UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 10-21
PURCHASE ELECTRICAL TRANSFORMERS & SWITCHGEARS

INVITATION TO BID

The Utilities Commission, City of New Smyrna Beach, Florida (COMMISSION) is seeking bids from qualified vendors to:

Purchase of Electrical Transformers & Switchgears

Notice is hereby given that sealed bids will be received at 200 Canal Street, New Smyrna Beach, FL 32168, until 2:30 P.M. on February 4, 2021 at which time they will be publicly opened in the 3rd floor DeBerry Room.

Submit Bids To: Caleb Fisher, CPPB
Purchasing Agent
Utilities Commission,
City of New Smyrna Beach
(386) 424.3045 Voice
(386) 424.2748 Fax
CFISHER@UCNSB.ORG

Mailing Address: 200 Canal Street
New Smyrna Beach, FL
32168

Walk In Delivery: 200 Canal Street
New Smyrna Beach, FL
32168

Bidders must indicate on the sealed envelope the following:

A. Invitation To Bid Number
B. Hour and Date of Opening
C. Name of Bidder
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UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 10-21
PURCHASE ELECTRICAL TRANSFORMERS & SWITCHGEARS

BID SCHEDULE

<table>
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<th>Event</th>
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<tbody>
<tr>
<td>January 13, 2021</td>
<td>DISTRIBUTION OF THE INVITATION TO BID</td>
</tr>
<tr>
<td>January 20, 2021</td>
<td>DEADLINE FOR FINAL QUESTIONS BY 2:30 P.M.</td>
</tr>
<tr>
<td></td>
<td>E-MAIL: <a href="mailto:cfisher@ucnsb.org">cfisher@ucnsb.org</a></td>
</tr>
<tr>
<td>January 22, 2021</td>
<td>ADDENDUM PUBLISHED BY 5:00 P.M.</td>
</tr>
<tr>
<td>February 4, 2021</td>
<td>BID RETURN DEADLINE BY 2:30 P.M.</td>
</tr>
<tr>
<td></td>
<td>LOCATION: UTILITIES COMMISSION RECEPTION</td>
</tr>
<tr>
<td></td>
<td>200 CANAL STREET</td>
</tr>
<tr>
<td></td>
<td>NEW SMYRNA BEACH, FL 32169</td>
</tr>
</tbody>
</table>

VENDORS ARE ENCOURAGED **NOT TO** ATTEND PRE-BID IN PERSON BUT TO ATTEND BY DIALING 1 (646) 570-1040 PIN: 924-5593

THE UTILITIES COMMISSION, CITY OF NEW SMYRNA BEACH TAKES THIS STEP IN AN ABUNDANCE OF CAUTION FOR THE SAFETY AND WELLBEING OF OUR STAFF AND COMMUNITY.
GENERAL TERMS AND CONDITIONS

1. **INSTRUCTIONS TO BIDDERS:** To ensure consideration of your bid, please follow these instructions. Bids not in compliance with conditions specified herein are subject to rejection.

2. **SEALED BIDS:** AN ORIGINAL BID AND 1 COPY plus a USB Flash Drive or a CD must be in the Finance Department by the date and time specified. The Bid Reply, Certification of Drug-Free Workplace Form, Public Entity Crimes Form, Non-Collusion Affidavit of Prime Bidder Form, Evaluation Factors, Questionnaire, and any addenda issued must be included. Proposals must be sealed and clearly labeled with the following information:
   a. Name and address of Bidder
   b. Bid number
   c. Date and time of Bid Opening

3. **PREPARATION OF BID:** All information shall be entered in ink, typewritten, or produced by computer. It is your responsibility to make certain that unit prices and extended prices are correct. The UCNSB will not be responsible for errors or omissions made by the bidder in determining bid price(s). The bid must contain a manual signature of an authorized representative of the agency bidding. In order to ensure uniformity, bids must be submitted on this Bid Form and the attached pages.

4. **OBLIGATION OF BIDDER:** By submitting a BID, the bidder covenants and agrees that they have satisfied themselves from their own investigation of the conditions to be met, that they fully understand their obligation and that they will not make any claim for, or have right to cancellation or relief from the contract because of any misunderstanding or lack of information.

5. **BID EXAMINATION:** BIDDERS are expected to examine, when applicable, the drawings, specifications, delivery requirements, performance sites and all instructions to satisfy themselves of conditions affecting cost of performing this contract.

6. **FURNISHED ITEMS:** No material, labor or facilities will be furnished by the COMMISSION unless specifically stated.

7. **COLLUSION:** The BIDDER hereby attests that the prices in this offer have been arrived at independently without consultation, communication or agreement with any competitor for the purpose of restricting competition.

8. **PRICE WARRANTY:** The BIDDER warrants that the prices of the items set forth herein do not exceed the prices charged by the BIDDER under a contract with the State of Florida.

9. **COMMERCIAL WARRANTY:** The BIDDER agrees that the supplies and services furnished under this award shall be covered by the most favorable commercial warranties the BIDDER gives any customers for comparable quantities of such supplies or services and that
the rights and remedies provided herein are in addition to and do not limit any rights afforded to the COMMISSION by any other provision of this award.

10. **INSPECTION AND ACCEPTANCE**: A duly authorized representative of the COMMISSION will accomplish inspection and acceptance of the supplies/services purchased herein at the designated delivery point.

11. **QUESTIONS REGARDING BID**: COMMISSION has made every effort to provide prospective vendors with the information needed to appropriately respond to this bid. COMMISSION realizes that some clarification, interpretation, or additional information may be required.

   **Questions regarding any portion of this bid shall be directed, in writing, to:**
   Utilities Commission, City of New Smyrna Beach
   Caleb Fisher, Purchasing Agent
   cfisher@ucnsb.org

   All such requests must be received no later than 2:30 PM, Eastern Standard Time, **January 20, 2021**. Responses to all requests for more information will be included in any addenda and will be made available to all BIDDERS on **January 22, 2021**.

   Requests for additional information received after the **January 20, 2021** deadline will not receive a response. Responses will not be made orally.

   Any additional information pertaining to this Bid or to the services being sought hereunder obtained in a manner other than as described in the preceding paragraph should be regarded as unofficial. COMMISSION will not be bound in any way by information so obtained, or by a Bidder’s reliance thereon.

12. **COMMUNICATIONS**: Any communication between any potential vendor, service provider, bidder, lobbyist or consultant and any U.C. Commission Member, staff member, or consultant of the U.C. regarding this procurement is strictly prohibited from the date on which the solicitation advertisement appears on the U.C.’s website, Demandstar, or newspaper through the date of contract award. Also, from the date of the filing of any notice of protest of award through resolution for the parties involved in the protest or contract award, whichever is longer. The only exceptions to this are communications with the U.C.’s Material Manager or the U.C.’s designated point of contact. Any violation shall constitute grounds for immediate and permanent disqualification of the offending firm and possible debarment or suspension. At the U.C.’s General Manager/CEO and Director of Finance (CFO)’s sole discretion, it may also serve as grounds for the voiding of any Contract with the violator and/or to temporarily or permanently debarring the violator from future work with the U.C. This process will safeguard the integrity of the U.C.’s procurement and protest process and also provide an ethical, equitable, and transparent procurement process.
13. **NON DISCLOSURE:** The Utilities Commission understands the vendors concerns regarding confidential and/or proprietary information for both participating parties. In response UCNSB is incorporating the following verbiage into **ITB 10-21 Electrical Transformers & Switchgears.** Upon receipt by UCNSB, responses to solicitations become public records subject to the provisions of Florida’s state policy on public records, Section 119 Florida Statutes. If you believe that any portion of your response is exempt you should clearly identify the specific documents for which confidentiality is claimed, and provide specific legal authority of the asserted exemption.

14. **INVOICES:** All invoices resulting from the award of this bid will be paid within 30 days of receipt of invoice or receipt of goods or acceptance of work performed.

15. **E-VERIFY:** By [registering as a vendor, submitting a response to this solicitation, entering into a Contract], you are obligated to comply with the provisions of Section 448.095, Fla. Stat., "Employment Eligibility." Further, by your [registration as a vendor/response to this solicitation/entering into a contract] you affirm and represent that you are registered with the E-Verify system are using same, and will continue to use same as required by Section 448.095, F.S. Compliance with Section 448.095 includes, but is not limited to, utilization of the E-Verify System to verify the work authorization status of all newly hired employees, and requiring all subcontractors to provide an affidavit attesting that the subcontractor does not employ, contract with, or subcontract with, an unauthorized alien. Failure to comply will lead to termination [as a vendor, disqualifying you for award of this solicitation, entering into a contract and/or, cancellation of an active contract], or if your subcontractor knowingly violates the statute, the subcontract must be terminated immediately. Any challenge to termination under this provision must be filed in the Circuit Court no later than 20 calendar days after the date of termination. If terminated for a violation of the statute by the Vendor/Contractor, the Vendor/Contractor may not be allowed to do business with The Utilities Commission or be awarded a solicitation or contract for a period of 1 year after the date of termination. All costs incurred to initiate and sustain the aforementioned programs shall be the responsibility of the Vendor/Contractor.

16. **BID FORM:** A Bid Form is provided and a completed original and one duplicate copy shall be returned in a **sealed envelope properly marked with Bid number and acknowledgment of receipt of addenda where applicable.** It is incumbent upon each bidder to ensure that they have received all addenda before submitting their bid.

17. **BID OPENING:** Bids will be publicly opened, read aloud and recorded, on the date and time indicated, at the location specified in the request for bid. It is the **BIDDER’s sole responsibility to assure his/her bid is delivered at the proper time and place of the bid.** The **COMMISSION** will not be responsible for late deliveries or delayed mail. Bids delivered after the time specified shall not be considered; such bids shall remain **unopened.**
18. **QUOTING PRICES:** Carelessness in quoting prices or in preparation of bid otherwise will not relieve the BIDDER. BIDDERs are expected to examine specifications, delivery schedule, extensions, and all terms and conditions in the bid documents. Bids having erasures or corrections must be initialed in ink by the BIDDER. In the event of an extension error(s), the unit price will prevail.

19. **AMENDED OR WITHDRAWN BIDS:** Bids may be amended or withdrawn only by written notice prior to the bid opening. Amendments will only be accepted in the form of a new bid package. The bidder must pick up the original bid package and submit an amended sealed bid prior to the bids closing date and time. Amendments or withdrawals received after the bid opening will not be effective, and the original bid submitted will be considered.

20. **PUBLIC ENTITY CRIMES:** UNDER SECTION 287.133(2)(a), FLORIDA STATUTES, a person or affiliate who has been placed on the convicted vendor list following a conviction for a public entity crime may not submit a bid on a contract to provide any goods or services to a public entity, may not submit a bid on a contract with a public entity for the construction or repair of a public building or public work, may not submit bids on leases of real property to a public entity, may not be awarded or perform work as a contractor, supplier, subcontractor, or consultant under a contract with any public entity, and may not transact business with any public entity in excess of the threshold amount provided in Section 287.017, for Category two for a period of 36 months from the date of being placed on the convicted vendor list. See attachment “A”.

21. **CONSIDERATION OF BIDS:** The COMMISSION reserves the right to award the contract to the Bidder(s) that the COMMISSION deems to offer the best overall bid. The COMMISSION is therefore not bound to accept a bid on the basis of lowest price. In addition, the COMMISSION at its sole discretion, reserves the right to cancel this Bid, to reject any and all bids, to waive any and all informalities and/or irregularities, to re-advertise with either the identical or revised specifications, or not award a contract at all if it is deemed to be in the best interest of the COMMISSION to do so. The COMMISSION also reserves the right to make multiple or split awards if it is deemed to be in the COMMISSION’S best interest. The COMMISSION shall not be responsible for any cost or expense incurred by the Bidder in preparing or submitting a bid or any cost prior to the execution of a contract agreement.

22. **TIE BID:** In the event of a tie bid where quality and service are equal; a preference is given to vendors submitting, with the proposal, a certification of a drug free workplace in accordance with Section 287.087 Florida Statutes. Where tie bids are between bidders, one of which is located in Volusia County and the other bidder is not, the recommended award shall be to the local bidder. Past Performance-Consideration will be given to a vendor based on previous history and performance on similar Utilities Commission projects or requirements. Delivery availability or completion period. Capacity to perform in terms of service availability, facilities, personnel or financial availability. Closeness to delivery point. If all conditions are equal, a flip of a coin, with two witnesses present, shall be the deciding factor.
23. **SUBMITTING BIDS**: Bids shall be addressed and mailed or delivered as specified on page one (1) to 200 Canal St. New Smyrna Beach, Florida 32168.

24. **NO BID**: In the event an Invitation to Bid is returned as a no bid, "NO BID" shall be properly marked on the outside of the envelope with the bid number.

25. **REJECTED BIDS**: The COMMISSION reserves the right to reject bids containing any additional terms or conditions not specifically requested in the original conditions and specifications.

26. **FAILURE OF THE CONTRACTOR TO DELIVER**: Failure of the contractor to deliver within the time specified, or within a reasonable time as interpreted by the COMMISSION or failure to make replacements of rejected articles as directed, shall permit the COMMISSION to purchase on the open market articles of comparable grade to take the place of those rejected or not delivered. On all such purchases, the contractor shall reimburse the COMMISSION, within a reasonable time specified by the Purchasing Authority, for any expenses incurred in excess of the defaulted price. Payments due the contractor by the COMMISSION may be withheld until reimbursement is received.

27. **BRAND OR TRADE NAMES**: When brand or trade names are used in the bid invitation, it is for the purpose of item identification and to establish standards for quality; style and features. Bids on equivalent items will be considered unless items are noted as no substitutes. Equivalent bids must be accompanied by descriptive literature and/or specifications to receive consideration. Demonstrations and/or samples may be required and shall be at no charge to the COMMISSION. The COMMISSION reserves the right to determine if bid goods are equivalent to specified goods.

28. **AWARDS**: Awards shall be made as required for the best interest of the COMMISSION. The right is reserved to make award(s) by individual items, group of items, all or none, or any combination thereof, with one or more suppliers.

29. **NON-WARRANTY OF SPECIFICATIONS**: Due care and diligence have been exercised in the preparation of this Bid and all information contained herein is believed to be substantially correct. However, the responsibility for determining the full extent of the exposures shall rest solely with the provider. Neither the Commission nor its representatives shall be responsible for any errors or omission in this Bid nor for the failure on the part of the bidder(s) to determine the full extent of exposures.

30. **BID AWARD**: Award is expected to be made to the Bidder who best meets the requirements of UCNSB considering responsibility, responsiveness and price. A written contract and/or
purchase order detailing agreed terms will be rendered between the UCNSB and the agency achieving a successful proposal. Terms of the contract will include any and all items as specified in the bid, plus mutually agreed terms and conditions.

31. **CLARIFICATION:** The UCNSB reserves the right to request clarification of information submitted and to request additional information of one or more Bidders, if needed.

32. **OTHER AGENCIES:** All respondents awarded contracts from this solicitation may, upon mutual agreement, permit any municipality or other government agency to participate in the contract under the same prices, terms and conditions. If the period of time is not defined within this solicitation, the prices, terms and conditions shall be firm for 120 days from date of award. It is understood that at no time will any city or municipality or other agency be obligated for placing an order for any city municipality or agency, nor will any city municipality or agency be obligated for any bills incurred by any other city or municipality or agency. Further it is understood that each agency shall issue their own purchase order to the awarded respondent(s).
33. **INSURANCE:** The Contractor shall, at its sole expense, maintain in effect at all times during the performance of the services insurance coverage with limits not less than those set forth below and with insurers and under forms of policies satisfactory to COMMISSION.

<table>
<thead>
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<th>Minimum Amounts and Limits</th>
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<tr>
<td>(a) Worker's Compensation</td>
<td>Statutory requirements at location of work</td>
</tr>
<tr>
<td>Employer's Liability</td>
<td></td>
</tr>
<tr>
<td></td>
<td>$ 100,000 Each occurrence</td>
</tr>
<tr>
<td></td>
<td>$ 300,000 Disease, aggregate</td>
</tr>
<tr>
<td></td>
<td>$ 100,000 Disease, each employee</td>
</tr>
<tr>
<td>(b) General Liability</td>
<td>$ 1,000,000 General Aggregate</td>
</tr>
<tr>
<td></td>
<td>$ 1,000,000 Products - Comp Ops Agg</td>
</tr>
<tr>
<td></td>
<td>$ 500,000 Each Occurrence</td>
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<tr>
<td></td>
<td>$ 50,000 Fire Damage</td>
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<tr>
<td></td>
<td>$ 5,000 Medical Expense</td>
</tr>
<tr>
<td>(c) Automobile Liability</td>
<td>$ 1,000,000 Combined Single Limit</td>
</tr>
<tr>
<td>(owned, hired and non-owned)</td>
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<tr>
<td>Option of Split Limits:</td>
<td></td>
</tr>
<tr>
<td>(1.) Bodily Injury</td>
<td>$ 500,000 Per Person</td>
</tr>
<tr>
<td></td>
<td>$ 1,000,000 Per Accident</td>
</tr>
<tr>
<td>(2.) Property Damage</td>
<td>$ 500,000</td>
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34. **INDEMNIFICATION FOR TORT ACTIONS/LIMITATION OF LIABILITY:**

The provisions of Florida Statute 768.28 applicable to the Utilities Commission, City of New Smyrna Beach apply in full to this contract. Any legal actions to recover monetary damages in tort for injury or loss of property, personal injury, or death caused by the negligent or wrongful act or omission of any employee of the Utilities Commission acting within the scope of his/her office or employment are subject to the limitations specified in this statute.

No officer, employee or agent of the Utilities Commission acting within the scope of his/her employment or function shall be held personally liable in tort or named as a defendant in any action for injury or damage suffered as a result of any act, event or failure to act.

The Utilities Commission shall not be liable in tort for the acts or omissions of an officer, employee or agent committed while acting outside the course and scope of his/her employment. This exclusion includes actions committed in bad faith or with malicious purpose, or in a manner exhibiting wanton and willful disregard of human rights, safety, or property.
To the fullest extent permitted by law, the vendor shall defend, indemnify, and hold harmless the Utilities Commission, its officials, agents, and employees from and against any and all claims, suits, judgments, demands, liabilities, damages, cost and expenses (including attorney’s fees) of any kind or nature whatsoever arising directly or indirectly out of or caused in whole or in part by any act or omission of the vendor or its subcontractors (if any), anyone directly or indirectly employed by them, or anyone for whose acts any of them may be liable; excepting those acts or omissions arising out of the sole negligence of the Utilities Commission.

Provided, however, if the contract between the Utilities Commission and the Contractor is deemed by a court of competent jurisdiction to be a construction contract for purposes of Section 725.06, Florida Statutes, any obligation of the Contractor to defend, indemnify or hold harmless the Utilities Commission, shall be limited to an obligation to indemnify or hold harmless the Utilities Commission, its officers and employees from liability damages, losses, and costs, including but not limited to reasonable attorney’s fees, to the extent caused by the negligence, recklessness or intentionally wrongful conduct of the contractor and persons employed or utilized by the Contractor in the performance of the contract.

35. **WARRANTY AND ACCEPTANCE**: All material shall be new and workmanship shall be first class in every respect. The work shall be subject to inspection and acceptance by COMMISSION. Contractor guarantees its work hereunder for a period of twelve (12) months after completion and acceptance of the work unless otherwise set forth herein. In the event COMMISSION discovers defects in material or workmanship at any time before the expiration of the specified warranty period, Contractor shall, upon written notice from COMMISSION, repair or replace at its sole expense any such defects. COMMISSION may perform such repairs or replacements by other reasonable means and Contractor agrees to pay for such corrective measures. Neither acceptance of the work by COMMISSION nor payment shall relieve Contractor from liability under the indemnity clause or any of the guarantees or warranties contained or implied herein.

36. **CHANGES**: COMMISSION may, at any time, direct in writing additions, deletions or changes to all or any part of the work. If any such changes cause an increase or decrease in the cost of or in the time required to perform such work, Contractor shall submit detail information substantiating such claims and an equitable adjustment shall be made to the price or time of performance.

37. **CONFLICT OF INTEREST OF OFFICERS OR EMPLOYEES OF THE CONTRACTING ENTITY/LOCAL JURISDICTION, MEMBERS OF THE LOCAL GOVERNING BODY, OR OTHER ELECTED OFFICIALS**: No member or employee of the contracting entity/local jurisdiction or its designees or agents; no member of the governing body; and no other public official of the COMMISSION who exercises any function or responsibility with respect to this contract, during his/her tenure or for one year thereafter, shall have any interest, direct or indirect, in any contract or subcontract, or the proceeds thereof, for work to be performed. Further, the Contractor shall cause to be
incorporated in all subcontracts, the language set forth in this paragraph prohibiting conflict of interest.

38. **EMPLOYEE CONFLICT OF INTEREST:** It shall be unethical for any COMMISSION employee to participate directly or indirectly in a procurement contract when the COMMISSION employee knows that:

(1) The COMMISSION employee or any member of the COMMISSION employee's immediate family has a financial interest in the procurement contract; or

(2) Any other person, business, or organization with whom the COMMISSION employee or any member of a COMMISSION employee's immediate family is negotiating or has an arrangement concerning prospective employment is involved in the procurement contract.

A COMMISSION employee or any member of a COMMISSION employee's immediate family who holds a financial interest in a disclosed blind trust shall not be deemed to have a conflict of interest with regard to matters pertaining to that financial interest.

39. **GRATUITIES AND KICKBACKS:**

(1) Gratuities. It shall be unethical for any person to offer, give, or agree to give any COMMISSION employee or former COMMISSION employee, or for any COMMISSION employee or former COMMISSION employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity COMMISSION in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore.

(2) Kickbacks. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier sub-contractor or any person associated therewith, as an inducement for the award of a subcontract or order.

(3) Contract Clause. The prohibition against gratuities and kickbacks prescribed in this Section shall be conspicuously set forth in every contract and solicitation therefore.
CERTIFICATION OF DRUG-FREE WORKPLACE FORM

IDENTICAL TIE BIDS - Preference shall be given to businesses with drug-free workplace programs. Whenever two or more bids which are equal with respect to price, quality, and service are received by the State or by any political subdivision for the procurement of commodities or contractual services, a bid received from a business that certifies that it has implemented a drug-free workplace program shall be given preference in the award process. Established procedures for processing tie bids will be followed if none of the tied vendors have a drug-free workplace program. In order to have a drug-free workplace program, a business shall:

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of chapter 893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

VENDOR SIGNATURE
UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 10-21
PURCHASE ELECTRICAL TRANSFORMERS & SWITCHGEARS

PUBLIC ENTITY CRIMES FORM
SWORN STATEMENT UNDER SECTION 287.133(3) (1) FLORIDA STATUTES

THIS FORM MUST BE SIGNED IN THE PRESENCE OF A NOTARY PUBLIC OR OTHER OFFICER AUTHORIZED TO ADMINISTER OATHS.

1. This sworn statement is submitted Bid, Bid or Contract for PURCHASE OF ELECTRICAL TRANSFORMERS & SWITCHGEARS.

2. This sworn statement is submitted by ____________________________________________________________
   [name of entity submitting sworn statement] whose business address is:
   ______________________________________________________ and (if applicable) its Federal Employer Identification Number (FEIN) is ______________________.

   If entity has no FEIN, include the Social Security Number of the individual signing this sworn statement: ____________________________.

3. My name is ______________________________ and my relationship to the entity named above is ____________________________________________.

4. I understand that a “public entity crime” as defined in Paragraph 287.133 (1) (g), Florida Statutes, means a violation of any state of federal law be a person with respect to and directly related to the transaction of business with any public entity or with an agency or political subdivision of any other state or with the United States, including, but not limited to, any bid or contract for goods or services to be provided to any public entity or an agency or political subdivision of any other state, or of the United States and involving antitrust, fraud, theft, bribery, collusion, racketeering, conspiracy, or material misrepresentation.

5. I understand that “convicted” or “conviction” as defined in Paragraph 287.133 (91) (b), Florida Statutes means a finding of guilt or a conviction of a public entity crime, with or without adjudication of guilt, in any federal or state trial court or recording, relating to charges brought by federal or state trial court or recording, relating to charges brought by federal or state trial court or recording, relating to charged brought by indictment or information after July 1, 1989, as a result of just verdict, non-jury trial, or entity of a plea of guilty or nolo contendere.

6. I understand the “affiliate” as defined in Paragraph 287.133(1)(a), Florida Statutes, means: (1) A Predecessor or Successor of a person convicted of public crime: or (2) An entity under the control of any natural person who is active in the management of the entity and who has been convicted of a public entity crime. The term “affiliate” includes those officers, directors, executives, partners, shareholder, employees, members, and agents who are active in the management of an affiliate. The ownership by one person of shares constituting a controlling interest in another person, or a pooling of equipment or income among persons when not for fair market value under an arm’s length agreement, shall be a prima facie case that one person controls another person. A person who knowingly enters into a joint venture with a person who has been convicted of public crime in Florida during the preceding 36 months shall be considered an affiliate.
Public Entity Crimes Statement
Page 2 of 2

7. I understand that a “person” as defined in Paragraph 287.133(1) (e), Florida Statutes, means any natural person or entity organized under the laws of any state or of the United States with the legal power to enter into a binding contract and which bids or applies to bid on contracts for the provisions of goods or services let by a public entity, or which otherwise transacts or applies to transact business with a public entity. The term “person” includes those officers, directors, executives, partners, shareholders, employees, members and agents who are active in management of an entity.

8. Based on information and belief, that statement which I have marked below is true in relation to the entity submitting this sworn statement. [Please indicate which statement applies]

_____ Neither the entity submitting this sworn statement, nor one more of the officers, directors, executives, partners, shareholders, employees, members or agents who are active in the management of the entity, nor any affiliate or the entity, has been charged with and convicted of public entity subsequent to July 1, 1989, AND [Please indicate which additional statement applies.]

_____ There has been a proceeding concerning the conviction before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer did not place the person or affiliate on the convicted vendor list. [Please attach a copy of the final order.]

_____ The person or affiliate was placed on the convicted vendor list. There has been a subsequent proceeding before a hearing officer of the State of Florida, Division of Administrative Hearings. The final order entered by the hearing officer determined that it was in the public interest to remove the person or affiliate from the convicted vendor list. [Please attach a copy of the final order.]

_____ The person or affiliate has not been placed on the convicted vendor list. [Please describe any action taken by or pending with the Department of General Services.]

Date        Signature

STATE OF: ___________________  COUNTY OF: ________________

PERSONALLY APPEARED BEFORE ME, the undersigned authority, [name of individual signing] who after first sworn by me affixed his/her signature in the space provided above on this _____ day of _________________, 20______.

My commission expires: ________ Personally known to me, or
Produced Identification: ______________________

Notary Public        Print, Type or Notary Stamp        Type of I.D.
NON-COLLUSION AFFIDAVIT OF PRIME BIDDER FORM

State of______________

County of______________

_____________________________, being first duly sworn, deposes and says that:

He/she is ______________ of__________________, Bidder that has submitted the attached Bid;

He/she is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;

Neither the said Bidder nor any of its officers, partners, owners, agent representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, sought by agreement or collusion or communication or conference with any other Bidder, firm or person, to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the COMMISSION.

The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_______________________________
Signed

_______________________________
Title

Subscribed and sworn to before me this _____day of_______, 20__.

_______________________________
Title

My Commission Expires: ___________
Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.

2 Business name/described entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC
☐ C Corporation
☐ S Corporation
☐ Partnership
☐ Trust/estate

☐ Limited liability company. Enter the tax classification: (C = Corporation, S = S corporation, P = Partnership) _________

Note Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner under the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

☐ Exempt payee code (if any) _________

Exemption from FATCA reporting code (if any) _________

(Applicable to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.

6 City, state, and ZIP code

Requestor's name and address (optional)

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)
Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see How to get a TIN, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see What Name and Number To Give the Requester for guidelines on whose number to enter.

Social security number

☐ - ☐ - ☐ - ☐ - ☐ - ☐

Or

Employer identification number

☐ - ☐ - ☐ - ☐ - ☐ - ☐

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to www.irs.gov/FormW9.

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN), which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

☐ Form 1099-INT (interest earned or paid)
☐ Form 1099-DIV (dividends, including those from stocks or mutual funds)
☐ Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
☐ Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
☐ Form 1099-S (proceeds from real estate transactions)
☐ Form 1099-K (merchant card and third party network transactions)
☐ Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
☐ Form 1099-C (canceled debt)
☐ Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, later.
VENDOR APPLICATION

In addition to General conditions, your BID may be disqualified if the following vendor information is not returned with your BID.

Vendor is:
( ) Corporation
( ) Partnership
( ) Sole Proprietorship
( ) Other __________________________ (Explain)

Federal Employer Identification Number or Social Security Number: ________________________________

Do you collect Florida State Sales Tax? ( ) Yes ( ) No

Firm Name: ________________________________________________________________

Mailing Address: ____________________________________________________________

Telephone No. ___________________ Fax No. ______________________

Email Address: ____________________ Web Address:____________________

Commodity or Service Supply: ____________________________________________

If vendor is quoting, as a manufacturer’s representative and the purchase order should be addressed to the manufacturer in care of the vendor, so indicate.

If remittance address is different from the mailing address so indicate below.

Firm Name: ________________________________________________________________

Mailing Address: ____________________________________________________________

Telephone No. ___________________ Fax No. ______________________

Email Address: ____________________ Web Address:____________________

Commodity or Service Supply: ____________________________________________

Submitted by: _____________________________________________________________

Name & Title Printed: ______________________________________________________
QUESTIONNAIRE

Additional space may be required. Please answer questions in the order presented. All questions must be answered or contractor may be disqualified.

1. Has your company ever been denied insurance or had insurance canceled?

2. Is your company bondable? Has your company ever been denied bond? If yes, explain.

3. Can your insurance company produce a certificate of insurance stating your limits and naming UCNSB as an Additional Insured?

4. Since January 1, 2016, has your company been a defendant in any lawsuits?

5. Is your company a subsidiary or otherwise legally affiliated with any other company?

6. Is your company rated by Dunn & Bradstreet or any other rating agency? If yes, what is the name of the agency and rating?

7. Is your company in any stage of bankruptcy, including initial filing?

8. Has your company been disbarred by the Federal Government or any State Government?
REFERENCES

Provide the business names, contact persons and telephone numbers of three (3) references for which the firm has provided the services described in this RFQ. Include relationships with utility and governmental agencies. It is our intent to contact these references during the award process. Award of this contract will be based on price AS WELL AS REFERENCES AND EXPERIENCE.

1. Name of Company: ___________________________________
   Address: ____________________________________________
   Point of Contact: _____________________________
   Phone Number: ______________________________
   Dates of Service: _____________________________
   Service(s)Provided:________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

2. Name of Company: ___________________________________
   Address: ____________________________________________
   Point of Contact: ______________________
   Phone Number: _______________________
   Dates of Service: ______________________
   Service(s)Provided:________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________

3. Name of Company: _______________________________
   Address: ____________________________________
   Point of Contact: _____________________________
   Phone Number: ______________________________
   Dates of Service: _____________________________
   Service(s)Provided:________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
   ______________________________________________________________________
REQUIRED DISCLOSURE

At its sole discretion, the COMMISSION may reject any bidder the COMMISSION finds to lack, or whose present or former executive employees, officers, directors, stockholders, partners or owners are found by the COMMISSION to lack honesty, integrity, or moral responsibility. The discretion of the COMMISSION may be exercised based on its own investigation, public records, or any other reliable sources of information. By submitting a bid, bidder recognizes and accepts that the COMMISSION may reject the bid based upon the exercise of its sole discretion and bidder waives any claim it might have for damages or other relief resulting from the rejection of its bid based on these grounds.
BID SUBMITTAL REQUIREMENTS

Bids shall include all of the information solicited in this ITB, and any additional information that the BIDDER deems pertinent to the understanding and evaluating of the bid. Bids shall be organized and sections tabbed in the following order. The BIDDER should not withhold any information from the written response in anticipation of presenting the information orally or in a demonstration, since oral presentations or demonstrations may not be solicited. All bids shall include, at a minimum, the following information. Failure to supply all of the information requested shall result in the bid being excluded from consideration. The COMMISSION reserves the right to request information or clarification from bidders following the bid opening if omissions are deemed curable.

TAB #1  Experience:  Provide a profile showing company history, business structure, and a list of principals. A minimum of five (5) years in business is required.

TAB #2  References:  Submit a detailed list of clients receiving similar services within the last two (2) years. Please include a brief description of the scope of work performed and the name, phone number and email address of the contact person.

TAB #3  Pricing:  Complete, sign and submit the Bid Tabulation and Bid Form.

TAB #4  Public Entity Crimes, Non-collusion Affidavit, Drug Free Workplace, Vendor Information & W9 Forms:
All BIDDERs shall properly complete, notarize and submit attachments A,B,C,D & E here

TAB #5  Addenda Acknowledgement:
Please submit all addenda (if any) related to this bid here.

TAB #6  Questionnaire:
The Questionnaire responses requested should be submitted here

TAB #7  Other Information:
In this section include:
Transformer product information and literature
Transformer drawings
Transformer test reports
Switchgear product information and literature
Switchgear drawings
Switchgear test reports
BACKGROUND
The Utilities Commission, City of New Smyrna Beach operates an electric utility servicing approximately 23,000 customers. The Commission is soliciting qualified vendors to provide transformers to meet its needs.

AWARD
For the determination of the award of business, the Utilities Commission will consider all bids within two and one half percent (2.5%) of the lowest TOC to be economically equivalent and will consider other factors such as lead times and purchase price in making the award. For the purposes of cost comparison, the evaluated cost, total owning cost, will be used and not the unit price quoted for each transformer. (See sections 8.0 – 9.0 of transformer specifications)

All bidders shall supply NO LOAD AND TOTAL losses on the form provided in the bid documents. All losses shall be quoted in watts at 85 degrees C. (65 degrees C. rise + 20 degrees C. ambient).

Quoted losses shall be the guaranteed average of all transformers in a specific order of a given size and type. However, no transformer shall exceed the tolerances specified in ANSI C57.12.1987, Table 18.

TRANSFORMER DELIVERY
All transformers shall be palletized, side loaded, and delivered on an open type flat bed trailer. Pallet length (front to back) may be no shorter than 39” and no longer than 42”. Twenty four (24) hours notice is required prior to delivery of the transformers by calling (386)424-3047 between the hours of 7:30 a.m. and 3:00 p.m. weekdays.

All transformers will be delivered FOB New Smyrna Beach, Florida. All shipping and handling costs shall be included in the unit cost quoted.

DRAWING SUBMITTALS
Bidders shall submit transformer construction drawings for APPROVAL showing all measurements and depicting all gauges, electrical connections, equipment parts, and all notes and nameplates for all transformers being quoted for the bid.

WARRANTY
The Vendor/Manufacturer shall warrant its transformers to meet guaranteed performance, and to operate continuously, without failure, for a period of 24 months from the date the transformer is placed into service by the Utilities Commission, City of New Smyrna Beach.

During the warranty period, should a mechanical or electrical failure occur in the transformer, the selling entity (Vendor/Manufacturer) shall be responsible for coordinating and/or providing parts and service to repair or replace failed transformer or affected components at no additional cost to the Utilities Commission. Such service shall commence within 5 working days of vendor receipt of written notice from the Commission of transformer failure.

The Vendor/Manufacturer will warrant and service all components of the transformer regardless of manufacturing origin.
The **COMMISSION** is seeking a Qualified Vendor to provide the following:

**Purchase of Electrical Transformers from our Approved Manufacturers List:**

<table>
<thead>
<tr>
<th>Pole Mount</th>
<th>Pad Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ABB</strong></td>
<td><strong>ABB</strong></td>
</tr>
<tr>
<td>CENTRAL MOLONEY</td>
<td>CENTRAL MOLONEY</td>
</tr>
<tr>
<td>COOPER INDUSTRIES</td>
<td>COOPER INDUSTRIES</td>
</tr>
<tr>
<td>ERMCO</td>
<td>ERMCO</td>
</tr>
<tr>
<td>GE INDUSTRIES</td>
<td>GE INDUSTRIES</td>
</tr>
<tr>
<td>HOWARD</td>
<td>HOWARD</td>
</tr>
<tr>
<td>KUHLMAN</td>
<td>KUHLMAN</td>
</tr>
<tr>
<td></td>
<td>PAUWELLS</td>
</tr>
</tbody>
</table>

**Item # 1:**
- **Spec # 1**
- **(30)** 15 KVA Pole Type Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

**Item # 2:**
- **Spec # 1**
- **(50)** 25 KVA Pole Type Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

**Item # 3:**
- **Spec # 1**
- **(30)** 50 KVA Pole Type Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

**Item # 4:**
- **Spec # 2**
- **(15)** 25 KVA Pad mount Looped Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

**Item # 5:**
- **Spec # 2**
- **(50)** 50 KVA Pad mount Looped Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V
Item #6:
Spec # 3
(10) 50 KVA Pad mount Looped Dual Voltage Primary Switching (22860/13200-13200/7620) Secondary 120/240V

Item #7
Spec # 5B (With Voltage Variance)
(2) 75 KVA Pad Mount Looped Primary (22860/13200) Secondary Voltage 120/240 Delta

Item #8
Spec # 5
(4) 300 KVA Three Phase Pad mount Looped Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/208V

SWITCHGEAR DELIVERY
Each padmounted switchgear shall be secured to a non-returnable wood pallet delivered on an open-top or flatbed trailer suitable for handling with a forklift. Twenty four (24) hours’ notice is required prior to delivery of the switchgears by calling (386)424-3047 between the hours of 7:30 a.m. and 3:00 p.m. weekdays.

All switchgears will be delivered FOB New Smyrna Beach, Florida. All shipping and handling costs shall be included in the unit cost quoted.

DRAWING SUBMITTALS
Bidders shall submit switchgear construction drawings for APPROVAL showing all measurements and depicting all gauges, electrical connections, equipment parts, and all notes and nameplates for all switchgears being quoted for the bid.

WARRANTY
The Vendor/Manufacturer shall warrant its switchgears to meet guaranteed performance, and to operate continuously, without failure, for a period of 24 months from the date the switchgear is placed into service by the Utilities Commission, City of New Smyrna Beach.

During the warranty period, should a mechanical or electrical failure occur in the switchgear, due to manufacturing and/or design defects, the selling entity (Vendor/Manufacturer) shall be responsible for coordinating and/or providing parts and service to repair or replace failed switchgear or affected components at no additional cost to the Utilities Commission. Such service shall commence within 5 working days of vendor receipt of written notice from the Commission of switchgear failure.

The Vendor/Manufacturer will warrant and service all components of the switchgear regardless of manufacturing origin.

BID SCOPE OF WORK
ITB #10-21
25
The COMMISSION is seeking a Qualified Vendor to provide the following:

Purchase of Electrical Switchgears from our Approved Manufacturers List:

<table>
<thead>
<tr>
<th>Pad Mount Switchgears</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Pacific</td>
</tr>
<tr>
<td>S&amp;C</td>
</tr>
</tbody>
</table>

**Item # 1:**
1. (1) Air Insulated dead front Type 11: Three Solid – One Protected (Fused)

**Item #2**
6. (6) Air Insulated dead front Type 9: Two Solid – Two protected (Fused)

**Items will be Taken to Commission Meeting February 22nd 2021 for award approval.**
1.0 SCOPE

1.1 This specification covers the general requirements for all single phase 10 to 75kVA, 60 Hertz, mineral-oil filled, two high-voltage cover mounted bushings, overhead type distribution transformers, high voltage 7620/13200Y X 13200/22860Y low voltages 120/240.

1.2 Unless otherwise specified herein, all transformers shall be in accordance with the latest revision of ANSI Standard C57.12.20.

1.3 No amorphous core transformers will be accepted.

2.0 BASIC IMPULSE INSULATION LEVELS shall be in accordance with the following:

<table>
<thead>
<tr>
<th>Primary:</th>
<th>Transformer High Voltage (kV)</th>
<th>7620/13200Y X 13200/22860Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation Class (kV)</td>
<td>18 kV</td>
<td></td>
</tr>
<tr>
<td>Insulation BIL (kV)</td>
<td>125 kV minimum</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary:</th>
<th>Rated Low Voltage (Volts)</th>
<th>120/240</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insulation Class (kV)</td>
<td>1.2</td>
<td></td>
</tr>
<tr>
<td>Insulation BIL (kV)</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

3.0 INTERLACED LV WINDINGS

3.1 Secondary windings 10 through 75 kVA must be furnished with interlaced secondary windings. Specific exceptions to interlaced windings must be noted on bid.

3.2 Internal secondary leads shall be identified with appropriate markings permanently embossed in the lead that correspond with lead markings on the nameplate.

4.0 INSTRUCTION NAMEPLATE AND MARKINGS:

4.1 The nameplate shall be mounted on a bracket in such a manner that there are no sharp edges exposed.

4.2 The winding conductor (aluminum or copper) used in each winding shall be shown on the
4.3 The nameplate shall include the true date of manufacture; Month and year. Example: 0103 or 01/03. No codes will be acceptable.

4.4 The approximate total weight (mass) in pounds and the volume of oil (in gallons) shall be shown on the nameplate.

4.5 The kVA rating in Arabic numerals shall be on the tank, within nine (9) inches of the tank bottom, centered below the low voltage bushings. These numerals and letters shall be black, and shall be 2-1/2 inches high. These markings may be applied by stenciling or by any other permanent method.

4.6 No markings, signs or decals are to be placed on the outside of these transformers unless required by this specification.

There is to be no decal, label or sign on the transformer marked with information regarding the PCB level in the dielectric fluid. This requirement includes the transformer nameplate. Preferred wording for the nameplate is "MINERAL OIL FILLED".

5.0 CONSTRUCTION

5.1 Bushings and Terminals:

(a) Primary bushings for severe corrosion shall have transformer bushings with a minimum creepage distance of thirty (30) inches.

5.2 Maximum Transformer Dimensions and Weights:

(a) Transformers supplied under this specification shall conform to the following maximum weights, tank heights, and tank diameters:

<table>
<thead>
<tr>
<th>Transformer Size (kVA)</th>
<th>Maximum Weight (LBS)</th>
<th>Maximum Tank Height</th>
<th>Maximum Tank Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>375</td>
<td>32.0&quot;</td>
<td>16.0&quot;</td>
</tr>
<tr>
<td>25</td>
<td>490</td>
<td>32.0&quot;</td>
<td>18.5&quot;</td>
</tr>
<tr>
<td>50</td>
<td>750</td>
<td>34.5&quot;</td>
<td>23.0&quot;</td>
</tr>
<tr>
<td>75</td>
<td>1,010</td>
<td>36.5&quot;</td>
<td>25.5&quot;</td>
</tr>
</tbody>
</table>

5.3 Accessory Equipment:

5.3.1 Dual voltage transformers shall have an externally operated dual voltage switch
**set at factory on the lower of the two tap positions.** The voltage settings shall be legibly and permanently marked. Decals or markings painted on the tank are not acceptable. The transformer nameplate shall also indicate the dual voltage connection. The switch handle shall be non-corrosive with a fastening device to prevent inadvertent operation. The switch must be arranged so as not to interfere with field replacement of aerial bushings with potheads. **Switches that must not be operated while energized shall have a warning sign to this effect near the switch.**

5.3.2 Transformer tanks shall be equipped with one of the following pressure relief valves. BETA Valve 1712K-3, Qualitrol 201-6, 202-030-01, or 202-037-01. The body of the valve shall be brass, bronze, or stainless steel. Approval of other valves is specifically required by the Utilities Commission.

5.3.3 Two ground pads for tank grounding and low voltage grounding provisions, each consisting of 1/2 inch -13 threaded boss, 7/16 inch deep, shall be provided. Each pad shall contain #8 solid - 2 stranded copper conductor.

5.4 Tank Construction:

5.4.1 Transformer tank design and pressure withstand requirements shall be tested in compliance with ANSI/IEEE C57.12.20.

5.4.2 Transformer cover shall be coated with insulating material capable of withstanding operating voltage to ground for five seconds.

5.4.3 The transformer tank, cover, clamping ring, hangers, and all related hard-ware will be constructed of 304L stainless steel. If used, clamping ring bolts will be silicon-bronze to prevent galling. Weep holes must be provided in clamping rings to allow for drainage.

5.4.4 The tank, cover and all bushings shall be No. 70 Light Gray in accordance with ANSI Specification Z55.1

5.4.5 All external fittings shall be of corrosion resistant material.

5.4.6 All welds on the exterior of the tank are to be full welds. Spot, tack, or skip welds are not acceptable for attaching brackets, grounding bosses, etc. Tank designs which minimize pockets and crevices where corrosion may occur are preferred.

5.4.7 No manufacturer's installation instructions are to be packaged or shipped with the transformers. Copies of installation instructions may be delivered to the Director of Electric Operations, Utilities Commission, City of New Smyrna Beach, Florida.

5.4.8 Each transformer shall be banded to a two-way entry, disposable pallet of the manufacturer's own design. This pallet must be of such dimension as to provide two inch clearance of the transformer at its widest outside measurements, including switch handles, pressure relief valves, lifting hooks, hanger brackets, etc., on all four sides.
5.4.9 This pallet must provide a minimum of 2-1/2 inches of fork under-clearance. The transformer shall be banded to the pallet in such a way as to prevent shifting of the unit on the pallet surface during transit, while allowing the unit to be handled by sling or by fork truck without removing the banding.

6.0 MANUFACTURER'S PROPOSAL

6.1 The following items shall be included in the Inquiry-Reply to the Utilities Commission:

(a) The guaranteed values of no load and load (winding) losses. No load losses shall be quoted at 20 degrees centigrade temperature. The value for load losses shall be corrected to 85 degrees centigrade temperature.

The losses for each primary voltage connection shall be supplied for all transformers with dual primary voltage ratings. (Guaranteed average losses are defined as: The average of the losses of all of the transformers in a shipment.)

The losses of an individual unit in the shipment shall not exceed the tolerances specified in Table 13, ANSI Standard C57.12.00 - 10% no load, 6% total.

Units exceeding these limits shall not be shipped to the Utilities Commission. If any such unit is found to have been shipped, the Utilities Commission will request full credit, based upon the purchase price of the unit. The unit will be returned if it can be found, if not, the full credit is still required.

(b) An excel spreadsheet listing of the following data should be provided for each proposed unit at the time of quotation:

- Manufacturer
- Transformer ID
- kVA Rating
- Delivered Price in dollars
- Delivery (weeks)
- No Load watts @ 20 °C
- Load Loss watts @ 85 °C
- % Exciting Current
- % Impedance
- Total Transformer Weight – lbs
- Oil Volume – gallons
- Oil type (Mineral Oil or FR3)
- Maximum Total Height – inches
- Maximum Tank width - inches
- Tank Diameter – inches
- Tank Height – inches
7.0 Outline Drawings

Outline Drawings and nameplate details will be provided in pdf format for each unit quoted.

8.0 TRANSFORMER EVALUATION AND LOSS PENALTY

8.1 Methodology:

The total cost of a transformer (T.C.) being evaluated will be based on the purchase price plus the present value of expected future cost due to core (no load) and winding (loaded) losses. The unit with the lowest total cost is the most economical unit purchase.

\[ TC = PP + CW \times BCL + WW \times BWL \]

where:

- \( PP \) = Purchase Price
- \( CW \) = Dollar per watt of core loss
- \( BCL \) = Bid Core Loss
- \( WW \) = Dollar per watt of winding loss
- \( BWL \) = Bid Winding Loss
- \( P \) = Penalty
- \( ACL \) = Actual Core Loss
- \( AWL \) = Actual Winding Loss

\( i = 4\% \)
\( n = 20 \) years
\( E = .06009 \) $ per KWh
\( L = 60\% \)

8.2 Calculation of Total Cost:

To calculate total cost, the present worth factor must first be found:

\[ PW = \frac{(1+i)^n-1}{i(1+i)^n} \]

\[ i = \text{interest rate} \]
\[ n = \text{transformer life in years} \]

then:

\( CW = (PV)(E)(8.760) \) where \( E = \text{Energy cost in } $ \text{ per KWh} \).

Then:

\( WW = (PV)(E)(8.760)(L^2) \) where \( L = \text{Percent of transformer load} \).

Lastly:
With PV, CW, WW calculated and PP, BCL, and BWL supplied by the vendor.

\[ TC = PP + CW \times BCL + WW \times BWL \]

8.3 Calculation of Loss Penalty:

\[ P = (ACL - BCL) \times CW + (AWL - BWL) \times WW \]

9.0 AUDITS - PENALTIES

9.1 The Utilities Commission may conduct random audits of transformer losses. These audits consist of actual loss measurements, which are compared to the vendor's guaranteed losses.

9.2 When the Actual Total Losses received exceed the Quoted Total Losses and the Utilities Commission agrees to accept the unit, the adjusted total cost of a transformer (T.C.) may be used to calculate the Price adjustment (in Dollars).

This is to be done when the actual losses exceed the quoted losses and will result in a price reduction for each unit where the losses penalty applies.

10.0 INVOICE AND LOSS DATA

10.1 The format of actual loss data is to be transmitted with each invoice. INVOICES SHALL BE HELD UNTIL ACTUAL LOSSES ARE RECEIVED.
1.0 SCOPE

1.1 This specification covers ANSI Type 1, pad mounted, single phase, 60 Hertz, mineral oil filled, self cooled distribution transformers, 250 kVA and smaller, primary voltage 13200GRDY/7620 X 22860GRDY/13200 - Low voltages 120/240. Unless otherwise specified herein, all transformers shall be in accordance with the latest revision of ANSI/IEEE Standard C57.12.38-2009.

1.2 No amorphous core transformers will be accepted.

2.0 BASIC IMPULSE INSULATION LEVELS shall be in accordance with the following:

**Primary:**
- Transformer High Voltage (kV): 13200GRDY/7620
- Insulation Class (kV): 18 kV
- Insulation BIL (kV): 125 kV minimum
- Transformer High Voltage (kV): 22860GRDY/13200

**Secondary:**
- Rated Low Voltage (volts): 240/120
- Insulation Class (kV): 1.2 kV
- Insulation BIL (kV): 30 kV

3.0 INTERNAL LEAD

3.1 Transformers below 100kVA must be furnished with interlaced secondary windings. Specific exception must be noted on bid if units do not have interlaced winding.

4.0 INSTRUCTION AND NAMEPLATE MARKINGS

4.1 The nameplate shall be mounted on a bracket in such a manner that there are no sharp edges exposed.

4.2 The metal (aluminum or copper) used in each winding shall be shown on the nameplate.

4.3 The nameplate shall include the true date of manufacture: Month and year. Example: 01/03 or 01/03. No codes will be acceptable.

4.4 No markings, signs, or decals are to be placed on these transformers unless required by this specification.
4.5 There is to be no decal, label or sign on the transformer marked with information regarding the PCB level in the dielectric fluid. This requirement includes the transformer nameplate. Preferred wording for the nameplate is "MINERAL OIL FILLED".

5.0 CONSTRUCTION

5.1 Bushing and Terminals:

(a) The transformer shall be furnished with two (2) removable stud bushing wells, Central Moloney #3-7019-1192 or approved equal, for use with replaceable load break type bushing inserts. Bail tabs are required on the bushing well clamp. Specific written approval is required for use of wells other than the one specified. (Bushing inserts and elbows will be furnished by the Utilities Commission).

(b) The bushing wells shall be oriented so that the elbows can be operated with a hot stick. A bracket for ground or test bushing shall be located between primary bushings.

(c) Primary bushing wells shall have a dust cover in place for shipment, and shall be elevated 12-1/2 degrees from the horizontal.

(d) High voltage wells for dead front application shall be externally clamped and conform to C57.12.38-2009 Type-1 Arrangement.

(e) The internal riser to externally clamped bushings shall allow replacement of the secondary bushings (50 kVA and smaller) or bushing wells (all sizes), from the exterior of the tank.

(f) Secondary bushings/spades shall have adequate strength to support the cables and prevent oil leaks. Transformers larger than 150KVA will require additional support for spades. The neutral bushing shall be insulated from the tank and provided with a detachable ground strap adequate to conduct maximum available fault current.

(g) The low voltage line and neutral terminals for 167 kVA and smaller transformers shall be a one inch threaded copper stud. The neutral stud shall be furnished with one jam nut suitable for retaining the ground strap between the nut and a secondary connector. The secondary connectors will be furnished and installed by the Utilities Commission.

5.2 Accessory Equipment

(a) **PRESSURE RELIEF DEVICE** - The transformer shall be equipped with a pressure relief valve with characteristics listed below:

1) The body of the valve shall be brass, bronze, or stainless steel.
2) Venting on rising pressure shall occur between 8 and 12 psi.
3) Resealing on falling pressure shall occur between 5 and 8 psi.
4) The valve shall have provisions for manual venting with the use of a live line hook stick.
5) The valve shall be threaded into a metal boss welded to the tank above the 140 degree top oil level.

(b) Two 304L stainless steel hold down cleats, slotted for 1/2 inch bolts, shall be provided for the front sill.

5.3 TANK CONSTRUCTION

(a) The tank and compartment construction shall be in accordance with ANSI C57.12.28 (latest revision) for Pad Mounted Equipment Enclosure Security.

(b) The transformer height shall be approximately 35 inches. Tamper-resistant construction must be used throughout. There shall be no exposed screws, bolts or other fastening devices which are externally removable. There shall be no openings through which foreign objects such as sticks, rods or wires might be inserted to contact live parts.

(c) All welds on the exterior of the tank are to be full welds. Spot, tack or skip welds are not acceptable for attaching hinges, brackets, grounding bosses, etc. Tank designs which minimize pockets and crevices where corrosion may occur are preferred.

(d) Lifting provisions shall be threaded stainless steel .625-11 Tap X 1 inch thread inserts. The inserts shall be placed for balanced lifting, using one sling attached at two points on the transformer. Suitable blanking plugs for the lifting wells shall be provided.

(e) Two ground pads, each consisting of .500-13 Tap X .625 Deep Ground Pads. Each pad shall contain a bronze transformer tank ground connector suitable for #8 solid - 2 stranded copper conductor, Penn Union HGSE-C-1-SBH, Anderson GTCL-23A or approved equal.

(f) If a removable lid is furnished, it must be detachable only in the fully open position to prevent accidental dislodgement from the hinge. The lid shall be hinged at the top. The retainers used to prevent accidental removal of the lid from its hinges should not protrude above the hinges or have exposed sharp edges. The retainers shall be stainless steel.

(g) The transformer tank will be constructed of 304L stainless steel, including doors, hinges, sill and other related hardware. Hinge pins shall be a minimum of .340 inches in diameter and 3 inches in length. The hinges shall be continuously welded to the tank and lid. The gauge of the hinges is to be the same or greater than the gauge of the tank.
(h) Construction of the unit shall be such that it can be lifted, skidded or slid into place on the mounting pad without disturbing the entrance cables. The compartment sill shall be attached to the tank with 3/8 inch bolts on each side of the sill. The minimum depth between the transformer tank and the sill shall be 15 inches.

(i) The entire unit shall be primed and painted in such a way as to prevent corrosion of the interior or exterior of the unit even under coastal atmospheric conditions. The color shall be Munsell 7GY 3.29/1.5.

(j) Suitable means for padlocking the compartment door shall be provided by a recessed latch. The latch shall be designed so as not to interfere with the operation of the primary elbow connectors and primary cable. A 1/2 inch hex head captive bolt with NC Class 2 threads separate from the locking device shall also be provided. The bolts shall be threaded into a blind hole.

(k) A 1/2 inch oil drain plug shall be provided near the center of the tank. This plug should be located in an area clear of grounding pads, bushings, etc., to allow clear access for removal.

(l) Tanks without cooling fins are preferred. If required, cooling fins shall be designed so that no sharp points or edges exist on any part of the fins or where they attach to the tank. External edges shall be rounded and smoothed. Cooling fins shall be arranged to minimize their protrusion from the tank. Studs, nuts, washers, and clamps on the faceplate of the tank shall be made of non-corrosive metal.

5.4 Bayonet Fusing. Provide a protective bay-o-net oil immersed fuse link externally replaceable with a hot stick without opening the transformer that isolates the transformer from the system in case of an internal fault. The fuse size shall be stenciled on the front plate underneath the bayonet for the voltage(s). Fuses shall be provided for both voltages.

6.0 PACKAGING AND SHIPPING

6.1 No manufacturer's installation instructions are to be packaged or shipped with the transformers. Copies of installation instructions may be delivered to the Director of Electric Operations of the Utilities Commission.

6.2 Each transformer shall be banded to a two-way entry, disposable pallet of the manufacturer's own design. This pallet must be of such dimensions as to provide 2 inch clearance of the transformer at its widest outside measurements on all four sides. This pallet must provide a minimum of 2 and 2-1/2 inches of under clearance. The transformer shall be banded to the pallet in such a way as to prevent shifting of the unit on the pallet surface during transit, while allowing the unit to be handled by sling or by fork truck without removing the banding.
7.0 MANUFACTURER'S PROPOSAL

7.1 The following items shall be included in the Inquiry-Reply to the Utilities Commission:

(a) The guaranteed values of no load and load (winding) losses. No load losses shall be quoted at 20 degrees centigrade temperature. The value for load losses shall be corrected to 85 degrees centigrade temperature.

The losses for each primary voltage connection shall be supplied for all transformers with dual primary voltage ratings. (Guaranteed average losses are defined as: "The average of the losses of several transformers in a shipment.")

The losses of an individual unit in the shipment shall not exceed the tolerances specified in Table 13, ANSI Standard C57.12.00 - 10% no load, 6% total".

Units exceeding these limits shall not be shipped to the Utilities Commission. If any such unit is found to have been shipped, the Utilities Commission will request full credit, based upon the purchase price of the unit. The unit will be returned if it can be found, if not, the full credit is still required.

(b) An excel spreadsheet listing of the following data must be provided for each proposed unit at the time of quotation: The following data should be provided for each unit submitted for consideration at the time of quotation.

- Manufacturer
- Transformer ID
- kVA Rating
- Delivered Price
- Delivery (weeks)
- No Load watts @ 20°C
- Load Loss watts @ 85°C
- Total Transformer Weight – lbs
- Oil Volume – gallons
- Oil type (Mineral Oil or FR3)
- Maximum Total Height – inches
- Maximum Tank width - inches
- Tank Diameter – inches
- Tank Height – inches
- Tank Air Space above oil - inches

7.2 Outline Drawings

Outline Drawings and nameplate details will be provided in pdf format for each unit quoted.
8.0 TRANSFORMER EVALUATION AND LOSS PENALTY

8.1 Methodology:

The total cost of a transformer (T.C.) being evaluated will be based on the purchase price plus the present value of expected future cost due to core (no load) and winding (loaded) losses. The unit with the lowest total cost is the most economical unit purchase.

\[ TC = PP + CW \times BCL + WW \times BWL \]

where:

- \( PP \) = Purchase Price
- \( CW \) = Dollar per watt of core loss
- \( BCL \) = Bid Core Loss
- \( WW \) = Dollar per watt of winding loss
- \( BWL \) = Bid Winding Loss
- \( P \) = Penalty
- \( ACL \) = Actual Core Loss
- \( AWL \) = Actual Winding Loss
- \( i = 4\% \)
- \( n = 20 \) years
- \( E = 0.06009 \) $ per KWh
- \( L = 60\% \)

8.2 Calculation of Total Cost:

To calculate total cost, the present worth factor must first be found:

\[ PW = \frac{(1+i)^n-1}{i(1+i)^n} \]

where \( i = \) interest rate \( \frac{PW}{n} = \) transformer life in years

then:

\[ CW = (PV)(E)(8.760) \]

where \( E = \) Energy cost in $ per KWh.

Then:

\[ WW = (PV)(E)(8.760)(L^2) \]

where \( L = \) Percent of transformer load.

Lastly:

With PV, CW, WW calculated and PP, BCL, and BWL supplied by the vendor.

\[ TC = PP + CW \times BCL + WW \times BWL \]

8.3 Calculation of Loss Penalty:
\[ P = (ACL - BCL) CW + (AWL-BWL)WW \]

9.0 **AUDITS - PENALTIES**

9.1 The Utilities Commission may conduct random audits of transformer losses. These audits consist of actual loss measurements, which are compared to the vendor's guaranteed losses.

9.2 When the Actual Total Losses received exceed the Quoted Total Losses and the Utilities Commission agrees to accept the unit, the adjusted total cost of a transformer (T.C.) may be used to calculate the Price adjustment (in Dollars).

*This is to be done when the actual losses exceed the quoted losses and will result in a price reduction for each unit where the losses penalty applies.*

10.0 **INVOICE AND LOSS DATA**

10.1 The format of actual loss data is to be transmitted with each invoice. **INVOICES SHALL BE HELD UNTIL ACTUAL LOSSES ARE RECEIVED.**

mr 2/2012
1.0 SCOPE

1.1 This specification covers ANSI Type 1, pad mounted, single phase, 60 Hertz, mineral oil filled, self cooled distribution transformers, 250 kVA and smaller, primary voltage 22860GRDY/13200. Unless otherwise specified herein, all transformers shall be in accordance with the latest revision of ANSI/IEEE Standard C57.12.38-2009.

1.2 No amorphous core transformers will be accepted.

2.0 BASIC IMPULSE INSULATION LEVELS shall be in accordance with the following:

<table>
<thead>
<tr>
<th>Primary:</th>
<th>22860GRDY/13200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformer High Voltage (kV)</td>
<td>22860GRDY/13200</td>
</tr>
<tr>
<td>Insulation Class (kV)</td>
<td>18 kV</td>
</tr>
<tr>
<td>Insulation BIL (kV)</td>
<td>125 kV minimum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary:</th>
<th>240/120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Low Voltage (volts)</td>
<td>240/120</td>
</tr>
<tr>
<td>Insulation Class (kV)</td>
<td>1.2 kV</td>
</tr>
<tr>
<td>Insulation BIL (kV)</td>
<td>30 kV</td>
</tr>
</tbody>
</table>

3.0 INTERNAL LEAD

3.1 Transformers below 100kVA must be furnished with interlaced secondary windings. Specific exception must be noted on bid if units do not have interlaced winding.

4.0 INSTRUCTION AND NAMEPLATE MARKINGS

4.1 The nameplate shall be mounted on a bracket in such a manner that there are no sharp edges exposed.

4.2 The metal (aluminum or copper) used in each winding shall be shown on the nameplate.

4.3 The nameplate shall include the true date of manufacture: Month and year. Example: 01 03 or 01/03. No codes will be acceptable.

4.4 No markings, signs, or decals are to be placed on these transformers unless required by this specification.

4.5 There is to be no decal, label or sign on the transformer marked with information regarding the PCB level in the dielectric fluid. This requirement includes the transformer
nameplate. Preferred wording for the nameplate is "MINERAL OIL FILLED".

5.0 CONSTRUCTION

5.1 Bushing and Terminals:

(a) The transformer shall be furnished with two (2) removable stud bushing wells, Central Moloney #3-7019-1192 or approved equal, for use with replaceable load break type bushing inserts. Bail tabs are required on the bushing well clamp.

Specific written approval is required for use of wells other than the one specified. (Bushing inserts and elbows will be furnished by the Utilities Commission).

(b) The bushing wells shall be oriented so that the elbows can be operated with a hot stick. A bracket for ground or test bushing shall be located between primary bushings.

(c) Primary bushing wells shall have a dust cover in place for shipment, and shall be elevated 12-1/2 degrees from the horizontal.

(d) High voltage wells for dead front application shall be externally clamped and conform to C57.12.38-2009 Type-1 Arrangement.

(e) The internal riser to externally clamped bushings shall allow replacement of the secondary bushings (50 kVA and smaller) or bushing wells (all sizes), from the exterior of the tank.

(f) Secondary bushings/spades shall have adequate strength to support the cables and prevent oil leaks. Transformers larger than 150KVA will require additional support for spades. The neutral bushing shall be insulated from the tank and provided with a detachable ground strap adequate to conduct maximum available fault current.

(g) The low voltage line and neutral terminals for 167 kVA and smaller transformers shall be a one inch threaded copper stud. The neutral stud shall be furnished with one jam nut suitable for retaining the ground strap between the nut and a secondary connector. The secondary connectors will be furnished and installed by the Utilities Commission.

5.2 Accessory Equipment

(a) PRESSURE RELIEF DEVICE - The transformer shall be equipped with a pressure relief valve with characteristics listed below:
1) The body of the valve shall be brass, bronze, or stainless steel.
2) Venting on rising pressure shall occur between 8 and 12 psi.
3) Resealing on falling pressure shall occur between 5 and 8 psi.
4) The valve shall have provisions for manual venting with the use of a live line hook stick.
5) The valve shall be threaded into a metal boss welded to the tank above the 140 degree top oil level.

(b) Two 304L stainless steel hold down cleats, slotted for 1/2 inch bolts, shall be provided for the front sill.

(c) **High Voltage Switching:** Transformers will be a “switching” type transformer, used in the midpoint of the underground primary loop. Transformers shall be provided with high voltage oil immersed load break switch(es) to isolate H1A and H1B. These switch(es) will be utilized by the operator to quickly isolate/switch a line fault in an underground primary loop feed system. Please provide copy of nameplate schematic showing diagram of high voltage switch and transformer.

5.3 **TANK CONSTRUCTION**

(a) The tank and compartment construction shall be in accordance with ANSI C57.12.28 (latest revision) for Pad Mounted Equipment Enclosure Security.

(b) The transformer height shall be approximately **35 inches.** Tamper-resistant construction must be used throughout. There shall be no exposed screws, bolts or other fastening devices which are externally removable. There shall be no openings through which foreign objects such as sticks, rods or wires might be inserted to contact live parts.

(c) All welds on the exterior of the tank are to be full welds. Spot, tack or skip welds are not acceptable for attaching hinges, brackets, grounding bosses, etc. Tank designs which minimize pockets and crevices where corrosion may occur are preferred.

(d) Lifting provisions shall be threaded stainless steel .625-11 Tap X 1 inch thread inserts. The inserts shall be placed for balanced lifting, using one sling attached at two points on the transformer. Suitable blanking plugs for the lifting wells shall be provided.

(e) Two ground pads, each consisting of .500-13 Tap X .625 Deep Ground Pads. Each pad shall contain a bronze transformer tank ground connector suitable for #8 solid - 2 stranded copper conductor, Penn Union HGSE-C-1-SBH, Anderson GTCL-23A or approved equal.
(f) If a removable lid is furnished, it must be detachable only in the fully open position to prevent accidental dislodgement from the hinge. The lid shall be hinged at the top. The retainers used to prevent accidental removal of the lid from its hinges should not protrude above the hinges or have exposed sharp edges. The retainers shall be stainless steel.

(g) The transformer tank will be constructed of 304L stainless steel, including doors, hinges, sill and other related hardware. Hinge pins shall be a minimum of .340 inches in diameter and 3 inches in length. The hinges shall be continuously welded to the tank and lid. The gauge of the hinges is to be the same or greater than the gauge of the tank.

(h) Construction of the unit shall be such that it can be lifted, skidded or slid into place on the mounting pad without disturbing the entrance cables. The compartment sill shall be attached to the tank with 3/8 inch bolts on each side of the sill. The minimum depth between the transformer tank and the sill shall be 15 inches.

(i) The entire unit shall be primed and painted in such a way as to prevent corrosion of the interior or exterior of the unit even under coastal atmospheric conditions. The color shall be Munsell 7GY 3.29/1.5.

(j) Suitable means for padlocking the compartment door shall be provided by a recessed latch. The latch shall be designed so as not to interfere with the operation of the primary elbow connectors and primary cable. A 1/2 inch hex head captive bolt with NC Class 2 threads separate from the locking device shall also be provided. The bolts shall be threaded into a blind hole.

(k) A 1/2 inch oil drain plug shall be provided near the center of the tank. This plug should be located in an area clear of grounding pads, bushings, etc., to allow clear access for removal.

(l) Tanks without cooling fins are preferred. If required, cooling fins shall be designed so that no sharp points or edges exist on any part of the fins or where they attach to the tank. External edges shall be rounded and smoothed. Cooling fins shall be arranged to minimize their protrusion from the tank. Studs, nuts, washers, and clamps on the faceplate of the tank shall be made of non-corrosive metal.

5.4 **Bayonet Fusing.** Provide a protective bay-o-net oil immersed fuse link externally replaceable with a hot stick without opening the transformer that isolates the transformer from the system in case of an internal fault. The fuse size shall be stenciled on the front plate underneath the bayonet for the voltage(s). Fuses shall be provided for both voltages.
6.0 PACKAGING AND SHIPPING

6.1 No manufacturer's installation instructions are to be packaged or shipped with the transformers. Copies of installation instructions may be delivered to the Director of Electric Operations of the Utilities Commission.

6.2 Each transformer shall be banded to a two-way entry, disposable pallet of the manufacturer's own design. This pallet must be of such dimensions as to provide 2 inch clearance of the transformer at its widest outside measurements on all four sides. This pallet must provide a minimum of 2 and 2-1/2 inches of under clearance. The transformer shall be banded to the pallet in such a way as to prevent shifting of the unit on the pallet surface during transit, while allowing the unit to be handled by sling or by fork truck without removing the banding.

7.0 MANUFACTURER'S PROPOSAL

7.1 The following items shall be included in the Inquiry-Reply to the Utilities Commission:

(a) The guaranteed values of no load and load (winding) losses. No load losses shall be quoted at 20 degrees centigrade temperature. The value for load losses shall be corrected to 85 degrees centigrade temperature.

The losses for each primary voltage connection shall be supplied for all transformers with dual primary voltage ratings. (Guaranteed average losses are defined as: "The average of the losses of several transformers in a shipment.)

The losses of an individual unit in the shipment shall not exceed the tolerances specified in Table 13, ANSI Standard C57.12.00 - 10% no load, 6% total"

Units exceeding these limits shall not be shipped to the Utilities Commission. If any such unit is found to have been shipped, the Utilities Commission will request full credit, based upon the purchase price of the unit. The unit will be returned if it can be found, if not, the full credit is still required.

(b) An excel spreadsheet listing of the following data must be provided for each proposed unit at the time of quotation: The following data should be provided for each unit submitted for consideration at the time of quotation.

- Manufacturer
- Transformer ID
- kVA Rating
- Delivered Price
- Delivery (weeks)
- No Load watts @ 20°C
- Load Loss watts @ 85°C
- Total Transformer Weight – lbs
- Oil Volume – gallons
- Oil type (Mineral Oil or FR3)
- Maximum Total Height – inches
- Maximum Tank width - inches
- Tank Diameter – inches
- Tank Height – inches
- Tank Air Space above oil - inches

7.2 Outline Drawings

Outline Drawings and nameplate details will be provided in pdf format for each unit quoted.

8.0 TRANSFORMER EVALUATION AND LOSS PENALTY

8.1 Methodology:

The total cost of a transformer (T.C.) being evaluated will be based on the purchase price plus the present value of expected future cost due to core (no load) and winding (loaded) losses. The unit with the lowest total cost is the most economical unit purchase.

\[ TC = PP + CW \times BCL + WW \times BWL \]

where:

- \( PP \) = Purchase Price
- \( CW \) = Dollar per watt of core loss
- \( BCL \) = Bid Core Loss
- \( WW \) = Dollar per watt of winding loss
- \( BWL \) = Bid Winding Loss
- \( P \) = Penalty
- \( ACL \) = Actual Core Loss
- \( AWL \) = Actual Winding Loss

- \( i = 4\% \)
- \( n = 20 \) years
- \( E = .06099, \) per KWH
- \( L = 60\% \)

8.2 Calculation of Total Cost:

To calculate total cost, the present worth factor must first be found:

\[ PW = \frac{(1+i)^n-1}{i(1+i)^n} \]

where \( i = \) interest rate

then:
CW = (PV)(E)(8.760) where E = Energy cost in $ per KWh.

Then:

WW = (PV)(E)(8.760)(L^2) where L = Percent of transformer load.

Lastly:

With PV, CW, WW calculated and PP, BCL, and BWL supplied by the vendor.

TC = PP + CW x BCL + WW x BWL

8.3 Calculation of Loss Penalty:

\[ P = (ACL - BCL) CW + (AWL - BWL) WW \]

9.0 AUDITS - PENALTIES

9.1 The Utilities Commission may conduct random audits of transformer losses. These audits consist of actual loss measurements, which are compared to the vendor's guaranteed losses.

9.2 When the Actual Total Losses received exceed the Quoted Total Losses and the Utilities Commission agrees to accept the unit, the adjusted total cost of a transformer (T.C.) may be used to calculate the Price adjustment (in Dollars).

This is to be done when the actual losses exceed the quoted losses and will result in a price reduction for each unit where the losses penalty applies.

10.0 INVOICE AND LOSS DATA

10.1 The format of actual loss data is to be transmitted with each invoice. Invoices shall be held until actual losses are received.

mr 2/2012
1.0 SCOPE

1.1 These specifications cover the electrical characteristics and mechanical features of dead front, loop feed, three-phase, 60Hz, mineral-oil immersed, self-cooled, pad mounted, compartmental-type distribution transformers rated 750 kVA and smaller, high voltage 13200GRDY/7620 X 22860GRDY/13200 connected with low voltages of 208Y/120. Unless otherwise specified herein, all transformers shall be in accordance with the latest revision of ANSI Standard C57.12.34-2009.

1.2 No amorphous core transformers will be accepted.

2.0 RATINGS

2.1 Transformer connected Wye-Wye and all three phase units must have a five legged core, or must be of triplex design (3 single phase units in one tank).

2.2 Case temperature rise over ambient shall not exceed 45 degrees Centigrade.

No individual unit shall exceed the noise level for that size unit listed in Column A below. The average sound level shall not exceed that shown in Column B.

<table>
<thead>
<tr>
<th>kVA</th>
<th>A - MAXIMUM LEVEL</th>
<th>B - AVERAGE LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 and below</td>
<td>51</td>
<td>48</td>
</tr>
<tr>
<td>101 through 300</td>
<td>55</td>
<td>52</td>
</tr>
<tr>
<td>500</td>
<td>56</td>
<td>52</td>
</tr>
<tr>
<td>750</td>
<td>58</td>
<td>54</td>
</tr>
</tbody>
</table>

All units of each design of each size shall be tested for audible sound level. The test shall be conducted in accordance with ANSI/IEEE C57.12.90.
2.3 BASIC IMPULSE INSULATION LEVELS shall be in accordance with the following:

**Primary:**
- Transformer High Voltage (kV): **13200GRDY/7620 X 22860GRDY/13200 Y**
- Insulation Class (kV): 18 kV
- Insulation BIL (kV): 125 kV minimum

**Secondary:**
- Rated Low Voltage (volts): **208Y/120**
- Insulation Class (kV): 1.2 kV
- Insulation BIL (kV): 30 kV

3.0 INTERNAL LEAD

3.1 Internal secondary leads shall be identified with appropriate markings permanently embossed in the lead that corresponds with lead markings on the nameplate.

4.0 INSTRUCTION AND NAMEPLATE MARKINGS

4.1 The nameplate shall be mounted on a bracket in such a manner that there are no sharp edges exposed.

4.2 The metal (aluminum or copper) used in each winding shall be shown on the nameplate.

4.3 The nameplate shall include the true date of manufacture: Month and year. Example: 01 03 or 01/03. No codes will be acceptable.

4.4 No markings, signs, or decals are to be placed on these transformers unless required by this specification.

4.5 There is to be no decal, label or sign on the transformer marked with information regarding the PCB level in the dielectric fluid. This requirement includes the transformer nameplate. Preferred wording for the nameplate is "MINERAL OIL FILLED".

5.0 CONSTRUCTION

5.1 Bushing and Terminals:

(a) The transformer shall be furnished with removable stud bushing wells, Central Moloney #3-7019-1192 or approved equal, for use with replaceable load break type bushing inserts. Bail tabs are required on the bushing well clamp.

Specific written approval is required for use of wells other than the one specified. (Bushing inserts and elbows will be furnished by the Utilities Commission).

(b) The bushing wells shall be oriented so that the elbows can be operated with a hot stick.

(c) Primary bushing wells shall have a dust cover in place for shipment, and shall be elevated
12-1/2 degrees from the horizontal.

(d) The internal risers to externally clamped bushing wells shall allow replacement of the bushing wells from the exterior of the tank.

(e) Four copper one inch (min. or larger if required) threaded secondary terminals with spades (6 holes min. or larger if required) shall be located on the side wall of the transformer in the low voltage section. **Additional support for spades will be required for transformers larger than 150 KVA.** The center line of the secondary bushing shall be thirty inches above the base.

5.2 Maximum transformer weights

(a) Transformers supplied under this specification shall conform to the following maximum weights.

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5.3 Accessory Equipment

(a) Dual voltage transformers shall have an externally operated dual voltage switch set at factory on the higher primary voltage tap position. The voltage setting shall be legibly and permanently marked. Decals or markings painted on the tank are not acceptable. The transformer nameplate shall also indicate the dual voltage connection. The switch handle shall be non-corrosive, with a fastening device to prevent inadvertent operation. Switches that must not be operated while energized shall have a warning sign to this effect near the switch.

(b) The transformer shall be equipped with a pressure relief valve with characteristics listed below:
1) The body of the valve shall be brass, bronze, or stainless steel.
2) Venting on rising pressure shall occur between 8 and 12 psi.
3) Resealing on falling pressure shall occur between 5 and 8 psi.
4) The valve shall have provisions for manual venting with the use of a live line hook stick.
5) The valve shall be threaded into a metal boss welded to the tank above the 140
degree top oil level.

(c) Provide a protective bay-o-net oil immersed fuse link externally replaceable with a hot stick without opening the transformer that isolates the transformer from the system in case of an internal fault. Transformer shall be fused for higher primary voltage with lower primary voltage fuses provided with each unit.

(d) Two 304L stainless steel hold down cleats, slotted for 1/2 inch bolts, shall be provided for the front sill.

5.4 Tank and compartment.

(a) The transformer tank, clearances and bushing arrangements must be tamper-resistant. There shall be no exposed screws, bolts or other fastening devices which are externally removable. There shall be no openings through which foreign objects such as sticks, rods or wires might be inserted to contact live parts. If a handhole is used, a false cover shall be provided.

(b) All welds on the exterior of the tank are to be full welds. Spot, tack or skip welds are not acceptable for attaching hinges, brackets, grounding bosses, etc. Tank designs which minimize pockets and crevices where corrosion may occur are preferred.

(c) Two ground pads, each consisting of 1/2 in. - 13 threaded boss, 7/16 in. deep, shall be provided. The pads shall be plugged before the transformer is painted.

(d) A compartment shall be affixed to one side of the transformer, with primary bushings on the left side of the compartment and secondary bushings on the right. Barriers fixed between primary and secondary sections and on the right side of the compartment are to be fifteen in. and sixteen in. minimum. They are to be mounted with the top of the barrier six in. above the centerline of the secondary bushings. The minimum depth between the transformer tank and the compartment door shall be eighteen in.

(e) Doors and top-hinged lids shall be designed to prevent inadvertent dislodgement from the hinge. Preference will be given to transformer designs with compartment access that is initiated by first opening a hinged-top lid, and where such action would then permit the release of other captive front doors. The top lid shall be operable by one person, and shall be suitably supported by locking braces in the open position. The lid and doors must be designed so as not to interfere with replacement of the bay-o-net fuse being provided.

(f) Construction of the unit shall be such that it can be lifted, skidded or slid into place on the mounting pad without disturbing the entrance cables. A removable sill is required.

(g) The entire unit shall be primed and painted in such a way as to prevent corrosion of the interior or exterior of the unit even under coastal atmospheric conditions. The color shall be Munsell 7GY 3.29/1.5.

(h) Suitable means for padlocking the compartment door shall be provided. Aluminum
handles and latches are not acceptable. A 1/2 inch hex captive bolt with NC Class 2 threads separate from the locking device may also be provided. The bolt shall be threaded into a blind hole.

(i) An oil drain plug shall be provided near the center of the tank. This plug should be located in an area clear of grounding pads, bushings, etc., to allow clear access for removal.

(j) A one-half in. oil sight gauge, Tedco No. M36E or approved equivalent, shall be provided in sectionalizing type three phase units. It shall be located one-half in. to one in. below the surface of the 25 degree Centigrade oil level. Units not requiring the oil level indicator shall have an oil level plug.

(k) Tanks without cooling fins are preferred. If required, cooling fins shall be designed so that no sharp points or edges exist on any part of the fins or where they attach to the tank. External edges shall be rounded and smoothed. Cooling fins shall be arranged to minimize their protrusion from the tank.

(l) **Transformer tank will be constructed of 304L stainless steel, including doors, hinges, sill and other related hardware.**

(m) All transformers rated 500 kVA or below shall have a bolted cover to allow for inspection and maintenance. Above 500 kVA shall have a welded cover and handhole to allow for maintenance.

(n) Transformers larger than 150KVA shall have provisions to provide support for the Low Voltage terminals. This method shall be reviewed and approved by representatives from UCNSB prior to shipment.

5.5 **Bayonet Fusing**  Provide a protective bay-o-net oil immersed fuse link externally replaceable with a hot stick without opening the transformer that isolates the transformer from the system in case of an internal fault. The fuse size shall be stenciled on the front plate underneath the bayonet for the voltage(s).

6.0 **PACKAGING AND SHIPPING**

6.1 No manufacturer's installation instructions are to be packaged or shipped with the transformers. **Copies of installation instructions may be delivered to the Director of Electric Operations of the Utilities Commission.**

6.2 Each transformer shall be banded or cleated to a two-way entry, disposable pallet of the manufacturer's own design. This pallet must be of such dimensions as to provide 2 inch clearance of the transformer at its widest outside measurements on all four sides. This pallet must provide a minimum of 3-1/2 inches of fork under clearance. The transformer shall be attached to the pallet in such a way as to prevent shifting of the unit on the pallet surface during transit, while allowing the unit to be handled by sling or by fork truck without removing the banding cleating.
7.0 MANUFACTURER'S PROPOSAL

7.1 The following items shall be included in the Inquiry-Reply to the Utilities Commission:

(a) The guaranteed values of no load and load (winding) losses. No load losses shall be quoted at 20 degrees centigrade temperature. The value for load losses shall be corrected to 85 degrees centigrade temperature.

The losses for each primary voltage connection shall be supplied for all transformers with dual primary voltage ratings. (Guaranteed average losses are defined as: "The average of the losses of several transformers in a shipment.)

The losses of an individual unit in the shipment shall not exceed the tolerances specified in Table 13, ANSI Standard C57.12.00 - 10% no load, 6% total".

Units exceeding these limits shall not be shipped to the Utilities Commission. If any such unit is found to have been shipped, the Utilities Commission will request full credit, based upon the purchase price of the unit. The unit will be returned if it can be found, if not, the full credit is still required.

(b) An excel spreadsheet listing of the following data must be provided for each proposed unit at the time of quotation: The following data should be provided for each unit submitted for consideration at the time of quotation.

- Manufacturer
- Transformer ID
- kVA Rating
- Delivered Price
- Delivery (weeks)
- No Load watts @ 20°C
- Load Loss watts @ 85°C

- Total Transformer Weight – lbs
- Oil Volume – gallons
- Oil type (Mineral Oil or FR3)

- Maximum Total Height – inches
- Maximum Tank width - inches
- Tank Diameter – inches
- Tank Height – inches
- Tank Air Space above oil - inches

7.2 Outline Drawings

Outline Drawings and nameplate details will be provided in pdf format for each unit quoted at the time of
8.0 TRANSFORMER EVALUATION AND LOSS PENALTY

8.1 Methodology:

The total cost of a transformer (T.C.) being evaluated will be based on the purchase price plus the present value of expected future cost due to core (no load) and winding (loaded) losses. The unit with the lowest total cost is the most economical unit purchase.

\[
TC = PP + CW \times BCL + WW \times BWL
\]

where:

- \(PP\) = Purchase Price
- \(CW\) = Dollar per watt of core loss
- \(BCL\) = Bid Core Loss
- \(WW\) = Dollar per watt of winding loss
- \(BWL\) = Bid Winding Loss
- \(P\) = Penalty
- \(ACL\) = Actual Core Loss
- \(AWL\) = Actual Winding Loss
- \(i = 4\%\)
- \(n = 20\) years
- \(E = .06009\) $ per KWH
- \(L = 60\%\)

8.2 Calculation of Total Cost:

To calculate total cost, the present worth factor must first be found:

\[
PW = \frac{(1+i)^n-1}{i(1+i)^n} \quad i = \text{interest rate}
\]

then:

\[
CW = (PV)(E)(8.760) \quad \text{where } E = \text{Energy cost in } $ \text{ per KWh.}
\]

Then:

\[
WW = (PV)(E)(8.760)(L^2) \quad \text{where } L = \text{Percent of transformer load.}
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Lastly:
With PV, CW, WW calculated and PP, BCL, and BWL supplied by the vendor.

\[ TC = PP + CW \times BCL + WW \times BWL \]

8.3 Calculation of Loss Penalty:

\[ P = (ACL - BCL) \times CW + (AWL - BWL) \times WW \]

9.0 AUDITS - PENALTIES

9.1 The Utilities Commission may conduct random audits of transformer losses. These audits consist of actual loss measurements, which are compared to the vendor's guaranteed losses.

9.2 When the Actual Total Losses received exceed the Quoted Total Losses and the Utilities Commission agrees to accept the unit, the adjusted total cost of a transformer (T.C.) may be used to calculate the Price adjustment (in Dollars).

\textit{This is to be done when the actual losses exceed the quoted losses and will result in a price reduction for each unit where the losses penalty applies.}

10.0 INVOICE AND LOSS DATA

10.1 The format of actual loss data is to be transmitted with each invoice. \textit{INVOICES SHALL BE HELD UNTIL ACTUAL LOSSES ARE RECEIVED.}

mr 2/2012
UTILITIES COMMISSION NEW SMYRNA BEACH
TECHNICAL SPECIFICATION FOR

THREE PHASE - LOOP FEED - DEAD FRONT PAD MOUNTED TRANSFORMER
22860/13200 - 240/120 Delta
SPEC #5B

1.0 SCOPE

1.1 These specifications cover the electrical characteristics and mechanical features of dead front, loop feed, three-phase, 60Hz, mineral-oil immersed, self-cooled, pad mounted, compartmental-type distribution transformers rated 750 kVA and smaller, high voltage 22860GRDY/13200 connected with low voltages of 240/120. Unless otherwise specified herein, all transformers shall be in accordance with the latest revision of ANSI Standard C57.12.34-2009.

1.2 No amorphous core transformers will be accepted.

2.0 RATINGS

2.1 Transformer connected Wye-Wye and all three phase units must have a five legged core, or must be of triplex design (3 single phase units in one tank).

2.2 Case temperature rise over ambient shall not exceed 45 degrees Centigrade.

No individual unit shall exceed the noise level for that size unit listed in Column A below.

The average sound level shall not exceed that shown in Column B.

<table>
<thead>
<tr>
<th>kVA</th>
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<tr>
<td>100 and below</td>
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All units of each design of each size shall be tested for audible sound level. The test shall be conducted in accordance with ANSI/IEEE C57.12.90.
2.3 BASIC IMPULSE INSULATION LEVELS shall be in accordance with the following:

**Primary:**
- Transformer High Voltage (kV): \(22860\text{GRDY/13200}\)
- Insulation Class (kV): 18 kV
- Insulation BIL (kV): 125 kV minimum

**Secondary:**
- Rated Low Voltage (volts): \(240/120\) -Delta
- Insulation Class (kV): 1.2 kV
- Insulation BIL (kV): 30 kV

3.0 INTERNAL LEAD

3.1 Internal secondary leads shall be identified with appropriate markings permanently embossed in the lead that corresponds with lead markings on the nameplate.

4.0 INSTRUCTION AND NAMEPLATE MARKINGS

4.1 The nameplate shall be mounted on a bracket in such a manner that there are no sharp edges exposed.

4.2 The metal (aluminum or copper) used in each winding shall be shown on the nameplate.

4.3 The nameplate shall include the true date of manufacture: Month and year. Example: 01/03 or 01/03. No codes will be acceptable.

4.4 No markings, signs, or decals are to be placed on these transformers unless required by this specification.

4.5 There is to be no decal, label or sign on the transformer marked with information regarding the PCB level in the dielectric fluid. This requirement includes the transformer nameplate. Preferred wording for the nameplate is "MINERAL OIL FILLED".

5.0 CONSTRUCTION

5.1 Bushing and Terminals:

(a) The transformer shall be furnished with removable stud bushing wells, Central Moloney #3-7019-1192 or approved equal, for use with replaceable load break type bushing inserts. Bail tabs are required on the bushing well clamp.

Specific written approval is required for use of wells other than the one specified. (Bushing inserts and elbows will be furnished by the Utilities Commission).

(b) The bushing wells shall be oriented so that the elbows can be operated with a hot stick.

(c) Primary bushing wells shall have a dust cover in place for shipment, and shall be elevated
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(d) The internal risers to externally clamped bushing wells shall allow replacement of the bushing wells from the exterior of the tank.

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- Maximum Total Height – inches
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7.2 Outline Drawings

Outline Drawings and nameplate details will be provided in pdf format for each unit quoted at the time of
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8.1 Methodology:

The total cost of a transformer (T.C.) being evaluated will be based on the purchase price plus the present value of expected future cost due to core (no load) and winding (loaded) losses. The unit with the lowest total cost is the most economical unit purchase.

\[ TC = PP + CW \times BCL + WW \times BWL \]

where:

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- \( CW \) = Dollar per watt of core loss
- \( BCL \) = Bid Core Loss
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- \( P \) = Penalty
- \( ACL \) = Actual Core Loss
- \( AWL \) = Actual Winding Loss

\[ i = 4\% \]
\[ n = 20 \text{ years} \]
\[ E = \$0.06009 \text{ per KWH} \]
\[ L = 60\% \]

8.2 Calculation of Total Cost:

To calculate total cost, the present worth factor must first be found:

\[ PW = \frac{(1+i)^n-1}{i(1+i)^n} \]

where \( i \) = interest rate
\( n \) = transformer life in years

then:

\[ CW = (PV)(E)(8.760) \] where \( E \) = Energy cost in \$ per KWh.

Then:

\[ WW = (PV)(E)(8.760)(L^2) \] where \( L \) = Percent of transformer load.

Lastly:
With PV, CW, WW calculated and PP, BCL, and BWL supplied by the vendor.

TC = PP + CW x BCL + WW x BWL

8.3 Calculation of Loss Penalty:

\[ P = (ACL - BCL) \times CW + (AWL - BWL) \times WW \]

9.0 AUDITS - PENALTIES

9.1 The Utilities Commission may conduct random audits of transformer losses. These audits consist of actual loss measurements, which are compared to the vendor's guaranteed losses.

9.2 When the Actual Total Losses received exceed the Quoted Total Losses and the Utilities Commission agrees to accept the unit, the adjusted total cost of a transformer (T.C.) may be used to calculate the Price adjustment (in Dollars).

This is to be done when the actual losses exceed the quoted losses and will result in a price reduction for each unit where the losses penalty applies.

10.0 INVOICE AND LOSS DATA

10.1 The format of actual loss data is to be transmitted with each invoice. INVOICES SHALL BE HELD UNTIL ACTUAL LOSSES ARE RECEIVED.

mr 2/2012
Item #7 SPEC 5B
I. GENERAL

A. This specification covers the requirements for furnishing and delivering 25kV rated padmounted deadfront air insulated switchgear. The interrupter switches and fuses shall be enclosed within an inner air insulated grounded stainless steel compartment for electrical isolation and protection from contamination and animals.

B. This switchgear is intended for use in 60 hertz, three-phase, 25 kV underground distribution systems.

C. Switchgear will be used for sectionalizing and protecting underground distribution express feeders, subloops, and lateral as well as switching and protecting transformers. These specifications will apply to all switchgear configurations.

D. Switchgear shall be designed for outdoor installation and operation.

E. It shall be the responsibility of the manufacturer to ensure compatibility among all components of the switchgear.

F. Manufacturer shall be solely responsible for the performance of the basic switch components as well as the complete integrated assembly as rated.

G. Upon request, manufacturer shall provide sufficient notice to allow representatives to inspect the switchgear during manufacture, and to witness any or all tests performed on it.

II. STANDARDS

A. Except as modified by this specification, the switchgear furnished shall comply with the material and testing requirements of the latest revisions of all applicable ANSI, IEEE, and NEMA standards.

III. RATINGS

A. The switchgear will have the following ratings:

- Nominal voltage 25kV
- Maximum design voltage 27kV
- Basic Impulse Level (BIL) 125kV

B. The main bus and solid compartments shall have the continuous current rating of 600 amps.

C. Each fuse mounting and/or protected compartment shall have a maximum continuous current rating of 200 amps.
D. The interrupter switches shall have continuous current ratings of 600 amps and live switching ratings of 600 amps. The interrupter switches shall have a two-time fault closing duty cycle of 25,000 amps RMS asymmetrical at 25 kV.

E. Interrupter switches and buses shall have a momentary current ratings of 25,000 amps RMS asymmetrical.

IV. ENCLOSURE

A. General

1. Switchgear cabinet shall of unitized construction (not structural frame and bolted sheet).

2. Cabinet, doors, metal dividers shall be 304L stainless steel. All hardware, bolts, nuts, washers and latching mechanism shall be of 304L stainless steel or non-corrosive material.

3. All structural joints and butt joints shall be welded, and the base shall consist of continuous 90-degree flanges, turned inward and welded at the corners, for bolting to the concrete pad.

4. Cabinet shall have adequate size and strength for fuse handling, fuse exhaust and venting, and shall withstand all pressure build-up during interruption without permanent distortion or damage to any portion of the structure.

5. Gasketing between the roof and the enclosure shall guard against entry of water and airborne contaminants, and shall discourage tampering or insertion of foreign objects.

6. Cabinet shall meet or exceed ANSI C57.12.28-1998 tamper resistance and/or current.

7. An internal stainless steel enclosed compartment shall encase the interrupter switches and fuses for electrical isolation, and have protection from contamination. The compartment shall have a stainless steel sheet floor to exclude foliage and animals. The floor shall have screened drain vents to allow drainage if the enclosure is flooded. The top of this compartment shall be gasketed to provide sealing with the enclosure roof.

B. Roof

1. The cabinet roof shall be constructed so as to shed water.

2. Roof shall be undercoated with an insulating “no drip” compound to prevent condensation of moisture thereon.

C. Access

1. Access into the cabinet shall be through the doors to the switch and fuse compartments only.
D. Doors

1. All doors shall include a three-point latching scheme that requires doors to be latched before the padlock shackle can be inserted. The door handles shall be padlockable, and shall use a hood to protect the padlock from tampering. This door latching scheme shall require only a single padlock per door or per set of double doors. Each door handle shall be provided with a recessed 304L stainless steel penta head bolt as part of its security system.

2. Doors shall be of bulkhead type, side-hinged to swing open horizontally, and shall be constructed of 304L stainless steel. Top-hinged, clam-shell type doors are unacceptable.

3. Doors shall be equipped with 304L stainless steel hinge assemblies and hinge pins.

4. Each door shall be equipped with a 304L stainless steel door holder. These holders shall be hidden from view when the door is closed. It shall not be possible for the door holders to swing inside the enclosure. The door holders shall hold the doors open at an angle of 90, 110, or 120 degrees.

E. Barriers

1. Full length stainless steel barriers shall separate adjoining termination compartments.

F. Lifting Tabs

Lifting tabs shall be removable. Sockets for the lifting tab bolts shall be blind tapped. A resilient material shall be placed between the lifting tabs and the enclosure to help prevent corrosion by protecting the finish against scratching by the tabs. To further preclude corrosion, this material shall be closed cell to prevent moisture from being absorbed, and held between the tabs and the enclosure in the event that lifting tabs are not removed.

G. Finish

1. The finish of the switchgear cabinet shall meet or exceed the requirements of ANSI C57.12.28-1998 or newer standard.

2. The top coat of the finish shall be dark green Munsell No. 7GY 3.29/1.5.

V. GROUNDING PROVISIONS

A. A ground connection pad shall be provided in each compartment of the padmounted gear. The pads shall be welded to the interior of the enclosure near the cable entrances.

B. The pads shall be of unpainted copper-faced steel, or unpainted 304L stainless steel. The pads shall be a minimum of 2”X 3 ½” with two 9/16” holes spaced 1 ¾ “ center to center.

C. The grounding pads shall be capable of carrying the fault duty of the switchgear.
D. A 3/8” diameter copper rod connected to the ground connection pad shall be provided in each termination compartment for switches and each termination compartment for bus. The rod shall extend across the full width of the compartment to allow convenient grounding of cable concentric neutrals and accessories, and shall have a short circuit rating equal to that of the padmounted gear.

E. Continuous copper ground bus shall be provided across the full width of each termination compartment for fuses. Ground bus shall have a short circuit rating equal to that of the padmounted gear.

VI. BUSES

A. Bus and interconnections shall consist of aluminum bar of 56% IACS conductivity.

B. All joints have suitable hardware and treatment to prevent harmful oxidation and loss of optimum contact pressure.

VII. BUSHINGS AND BUSHING WELLS

A. Bushings and bushing wells shall conform to ANSI/IEEE Standard 386 (ANSI Standard C119.2) or later.

B. Bushings and bushing wells shall be mounted in such a way that the semi- Conductive coating is solidly grounded to the enclosure.

C. Bushings rated 200 amperes continuous shall have a removable threaded stud so that the bushings are compatible with all 200 ampere elbow systems. The 200 A bushing wells shall be designed to accept standard loadbreak bushing inserts.

VIII. TERMINATION COMPARTMENTS

A. Termination compartments for switches and termination compartments for fuses shall have bushing wells to permit connection of elbows. The bushings and bushing wells shall be mounted on the interior walls at a minimum height of 34 inches for 25 kV above the enclosure base.

B. Termination compartments for bus shall have bushing wells to permit connection of elbows. The bushing wells shall be mounted on the interior walls at a minimum height of 25 inches above the enclosure bases.

C. Termination compartments for bushing rated 200 amperes continuous shall be of an adequate depth to accommodate two 200 ampere elbows mounted piggyback, encapsulated surge arrestors or grounding elbows mounted on 200 ampere elbows having 200 ampere interfaces, or other similar accessory combinations without the need for an enclosure extension.

D. Termination compartments for bushing wells rated 200 amperes continuous shall be of an adequate depth to accommodate 200 ampere elbows mounted on portable feedthroughs or standoff insulators, or other similar accessory combinations without the need for an enclosure extension.
E. Termination compartments shall be provided with one 304L stainless steel parking stand for each bushing or bushing well. The parking stand shall be located immediately adjacent to the associated bushing or bushing well, and shall accommodate standard feed-throughs and standoff insulators, and other similar accessories.

F. Each termination compartment for a switch shall be equipped with a viewing window to allow visual inspection of interrupter switch blades to allow positive verification of switch position.

G. Each termination compartment for a set of fuses shall be equipped with a set of viewing windows to allow visual inspection of blown fuse indicators.

IX. INTERRUPTER SWITCHES

A. All interrupter switches shall be dry type, in-air, 3-pole, single-blade, externally group operable through an operating handle external to the enclosure.

B. An operating handle shall be provided for each interrupter switch. The switch operating handle shall be secured to the inside of the switch operating hub pocket by a corrosion-resistant chain. The handle shall be stored behind the switch operating hub access door.

C. The switch-operating hub pocket shall include a padlockable access cover that shall use a hood to protect the padlock from tampering.

D. The group operated interrupter switches shall be actuated through a non-defeatable, quick-make, quick-break mechanism to assure high speed closing and opening independent of the speed of the manual switch operating handle.

E. The manual operating handle shall include an over-travel stop feature to prevent the operator from over-powering the mechanism and possibly breaking parts in the drive train.

F. Labels or targets to indicate switch positions shall be provided in the switch operating hub pocket.

G. Each interrupter switch compartment shall include a window panel located above the dual purpose barriers to permit visual checking of the interrupter switch position after opening the compartment door.

X. FUSES

A. The padmounted switchgear shall be furnished with provision for the mounting of SMU-20 or DBU-20 fuses. Must include fuse end fittings and silencers.

B. Fuse mountings shall be enclosed in an inner stainless steel compartment, and shall be provided with bushing wells rated 200 amperes continuous for elbow connection.

1. Each fuse mounting shall be an integral part of a fuse handling mechanism that does not allow access to the fuse until the elbow for that fuse has been disconnected. To gain access to a fuse, it shall be necessary to:

   a. Disconnect the elbow for that fuse and move it to the appropriate parking stand.
b. Install appropriate parking bushing or feed-through in parking stand.

c. Remove and park loadbreak elbow.

d. Grasp the interlock bail with an insulated grip-all stick and raise the bail to unlatch fuse door.

e. Holding up by the bail, pull the fuse door open and swing it downward slowly to rest on the sill.

f. Latch door to sill by rotating the latch on the left side of the door.

g. Fuse may now be removed from fuse door.

2. The opening into the component compartment shall be covered by a hinged GPO-3 barrier which is interlocked to the fuse door and closes to help prevent inadvertent access to high voltage.

3. To protect the fuse handling mechanism from corrosion, all mechanism parts shall be painted or made of corrosion resistant materials, or otherwise be protected from corrosion. All latches and pivots shall be stainless steel with nylon or plastic bushings.

XI. LABELING

A. Warning Labels

1. The outside of each enclosure door shall be provided with Mr. Ouch WARNING labels in accordance with NEMA 260-1982, Figure 1.

2. The labels shall be centered on the upper half of the doors.

3. The labels shall be adhesive backed such that removal is impossible except by defacing, covering, or destroying them.

4. The labels shall have a minimum durability rating of 10 years under vertical exterior exposure to the weathering environment.

B. Danger Labels

1. The inside of each enclosure door and the front of each switch and fuse position dual purpose insulating barrier shall be provided with Mr. Ouch WARNING labels in accordance with NEMA 260-1982, Figure 1.

2. The labels shall be centered on the upper half of the doors and barriers.

3. The labels shall be adhesive backed such that removal is impossible except by defacing, covering, or destroying them.
4. The labels shall have a minimum durability rating of 10 years in the interior environment of the switch cabinet.

C. Nameplate

1. The outside of both the front and back of the switchgear cabinet shall be provided with nameplates indicating:
   - Manufacturer’s name.
   - Catalog number.
   - Model number.
   - Serial number.
   - Date of manufacture.

D. Ratings Label

1. The inside of at least one compartment door on both the front and back of the switchgear cabinet shall be provided with a ratings label. This label should include the ratings required in section 3.0 of this specification.

E. Circuit Diagram

1. The inside of at least one compartment door on both the front and back of the switchgear cabinet, and on the inside of each switch operating hub access cover shall be provided with a circuit diagram of the switchgear.

F. Compartment and Phase Identification

1. Each compartment shall be clearly labeled with a decal on the inside of the switchgear cabinet. The preferred location for each decal is on the face of the cabinet directly above each compartment.

2. Each switch and fuse position phase shall be labeled with a decal on the inside of the switchgear cabinet. Phase identification labels shall be located on the face of the cabinet directly above each phase position.

XII. INSTRUCTION MANUAL

A. One instruction manual covering installation, operation, and maintenance of the equipment shall be provided with each switchgear cabinet.

B. Manual shall be packed in a weatherproof bag of envelope, and secured on the inside of the door of compartment number one.
XIII. CERTIFICATION

A. Upon the Utilities Commission’s request, the manufacturer shall provide certified test reports verifying that the equipment meets or exceeds the electrical ratings, tamper resistance, and finish required by this specification.

XIV. PACKAGING

A. Each padmounted switchgear shall be secured to a non-returnable wood pallet suitable for handling with a forklift.

B. The padmounted switchgear shall be packed in accordance with good commercial practice to ensure safe delivery without damage to the finish or any other part of the unit.

XV. INSPECTION

A. After delivery, each padmounted switchgear will be inspected for defects and conformance to this specification. The supplier (or its representative) will be notified of all deficiencies.

B. Mutual arrangements shall be made for correcting the deficiencies.
## TRANSFORMER BID TABULATION (Page 1 of 2)

**BIDDER NAME:** 

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<th>Item</th>
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SWITCHGEAR BID TABULATION

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The COMMISSION reserves the right to award the contract to the Bidder(s) that the COMMISSION deems to offer the best overall bid. The COMMISSION is therefore not bound to accept a bid on the basis of lowest price. In addition, the COMMISSION at its sole discretion, reserves the right to cancel this Bid, to reject any and all bids, to waive any and all informalities and/or irregularities, to re-advertise with either the identical or revised specifications, or not award a contract at all if it is deemed to be in the best interest of the COMMISSION to do so. The COMMISSION also reserves the right to make multiple or split awards if it is deemed to be in the COMMISSION’S best interest. The COMMISSION shall not be responsible for any cost or expense incurred by the Bidder in preparing or submitting a bid or any cost prior to the execution of a contract agreement.

Submitted by: ____________________________________________

(Please Print)

Company Name: ____________________________________________

Date: ______________________________________________________

Title: _____________________________________________________

Phone No. _________________________________________________

Fax No: ___________________________________________________

E-Mail: ___________________________________________________
BIDDERS MUST SIGN BID FORM.
STATEMENT OF NO BID

If you do NOT intend to bid on this requirement/project, please return this form immediately. Thank you, Utilities Commission, City of New Smyrna Beach, Florida.

We, the undersigned have declined to submit a bid due to the following reason(s):

☐ Specifications too “tight”, i.e. geared toward one brand/manufacturer service only (explain below).
☐ Unable to meet time period for responding to bid.
☐ We do not offer this product or service.
☐ Our schedule would not permit us to perform.
☐ Unable to meet specifications.
☐ Unable to meet Bond/Insurance requirement(s).
☐ Specifications unclear (explain below).
☐ Unable to meet insurance requirements.
☐ Please remove us from your “bidder’s list”.
☐ Other (specify below).

REMARKS: ______________________________________________________
_________________________________________________________________
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We understand that if the “No Bid” letter is not executed and returned our name may be deleted from the bidder’s list of the Utilities Commission, City of New Smyrna Beach, FL.

Company Name: ___________________________ E-mail: ___________________________

Bid Number: ___________________________ Date: ___________________________

Signature: ___________________________ Fax: ___________________________

Telephone: ___________________________

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 10-21
PURCHASE ELECTRICAL TRANSFORMERS & SWITCHGEARS