

**UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA**

**ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS**

INVITATION TO BID

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

Provide Electrical Transformers per the Attached Specifications

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 **July 6, 2017** 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: Post Office Box 100
New Smyrna Beach, FL
32170-0100

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**

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

TABLE OF CONTENTS

<u>Bid Schedule</u>	4
<u>General Terms & Conditions w. Insurance Requirements</u>	5
<u>Certification of Drug-Free Workplace Form</u>	11
<u>Public Entity Crimes Form</u>	12
<u>Non-Collusion Affidavit of Prime Bidder Form</u>	14
<u>Request For Taxpayer Identification Number And Certification W-9 Form</u>	15
<u>Vendor Application</u>	16
<u>Questionnaire</u>	17
<u>References</u>	18
<u>Bid Submittal Requirements</u>	19
<u>Special Conditions</u>	20
<u>Bid Scope of Work</u>	21
Base <u>Bid Tabulation</u>	23
Statement of No Bid	25

Attachments:

Transformer Specifications

- **Spec #1**
- **Spec #2**
- **Spec #3**
- **Spec #4**

**UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA**

**ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS**

BID SCHEDULE

- DISTRIBUTION OF THE INVITATION TO BID: **June 20, 2017**

- DEADLINE FOR FINAL QUESTIONS BY 2:30 P.M.: **June 27, 2017**
 - E-MAIL TO CFISHER@UCNSB.ORG

- ADDENDUM PUBLISHED BY 5:00 P.M.: **June 29, 2017**

- BID RETURN DEADLINE BY 2:30 P.M.: **July 6, 2017**
 - LOCATION: **UCNSB - RECEPTION
200 CANAL STREET
NEW SMYRNA BEACH FL, 32168**

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

GENERAL TERMS AND CONDITIONS

1. **INSTRUCTIONS TO BIDDERS:** To insure 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** 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. Bids 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 insure uniformity, bids must be submitted on this Bid Form and the attached pages.

4. **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 insure uniformity, bids must be submitted on this Bid Form and the attached pages.

5. **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.

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.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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

or

P.O. Box 100

New Smyrna Beach, FL 32170-0100

All such requests must be received no later than 2:30 PM, Eastern Standard Time, **June 27, 2017**. Responses to all requests for more information will be included in any addenda and will be made available to all **BIDDERS** on **June 29, 2017**.

Requests for additional information received after the **June 27, 2017** 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. **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.
13. **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.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

14. **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.**

15. **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.

16. **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.

17. **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".

18. **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.

19. **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 work place in

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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.

20. **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.**
21. **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. Please Complete and Return Enclosed "Statement of No Bid Form"
22. **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.
23. **FAILURE OF THE QUALIFIED VENDOR TO DELIVER:** Failure of the qualified vendor 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 qualified vendor 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 qualified vendor by the **COMMISSION** may be withheld until reimbursement is received.
24. **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).
25. **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

**UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA**

**ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS**

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.

26. **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.
27. **CLARIFICATION:** The UCNSB reserves the right to request clarification of information submitted and to request additional information of one or more Bidders, if needed.
28. **INSURANCE:** The qualified vendor 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**.

Coverage	Minimum Amounts and Limits
(a) Worker's Compensation	Statutory requirements at location of work
Employer's Liability	\$ 100,000 Each occurrence \$ 300,000 Disease, aggregate \$ 100,000 Disease, each employee
(b) General Liability	\$ 1,000,000 General Aggregate \$ 1,000,000 Products - Comp Ops Agg \$ 500,000 Each Occurrence \$ 50,000 Fire Damage \$ 5,000 Medical Expense
(c) Automobile Liability (owned, hired and non-owned)	\$ 1,000,000 Combined Single Limit
Option of Split Limits:	
(1.) Bodily Injury	\$ 500,000 Per Person \$ 1,000,000 Per Accident
(2.) Property Damage	\$ 500,000

Coverage shall apply to the indemnity agreement and shall include the **COMMISSION** their officers and employees, each as additional insured's but only as regards to their liability

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

arising out of qualified vendor 's performance of the work or out of operations performed by others on behalf of qualified vendor under this Contract. The insurance as afforded to such additional insured's shall state that it is primary insurance and shall provide for a severability of interest or cross-liability clause. Prior to commencing performance of any work or site mobilization, qualified vendor shall furnish **COMMISSION** with Certificates of Insurance (identifying on the face thereof the Project name and Contract number) as evidence of the above required insurance and such Certificates shall provide for thirty (30) days written notice to **COMMISSION** prior to cancellation thereof.

COMMISSION is not maintaining any insurance on behalf of qualified vendor covering loss or damage to the work or to any other property of qualified vendor unless otherwise specifically set forth herein.

None of the requirements contained herein as to types, limits and approval of insurance coverage to be maintained by qualified vendor are intended to and shall not in any manner limit or qualify the liabilities and obligations assumed by qualified vendor under this contract.

qualified vendor shall deliver the original Certificate of Insurance and one copy to the agent of the **COMMISSION**.

Notices, in original and one copy, of cancellation, termination and alternation of such policies shall also be provided to the agent of the **COMMISSION**.

29. **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**. qualified vendor guarantees its Materials 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, qualified vendor 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 qualified vendor agrees to pay for such corrective measures. Neither acceptance of the work by **COMMISSION** nor payment shall relieve qualified vendor from liability under the indemnity clause or any of the guarantees or warranties contained or implied herein.
30. **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, qualified vendor shall submit detail information substantiating such claims and an equitable adjustment shall be made to the price or time of performance.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

31. **CONFLICT OF INTEREST:** The award hereunder is subject to the laws of the State of Florida. All Bidders must disclose, with their proposal, the name of any officer, director, or agent who is also an employee of the UCNSB. Further, all Bidders must disclose the name of any UCNSB employee who owns, directly or indirectly, an interest of five percent (5%) or more in the Bidders firm or any of its branches.
32. **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 qualified vendor 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.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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](#).
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 or federal law by 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 charges brought by indictment or information after July 1, 1989, as a result of just verdict, non-jury trial, or entry 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.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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, or 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.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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: _____

Request for Taxpayer Identification Number and Certification

**Give Form to the
 requester. Do not
 send to the IRS.**

Print or type See Specific Instructions on page 2.	1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.	
	2 Business name/disregarded entity name, if different from above	
	3 Check appropriate box for federal tax classification; check only one of the following seven boxes: <input type="checkbox"/> Individual/sole proprietor or single-member LLC <input type="checkbox"/> Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=partnership) ▶ _____ Note. For a single-member LLC that is disregarded, do not check LLC; check the appropriate box in the line above for the tax classification of the single-member owner. <input type="checkbox"/> 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) _____ <i>(Applies to accounts maintained outside the U.S.)</i>
	5 Address (number, street, and apt. or suite no.)	Requester's name and address (optional)
	6 City, state, and ZIP code	
	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 Part I instructions on page 3. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN* on page 3.

Note. If the account is in more than one name, see the instructions for line 1 and the chart on page 4 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 not 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 on page 3.

Sign Here	Signature of U.S. person ▶	Date ▶
------------------	----------------------------	--------

General Instructions

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

Future developments. Information about developments affecting Form W-9 (such as legislation enacted after we release it) is at www.irs.gov/fw9.

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? on page 2.

By signing the filled-out form, you:

1. Certify that the TIN you are giving is correct (or you are waiting for a number to be issued),
2. Certify that you are not subject to backup withholding, or
3. Claim exemption from backup withholding if you are a U.S. exempt payee. If applicable, you are also certifying that as a U.S. person, your allocable share of any partnership income from a U.S. trade or business is not subject to the withholding tax on foreign partners' share of effectively connected income, and
4. Certify that FATCA code(s) entered on this form (if any) indicating that you are exempt from the FATCA reporting, is correct. See *What is FATCA reporting?* on page 2 for further information.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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: _____

Submitted by: _____

Name & Title Printed: _____

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

QUESTIONNAIRE

Additional space may be required. Please answer questions in the order presented. All questions must be answered or qualified vendor 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, 2012, 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?

**UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA**

**ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS**

REFERENCES

Provide the business names, contact persons and telephone numbers of five (5) references for which the firm has provided the services described in this proposal for two (2) years or more. Include relationships with utility and governmental agencies. It is our intent to contact these references during the evaluation process.

1. Name of Company: Address: _____
Point of Contact: _____ Phone #: _____
Service(s) Provided: _____

Dates of Service: _____
2. Name of Company: Address: _____
Point of Contact: _____ Phone #: _____
Service(s) Provided: _____

Dates of Service: _____
3. Name of Company: Address: _____
Point of Contact: _____ Phone #: _____
Service(s) Provided: _____

Dates of Service: _____
4. Name of Company: Address: _____
Point of Contact: _____ Phone #: _____
Service(s) Provided: _____

Dates of Service: _____
5. Name of Company: Address: _____
Point of Contact: _____ Phone #: _____
Service(s) Provided: _____

Dates of Service: _____

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

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. UCNSB reserves the right to request information or clarification from bidders following the bid opening if omissions are deemed curable.

Factor #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.

Factor #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.

Factor #3 **Pricing:**

Submit Proposal Bid Forms here. Pages 23-24

Factor #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

Factor #5 **Addenda Acknowledgement:**

Please submit all addenda (if any) related to this bid here.

Factor #6 **Questionnaire:**

The Questionnaire responses requested should be submitted here.

Factor #7 **Detailed Specifications:**

In this section include:

Transformer product information and literature

Transformer drawings

Transformer test reports

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

Special Conditions

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.

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.

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

BID SCOPE OF WORK

The **COMMISSION** is seeking a Qualified Vendor to provide the following:

Purchase of Electrical Transformers from our Approved Manufacturers List:

<u>Pole Mount</u>	<u>Pad Mount</u>
ABB	ABB
CENTRAL MOLONEY	CENTRAL MOLONEY
COOPER INDUSTRIES	COOPER INDUSTRIES
ERMCO	ERMCO
GE INDUSTRIES	GE INDUSTRIES
HOWARD	HOWARD
KUHLMAN	KUHLMAN
	PAUWELLS

****NOTE** We have Two Bid tabulations. The second tabulation is for Expedited Delivery as lead-time will be a deciding factor of award on the Trasnformers**

UCNSB Transformer Order for 6/2017

Item # 1:

Spec # 1

(20) 15 KVA Pole Type Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

Item # 2:

Spec # 1

(40) 25 KVA Pole Type Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

Item # 3:

Spec # 1

(40) 50 KVA Pole Type Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

Item # 4:

Spec # 2

(15) 25 KVA Padmount Looped Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/240V

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

Item # 5:

Spec # 2

- (30) 50 KVA Padmount Looped Dual Voltage Primary (22860/13200-13200/7620)
Secondary 120/240V

Item # 6:

Spec # 2

- (5) 75 KVA Padmount Looped Dual Voltage Primary (22860/13200-13200/7620)
Secondary 120/240V

Item # 7:

Spec # 3

- (6) 150 KVA Three Phase Padmount Looped Dual Voltage Primary (22860/13200-
13200/7620) Secondary 120/208V

Item # 8:

Spec # 3

- (3) 300 KVA Three Phase Padmount Looped Dual Voltage Primary (22860/13200-
13200/7620) Secondary 120/208V

Item # 9:

Spec # 4

- (3) 75 KVA Three Phase Padmount Looped Dual Voltage Primary (22860/13200-
13200/7620) Secondary 277/480V

**UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA**

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

BASE BID FORM page 1 of 2

Item	Qty	Spec	DESCRIPTION	MANUFACTURER MODEL NUMBER	Price	Lead- Time	LOSSES	
							CORE	WINDING
1	20	1	15 KVA Pole Type Dual Voltage Primary (22860/13200- 13200/7620) Secondary 120/240V					
2	40	1	25 KVA Pole Type Dual Voltage Primary (22860/13200- 13200/7620) Secondary 120/240V					
3	40	1	50 KVA Pole Type Dual Voltage Primary (22860/13200- 13200/7620) Secondary 120/240V					
4	15	2	25 KVA Padmount Looped Dual Voltage Primary (22860/13200- 13200/7620) Secondary 120/240V					
5	30	2	50 KVA Padmount Looped Dual Voltage Primary (22860/13200- 13200/7620) Secondary 120/240V					
6	5	2	75 KVA Padmount Looped Dual Voltage Primary (22860/13200- 13200/7620) Secondary 120/240V					
7	6	3	150 KVA Three Phase Padmount Looped Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/208V					
8	3	3	300 KVA Three Phase Padmount Looped Dual Voltage Primary (22860/13200-13200/7620) Secondary 120/208V					
9	3	4	75 KVA Three Phase Padmount Looped Dual Voltage Primary (22860/13200-13200/7620) Secondary 277/480V					

UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA

ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS

BASE BID FORM page 2 of 2

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: _____

Signature: _____

**UTILITIES COMMISSION
CITY OF NEW SMYRNA BEACH, FLORIDA**

**ITB# 18-17
PURCHASE OF ELECTRIC TRANSFORMERS**

STATEMENT OF NO BID

NOTE: 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: _____

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 NEW SMYRNA BEACH
TECHNICAL SPECIFICATION FOR**

**SINGLE PHASE – OVERHEAD DISTRIBUTION TRANSFORMERS
STAINLESS STEEL - DUAL VOLTAGE**

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:

Primary:

Transformer High Voltage (kV)	7620/13200Y X 13200/22860Y
Insulation Class (kV)	18 kV
Insulation BIL (kV)	125 kV minimum

Secondary:

Rated Low Voltage (Volts)	120/240
Insulation Class (kV)	1.2
Insulation BIL (kV)	30

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 nameplate.
- 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:

Transformer Size (kVA)	Maximum Weight (LBS)	Maximum Tank Height	Maximum Tank Diameter
15	375	32.0"	16.0"
25	490	32.0"	18.5"
50	750	34.5"	23.0"
75	1,010	36.5"	25.5"

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
- Tank Air Space above oil – 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:

$$PW = \frac{(1+i)^n - 1}{i (1+i)^n} \quad \begin{array}{l} i = \text{interest rate} \\ \text{where } n = \text{transformer life in years} \end{array}$$

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.**

**UTILITIES COMMISSION NEW SMYRNA BEACH
TECHNICAL SPECIFICATION FOR**

**SINGLE PHASE – DUAL VOLTAGE LOOP FEED - DEAD FRONT
PAD MOUNTED TRANSFORMER - STAINLESS STEEL**

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 22860GRDY/13200
Insulation Class (kV)	18 kV
Insulation BIL (kV)	125 kV minimum

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 = .06009 \$ per KWH
 L = 60%

8.2 Calculation of Total Cost:

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

$$PW = \frac{(1+i)^n - 1}{i(1+i)^n} \quad \begin{array}{l} i = \text{interest rate} \\ \text{where } n = \text{transformer life in years} \end{array}$$

then:

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

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.**

**UTILITIES COMMISSION NEW SMYRNA BEACH
TECHNICAL SPECIFICATION FOR**

**THREE PHASE - LOOP FEED - DEAD FRONT PAD MOUNTED TRANSFORMER
13200GRDY/7620 X 22860GRDY/13200 - 208Y/120**

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.

kVA	A MAXIMUM LEVEL INDIVIDUAL UNITS (dBA)	B AVERAGE LEVEL (dBA)
100 and below	51	48
101 through 300	55	52
500	56	52
750	58	54

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.

TRANSFORMER SIZE (KVA)	MAXIMUM WEIGHT (LBS)
75	2400
112	2800
150	3300
225	4000
300	4400
500	5200
750	7400

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 quotation.

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:

$$PW = \frac{(1+i)^n - 1}{i(1+i)^n} \quad \begin{array}{l} i = \text{interest rate} \\ \text{where } n = \text{transformer life in years} \end{array}$$

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.**

**UTILITIES COMMISSION NEW SMYRNA BEACH
TECHNICAL SPECIFICATION FOR**

**THREE PHASE - LOOP FEED - DEAD FRONT PAD MOUNTED TRANSFORMER
13200GRDY/7620 X 22860GRDY/13200 - 480Y/277**

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 **480Y/277**. 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.

	A	B
	MAXIMUM LEVEL INDIVIDUAL UNITS	AVERAGE LEVEL
<u>kVA</u>	<u>(dBA)</u>	<u>(dBA)</u>
100 and below	51	48
101 through 300	55	52
500	56	52
750	58	54

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)	480Y/277
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.

TRANSFORMER SIZE (KVA)	MAXIMUM WEIGHT (LBS)
75	2400
112	2800
150	3300
225	4000
300	4400
500	5200
750	7400

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 quotation.

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:

$$PW = \frac{(1+i)^n - 1}{i(1+i)^n} \quad \begin{array}{l} i = \text{interest rate} \\ \text{where } n = \text{transformer life in years} \end{array}$$

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.**