Residue (on 10% bottom)</td>
<td>ASTM D4530 / D189</td>
</tr>
<tr>
<td>Celane Index</td>
<td>ASTM D4737, Proc A / ASTM D976</td>
</tr>
<tr>
<td>Cloud Point</td>
<td>ASTM D2500 / D5773</td>
</tr>
<tr>
<td>Property</td>
<td>Test Method</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Color</td>
<td>ASTM D1500</td>
</tr>
<tr>
<td>Corrosion, Copper Strip (3hr at 100°C)</td>
<td>ASTM D130</td>
</tr>
<tr>
<td>Density at 15°C</td>
<td>ASTM D4052 / D1298</td>
</tr>
<tr>
<td>Distillation, 95% Recovered</td>
<td>ASTM D86</td>
</tr>
<tr>
<td>Flash Point</td>
<td>ASTM D93</td>
</tr>
<tr>
<td>Lubricity, wear scar diameter at 60°C</td>
<td>ASTM D6079 / IP450</td>
</tr>
<tr>
<td>Total Acid Number</td>
<td>ASTM D974 / D664 / IP139</td>
</tr>
<tr>
<td>Strong Acid Number</td>
<td>ASTM D974 / D664 / IP139</td>
</tr>
<tr>
<td>Odour (Indirect)</td>
<td>-</td>
</tr>
<tr>
<td>Sulfur, Total</td>
<td>ASTM D5453 / D4045 / D7039</td>
</tr>
<tr>
<td>Viscosity (at 40°C)</td>
<td>ASTM D445</td>
</tr>
</tbody>
</table>

Notes:

1. The latest ASTM test method is used, unless stated otherwise.
2. For purpose of reporting (except density) and determining conformance with this specification, an observed value or a calculated value shall be rounded “to the nearest unit” in the last right-hand significant digit used in expressing the limiting value, in accordance with the rounding-off method of Practice ASTM E29, using Significant digits in Test data to determine conformance with specifications.
3. ExxonMobil’s sampling and testing procedures in effect at the time of production will be used for certification testing. Results may be based on tank certification, manufacturing data, periodic testing and/or most recent product restock. ExxonMobil reserves the right to use other equivalent test methods in certifying this product.
4. Test conducted according to ASTM/IP/UOP etc. Standard Test methods are routinely verified to comply with the latest published versions. Minor changes may be made where they have no material impacts on Test results and are necessitated by reasons such as safety, environmental standards, and method effectiveness. Method with changes will be reflected as XXXXMOD in the Certificate.
5. For Health & Safety information refer to the most current version of the product MSDS.

### 9.2.8 TRAINING

Training Program in accordance with following:

The Contractor shall provide a comprehensive CPUC personnel-training program for the Generating Power System proposed for this RFP. The core of this training will be based on manufacturer’s recommendations. Training shall include classroom discussion as well as hands on maintenance, replacement of typical components and repair type maintenance training for parts typically replaced or repaired at the power plant, for: Gen Sets and Engines, Air Starting system, Radiator system & Electrical systems for diesel-electric
generator sets and variable frequency drives. Provide a written training course outline and training video recording all instructors training presentations including question and answer periods with the trainees. A minimum of two training sessions shall be conducted in order to permit all plant shift personnel to attend. Each training session shall be a minimum of 16 hours for the diesel electric generator and 16 hours for the variable frequency drives.

The vendor shall provide as an option, a full time supervisor for 2 months immediately after commissioning to supervise and reinforce hands on training for the CPUC operations and maintenance personnel. This training will be followed by inspection visits in the next three quarters with a minimum duration of three days per visit.

Exhibit 1
Chuuk Power Plant Load
Average Weekend Load

<table>
<thead>
<tr>
<th>Time</th>
<th>Load kW</th>
<th>Time</th>
<th>Load kW</th>
<th>Time</th>
<th>Load kW</th>
<th>Time</th>
<th>Load kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>6:00</td>
<td>1260</td>
<td>6:30</td>
<td>1265</td>
<td>7:00</td>
<td>1268</td>
<td>7:30</td>
<td>1279</td>
</tr>
<tr>
<td>8:00</td>
<td>1282</td>
<td>8:30</td>
<td>1341</td>
<td>9:00</td>
<td>1348</td>
<td>9:30</td>
<td>1367</td>
</tr>
<tr>
<td>10:00</td>
<td>1368</td>
<td>10:30</td>
<td>1366</td>
<td>11:00</td>
<td>1377</td>
<td>11:30</td>
<td>1381</td>
</tr>
<tr>
<td>12:00</td>
<td>1386</td>
<td>12:30</td>
<td>1383</td>
<td>13:00</td>
<td>1426</td>
<td>13:30</td>
<td>1433</td>
</tr>
</tbody>
</table>

Exhibit 2

Existing Model 3516 Generator Data

Units 1&2

<table>
<thead>
<tr>
<th>Power kW</th>
<th>1285</th>
<th>1157</th>
<th>1028</th>
<th>964</th>
<th>900</th>
<th>771</th>
<th>643</th>
<th>514</th>
<th>386</th>
<th>321</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Rate L/hr</td>
<td>321</td>
<td>287</td>
<td>256</td>
<td>241</td>
<td>226</td>
<td>198</td>
<td>169</td>
<td>143</td>
<td>115</td>
<td>101</td>
</tr>
</tbody>
</table>

Unit 4

<table>
<thead>
<tr>
<th>Power kW</th>
<th>1600</th>
<th>1440</th>
<th>1280</th>
<th>1200</th>
<th>1120</th>
<th>960</th>
<th>800</th>
<th>640</th>
<th>480</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Rate L/hr</td>
<td>434</td>
<td>394</td>
<td>354</td>
<td>334</td>
<td>314</td>
<td>275</td>
<td>236</td>
<td>197</td>
<td>158</td>
</tr>
</tbody>
</table>
10. TECHNICAL REQUIREMENTS OF 15KV INDOOR METALCLAD SWITCHGEAR

10.1 System Description:

The overall RFP design and corresponding drawing are in its Preliminary stage, not in Final level, and to provide a complete and final design and equipment, the Vendor (Contractor) is required to confirm and coordinate with the CPUC Engineer all aspects of the subject’s plant requirements as well as all existing conditions. This equipment shall be installed by the General Contractor as Government furnished according to the Specifications and under the supervision of the equipment manufacturer or its representative.

The concept drawings including in this RFP Package, for purposes of this solicitation, shall not be altered significantly, unless otherwise required in compliance with the RFP.

The Project shall comply with the latest editions of the:
- NEC
- NFPA
- NESC
- IEEE
- ANSI

The Vendor (Contractor) shall complete calculations including but not limited to load, layout of equipments, a Short Circuit, protective device coordination study and arc-flash study as part of this PROJECT.

Electrical design and equipments specified for the CUPC Power Plant shall be performed by a licensed Professional Engineer familiar with Power Plants after award.

10.2 Equipment Supply:

Provide an Electrical System consisting of:

10.2.1 New 15 KV indoor METALCLAD Medium Voltage Switchgear:

The new 15 KV indoor METALCLAD Medium Voltage Switchgear complete with metering and protective system relays for 13.8 KV system and bus ties shall be provided. The METACLAD Switchgear assembly consists of the following:
- 5 Section line-up, include the control section.
- Network Communication.
- Ethernet Gateway with 100 Base FX Fiber-Optic port.
- All Modbus devices pre-wired and pre-tested at the Factory.
- UL Listed.
- Front and Rear Access.
- IBC/ASCE 7 seismic Qualification Indoor (Type 1).
- The nominal System Voltage: 13.8 KV, 3 Phase, 3 Wire, Grounded WYE, per the CPUC Engineer and the existing Grid is 13.8KV, 60HZ, WYE, 4 Wires, and Grounded Neutral per the CPUC Engineer.
- Maximum Bus Continuous Current: 1200A.
- Maximum short Circuit Current: Per Protective Device Coordination Study and per the Professional Electrical Engineer experienced in the application at Power Plant. For the existing, new and future growth of the plant a minimum symmetrical interrupting rating of 36KA/750MVA-
15KV system. The study shall consider the maximum number of generators including the new existing and future growth.

- Maximum Voltage: 15 KV.
- One-Minute withstand Voltage: 36 KV RMS.
- Impulse Withstand Voltage (BIL): 95 KV.
- Frequency: 60 Hertz.
- 1200A silver Plated copper Main bus.
- The minimum feeder protection shall be 500A.
- Metering and protective system relays.
- Protective system relays for the 13.8 KV outgoing feeders shall be provided to distribute power to the 13.8 KV distribution systems.
- The new protective device relaying shall be interfaced with the new and existing Generators relaying.
- Direct Current (DC) systems for control of the switchgear shall be provided.
- Batteries and chargers shall be provided for switchgear to provide a clear line of operational and maintenance responsibility.

*See Proposed Single Line Diagram, Exhibit 3.*

*See Proposed Technical Specifications Section 1 (Medium Voltage Metal-Clad Switchgear).*

The new system will be utilizing 13.8KV, 3 Phase 3 Phase, 3 Wire, Grounded WYE, per the CPUC Engineer and the existing Grid is 13.8KV, 60HZ, WYE, 4 Wires, Grounded Neutral per the CPUC Engineer.

The Professional Electrical Engineer shall coordinate with the CPUC Plant Engineer to confirm the Type of the Existing Connection.

### 10.2.2 New Switchgear Control Station:

The control system switchgear shall be designed to automatically program the operation of the plant engine generator sets. Automatic programming shall be interpreted to mean automatic starting, automatic Synchronization, Paralleling, Automatic Start, Load Management controls and Automatic load sharing of the engine generator sets. Initiation of automatic operation shall be from the Remote PC at Control Room, or Touch screen panel.

*See Proposed Technical Specifications Section 1 (Medium Voltage Metal-Clad Switchgear).*

### 10.2.3 New Outdoor Pad-Mounted 15KV Switch:

Two new 15KV Outdoor Primary Switch 1200A, 6Way Pad – Mounted 15KV Switch RMS Style, SF6 Type Vacuum Circuit Breaker in Stainless Steel Enclosure Supply Power from the Existing Three Generators and Existing Three Step-Up Transformers to the New Switchgear Bus and to Deliver Power to Existing Grid Five Circuits.

*See Proposed Single Line Diagram, Exhibit 3.*

*See Proposed Technical Specifications Section 3 (SF6/High-Firepoint Fluids Insulated Pad – Mounted switchgear).*
10.3 Quality Assurance

New 15KV indoor METALCLAD Medium Voltage Switchgear and the New 15KV Outdoor Primary Switch shall comply with requirements of latest revisions of applicable industry standards, specifically including the following:

- ANSI/IEEE
- IEC
- UL
- NFPA 70

10.4 Submittals (after Award)

Submit shop drawings and product information consisting of the following:

- General arrangement drawing showing dimensioned elevation and one – line diagram.
- Panel arrangement drawing showing layout of devices on the panel doors.
- Three-line diagrams.
- Schematics.
- Electrical bill of material.
- Wiring diagrams.
- Instruction manual.
- Dimensions, weights, required clearances, and method of field assembly.
- Bus configuration with size and number of conductors in each bus.
- Current ratings buses.
- Short-time and short-circuit ratings of the switchgear assembly.
- Detailed wiring diagrams showing wiring for power, signal and control systems including differentiation between manufacture-installed and field-installed wiring.

10.5 ACCESSORIES, SERVICES AND SUPPLIES

Additional accessories, services and supplies shall be provided in accordance with the manufacturer requirements in support of the equipments.

10.6 Training

Training Program in accordance with following:

The Vendor (Contractor) shall provide a comprehensive CPUC personnel-training program for the New 15KV indoor METALCLAD Medium Voltage Switchgear and the new 15KV Outdoor Primary Switch proposed for this RFP. The core of this training will be based on manufacturer's recommendations. Training shall include classroom discussion as well as hands on maintenance, replacement of typical components and repair type maintenance training for parts typically replaced or repaired at the power plant. Provide a written training course outline and training video recording all instructors training presentations including question and answer periods with the trainees. A minimum of two training sessions shall be conducted in order to permit all plant shift personnel to attend.

The Vendor (Contractor) shall provide as an option, a full time supervisor for 2 months immediately after commissioning to supervise and reinforce hands on training for the CPUC operations and maintenance personnel. This training will be followed by inspection visits in the next three quarters with a minimum duration of three days per visit.
10.7 Installation

The phase 1 Vendor (Contractor) and the Switchgear Supplier shall coordinated with Phase 2 Contractor for the installations of the equipments provided under phase 1.

10.8 Warranty

Equipment manufacture shall warrant that all goods supplied are free of non-conformities in workmanship and materials for one year from the date of initial operation.

10.9 Field Quality Control

   a) Field inspection and testing shall be performed by the supplier and installing contractors (Phase 1 Vendor (Contractor) & Phase 2 contractors).
   b) Visually inspect for physical damage.
   c) Perform site tests as specified in manufactures’ instruction manuals.
   d) Touch-up paint to repair any damaged surfaces using manufacturer-furnished paint.
   e) Verify operation of interlocks.
   f) Perform power-frequency withstand voltage tests in accordance with ANSI/IEEE.

10.10 Short –Circuit Arc Flash and Coordination Study Report

The study shall be submitted with protective device equipment submittals.

The protective device coordination system study must be prepared and coordinated with Phase 2 contractor, CPUC. The protective device coordination system study must interface with the new system, future growth and existing Plant Generators as well as downstream loads including existing Grid systems and components.

Fault level must be assessed so that existing electrical apparatus and component interrupting capacities are not exceeded by the new system and future generation.

The analyses shall be prepared to demonstrate that the equipment selected and system constructed meets the CPUC requirements for ratings, coordination, and protection. The coordination shall include a load flow analysis, a fault current analysis, and protective device coordination study.

The Studies shall be performed by a registered professional engineer with demonstrated experience in power system and power Plant coordination in the last 5 years.

The fault current analysis shall be performed in accordance with methods described in IEEE Std 242 and IEEE Std 399.

See Proposed Technical Specifications Section 2 (OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY).

10.11 Testing

The New indoor METALCLAD Medium Voltage Switchgear, the new two 15KV Outdoor Primary Switch and the electrical equipment furnished under this RFP shall be fully tested and documented by certified production test reports in accordance with IEC 62271-200.
SECTION 1
MEDIUM VOLTAGE METAL-CLAD SWITCHGEAR

PART 1 GENERAL

1.1 SUBMITTALS

The following shall be submitted:

Shop Drawings

Switchgear Drawings;

Include wiring diagrams and installation details of equipment indicating proposed location, layout and arrangement, control panels, accessories, and other items that must be shown to ensure a coordinated installation. Wiring diagrams shall identify circuit terminals and indicate the internal wiring for each item of equipment and the interconnection between each item of equipment. Indicate within the drawings adequate clearance for operation, maintenance, and replacement of operating equipment devices. Include submittals for the nameplate data, size, and capacity. Also include submittals for applicable federal, military, industry, and technical society publication references.

SD-03 Product Data

Switchgear

Control Station with Touch Screen

SD-06 Test Reports

Switchgear design tests

Switchgear production tests

Acceptance checks and tests

SD-10 Operation and Maintenance Data

Switchgear Operation and Maintenance, Data Package

SD-11 Closeout Submittals

Assembled Operation and Maintenance Manuals

Equipment Test Schedule

Request for Settings

1.2 OPERATION AND MAINTENANCE DATA

Include circuit breaker recommended spare parts list.
1.3 QUALITY ASSURANCE

Manufacturer: Company specializing in medium voltage metal-clad switchgear with at least five years documented experience. The manufacturer of the switchgear must be the same as the manufacturer of the circuit breaker.

1.4 DELIVERY, STORAGE AND HANDLING

Accept equipment on site and inspect for shipping damage. Protect equipment from weather and moisture by covering with heavy plastic or canvas and by maintaining heat within enclosure in accordance with manufacturer’s instructions.

1.5 EXTRA MATERIALS/ACCESSORIES

Submit one racking handle with equipment. Charging handle to be furnished on each breaker mechanism.

PART 2 PRODUCTS

2.1 MANUFACTURER

The metal-clad switchgear shall be manufactured by:

- Square D.
- Eaton.
- GE.
- Siemens.

2.2 METAL-CLAD SWITCHGEAR ASSEMBLY

The metal-clad switchgear shall consist of a MASTERCLAD indoor enclosure containing circuit breaker and the necessary accessory components all factory assembled (except for necessary shipping splits) and operationally checked. The assembly shall be a self-supporting and floor mounted on a level concrete pad. The integrated switchgear assembly shall withstand the effects of closing, carrying and interrupting currents up to the assigned maximum short circuit rating. The switchgear shall be manufactured to operate in the seismic environment where it is being installed; The Seismic Category is D with a Component Importance factor, IP, of 1.5.

a. System Voltage: 13.8 kV nominal, three-phase solidly grounded, 60 Hz.
b. Maximum Design Voltage: 15.0 kV.
c. Impulse Withstand (Basic Impulse Level): 95 kV.
d. Power Frequency Withstand: 36 kV, 1 minute test.
e. Main Bus Ampacity: 1200amps, continuous.
f. Momentary Current Ratings: Equal to the circuit breaker close and latch rating.
2.3 COMPONENTS

2.3.1 Stationary Structure

The switchgear shall consist of one section (cubicle) including one breaker compartments and one auxiliary compartment assembled to form a rigid self-supporting completely enclosed structure. The section is divided by metal barriers into the following separate compartments: Circuit breaker, instrument, main bus, auxiliary device and cable.

2.3.2 Circuit Breaker Compartment

Each circuit breaker compartment shall be designed to house a horizontal drawout metal-clad vacuum circuit breaker. The stationary primary disconnecting contacts are to be silver-plated copper and mounted within porcelain support bushings. The movable contacts and springs shall be mounted on the circuit breaker element for ease of inspection/maintenance.

Entrance to the stationary primary disconnecting contacts shall be automatically covered by metal shutters when the circuit breaker is withdrawn from the connected position to the test or disconnected position or removed from the circuit breaker compartment. Extend a ground bus into the circuit breaker compartment to automatically ground the breaker frame with high-current spring type grounding contacts located on the breaker chassis when in the test and connected positions. Guide rails for positioning the circuit breaker and all other necessary hardware are to be an integral part of the circuit breaker compartment. Blocking devices shall interlock breaker frame sizes to prevent installation of a lower ampere rating or interrupting capacity element into a compartment designed for one of a higher rating. It shall be possible with indoor or outdoor walk-in switchgear to install a circuit breaker into a bottom compartment without use of a transport truck or lift device.

Surge Arresters shall be provided per IEEE and per Manufactures Requirements for the MV Switchgear and at each Breaker.

2.3.3 Cable Compartment/Ground Bus

Compression type cable lugs shall be furnished for new 13.8KV feeder to serves the CUP. The ground bus shall extend through this compartment.

2.3.4 Main Bus Compartment

The main bus is to be rated 1200amps and be fully insulated for its entire length with an epoxy coating by the fluidized bed process. The conductors are to be silver-plated copper and be of a bolted design. Access to this compartment is gained from the front or rear of the structure by removing a steel barrier. Provide standard provisions for future extension.

2.3.5 Doors and Panels

Relays, meters, control switches, etc., shall be mounted on a formed front-hinged panel for each circuit breaker compartment.

2.3.6 Circuit Breaker

a. The circuit breaker shall be rated 13,800 nominal volts, 15000 maximum volts, 60 Hz, with a continuous current rating of 1200amps and a maximum symmetrical interrupting rating of 36kA/750MVA - 15 kV system.

Furnish Type VR circuit breaker with one vacuum interrupter per phase. Breaker of same type and rating shall be completely interchangeable. The circuit breaker shall be operated by means of a stored energy mechanism which is normally charged by a universal motor but can also be
charged by the manual handle supplied on each VR breaker for manual emergency closing or testing. The closing speed of the moving contacts is to be independent of both the control voltage and the operator. Provide a full front shield on the breaker. Secondary control circuits shall be connected automatically with a self-aligning, self-engaging plug and receptacle arrangement when the circuit breaker is racked into the connected position. Provision shall be made for secondary control plug to be manually connected in test position. A minimum of 4 auxiliary contacts (2a 2b), shall be provided for external use. Provisions shall be made for 6 additional cell-mounted auxiliary contacts both MOC and TOC type for external use. The racking mechanism to move the breaker between positions shall be operable with the front door closed and position indication shall be visible with door closed.

b. An interlocking system shall be provided to prevent racking a closed circuit breaker to or from any position. An additional interlock shall automatically discharge the stored-energy operating mechanism springs upon removal of the breaker out of the compartment.

c. The circuit breaker control voltage shall be: 125 volts DC (verify existing control voltage is 125 Volts DC and match existing control voltage).

2.3.7 Instrument Transformers

Current transformers: Each breaker compartment shall have provision for front-accessible mounting of up to four current transformers per phase (ANSI standard relay accuracy), two on bus side and two on cable side of circuit breaker. The current transformer assembly shall be insulated for the full voltage rating of the switchgear. The current transformers wiring shall be Type SIS #12 AWG. Relaying and metering accuracy shall conform to ANSI Standards. Current Transformers for bus differential relay shall be provided.

2.3.8 Control Wiring

The switchgear shall be wired with type SIS #14 AWG, except where larger size wire is specified. The switchgear shall be provided with terminal blocks for outgoing control connections. Wire markers shall be provided for each end of all control wires.

2.3.9 Protective Relay

Provide a multifunction relay similar to a SEL 351A mounted in the new switchgear section as indicated on drawings for the circuit breaker in the new section. The multifunction relay shall be a microprocessor-based relay shall provide a combination of functions including protection, monitoring, control, fault locating, and automation. Relay self-checking functions shall be included. Specific operational and functional requirements are as follows:

a. Phase Fault Overcurrent Protection. The relay shall incorporate phase and negative-sequence overcurrent elements for detection of phase faults. For added security, the relay shall provide directional elements, load encroachment logic, and torque-control capability (internal and external).

b. Adaptive Phase Overcurrent Elements. The relay shall incorporate adaptive phase overcurrent elements that perform reliably in the presence of current transformer saturation, dc offset, and off-frequency harmonics.

c. Ground Fault Overcurrent Protection. The relay shall incorporate residual ground and neutral ground overcurrent elements for detection of ground faults. For added security, the relay shall provide directional elements and torque-control capability (internal and external).
d. Directional Ground Protection. The relay shall incorporate directional ground elements for ungrounded, Petersen Coil-grounded, and impedance-grounded systems, using a neutral current channel that can withstand 500 A for one second (thermal rating).

e. Under- and Overvoltage Elements. The relay shall incorporate undervoltage and overvoltage elements for creating protection and control schemes, including but not limited to the following: voltage checks (e.g., hot bus/dead line) for reclosing; blown transformer high-side fuse detection logic; control schemes for capacitor banks.

f. Sequence Voltage Elements. The relay shall incorporate positive-, negative-, and zero-sequence voltage elements that can be logically configured for either under- or overvoltage applications.

g. Under- and Overfrequency Protection. The relay shall incorporate six levels of under-/overfrequency elements for detection of power system frequency disturbances. Each setting level shall use an independently set timer for load shedding or generator tripping schemes.

h. Autoreclosing Control. The relay shall incorporate a four-shot recloser. It shall include four independently set open time intervals, an independently set reset time from reclose cycle, and an independently set reset time from lockout.

i. Synchronism Check or Broken-Delta Voltage Input. The relay shall include two synchronism check elements with separate maximum angle settings (e.g., one for autoreclosing and one for manual closing). The synchronism check function shall compensate for breaker close time and constant phase angle differences between the two voltage sources used for synchronism check (phase angle differences settable in 30-degree increments). Alternatively, the relay shall accept a broken-delta (zero-sequence) voltage input (in place of a synchronism check voltage) to use as a polarizing source for the zero-sequence voltage-polarized ground directional elements.

j. Selectable Wye or Delta Voltage Inputs. The relay shall operate with either wye-connected (four wire) or open-delta-connected (three wire) potential transformers.

k. Event Reporting and Sequential Events Recorder (SER). The relay shall be capable of automatically recording disturbance events of 15 or 30 cycles with settable prefault duration and user-defined triggering. Events shall be stored in nonvolatile memory. The relay shall include an SER that stores the latest 512 entries.

l. Fast SER Protocol. The relay shall be capable of communicating unsolicited binary SER messages.

m. Status and Trip Target LEDs. The relay shall include 16 status and trip target LEDs.

n. Overload and Unbalance Alarms. The relay shall include user-settable demand current thresholds for phase, negative-sequence, neutral, and residual demand measurements.

o. Circuit Breaker Monitor. The relay shall include a breaker wear monitor with user-definable wear curves, operation counter, and accumulated interrupted currents by phase.

p. Substation Battery Monitor. The relay shall measure and report the substation battery voltage presented to the relay power supply terminals. Two user-selectable threshold parameters shall be provided for alarm and control purposes.
q. Fault Locator. The relay shall include a fault locating algorithm to provide an accurate estimate of fault location without communications channels, special instrument transformers, or prefault information.

r. Automation. The relay shall include 16 local control elements, 16 remote control logic points, 16 latching logic points, and 16 display messages in conjunction with a local display panel included in the relay. The relay shall have the capability to display custom messages.

s. Relay Logic. The relay shall include programmable logic functions for a wide range of user-configurable protection, monitoring, and control schemes.

t. Communication. The relay shall include three independent EIA-232 serial ports and one isolated EIA 485 serial port for external communications.

u. Distributed Network Protocol (DNP). The relay shall incorporate compliant DNP3 Level 2 Slave protocol communications capability.

v. IRIG-B. The relay shall include an interface port for a demodulated IRIG-B time synchronization input signal.

w. PC Interface. The relay shall be capable of being set by Windows-based graphical and ASCII terminal interfaces.

x. Synchrophasors. The relay shall include operation as a phasor measurement and control unit (PMCU).

2.3.10 Bus Differential Relays

Bus differential relays (device 87B): Provide a set of three high-speed, high-impedance, single-phase bus differential relays, wired to trip the circuit breakers connected to the protected bus upon occurrence of a fault within the zone or protection. Relays shall not trip the circuit breakers on through current to a fault outside the zone of protection. Current signals shall be obtained from dedicated current transformers. Bus differential relay shall include a voltage-operated unit which shall operate in three to six cycles for low-magnitude faults and a current-operated unit which shall operate one to three cycles on moderate to severe faults. Relay shall include a thyrite voltage-limiting unit. Voltage-operated unit shall have an adjustment range of 75 to 500 V. Current-operated unit shall have an adjustment range of 2 to 50 amperes.

2.3.11 Ammeters

ANSI C39.1; indicating ammeter with 4.5 in (114 mm)square recessed case and 250° scale, white dial with black figures and pointer, 5 amp, 60 Hz movement, 1% accuracy.

2.3.12 Ammeter Transfer Switch

Rotary multistage detent type with 600 volt ac-dc silver plated contacts, engraved escutcheon plate, oval type handle and four positions including OFF.

2.4 FABRICATION

2.4.1 Construction:

The separately constructed section (cubicle) shall be assembled to form a rigid freestanding unit. Minimum sheet metal thickness shall be 11 gauge steel on all exterior surfaces. Fabricate so that the adjacent existing section shall be securely bolted together to form an integrated rigid structure. The rear covers shall be removable to assist installation and maintenance of bus and cables. The section shall be braced to prevent distortion.
2.5 CONTROL STATION WITH TOUCHSCREEN

The Control Station Manufacturer shall coordinate with the new Generators supplier and the existing Generators at the plant that need to be properly interfaced with the Synchronization, Paralleling, Automatic Start, Load Management controls including but not limited to engine control, day dank, and other ancillary devices as required by the new and existing Generator sets. The Control Station shall bear a UL 508A Label. Certified copies of protection test reports shall be supplied demonstrating compliance with all Electrical Standards.

The Control Station shall meet or exceed the following applicable standards as required:
1. NFPA
2. ANSI
3. IEEE
4. UL

APPROVAL SUBMITTALS

A. The following information shall be submitted to the Engineer or designated design review group:
   1. Front view, side view, and plan view of the control panel line-up
   2. Control conduit space locations within the control panel line-up
   3. Single line diagram, as required
   4. Full schematic drawings including all AC and DC circuitry
   5. Preliminary interconnect information
   6. Detailed sequence of operation
   7. Complete bill of material including component data sheets
   8. Nameplate schedule
   9. Assembly ratings including:
      a. Control voltage
      b. Control voltage current requirements
      c. VA burden requirements for switchgear potential and current transformers
   10. The connection and the interlock between the new and Existing Generators and the new Control Station.

FINAL SUBMITTALS

A. The following information shall be submitted for record purposes:
   1. Final as-built drawings including Internal point-to-point wiring diagrams.
   2. Standard factory final test reports.
   3. Interconnect drawings showing interfacing with new generator sets, Existing generator sets, switchgear, and other control and or monitoring signals from other devices as required by the Synchronization, Paralleling, Automatic Start, Load Management controls.

QUALIFICATIONS

A. The manufacturer of this equipment specified herein shall be ISO 9001 or 9002 certified.
B. The manufacturer of this equipment shall have manufactured similar systems for a minimum of Five (5) years. When requested by the Engineer or designated design review group, a list of installations with similar equipment shall be provided demonstrating compliance with this requirement.

DESIGN CRITERIA

1. The control system switchgear shall be designed to automatically program the operation of the plant engine generator sets. Automatic programming shall be interpreted to mean automatic starting, automatic Synchronization, Paralleling, Automatic Start, Load Management controls and Automatic load sharing of the engine generator sets. Initiation of automatic operation shall be from the Remote PC at Control Room, or Touch screen panel. Upon receipt of this signal, the control system will send a start signal to each of the generator sets which will, via the generator mounted generator control panel, start each of the generator sets. Closing of individual generator circuit breakers shall occur when conditions for paralleling are within acceptable tolerances and controlled by synchronizing circuits providing automatic correction signals to the engine governor system and generator voltage regulator. Control circuitry within the system shall allow only one generator to close to a dead bus. When more than one of the generators have synchronized and are operating in parallel to power the load automatic isochronous kW and kVAR sharing features shall be initiated.

2. The system control shall include an integral generator counting circuit the purpose of which shall be to determine the minimum number of generators required to be closed to the bus before allowing the generator output feeder breaker(s) to be closed. This circuitry will allow for controlled loading based on load segmentation and will prevent the possibility of overloading of the on-line generators. The circuitry shall be for the number of generators on-line prior to any individual contact closure of this circuitry and shall be programmable via the touch screen.

3. The auto-paralleling controls shall be capable of monitoring the load requirements, and automatically removing a genset or sets from service as load decreases, and automatically program a genset or sets back into service as load increases. When a genset is removed from service the affected generator will be soft unloaded over an adjustable time period to near zero output with its breaker being then tripped open and then operate for the programmed shutdown sequence as controlled by the generator mounted engine generator control panel. Generator sets programmed back into service, control logic shall soft load the genset and load share when genset returned to service. The load sense/load demand operational settings, for genset removal and/or re-add, shall be field adjustable to coordinate with actual site load conditions and provided with adjustable timer settings to avoid unnecessary operation on momentary load surges. Control logic to allow station personnel to manually place a genset or sets into service independent of load sense / load demand automatic functions. This load demand feature can be over-ridden at the discretion of the operator.

4. The control system shall monitor an overload condition, as detected by a drop in bus frequency for a time period and provide output contact signals wired to terminal board points for customer connection to devices in the site distribution system to remove pre-selected loads to be shed. A minimum of three (3) sequenced load shed stages shall be available. Detection of an overload condition shall also program any non-running genset or sets into service.

5. Should an on-line genset develop a monitored fault (warning or shutdown), the control system shall program a non-running genset into operation (if available) with automatic removal of the faulted genset. The system programmable logic shall automatically place all
available gensets into service (on-line) should the main bus become “dead” with re-
activation of the load sense / load demand logic.

MASTER CONTROL AND MONITORING SECTION

1. System operator interface module, a high resolution 10.5 inch (266.7 mm) color touch
screen --- system to provide selected control functions and read-out displays for load sense /
load demand, sequence programming of site gensets plus power plant mimic bus displaying
kW output of each on-line genset, reason for a genset being off-line and the Island
Distribution Loads through existing Five Circuits . Also displaying bus voltage and bus
frequency along with total site kW and kVAR outputs --- annunciation display of monitored
system faults, load shed activation and a minimum of five (5) remote discrete inputs
programmable for alarms or breaker tripping operations.
2. Group of auxiliary relays, as needed, with contact outputs.
3. LED indication, press-to-test type, for system intelligent gateway non-operative.
4. System alarm horn (80 to 85 DBA) shall be provided to sound on any monitored alarm or
shutdown with a flashing read-out on the associated annunciation display. Activation of an
acknowledge pushbutton, on the affected touch screen annunciation display, shall silence
the alarm horn and the flashing read-out to become steady. Any subsequent monitored
alarm or shutdown fault shall re-sound the alarm horn and cause an associated annunciation
display read-out to flash. The silence pushbutton in the system shall also silence the horn.
5. Power plant mimic bus display to show positions of generator circuit breakers, feeder
breakers, kW output of each on-line genset; identify reason for a genset or sets being off-
line, system voltage and frequency.
6. Annunciation display of load shed activation (initiated by a drop in bus frequency) and a
minimum of five (5) additional remote discrete inputs programmable for alarms or selected
breaker tripping.

EXECUTION

FACTORY TESTING

A. The Control assembly shall be completely assembled, wired, and adjusted at the factory. After
assembly, the complete control assembly shall be tested to ensure the accuracy of the wiring
and the functioning of all equipment accordance with the manufacturer’s standard testing
procedures prior to shipment.
B. A factory final test report of all standard production tests shall be shipped with each assembly.
C. Coordination between the Control System manufactures and the Phase II Contractor (Installer
Contractor) shall be included in the contract.

INSTALLATION

D. If equipment is not to be immediately installed, store equipment in a clean, dry place, protected
from weather, dirt, fumes, water, construction debris that could damage the equipment.
E. The equipment shall be installed in accordance with the manufacturer’s recommendations by
Phase II Contractor.
F. Secure assembly to foundation or floor channels.
G. Assemble all shipping sections and connect all shipping split electrical connections.
FIELD COMMISSIONING AND STARTUP

H. Provide the services of a qualified factory-trained manufacturer’s representative for start-up of the equipment. The manufacturer’s representative shall provide technical direction and assistance to the contractor in general assembly of the equipment, connections and adjustments, and testing of the assembly and components contained therein.

I. The manufacturer’s representative shall provide inspection of the final installation. The manufacturer’s representative shall perform site start-up and functional checkout of the New and Existing Generators Paralleling Control assembly.

J. FIELD ADJUSTMENTS
   1. The protective relays and circuit breaker trip units shall be set in the field by a qualified and certified testing company, retained by the Contractor. The relays shall be set per the contractor’s coordination study.

K. Functional Testing shall include testing of the following as a minimum:
   1. Pre-startup inspection of the Plant, and Paralleling Control Panel assembly.
   2. Verify and test all system functions and alarms.
   3. Test all modes of operation.
   4. Upon completion of the manufacturer’s start-up and checkout, as required, the manufacturer shall demonstrate to the customer all the automated sequences of operation as specified herein.
   5. The Contractor shall provide three (3) copies of the manufacturer’s field start-up report.

TRAINING

L. The Contractor shall provide a training session for up to Ten (10) owner’s representatives for 30 normal workdays at a jobsite.

M. Upon successful completion of a demonstration of the automated sequences of operation by the manufacturer and acceptance by the customer, the manufacturer shall provide an eight-hour "hands-on" training course for the customer's operating personnel which shall cover the following topics:
   1. Overall System Description
   2. Modes of Operation as listed in the Sequence of Operations to include at a minimum:
      a. Automatic Operation
      b. Manual Operation
      c. Safeties and Protective Relaying

N. Recommended System Check Lists

O. Recommended Preventive Maintenance

P. The training session shall be conducted by a manufacturer’s qualified field representative and shall also include instruction on the operation of the assembly and major components within the assembly.

2.6 FACTORY FINISHING

   a. All steel parts, except galvanized (if used), shall be cleaned and a zinc-phosphate pre-treatment applied prior to paint application.
b. Paint color shall be match existing; TGIC polyester powder, applied electrostatically through air. Following paint application, parts shall be baked to produce a hard durable finish. The average thickness of the paint film shall be 2.0 mils. Paint film shall be uniform in color and free from blisters, sags, flaking and peeling.

c. Adequacy of paint finish to inhibit the buildup of rust on ferrous metal materials shall be tested and evaluated per paragraphs 5.2.8.1-7 of ANSI C37.20.2-1987. Salt spray withstand tests in accordance with ASTM #D-1654 and #B-117 shall be performed on a periodic basis to provide conformance with the corrosion resistance standard of at least 600 hours minimum.

PART 3 EXECUTION

3.1 EXAMINATION
   a. Visually inspect switchgear for evidence of damage and verify that surfaces are ready to receive work.
   b. Visually inspect to confirm that all items and accessories are in accordance with specifications and drawings.
   c. Verify field measurements shown on drawings.
   d. Beginning of installation means installer accepts existing surface conditions. (Coordinate with Phase II Contractor)

3.2 INSTALLATION (By Phase II Contractor)
   a. Install in accordance with manufacturer's instructions, applicable requirements of the NEC and in accordance with recognized industry practices.
   b. Bending of high-voltage cables should be avoided or minimized. All necessary bends should meet at least the minimum radii specified by the cable manufacturer. (By Phase II Contractor)

3.3 FIELD QUALITY CONTROL
   a. Field inspection and testing will be performed by the installing contractor.
   b. Visually inspect for physical damage.
   c. Perform start-up tests in accordance with manufacturer's instruction manual.
   d. Touch-up paint all chips and scratches with manufacturer-supplied paint and leave remaining paint with owner.
   e. Verify key interlock operation.
   f. Perform low frequency withstand (Hi-Pot) tests according to ANSI/IEEE C37.20.2, paragraph 5.5.

- End of Section –
SECTION 2
OVERCURRENT PROTECTIVE DEVICE
COORDINATION STUDY

PART 1 GENERAL

1.1 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions, Section 1 Specification, and RFP Phase 2 apply to this Section.

1.2 SUMMARY

This Section includes computer-based, fault-current, overcurrent protective device coordination, arc flash evaluation studies. Protective devices shall be set based on results of the protective device coordination and arc flash studies.

1.3 SUBMITTALS

1.3.1 Product Data:

For computer software program to be used for the studies.

1.3.2 Produce Certificates

For coordination-study and fault-current-study computer software programs, certifying compliance with IEEE 399. For Arc flash evaluation study computer software, certifying compliance with IEEE 1584.

1.3.3 Qualification Data:

Coordination-study Specialist shall be a Registered Professional Electrical Engineer with a minimum of 5 years experience with this type studies/analysis.

1.3.4 Other Action Submittals:

The following submittals shall be made after the approval process for system protective devices has been completed. Submittals shall be in digital form.

   a. Study input data, including completed computer program input data sheets.

   b. Study and Equipment Evaluation Reports.

   c. Study Report

1.4 QUALITY ASSURANCE

a. Studies shall use computer programs that are distributed nationally and are in wide use. Software algorithms shall comply with requirements of standards and guides specified in this Section. Manual calculations are not acceptable.
b. Coordination-Study Specialist Qualifications: A Professional Electrical Engineer experienced in the application of computer software used for studies, having performed successful studies of similar magnitude on Power Plant and electrical distribution systems using similar devices.

c. Comply with IEEE 242 for short-circuit currents and coordination time intervals.

d. Comply with IEEE 399 for general study procedures.

e. Comply with IEEE 1584 Guide for Arc Flash Hazard Calculations. PART

PART 2 PRODUCTS

2.1 COMPUTER SOFTWARE DEVELOPERS


a. CGI CYME.

b. EDSA Micro Corporation.

c. ESA Inc.

d. Operation Technology, Inc.

e. SKM Systems Analysis, Inc.

2.2 COMPUTER SOFTWARE PROGRAM REQUIREMENTS Comply with IEEE 399. Analytical features of fault-current-study computer software program shall include "mandatory," "very desirable," and "desirable" features as listed in IEEE 399. Computer software program shall be capable of plotting and diagramming time-current-characteristic curves as part of its output. Computer software program shall report device settings and ratings of all overcurrent protective devices and shall demonstrate selective coordination by computer-generated, time-current coordination plots.

a. Arcing faults.

b. Simultaneous faults.

c. Explicit negative sequence.

d. Mutual coupling in zero sequence.

e. The calculation shall include different operating scenario for maximum calculated fault current and worst case scenario for arc flash incident energy. The system could be analyzed according to the maximum available fault current and with respect to the minimum available fault currents. The resulting energy levels for each location could be compared between the two scenarios and the resulting worst case calculations could be reported and used for the arc flash labeling of the equipment.
f. Load Flow analysis.

Analysis for the Arc flash study computer software program shall include the requirements in NFPA 70E and shall be performed according to the IEEE 1584 equations that are presented in NFPA 70E, Annex D. PART 3 EXECUTION

3.1 EXAMINATION

Examine Project overcurrent protective device submittals for compliance with electrical distribution system coordination requirements and other conditions affecting performance. Devices to be coordinated are indicated on Drawings. Proceed with Coordination study and Arc Flash Study only after relevant equipment submittals have been assembled. Overcurrent protective devices that have not been submitted and approved prior to studies may not be used in study.

3.2 POWER SYSTEM DATA

Gather and tabulate the following input data to support the Coordination study and Arc Flash study:

a. Product Data for overcurrent protective devices specified in other Sections and involved in overcurrent protective device coordination studies. Use equipment designation tags that are consistent with electrical distribution system diagrams, overcurrent protective device submittals, input and output data, and recommended device settings.

b. Impedance of the plant.

c. Electrical Distribution System Diagram: In hard-copy and electronic-copy formats, showing the following:

1. Circuit-breaker and fuse-current ratings and types.
2. Relays and associated power and current transformer ratings and ratios.
3. Transformer kilovolt amperes, primary and secondary voltages, connection type, impedance, and X/R ratios.
4. New and existing Generator kilovolt amperes, size, voltage, and source impedance.
5. Cables: Indicate conduit material, sizes of conductors, conductor material, insulation, and length.
6. Motor horsepower and code letter designation according to NEMA MG 1.

d. Data sheets to supplement electrical distribution system diagram, cross-referenced with tag numbers on diagram, showing the following:

1. Special load considerations, including starting inrush currents and frequent starting and stopping.
2. Transformer characteristics, including primary protective device, magnetic inrush current, and overload capability.
3. Motor full-load current, locked rotor current, service factor, starting time, type of start, and thermal-damage curve.

4. Generator thermal-damage curve.

5. Ratings, types, and settings of utility company’s overcurrent protective devices.

6. Special overcurrent protective device settings or types stipulated by plant for new and existing generators.

7. Time-current-characteristic curves of devices indicated to be coordinated.

8. Manufacturer, frame size, interrupting rating in amperes rms symmetrical, ampere or current sensor rating, long-time adjustment range, short-time adjustment range, and instantaneous adjustment range for circuit breakers.

9. Manufacturer and type, ampere-tap adjustment range, time-delay adjustment range, instantaneous attachment adjustment range, and current transformer ratio for overcurrent relays.

10. Panelboards, switchboards, motor-control center ampacity, and interrupting rating in amperes rms symmetrical.

### 3.3 FAULT-CURRENT STUDY

a. Calculate the maximum available short-circuit current in amperes rms symmetrical at circuit-breaker positions of the electrical power distribution system. The calculation shall be for a current immediately after initiation and for a three-phase bolted short circuit at each of the following:

1. Medium Voltage Switchgear bus
2. Switchboard bus.
3. The pad mounted primary switchgear.
4. Distribution panelboard.
5. Branch circuit panelboard.

b. Study electrical distribution system from normal and alternate power sources throughout electrical distribution system for Project. Include studies of system-switching configurations and alternate operations that could result in maximum fault conditions.

c. Calculate momentary and interrupting duties on the basis of maximum available fault current.

d. Calculations to verify interrupting ratings of overcurrent protective devices shall comply with IEEE 241 and IEEE 242.
1. Transformers:
   (a) ANSI C57.12.10.
   (b) ANSI C57.12.22.
   (c) IEEE C57.12.00.
   (d) IEEE C57.96.


5. Low-Voltage Fuses: IEEE C37.46.

e. Study Report:
   1. Show calculated X/R ratios and equipment interrupting rating (1/2-cycle) fault currents on electrical distribution system diagram.
   2. Show interrupting (5-cycle) and time-delayed currents (6 cycles and above) on medium-voltage breakers as needed to set relays and assess the sensitivity of overcurrent relays.

f. Equipment Evaluation Report:
   1. For 600-V overcurrent protective devices, ensure that interrupting ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.
   2. For devices and equipment rated for asymmetrical fault current, apply multiplication factors listed in the standards to 1/2-cycle symmetrical fault current.
   3. Verify adequacy of phase conductors at maximum three-phase bolted fault currents; verify adequacy of equipment grounding conductors and grounding electrode conductors at maximum ground-fault currents. Ensure that short-circuit withstand ratings are equal to or higher than calculated 1/2-cycle symmetrical fault current.

3.4 COORDINATION STUDY

   1. Calculate the maximum and minimum 1/2-cycle short-circuit currents.
   2. Calculate the maximum and minimum interrupting duty (5 cycles to 2 seconds) short-circuit currents.
3. Calculate the maximum and minimum ground-fault currents.

b. Comply with IEEE 242 recommendations for fault currents and time intervals.

c. Transformer Primary Overcurrent Protective Devices.

1. Device shall not operate in response to the following:

   (a) Inrush current when first energized.

   (b) Self-cooled, full-load current or forced-air-cooled, full-load current, whichever is specified for that transformer.

   (c) Permissible transformer overloads according to IEEE C57.96 if required by unusual loading or emergency conditions.

   (d) Device settings shall protect transformers according to IEEE C57.12.00, for fault currents.

d. Motors served by voltages more than 600 V shall be protected according to IEEE 620.

e. Conductor Protection: Protect cables against damage from fault currents according to ICEA P-32-382, ICEA P-45-482, and conductor melting curves in IEEE 242. Demonstrate that equipment withstands the maximum short-circuit current for a time equivalent to the tripping time of the primary relay protection or total clearing time of the fuse. To determine temperatures that damage insulation, use curves from cable manufacturers or from listed standards indicating conductor size and short-circuit current.

f. Coordination-Study Report. Prepare a written report indicating the following results of coordination study. Tabular Format of Settings Selected for Overcurrent Protective Devices:

   1. Device tag.

   2. Relay-current transformer ratios; and tap, time-dial, and instantaneous-pickup values.

   3. Circuit-breaker sensor rating; and long-time, short-time, and instantaneous settings.

   4. Fuse-current rating and type.

   5. Ground-fault relay-pickup and time-delay settings.

g. Coordination Curves: Prepared to determine settings of overcurrent protective devices to achieve selective coordination. Graphically illustrate that adequate time separation exists between devices installed in series, including power utility company's upstream devices. Prepare separate sets of curves for the switching schemes and for emergency periods where the power source is local generation. Show the following information:

   1. Device tag.
2. Voltage and current ratio for curves.

3. Three-phase and single-phase damage points for each transformer.

4. No damage, melting, and clearing curves for fuses.

5. Cable damage curves.

6. Transformer inrush points.

7. Maximum fault-current cutoff point.

h. Completed data sheets for setting of overcurrent protective devices.

3.5 ARC FLASH HAZARD EVALUATION STUDY

a. The arc flash hazard analysis shall be performed according to the IEEE 1584 equations that are presented in NFPA70E, Annex D.

b. The flash protection boundary and the incident energy shall be calculated at all significant locations in the electrical distribution system (switchboards, switchgear, panelboards) where work could be performed on energized parts.

c. The Arc-Flash Hazard Analysis shall include all significant locations in 240 volt and 208 volt systems fed from transformers equal to or greater than 125 kVA where work could be performed on energized parts.

d. Safe working distances shall be based upon the calculated arc flash boundary considering an incident energy of 1.2 cal/cm2.

e. When appropriate, the short circuit calculations and the clearing times of the phase overcurrent devices will be retrieved from the short-circuit and coordination study model. Ground overcurrent relays should not be taken into consideration when determining the clearing time when performing incident energy calculations.

f. The short-circuit calculations and the corresponding incident energy calculations for multiple system scenarios must be compared and the greatest incident energy must be uniquely reported for each equipment location. Calculations must be performed to represent the maximum and minimum contributions of fault current magnitude for all operating conditions. The minimum calculation will assume that the utility contribution is at a minimum and will assume a minimum motor contribution (all motors off). Conversely, the maximum calculation will assume a maximum contribution from the utility and will assume the maximum amount of motors to be operating. Calculations shall take into consideration the parallel operation of synchronous generators with the electric utility, where applicable.

g. The incident energy calculations must consider the accumulation of energy over time when performing arc flash calculations on buses with multiple sources. Iterative calculations must take into account the changing current
contributions, as the sources are interrupted or decremented with time. Fault contribution from motors and generators should be decremented as follows:

1. Fault contribution from induction motors should not be considered beyond 3-5 cycles.

2. Fault contribution from synchronous motors and generators should be decayed to match the actual decrement of each as closely as possible (e.g. contributions from permanent magnet generators will typically decay from 10 per unit to 3 per unit after 10 cycles).

h. For each equipment location with a separately enclosed main device (where there is adequate separation between the line side terminals of the main protective device and the work location), calculations for incident energy and flash protection boundary shall include both the line and load side of the main breaker.

i. When performing incident energy calculations on the line side of a main breaker (as required per above), the line side and load side contributions must be included in the fault calculation.

j. Mis-coordination should be checked amongst all devices within the branch containing the immediate protective device upstream of the calculation location and the calculation should utilize the fastest device to compute the incident energy for the corresponding location.

k. Arc Flash calculations shall be based on actual overcurrent protective device clearing time. Maximum clearing time will be capped at 2 seconds based on IEEE 1584-2002 section B.1.2. Where it is not physically possible to move outside of the flash protection boundary in less than 2 seconds during an arc flash event, a maximum clearing time based on the specific location shall be utilized.

1. Arc Flash Evaluation Study Report
   1. Arcing fault magnitude
   2. Protective device clearing time
   3. Duration of arc
   4. Arc flash boundary
   5. Working distance
   6. Incident energy
   7. Hazard Risk Category
   8. Recommendations for arc flash energy reduction
m. Arc Flash Warning Labels

a. The contractor of the Arc Flash Hazard Analysis shall provide a 3.5 in. x 5 in. thermal transfer type label of high adhesion polyester for each work location analyzed.

b. All labels will be based on recommended overcurrent device settings and will be provided after the results of the analysis have been presented to the owner and after any system changes, upgrades or modifications have been incorporated in the system.

c. The label shall include the following information, at a minimum:

- Location designation
- Nominal voltage
- Flash protection
- Boundary Hazard
- Risk category
- Incident energy
- Working distance
- Engineering report number, revision number and issue date.

Labels shall be machine printed, with no field markings.

d. Arc flash labels shall be provided in the following manner and all labels shall be based on recommended overcurrent device settings.

For each 600, 480 and applicable 208 volt panelboard, one arc flash label shall be provided.

For each motor control center, one arc flash label shall be provided.

For each switchgear, one flash label shall be provided.

For medium voltage switches one arc flash label shall be provided

Labels shall be field installed.

-- End of Section --
SECTION 3
SF6/HIGH-FIREPOINT FLUIDS INSULATED PAD-MOUNTED SWITCHGEAR

PART 1  GENERAL

1.1  SUBMITTALS

Shop Drawings

Product Data

Electronic Overcurrent Control Curves

SF6/High-Firepoint Fluid Insulated Pad-mounted Switchgear

Insulated High-Voltage Connectors

Surge Arresters

Each submittal shall include data on switches and associated accessories. Each submittal shall include manufacturer’s information for each component, device and accessory provided with the equipment.

Test Reports

Acceptance Checks and Tests

Certificates

Paint Coating System

Manufacturer's Field Reports

Switchgear design and production tests

Operation and Maintenance Data

SF6/High-Firepoint Fluid Insulated Pad-mounted Switchgear Operation and Maintenance.

1.2  QUALITY ASSURANCE

1.2.1  Switchgear Drawings

Furnish drawings that include, but are not limited to, the following:

a. Overall dimensions, weights, plan view, and front view
b. Ratings

c. Single-line diagram.

1.2.2 Paint Coating System

Submit IEEE C57.12.29 paint coating system performance requirement tests.

1.2.3 Electronic Overcurrent Control Curves

Provide time-current characteristic curves (in electronic format suitable for import into computer programs EasyPower and SKM PowerTools for Windows) and instruction manuals for the electronic overcurrent control.

1.3 MAINTENANCE

1.3.1 SF6/High-Firepoint Fluid Insulated Pad-mounted Switchgear Operation and Maintenance Data

Submit Operation and Maintenance Manuals.

PART 2 PRODUCTS

2.1 SF6/HIGH-FIREPOINT FLUID INSULATED PAD-MOUNTED SWITCHGEAR
IEEE C37.74.

-S&C
-Cooper Industries
-G&W Electric

2.1.1 Ratings and Test Requirements

The voltage rating of the switchgear shall be 15.5 kV. The corresponding ratings associated with the required switchgear voltage rating shall be as follows.

<table>
<thead>
<tr>
<th>Rated Maximum Voltage, kV</th>
<th>15.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Withstand Impulse Voltage, kV BIL</td>
<td>95</td>
</tr>
<tr>
<td>Continuous and Load Interrupting Current, A</td>
<td>600</td>
</tr>
<tr>
<td>Short-Time Current, kA rms Sym</td>
<td>25</td>
</tr>
<tr>
<td>Short-Circuit interrupting Current, kA rms Sym</td>
<td>25</td>
</tr>
</tbody>
</table>

2.1.2 Switchgear Construction

Switch contacts and cable entrance terminations shall be contained in a sealed, dielectric-filled stainless steel tank. Switchgear shall be shipped factory filled with appropriate levels
of SF6 gas conforming to ASTM D2472 or less-flammable, high-firepoint biodegradable fluid conforming to ASTM D6871 and IEC 61099. Switchgear shall be configured with load interrupting and fault interrupting switched ways as indicated. Switchgear shall have front accessible terminations suitable for cables entering from below with the manual operating provisions either mounted on the rear or capable of hookstick operation. Switch contact positions for switched ways shall be visible through viewing windows in the switchgear tank located adjacent to the manual operating provisions. Provide internal gas pressure gage or fluid level gage in viewable location from switch operating handle. Each switched way shall have three position switch; Open, Closed, Ground and provisions for grounding.

2.1.2.1 Pad-mounting Provisions

Provide enclosed switchgear suitable for installation on a concrete pad. Switchgear enclosure shall be fabricated of ASTM A167 type 304 or 304L stainless steel. Enclosure base shall include any part of the switchgear enclosure that is within 75 mm 3 inches of concrete pad. Paint enclosure including base ASTM D1535 Munsell 7GY3.29/1.5 green. Paint coating system shall comply with IEEE C57.12.29 regardless of equipment material.

2.1.3 Load Interrupting Switched Ways

Load interrupter switched ways shall provide three-pole group operated switching.

2.1.4 Fault Interrupting Switched Ways

IEEE C37.60, IEC 62271-111. Provide non-fused, non-reclosing, manual reset, vacuum interrupters consisting of vacuum interrupter and a spring assisted operating mechanism. Each fault interrupting switched way shall utilize internally mounted current transformers and an electronic overcurrent control to provide three-pole ganged tripping for single-phase and three-phase faults. The electronic overcurrent control shall have provisions for a wide variety of field changeable time-current characteristic curves with ten field changeable trip levels through a current range of 0-600 amperes. The electronic overcurrent control shall have an EIA-RS-485 communications port that supports Modbus and DNP 3.0 Level 2 protocols. Fault interrupting switched ways shall have provisions for remote tripping via an external dry contact device. Remote trip control power shall be 120 Vac.

2.1.5 Automatic Switch Controls

Provide an automatic switch control system to execute Manual, Automatic Source-Transfer, and SCADA operation of the load interrupting switch ways. The automatic switch control shall accept 120 Vac control power and shall be powered from an integral battery-charger DC supply system. Switch way operation shall be via motor operators and associated motor operator controllers. The motor operator controllers shall have "Close," "Open," and "Ground" pushbuttons for manual operation. The Source-Transfer controls shall effect opening of an incoming switch way where voltage is lost and close the other incoming switch way if voltage is present. The Source-Transfer controls shall include an overcurrent-lockout feature that prevents automatic closing of a switch way into a system fault. The automatic switch control system shall execute remote commands received from a SCADA master station and transmit switchgear operation information to a SCADA master station via DNP 3.0 communications. Execution of remote commands shall include enabling of the Source-Transfer controls and transfer of switch ways to "Close," "Open," and "Ground" positions. Transmission of switchgear information shall include switch way positions, voltage and current readings, and DC supply system status. The control shall have communication port provisions for connection to a multi-mode serial fiber link.
2.1.6 Low Voltage Test Pins

Load interrupting switch ways shall have internal load side voltage sensors and external test pins that allow for low voltage checks to confirm energized and in-phase conditions using a standard high-impedance voltmeter.

2.1.7 Key Interlock

Provide key interlock system as indicated on the drawings.

2.1.8 Dead-Front High-Voltage Bushings

IEEE 386. 15 kV, 95 kV BIL. Provide 600 ampere one-piece deadbreak apparatus bushings for each switched way.

2.2 Insulated High-Voltage Connectors

IEEE 386. Provide corresponding connector for each switched way. Connectors shall have a grounding eye and test point.

a. 600 Ampere deadbreak connector ratings: Voltage: 15 kV, 95 kV BIL. Short time rating: 25,000 rms symmetrical amperes. Connectors shall have 200 ampere bushing interface for surge arresters.

2.3 Surge Arresters

IEEE C62.11, rated 15kV, fully shielded, dead-front, metal-oxide-varistor, elbow type with resistance-graded gap, suitable for plugging into inserts. Provide arresters on switched ways as indicated.

2.4 SF6 Refill Cylinders

Provide two SF6 refill cylinders, minimum size of 6 pounds of SF6; include regulator, valves, and hose for connection to the fill valve of the switch.

2.5 SOURCE QUALITY CONTROL

2.5.1 Switchgear Design and Production Tests

Furnish reports which include results of design and production tests performed according to IEEE C37.74, and or IEEE C37.60. Production tests shall be performed by the manufacturer on each switchgear assembly to ensure that design performance is maintained in production.

PART 3 EXECUTION

3.1 INSTALLATION

Electrical installations shall conform to IEEE C2, NFPA 70, and to the requirements specified herein.

3.2 GROUNDING

NFPA 70 and IEEE C2, except that grounds and grounding systems shall have a resistance to solid earth ground not exceeding 5 ohms. When work, in addition to that indicated or
3.2.1 Grounding Electrodes

Provide driven ground rods as specified in Section at each corner of switchgear pad.

3.2.2 Switchgear Grounding

Connect #4/0 bare copper conductor ground loop, not less than 610 mm 24 inches below grade, to the upper end of the ground rods by exothermic welds or compression connectors. Provide #4/0 bare copper conductors connecting the switchgear grounding provisions to two different ground rods.

3.2.3 Connections

Make joints in grounding conductors and ground loop by exothermic weld or compression connector. Exothermic welds and compression connectors shall be installed.

3.2.4 Grounding and Bonding Equipment

UL 467, except as indicated or specified otherwise.

3.3 FOUNDATION FOR EQUIPMENT AND ASSEMBLIES

Mount switch on concrete slab. Slab shall be at least 300 mm 12 inches thick, reinforced with a 152 by 152 - MW19 by MW19 6 by 6 - W2.9 by W2.9 mesh, placed uniformly 100 mm 4 inches from the top of the slab. Slab shall be placed on a 150 mm 6 inch thick, well-compacted gravel base. Top of concrete slab shall be approximately 100 mm 4 inches above finished grade. Edges above grade shall have 15 mm 1/2 inch chamfer. Slab shall be of adequate size to project at least 200 mm 8 inches beyond equipment.

Stub up conduits, with bushings, 50 mm 2 inches into cable wells in the concrete pad. Coordinate dimensions of cable wells with switch cable training areas.

3.4 FIELD QUALITY CONTROL

3.4.1 Performance of Acceptance Checks and Tests

Perform in accordance with the manufacturer's recommendations, NFPA 70B, NETA ATS and referenced ANSI standards.

Include the following visual and mechanical inspections and electrical tests, performed in accordance with NETA ATS.

3.4.1.1 Switchgear

a. Visual and Mechanical Inspection

(1) Compare equipment nameplate information with specifications and approved shop drawings.

(2) Inspect physical and mechanical condition.
(3) Check for proper anchorage, alignment, required area clearances, and grounding.

(4) Perform mechanical operator tests in accordance with manufacturer's instructions.

(5) Verify that insulating SF6 gas pressure or dielectric fluid level is correct.

(6) Inspect all indicating devices for proper operation.

(7) Test interlock systems for proper operation and sequencing.

b. Electrical Tests

(1) Perform contact-resistance tests.

(2) Trip fault interrupters by operation of overcurrent control [and remote trip].

(3) Perform insulation-resistance tests.

(4) Perform an over-potential test on each switched way pole with the switched way in the open position in accordance with the manufacturer's instructions.

(5) Set fault interrupter overcurrent control in accordance with government provided settings. Request settings from government, in writing, a minimum of 30 days prior to scheduling electrical tests.

3.4.1.2 Grounding System

a. Visual and Mechanical Inspection

Inspect ground system for compliance with contract plans and specifications.

b. Electrical Tests

Perform ground-impedance measurements utilizing the fall-of-potential method. On systems consisting of interconnected ground rods, perform tests after interconnections are complete. On systems consisting of a single ground rod perform tests before any wire is connected. Take measurement in normally dry weather, not less than 48 hours after rainfall. Use a portable ground testing megger in accordance with manufacturer's instructions to test each ground or group of grounds. The instrument shall be equipped with a meter reading directly in ohms or fractions thereof to indicate the ground value of the ground rod or grounding systems under test.

Submit the measured ground resistance of each ground rod and grounding system, indicating the location of the rod and grounding system.

Include the test method and test setup (i.e., pin location) used to determine ground resistance and soil conditions at the time the measurements were made.

3.4.2 Follow-Up Verification

Upon completion of acceptance checks and tests, the Contractor shall show by demonstration in service that devices are in good operating condition and properly
performing the intended function. Test shall require each item to perform its function not less than three times. As an exception to requirements stated elsewhere in the contract, notify the Contracting Officer 5 working days in advance of the dates and times for checks and tests.

-- End of Section --
11. PRE-SUBMISSION CHECKLIST

**Pre-submission Checklist**

- Have you read, and do you understand the intent of this RFP?
- Have you attended the Pre-Proposal Conference for this RFP?
- Have you completed the questionnaires (Forms A & P) to the best of your ability?
- Have you submitted pricing for all of the product/equipment and related services that you are proposing within the scope of this RFP?
- Have you packaged your Proposal submission identifying conspicuously “Competitive Proposal Enclosed, Please hold for public opening September 20, 2014?"?
- Have you sent your package in sufficient time for physical delivery at PO Box 910, Weno, Chuuk State, FM 96942 to occur prior to the deadline for delivery?
- Have you submitted hard copy original signed, completed, and dated forms C, D, E, and hard copy signed signature page only from forms A and P of this RFP?
- Have you submitted verification of liability insurance with the coverage and limits required in the RFP?
- Have you submitted your Bid Bond?
- Have you provided an electronic copy (saved on a CD or flash drive) of your entire proposal including, but not limited to, Forms A, B, C, D, E, F, H, & P in your proposal?

**Contents of your Proposal response:**

- **Hard copy original signed, completed, and dated forms C, D, and hard copy signed signature page only from forms A and P.**
- **Electronic submission of proposal forms A, B, C, D, E, F, & P (CD or flash drive).**
- **Certificate of Insurance (demonstration of insurability)**
- **Bid Bond**

**FORM TITLES**

- **Form A**  Proposer Questionnaire – General Business Information
- **Form B**  Proposer Information
- **Form C**  Exceptions to Proposal, Terms, Conditions, and Solutions Request
- **Form D**  Formal Offering of Proposal
- **Form E**  Contract Acceptance and Award
- **Form F**  Proposer Assurance of Compliance
- **Form G**  Overall Evaluation and Criteria
- **Form H**  Insurance Schedule
- **Form I**  Proposer Questionnaire – Products/equipment, Pricing, Sector Specific, Services, Terms and Warranty
- **Form J**  CPUC Vendor Price and Product Change Request Form