

AGREEMENT TO PURCHASE AND STOCK TRANSFORMERS

THIS AGREEMENT is made as of the _____ day of _____ in the year 2007, between **THE CITY OF LEESBURG**, a Florida Municipal Corporation, whose address is 501 West Meadow Street, Post Office Box 490630, Leesburg, Florida 34749-0630 (hereinafter referred to as the "CITY"), and **GRESKO UTILITY SUPPLY, INC.**, whose address is 6421 CR 219, Wildwood, Florida 34474 (hereinafter referred to as the "CONTRACTOR").

NOW, THEREFORE, in consideration of the mutual benefits accruing to the parties to this Agreement, and for other good and valuable considerations, the parties agree as follows:

1. Scope of Services. The CONTRACTOR shall provide the following services: **SEE EXHIBIT "A"**. Nothing herein shall limit the CITY's right to obtain proposals or services from other contractors for similar projects or products. The CONTRACTOR shall provide products for the prices listed in **EXHIBIT "B"** plus any approved price escalation or de-escalation as described in paragraph 10.

2. Labor and Materials. All work will be done in a competent and workmanlike manner, using quality, new materials. CONTRACTOR shall guarantee all materials and workmanship furnished under this agreement according to the manufacturers' warranty.

3. Insurance. The CONTRACTOR will maintain throughout this Agreement the following insurance: **SEE EXHIBIT "A"**.

A. The original of each such certificate of insurance, or a complete duplicate, shall be delivered to CITY by CONTRACTOR prior to starting work, providing evidence that the premiums have been paid.

B. All required insurance shall be provided by insurers acceptable to the CITY with an A.M. Best rating of at least "A."

C. The CONTRACTOR shall require, and shall be responsible for assuring that any and all of its subcontractors secure and maintain such insurance that are required by law to be provided on behalf of their employees and others until the completion of that subcontractors work.

D. The required insurance shall be secured and maintained for not less than the limits required by the CITY, or as required by law, whichever is greater.

E. The required insurance shall not limit the liability of the CONTRACTOR. The CITY does not represent these coverages or amounts to be adequate or sufficient to protect the CONTRACTOR'S interests or liabilities, but are merely required minimums.

F. All liability insurance, except professional liability, shall be written on an occurrence basis.

G. The CONTRACTOR waives its right of recovery against the CITY to the extent permitted by its insurance policies.

H. Insurance required of the CONTRACTOR, or any other insurance of the CONTRACTOR shall be considered primary, and insurance of the CITY, if any, shall be considered excess as applicable to any claims, which arise out of the agreement, contract or lease.

I. Except for workers' compensation and professional liability, the CONTRACTOR'S insurance policies shall be endorsed to name the CITY OF LEESBURG as additional insured to the extent of the agreement, contract or lease.

J. The Certificate(s) of Insurance shall designate the CITY as certificate holder as follows:

**City of Leesburg
Attention: Mike Thornton, Purchasing Manager
P.O. Box 490630
Leesburg, Florida 34749-0630**

K. The Certificate(s) of Insurance shall include a reference to the project and/or purchase order number.

L. The Certificate(s) of Insurance shall indicate that the CITY shall be notified at least thirty (30) days in advance of cancellation.

M. The Certificate(s) of Insurance shall include all deductibles and/or self-insurance retentions for each line of insurance coverage.

N. The CONTRACTOR, at the discretion of the Risk Manager for the CITY, shall provide information regarding the amount of claims payments or reserves chargeable to the aggregate amount of the CONTRACTOR'S liability coverage(s).

4. Indemnification. The CONTRACTOR agrees to make payment of all proper charges for labor required in the aforementioned work and CONTRACTOR shall indemnify CITY and hold it harmless from and against any loss or damage, claim or cause of action, and any attorneys' fees and court costs, arising out of: any unpaid bills for labor, services or materials furnished to this project; any failure of performance of CONTRACTOR under this Contract; or the negligence of the CONTRACTOR in the performance of its duties under this Contract, or any act or omission on the part of the CONTRACTOR, his agents, employees, or servants. CONTRACTOR shall defend, indemnify, and save harmless the CITY or any of their officers, agents, or servants and each and every one of them against and from all claims, suits, and costs of every kind and description, including attorney's fees, and from all damages to which the CITY or any of their officers, agents, or servants may be put by reason of injury to the persons or property of others resulting from the performance of CONTRACTOR'S duties under this Contract, or through the negligence of the CONTRACTOR in the performance of its duties under this Contract, or through any act or omission on the part of the CONTRACTOR, his agents, employees, or servants.

5. Codes, Laws, and Regulations. CONTRACTOR will comply with all applicable codes, laws, regulations, standards, and ordinances in force during the term of this Agreement.

6. Permits, Licenses, and Fees. CONTRACTOR will obtain and pay for all permits and licenses required by law that are associated with the CONTRACTOR'S performance of the Scope of Services.

7. Access to Records. CONTRACTOR will maintain accounting records, in accordance with generally accepted accounting principles and practices, to substantiate all invoiced amounts. Said records will be available for examination by the CITY during CONTRACTOR'S normal business hours. Said records will be maintained for a period of three (3) years after the date of the invoice.

8. Contingent Fees Prohibited. The CONTRACTOR warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the CONTRACTOR, to solicit or secure this Agreement and that it has not paid or agreed to pay any person, company, corporation, individual, or firm, other than a bona fide employee working solely for the CONTRACTOR any fee, commission, percentage, gift, or other consideration contingent upon or resulting from the award or making of this Agreement. In the event of a breach of this provision, the CITY shall have the right to terminate this Agreement without further liability, and at its discretion, deduct from the contract price, or otherwise recover, the full amount of any such fee, commission, percentage, gift or consideration paid in breach of this Agreement.

9. Payment. CITY shall compensate CONTRACTOR for transformers purchased and delivered to the CITY yard according to the prices set forth in **EXHIBIT "B"**. Payment to CONTRACTOR shall be due within twenty (20) days of CITY inspecting, testing, and accepting the material. The CITY shall not be required to compensate the CONTRACTOR for transformers purchased and held in CONTRACTOR inventory at their facility.

10. Escalation/De-Escalation. CONTRACTOR'S prices shall remain firm for a period of five (5) years from the date of execution. After the initial quarter following execution of this Agreement, the prices may be adjusted for the following reasons:

A. An increase or decrease in supplier's cost of materials may be justification for price change; however, this shall not be construed in any way to increase vendor's margin of profit. All written requests for price increases must include back-up documentation as to the nature of the increase and shall be submitted to the Purchasing Manager. Approval of each request shall be by written confirmation from the Purchasing Manager. If the CITY should consider said increase unwarranted or unreasonable the client reserves the right to terminate the contract with the vendor and re-advertise or select a second supplier.

B. If the CITY changes their product specifications for electric transformers and the change results in a change in cost from the manufacturer the CONTRACTOR may adjust the pricing accordingly.

C. For the purpose of this paragraph quarters are defined as follows: Quarter 1 – January, February, and March; Quarter 2 – April, May, and June; Quarter 3 – July, August, and September; Quarter 4 – October, November, and December.

11. Change Management. The CONTRACTOR or the CITY may submit a request for a change to the specifications provided the change shall be made within the scope of this Agreement and will not result in a change in price to the CITY. If the CONTRACTOR determines that any change will result in a price change to the CITY, it will be processed as a Change Order. The CONTRACTOR or the CITY may submit a written Change Order to initiate a change to the Specifications that is not within the scope of this Agreement. The Change order must include:

- A. a description of the requested change;
- B. the purpose for the change;
- C. the priority of implementing the change;
- D. the date or requested implementation; and
- E. the signature of an authorized officer of the party requesting such change.

For the purposes of change orders to this agreement the Authorized Officer for the CITY will be the Purchasing Manager. CONTRACTOR will advise the CITY of the resultant impact of the Change order on price and schedule within seven (7) days after CONTRACTOR'S receipt of the Change order, and the parties shall agree in writing upon the Change order before any change described in it is implemented.

12. Ownership of Documents. All data, specifications, calculations, estimates, plans, drawings, construction documents, photographs, summaries, reports, memoranda, and other documents, instruments, information and material prepared or accumulated by the CONTRACTOR (or by such subconsultants and specialty consultants) in rendering services hereunder shall be the sole property of the CITY who may have access to the reproducible copies at no additional cost other than printing. Provided, that the CONTRACTOR shall in no way be liable or legally responsible to anyone for the CITY's use of any such materials for another PROJECT, or following termination. All original documents shall be permanently kept on file at the office of the CONTRACTOR.

13. Independent Contractor. The CONTRACTOR agrees that it is an independent contractor and not an agent, joint venturer, or employee of the CITY, and nothing in this Agreement shall be construed to be inconsistent with this relationship or status. None of the benefits provided by the CITY to its employees, including but not limited to, workers' compensation insurance, unemployment insurance, or retirement benefits, are available from the CITY to the CONTRACTOR. CONTRACTOR will be responsible for paying its own Federal income tax and self-employment tax, or any other taxes applicable to the compensation paid under this Agreement. The CONTRACTOR shall be solely and entirely responsible for his or her acts during the performance of this Agreement.

14. Assignment. Neither party shall have the power to assign any of the duties or rights or any claim arising out of or related to the Agreement, whether arising in tort, contract, or otherwise, without the written consent of the other party. These conditions and the entire Agreement are binding on the heirs, successors, and assigns of the parties hereto.

15. No Third Party Beneficiaries. This Agreement gives no rights or benefits to anyone other than the CONTRACTOR and the CITY.

16. Jurisdiction. The laws of the State of Florida shall govern the validity of this Agreement, its interpretation and performance, and any other claims related to it. In the event of any litigation arising under or construing this Agreement, venue shall lie only in Lake County, Florida.

17. Term and Termination. The term of this Agreement shall be for a period of five (5) years beginning on the date of execution. The CITY, at its' option, may extend the agreement for five (5) additional one (1) year periods. All or part of this Agreement may be terminated by the CITY for its convenience on thirty (30) days written notice to the CONTRACTOR. In such event, the CONTRACTOR will be entitled to compensation for services competently performed up to the date of termination. The CONTRACTOR may also be compensated for material being stocked exclusively for the CITY. The CONTRACTOR shall attempt to allocate stocked inventory to other customers if possible. Stocked inventory for the CITY that cannot be allocated to other customers shall be purchased by the CITY at the contract price at that time. CONTRACTOR shall deliver any purchased inventory to the CITY at no additional cost.

18. Nonappropriation. The CONTRACTOR understands and agrees that this Contract is subject to the availability of funds to the CITY to purchase the specified products/services. As used herein, a "nonappropriation" shall be defined as an occurrence wherein the CITY, in any fiscal period, does not allocate funds in its budget for the purchase of the specified products/services or other amounts owed pursuant to this Contract, from the source of funding which the CITY anticipates using to pay its obligations hereunder, and the CITY has not other funds, from sources other than ad valorem taxes, which it deems to be available to pay its obligations under this Contract. The CITY may terminate this Contract, with no further liability to the CONTRACTOR, effective he first day of a fiscal period provided that:

- (a) a nonappropriation has occurred, and
- (b) the CITY has provided the CONTRACTOR with written notice of termination of less than fifteen (15) days before the proposed termination date.

Upon the occurrence of such nonappropriation the CITY shall not be obligated for payment for any fiscal period for which funds have not been appropriated.

19. Contact Person. The primary contact person under this Agreement for the CONTRACTOR shall be Justin Davis. The primary contact person under this Agreement for the CITY shall be Mike Thornton, Purchasing Manager.

20. Approval of Personnel. The CITY reserves the right to approve the contact person and the persons actually performing the professional services on behalf of CONTRACTOR pursuant to this Agreement. If CITY, in its sole discretion, is dissatisfied with the contact person or the person or persons actually performing the services on behalf of CONTRACTOR pursuant to this Agreement, CITY may require CONTRACTOR assign a different person or persons be designated to be the contact person or to perform the CONTRACTOR services hereunder.

21. Disclosure of Conflict. The CONTRACTOR has an obligation to disclose to the CITY any situation that, while acting pursuant to this Agreement, would create a potential conflict of interest between the CONTRACTOR and his duties under this Agreement. IN WITNESS

WHEREOF, the parties hereto have executed this Agreement on the respective dates under each signature.

22. Each person signing this agreement on behalf of either party individually warrants that he or she has full legal power to execute this Agreement on behalf of the party for whom he or she is signing, and bind and obligate such party with respect to all provisions contained in this agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the respective dates under each signature.

THE CITY OF LEESBURG, FLORIDA

By: _____
Mayor

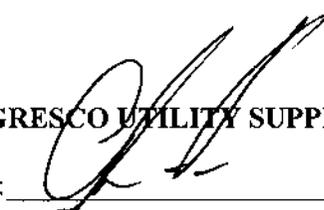
ATTEST:

City Clerk

Approved as to form and content:

City Attorney

“GRESKO UTILITY SUPPLY”

By:  _____

Its: Account Manager

Date: 6-26-08

EXHIBIT "A"

SCOPE OF SERVICES

I. Scope of Services.

The CONTRACTOR shall purchase and stock electrical transformers for the CITY as provided in this Agreement and as described in Request for Proposal 70124. CONTRACTOR shall ensure that the CITY has back-up transformers at a mutually agreed upon level above what is stocked at the City of Leesburg Electric Department. The Contractor shall deliver the transformers and perform services requested by the CITY in full compliance with the terms of this Agreement.

II. Technical Specifications. Technical specifications for this project are comprised of the following documents:

A. Specifications. The City of Leesburg documents for electric transformer specifications listed here and attached as attachments 1, 2 & 3 are incorporated by reference and made a part hereof.

- i. TECHNICAL SPECIFICATION OVERHEAD DISTRIBUTION TRANSFORMERS - 167 kVA AND SMALLER
- ii. TECHNICAL SPECIFICATIONS SINGLE PHASE PAD MOUNTED TRANSFORMERS
- iii. CITY OF LEESBURG TECHNICAL SPECIFICATIONS FOR THREE PHASE PAD MOUNTED TRANSFORMERS

III. General Conditions. The General Terms and Conditions from Request for Proposal 70124 are incorporated by reference and made a part hereof.

IV. Insurance and Indemnity Requirements. The Insurance and Indemnity Requirements from the Request for Proposal 70124 are incorporated by reference and made a part hereof.

V. Addenda. Addendum 1 of Request for Proposal 70124 is incorporated by reference and made a part hereof.

VI. Vendor Bid Response. The original response to Request for Proposal 70124 submitted by the Contractor is incorporated by reference and made a part hereof.

EXHIBIT "B"
RFP 70124 BAE PRICING

STOCK No.	VOLTAGE	DESCRIPTION	PHASE	LEESBURG PRICE (ERMCO)	LEESBURG PRICE (COOPER)
00012	120/240	15KVA120/240 Pole Mount	1 phase	\$1,006.00	\$1,051.00
00015	120/240	1.5KVA Pole Mount	1 phase	provide as needed	x
00016	120/240	5 KVA120/240 Pole Mount	1 phase	\$831.00	\$807.00
00017	120/240	10 KVA120/240 Pole Mount	1 phase	\$950.00	\$873.00
00018	120/240	25KVA120/240 Pole Mount	1 phase	\$1,464.00	\$1,540.00
00019	120/240	37.5KVA120/240 Pole Mount	1 phase	\$1,753.00	\$1,544.00
00020	120/240	50KVA120/240 Pole Mount	1 phase	\$1,627.00	\$1,663.00
00021	120/240	75KVA 120/240 Pole Mount	1 phase	\$2,407.00	\$2,422.00
00022	120/240	100KVA 120/240 Pole Mount	1 phase	\$4,048.00	x
00023	120/240	167KVA 120/240 Pole Mount	1 phase	\$5,469.00	x
00024	120/240	250KVA120/240 Pole Mount	1 phase	\$7,126.00	x
00034	277/480	100 KVA277/480 Pole Mount	1 phase	\$3,724.00	x
00035	277/480	167 KVA277/480 Pole Mount	1 phase	\$5,180.00	x
00038	240/120	25KVA 240/120 Pad Mount	1 phase	\$2,107.00	\$2,210.00
00039	240/120	37.5 KVA 240/120 Pad Mount	1 phase	\$2,364.00	\$2,485.00
00040	240/120	50KVA 240/120 Pad Mount	1 phase	\$2,720.00	\$2,853.00
00041	240/120	75KVA 240/120 Pad Mount	1 phase	\$3,226.00	\$3,388.00
00042	240/120	100KVA 240/120 Pad Mount	1 phase	\$4,228.00	\$4,435.00
00043	240/120	167KVA 240/120 Pad Mount	1 phase	\$4,875.00	\$5,118.00
00047	120/208	75KVA 208Y/120 Pad Mount	3 Phase	\$9,127.00	\$12,445.00
00048	120/208	112.5KVA 208Y/120 Pad Mount	3 Phase	\$9,698.00	\$13,324.00
00049	120/208	150KVA 208Y/120 Pad Mount	3 Phase	\$10,468.00	\$13,957.00
00050	120/208	225KVA 208Y/120 Pad Mount	3 Phase	\$11,665.00	\$13,990.00
00051	120/208	300KVA 480Y/277 Pad Mount	3 Phase	\$13,922.00	\$15,881.00
00052	120/208	500KVA 208Y/120 Pad Mount	3 Phase	\$17,504.00	\$21,239.00
00054	120/208	1000KVA 120/208 Pad Mount	3 Phase	\$24,363.00	\$33,014.00
00055	120/208	1500KVA 120/208 Pad Mount	3 Phase	\$42,149.00	\$48,896.00
00056	480Y/277	225KVA 480Y/277 Pad Mount	3 Phase	\$11,416.00	\$14,818.00
00057	480Y/277	300KVA 480Y/277 Pad Mount	3 Phase	\$13,044.00	\$16,478.00
00058	480Y/277	500KVA 480Y/277 Pad Mount	3 Phase	\$17,446.00	\$203,353.00
00059	480Y/277	750KVA 480Y/277 Pad Mount	3 Phase	\$21,218.00	\$25,983.00
00060	480Y/277	1000KVA 480Y/277 Pad Mount	3 Phase	\$26,900.00	\$29,628.00
00061	480Y/277	1500KVA 480Y/277 Pad Mount	3 Phase	\$33,058.00	\$47,421.00
00063	480Y/277	2500KVA 480/277 Pad Mount	3 Phase	\$48,798.00	\$65,062.00
00064	480Y/277	3000KVA 480/277 Pad Mount	3 Phase	\$54,312.00	\$71,665.00
00068	480Y/277	25KVA 480/277 Pole	1 Phase	\$1,537.00	\$1,269.00
00070	240/120	15KVA 240/120 Pad Mount	1 phase	\$1,747.00	\$1,820.00
00075	120/240	500KVA 120/240V DELTA PAD	3 Phase	\$17,567.00	\$21,919.00
00076	480Y/277	25KVA 277V PAD	1 phase	\$2,117.00	\$2,106.00
00077	480Y/277	150KVA 277/480V Pad Mount	3 Phase	\$10,178.00	\$13,922.00
00078	120/240v	150KVA 120/240V PAD	3 Phase	\$9,915.00	\$14,021.00
00083	240/480	25KVA 240/480 PAD	1 phase	\$2,290.00	\$2,285.00
00084	277/480V	75KVA 277/480V PAD	3 Phase	\$9,068.00	\$12,695.00
00085	120/240V	225KVA 120/240V DELTA PAD	3 Phase	\$11,560.00	\$15,047.00

ATTACHMENT 1

TECHNICAL SPECIFICATIONS SINGLE PHASE PAD MOUNTED TRANSFORMERS

1. SCOPE

- 1.1 This standard covers electrical characteristics and mechanical features of single phase, low profile design, 60 Hz, mineral-oil filled, pad mounted, compartment type distribution transformers, with separable insulated high voltage connectors rated 167 kVA and smaller, primary voltage *12470/7200Y*.
- 1.2 All requirements shall be in accordance with the latest revision of ANSI C57.12.25, C57.12.28, and these specifications.

2. TRANSFORMER PARAMETERS

- 2.1 One of the considerations for purchase of distribution transformers will be total owning cost. To be considered, bidders must supply the following transformer parameters for evaluation:
 - 2.1.1 The guaranteed average winding loss (full load) in watts, at 85° C.
 - 2.1.2 The guaranteed core loss (excitation or no load) in watts, at 85° C.
 - 2.1.3 Impedance in percent at 85° C to three significant figures.
 - 2.1.4 Exciting current in percent to three significant figures.
- 2.2 All transformers shall be tested for no load and full load losses, percent impedance, and subjected to a full wave voltage impulse. Certified test data shall be provided for each transformer shipped. Full losses shall be tested for at 85 degrees C.
- 2.3 The successful bidder shall also supply verification that the design has passed short circuit criteria per ANSI C57.12.00 . 1987 and C57.12.90 . 1987. Certified test results shall be provided to each Participating Member upon request.
- 2.4 The actual core loss and total loss parameters of transformers received shall not exceed the quoted parameters by more than the following:
 - 2.4.1 Each transformer individually shall not exceed the following percentages. Indemnification for transformers exceeding these tolerances shall be in accordance with 2.6 and 2.6.1 below.

Core Loss (Excitation or No Load)	+ 10%
Total Loss (Full Load Loss)	+ 6%
PMT1 .1	

2.4.2 For orders of more than one unit by the City of Leesburg, the average of all units of that stock number shipped on any purchase order shall not exceed the quoted parameters. Indemnification for transformers exceeding these tolerances shall be in accordance with 2.6 and 2.6.4 below.

2.5 The actual impedance and exciting current of transformers received shall not exceed quoted values by more than the following values. Indemnification for transformers exceeding these tolerances shall be in accordance with 2.6 and 2.6.2 and/or 2.6.3 below.

Impedance	According to ANSI C57.12.00(9.2) .1987
Exciting Current	+ 25%

2.6 The indemnification of distribution and step transformers for loss parameters, impedance and/or exciting current outside the tolerance levels established in Sections 2.4 and/or 2.5 of this specification shall be assessable and initiated within two (2) years from the date of receipt of production loss test data. Any penalties due from the manufacturer will be in the form of an unrestricted credit. Indemnification shall be as follows:

2.6.1 Individual transformers with core and/or total losses outside the tolerances established in Section 2.4 (a) of this specification shall:

2.6.1.1 Be returned to the manufacturer for replacement at the discretion of the City of Leesburg. Replacement shall be made, at no additional charge, within thirty (30) days after the expiration date of the current lead time once notification of rejection has been made by the City of Leesburg. All shipping, installation and de-installation costs incurred by the City of Leesburg as a result of the nonconforming transformer shall be for the seller's account.

2.6.1.2 If not returned for replacement, be subject to a loss penalty charged to the manufacturer. The loss penalty shall be equal to the present value of the difference in annual loss costs (actual losses versus quoted losses) evaluated at the cost of money for the City of Leesburg over a fifteen (15) year period. The cost of money used in

the evaluation shall be the same value used in the transformer bid evaluation.

2.6.1.3 The loss penalty shall not exceed the quoted price of the transformer.

2.6.2 Individual transformers with impedance outside the tolerance established in Section 2.5 of this specification shall:

2.6.2.1 Be returned to the manufacturer for replacement at the discretion of the City of Leesburg.

Replacement shall be made, at no additional charge, within thirty (30) days after the expiration date of the current lead time once notification of rejection has been made by the City of Leesburg.

All shipping, installation, and de-installation costs incurred by the City of Leesburg as a result of the nonconforming transformer shall be for seller's account.

2.6.2.2 If not returned for replacement, be subject to a penalty charged to the manufacturer. The penalty shall be equal to the excess or non-normal costs incurred by the City of Leesburg in utilizing the nonconforming transformer. The penalty charge shall include engineering, transportation, installation, and material costs of any additional equipment and/or additional transportation of the said transformer deemed necessary by the City of Leesburg to utilize the transformer on the City of Leesburg's system. The impedance penalty shall not exceed the quoted price of the transformer.

2.6.3 Individual transformers with exciting current outside the tolerances established in Section 2.5 of this specification shall be returned to the manufacturer for replacement at the discretion of the City of Leesburg. Replacement shall be made, at no additional charge, within thirty (30) days after the expiration date of the current lead time once notification of rejection has been made by the City of Leesburg. All shipping, installation, and de-installation costs incurred by the City of Leesburg as a result of the nonconforming transformer shall be for seller's account.

PMT1.3

2.6.4 Average core and/or total losses of all units of any individual City of Leesburg stock number that exceed the quoted parameters shall be subject to a loss penalty charged to the manufacturer. The average

loss penalty shall exclude any units penalized on an individual basis and shall be equal to the present value of the difference in annual loss costs (the average of actual losses versus quoted losses) evaluated at the cost of money for the City of Leesburg over a fifteen (15) year period. The cost of money used in the evaluation shall be the same value used in the transformer bid evaluation.

3. PRODUCTION LOSS TEST DATA

- 3.1 A draft report showing the values for No Load Loss (at 85° C) and Full Load Loss (at 85° C) for each unit supplied under this Specification shall be included with each unit at the time of shipment to the City of Leesburg. Within two weeks of the date of shipment, the actual, certified values for No Load Loss and Full Load Loss shall be forwarded to the City of Leesburg. Invoices will not be paid until this report has been received. In addition, all test results for units shipped in any calendar quarter shall be placed on IBM compatible disks (3-1/2" DSHD) and forwarded to the City of Leesburg within two (2) weeks after the end of the quarter. Each transformer shall have its own record on the diskette which shall contain the date of manufacture, manufacturer, serial number, size, high and low voltage ratings, type, the City of Leesburg's purchase order number and stock number, unit cost, the above referenced test values, and any other information specified on the Purchase Order or deemed desirable by the Manufacturer. The file format shall be ASCII or as specified by the City of Leesburg. The above information may also be supplied via e-mail, provided the City of Leesburg has the capability to accept e-mail. Core (no load) and winding (full load) loss values shall be provided in watts to one (1) decimal place.
- 3.2 Accuracy of production loss test data is the responsibility of the manufacturer.
- 3.3 Systems cost factors used in the evaluation of bids are available upon request from Florida Municipal Power Agency.

4. CONSTRUCTION

- 4.1 The equipment shall be designed to minimize areas where water and corrosive elements can accumulate.

- 4.2 Excessive welding and/or discontinuous or “skip” welds shall be avoided. Weld spatter shall be ground down to case level.
- 4.3 The transformer shall have a hinged compartment door and sill arrangement to provide access to the terminating compartment. Stainless steel (alloy 304L) hinges shall be provided. The stainless steel hinge pins shall be a minimum of .340” in diameter and 3” in length. The hinges shall be continuously welded to the tank and lid. The gauge of the hinges is to be the same as or greater than the gauge of the door. Other exposed hardware shall be made from mild steel. The sill, hood, and operating mechanisms shall be constructed of mild steel. All faceplate hardware, including parking stand, shall be mild steel.
- 4.4 In addition to the regular locking provisions, all access doors or hood shall be secured by a recessed, captive, pentahead bolt. The captive bolt shall be a 0.56-inch stainless steel pentahead with 1/2” NC Class 2 threads. The pentahead bolt provision shall be coordinated to prevent insertion of the padlock into the hasp until the bolt head is essentially completely seated. The padlock must be removed before the pentahead bolt can be disengaged.
- 4.5 Lifting inserts shall be 5/8”-11 threaded, reinforced insets of corrosion resistant material and so arranged to provide a suitable balance lift for the completely assembled unit. Lifting bolts shall be supplied with each unit. Lifting bolts can be either stainless or mild steel.
- 4.6 Anchor provisions: A 1/2” hole shall be provided on the centerline of the transformer base suitable for anchoring to a foundation.
- 4.7 The transformer(s) shall be of sealed tank construction of sufficient strength to withstand a pressure of 7 PSI without permanent distortion. In addition, the minimum tank withstand pressure shall be in accordance with ANSI standards, 15 PSIG. At the minimum tank withstand pressure, no oil leak shall be initiated and no component or bushing shall be expelled from the unit. If there is deformation, the unit shall remain tamper-proof and it shall be possible to open the compartment for access to the cable terminations.
- 4.8 The product of the minimum tank withstand pressure in PSIG (without a pressure relief device in place) and the cubic inches of air space above the transformer 140° C. oil level shall equal or exceed 16,500.

- 4.9 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 corners and edges shall be rounded and smoothed. Cooling fins shall be arranged to minimize their protrusion from the tank.
- 4.10 The pad mounted equipment shall meet the requirements for tamper resistance as set forth in ANSI C57.12.28 and Guide 2.13, latest revision, Western Underground Committee.
- 4.11 A durable metal nameplate made of stainless steel or anodized aluminum material and conforming to ANSI/IEEE C57.12.00-1987 shall be affixed to each transformer and contain all essential data, year of manufacture, serial number, and clearly state insulating oil is NON-PCB.
- 4.12 Each transformer will come equipped with provisions for momentary fault indicator in accordance with the following: an 8 MM hole will be drilled on the front face of the transformer cabinet door. The hole will be in the upper left hand corner of the door 2" from the sidewall and 2" from the top (when the transformer door is rounded the above 2" offset will be measured from the point where the door becomes vertical). An 5/16" x 1" hex head stainless steel bolt and locknut will be installed in the hole after painting. The locknut will be on the interior of the cabinet door.
 - 4.12.1 Under special circumstances City of Leesburg may require a hole diameter other than 8 MM with a corresponding sized stainless steel bolt. In this case, the City of Leesburg will so indicate via special instructions when issuing their purchase order.
- 4.13 Each transformer will come equipped with mounting provisions for a low voltage surge suppressor in the low voltage compartment.
- 4.14 Noise level shall not exceed ANSI standards for distribution class transformers.
- 4.15 All transformers shall employ cores constructed of traditional silicon steel.
- 4.16 No stenciling is allowed on transformers.

5. HIGH VOLTAGE TERMINATIONS

- 5.1 High voltage terminal arrangements as shown in C57.12.25 (1981), Figure 2, Type-2, shall be provided. The high voltage bushings shall consist of externally clamped bushing wells and 200 amp loadbreak bushing inserts manufactured by Cooper, Elastimold, or Chardon. The high voltage bushing shall be covered with a dust cover, which shall remain on the high voltage bushing during handling and storage.
- 5.2 The transformer terminals shall be spaced and arranged so that the transformer compartment door and its tamper-resistant barriers do not violate or reduce the minimum spacing and clearances required. This requirement includes all compartment door positions from fully open to fully closed.

6. HIGH VOLTAGE PROTECTIVE DEVICES

- 6.1 The transformer shall be protected by a Cooper (or approved equal) Bayonet fuse with flapper valve. The Bayonet device shall be rated to make or break full load current rating of the transformer. A non-conducting shield shall be provided to prevent oil from dripping on the bushings when the Bayonet device is removed. Two extra (total of three (3)) bayonet fuses shall be supplied with each unit and wrapped in plastic.
- 6.2 The circuit location of the primary fuse shall be shown in the nameplate schematic.
- 6.3 A self-actuating pressure relief device to relieve slow pressure buildup shall be provided that will automatically vent when pressure reaches 10 + or .2 PSIG and automatically close when pressure falls to 6 PSIG.

7. LOW VOLTAGE TERMINATIONS

- 7.1 The low voltage bushings shall be externally clamped.
- 7.2 Low voltage terminal arrangements as shown in C57.12.25 (1981), Figure 2, Type-2, shall be provided.
- 7.3 The externally clamped low voltage bushings shall be epoxy with a threaded copper or copper alloy stud that meets ANSI C57.12.25

latest revision. Low voltage terminals shall conform to ANSI C57.12.25 (1981) Fig. 4C.

7.4 Low voltage bushings shall be equipped with 5/8" threaded studs for transformers below 100kVA and 1" threaded studs for transformers 100kVA and larger. Two brass nuts shall be provided for each stud.

8. FINISH

8.1 The transformer shall have a corrosion resistant finish that shall meet or exceed ANSI C57.12.28 finishing requirements, latest revision. Top finish coat color shall be Pad Mount Green (Munsell color 7GY3.295/1 .5).

8.2 The finish on the transformer shall be a high quality coating system for mild steel pad mounted equipment, providing long field life with a minimum of maintenance. This coating system shall have excellent weathering characteristics with a minimum of chalking, high resistance to corrosive environments such as salt spray, high resistance to abrasion, scratching and chipping.

8.3 All paint and/or coatings including topcoats, intermediate coats and primers shall be free of lead.

8.4 The successful bidder shall supply verification that the design has passed the functional requirement tests noted in Section 8.5. The tests in Sections 8.5.1, 8.5.2, and 8.5.3 of this specification shall be performed on the coating system used on the exterior surface of the enclosure. The tests noted in Section 8.5.4 of this specification shall be performed on the coating system used on the interior surface of the enclosure. Test results shall be supplied to the City of Leesburg upon request.

8.5 Units supplied according to this specification shall meet ANSI C57.12.28, latest revision and the following test requirements:

8.5.1 Substrates shall consist of panels of the same material (lightest gauge) and processing as used in production. All panels shall be cleaned, coated and cured using the production coating system.

8.5.2 Test for 1500 hours per ANSI C57.12.28 and ASTM D4585, latest revision, except at 45° C. ±1C. This test method uses the Cleveland Condensing Humidity Cabinet as the humidity

chamber. There shall be no blisters.

- 8.5.3 Impact the test panel with a 160 in. -lb. falling dart per ASTM D2794, latest revision. The test apparatus shall be placed on a non-absorbing support during the test. There shall be no cracking under unaided visual inspection or chipping on the impact side of the test panel. This would also apply to cracking and chipping of top or intermediate layers of paint.
- 8.5.4 Immerse two test panels in transformer oil for 72 hours, one at room temperature (20° C. to 25° C.) and one at 100° C to 105° C. There shall be no apparent changes, such as color shift, blisters, loss of hardness or streaking. Loss of hardness shall be determined by testing per ASTM Standards D1474, D3363, or D4366.

9. **BID EVALUATION AND AWARD**

- 9.1 All bids received will be evaluated and awarded on the basis of the total owning cost. The total owning cost shall be determined with the following formula:

$$\text{TOC} = \text{PRICE} + \text{NL WATTS} * 6.663 + \text{LL WATTS} * 2.144$$

Where: TOC = Total owning cost
PRICE = Purchase price quoted
NL WATTS = quoted no-load losses in watts
LL WATTS = quoted load loss watts

For the determination of the award of business, the City of Leesburg 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.

- 9.2 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).
- 9.3 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.

10. ADDITIONAL ACCESSORIES OR CONFIGURATIONS

The following Additional Accessories or Configurations are selected by the City of Leesburg.

10.1 None

11. NAMEPLATE INFORMATION

11.1 All transformer nameplates shall be made of stainless steel or anodized aluminum, conform in all respects to Nameplate A, as described in ANSI/IEEE C57.12.00-1987, and indicate the following:

11.1.1 kVA, High voltage, and low voltage.

11.1.2 BIL rating of the high voltage winding (both high voltage BIL ratings on dual voltage transformers).

11.1.3 Transformer weight.

11.1.4 Month and year of manufacture.

11.1.5 Serial number.

11.1.6 Bar-code in accordance with C57.12.35-1996.

11.1.7 PCB Content

12. DIELECTRIC FLUID

12.1 The transformer dielectric fluid shall be certified by the transformer manufacturer as having a PCB content of less than two (2) ppm on a dry weight basis when tested in accordance with an EPA approved method. Any transformer, which is not in compliance with this requirement, will be returned to the manufacturer for replacement.

12.2 All transformers shall have an approved durable label with medium blue background and white lettering describing the dielectric fluid as non-PCB and stating its maximum PCB concentration at the time of manufacture. The label shall be affixed adjacent to the nameplate.

12.3 The maximum PCB concentration shall also appear on the

nameplate.

13. PAD MOUNTED TRANSFORMER SAFETY LABELS

13.1 No danger signs, warning signs or safety labels are permitted on the exterior surface of the transformer.

13.2 For single-phase pad mounted transformers, a NEMA 260 "Mr. Ouch" danger label is required on the inside surface of the compartment door. The NEMA 260- "Mr. Ouch" danger label shall be clearly visible and readable when the transformer compartment door is in the open position.

14. WARRANTY

14.1 Each transformer conforming to this material specification shall be unconditionally guaranteed against failure due to any cause, except misapplication or abuse, for a minimum of one (1) year from the date of installation or 18 months from the date of shipment, whichever occurs first. Any transformer, which does not conform to this warranty, shall, at buyer's option, be repaired or replaced by seller. Seller shall indemnify buyer for all costs incurred as a result of any such nonconformity.

15. SHIPPING

15.1 Transformers shall be shipped on open top trucks, single-tier freight trailers and be forklift unloadable from the side. If desired by the vendor, the units may also be shipped on two-tier trucks or freight trailers with built-in unloading devices.

15.2 Transformers shall be arranged (no stacking) in the truck or freight trailer to prevent damage during shipping.

15.3 Shipments of transformers to the City of Leesburg shall be a single transformer to a pallet. Each transformer shall be secured (banding, bolting, or other suitable method) to a pallet to protect it from damage during shipping and handling. Pad-mounted transformers shall use the anchor bolts for handling and lifting. All packaging or palletizations used in shipping transformers shall have a minimum ground clearance of 2 inches, and to be capable of supporting transformers without damage. Minimum of 18" fork width will be provided.

15.4 Bidder shall provide the City of Leesburg 24 hours notice prior to delivery of transformers.

16. **APPROVED MANUFACTURERS**

16.1 The following manufacturers are the only approved manufacturers under this specification:

ABB
General Electric
Central Moloney
Cooper Power Systems
ERMCO
Howard Industries
Moloney Electric

ATTACHMENT 2

CITY OF LEESBURG TECHNICAL SPECIFICATIONS FOR THREE PHASE PAD MOUNTED TRANSFORMERS

1. SCOPE

- 1.1 These specifications cover the electrical characteristics and mechanical features of deadfront, loop feed, three-phase, 60 Hz, mineral-oil immersed, self-cooled, pad mounted, compartmental-type distribution transformers rated 3000 kVA and smaller, high voltage 12,470 / 7,200 wye connected, with low voltages of 120 / 208 wye, 277 / 480 wye, and 120 / 240 mid tap.
- 1.2 All requirements shall be in accordance with the latest revision of ANSI Standard C57.12.26 or C57.12.22 except as modified by these specifications.

2. CONSTRUCTION

- 2.1 Unlocking the padlock and disengaging the pentahead bolt shall permit access to both the high and low voltage terminations when the compartment doors are removed or opened. There shall be a suitable barrier between the high voltage and low voltage compartments.
- 2.2 It shall be impossible to open the door of the high voltage compartment without having first opened the door of the low voltage compartment.
- 2.3 The base of both compartments shall be open to provide maximum flexibility in installing conduits.
- 2.4 The pad-mounted equipment shall meet the requirements for tamper resistance as set forth in ANSI C57.12.28.
- 2.5 A durable metal nameplate made of stainless steel or anodized aluminum material and conforming to ANSI/IEEE C57.12.00-1987, nameplate B, shall be affixed to the interior of the secondary compartment door of each transformer and contain all essential data including year of manufacture, serial number, and clearly state insulating oil is Non-PCB.
- 2.6 Dead front loop feed transformer compartment designations and dimensions shall conform to ANSI C57.12.26, 1987, Figure 7.
- 2.7 The equipment shall be designed to minimize areas where water and corrosive elements can accumulate.
- 2.8 All transformers will have a 1 inch gate valve and plug located in the bottom right of the primary compartment. The valve will be located 6 inches away from the walls of the transformer to allow easy operation by hand.
- 2.9 Excessive welding and/or discontinuous or "skip" welds shall be avoided. Weld spatter shall be ground down to case level.

- 2.10 Lifting provisions shall be permanently attached and arranged on the tank to provide a distributed, balanced vertical lift for the complete transformer assembly.
- 2.11 The transformer(s) shall be of sealed tank construction of sufficient strength to withstand a pressure of 7 PSI without permanent distortion. In addition, the minimum tank withstand pressure shall be in accordance with ANSI standards, 12 PSIG. At the minimum tank withstand pressure, no oil leak shall be initiated and no component or bushing shall be expelled from the unit. If there is deformation, the unit shall remain tamper-proof and it shall be possible to open the compartment for access to the cable terminations.
- 2.12 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 corners and edges shall be rounded and smoothed. Cooling fins shall be arranged to minimize their protrusion from the tank.
- 2.13 Noise level shall not exceed ANSI standards for distribution class transformers.
- 2.14 A self-actuating pressure relief device to relieve slow pressure buildup shall be provided that will automatically vent when pressure reaches 10 + or - 2 PSIG and re-closes when pressure falls to 6 PSIG. The pressure relief device shall have a pull ring for hook stick operation.

3. CORE AND COIL

- 3.1 There shall be three primary and three secondary windings wound on a five-legged core design.
- 3.2 All transformers shall employ cores constructed of traditional silicon steel. See Accessories option 11.4.
- 3.3 For all units rated 500 KVA and above, four taps shall be provided - two 2 1/2 percent above the rated voltage and two 2 1/2 percent below the rated voltage.

4. HIGH VOLTAGE TERMINATIONS

- 4.1 Six high voltage bushing wells with removable studs for dead front application conforming to ANSI C57.12.26, latest revision, with six load break bushing inserts, and 200A load break bushings. Bushing inserts shall be manufactured by Elastimold, Cooper, or Chardon.
- 4.2 High voltage terminations shall conform to ANSI C57.12.26, 1987, Figure 6A.

5. HIGH VOLTAGE PROTECTIVE DEVICES

- 5.1 The transformer shall be protected by a Cooper (or approved equal) Bayonet fuse with flapper valve. The Bayonet device shall be rated to make or break full load current rating of the transformer. A non-conducting shield shall be provided to prevent oil from dripping on the bushings when the Bayonet device is removed. Three spare bayonet fuses shall be supplied with each unit and hung in the transformer cabinet in plastic wrapping.
- 5.2 The circuit location of the primary fuses shall be shown in the nameplate schematic.

6. LOW VOLTAGE TERMINATIONS

- 6.1 Externally clamped low voltage bushings shall be equipped with spades and be in accordance with ANSI Guidelines. Transformers 500 kVA and smaller shall be equipped with removable spades in accordance with Figure 9D.
- 6.2 Bushing arrangement and dimensions shall be per ANSI C57.12.26, 1987, Figure 8A except the minimum distance between X_0 and the rigid barrier between the high voltage and low voltage compartment shall be 8 inches. In addition, the minimum distance between X_3 and the transformer sidewall shall also be 8 inches.

7. FINISH

- 7.1 The transformer shall have a corrosion resistant finish and shall meet or exceed ANSI C57.12.28 finishing requirements, latest revision. Top finish coat color shall be Pad Mount Green (Munsell Color 7GY3.12.28).
- 7.2 All paint and/or coatings including topcoats, intermediate coats and primers shall be free of lead.
- 7.3 No stenciling shall be provided on the transformer.

8. TESTS

- 8.1 All transformers shall pass the tests listed in C57.12.90 - 1993 edition.
- 8.2 One of the considerations for purchase of distribution transformers will be total owning cost. To be considered, bidders must supply the following transformer parameters for evaluation:
 - 8.2.1 The guaranteed average winding loss (full load) in watts, at 85° C.
 - 8.2.2 The guaranteed core loss (excitation or no load) in watts, at 85° C.
 - 8.2.3 Impedance in percent at 85° C to three significant figures.
 - 8.2.4 Exciting current in percent to three significant figures.

8.3 All transformers shall be tested for no load and full load losses, percent impedance, and subjected to a full wave voltage impulse. Certified test data shall be provided for each transformer shipped. Full losses shall be tested for at 85 degrees C.

8.4 The successful bidder shall also supply verification that the design has passed short circuit criteria per ANSI C57.12.00 - 1987 and C57.12.90 - 1987. Certified test results shall be provided to each Participating Member upon request.

8.5 The actual core loss and total loss parameters of transformers received shall not exceed the quoted parameters by more than the following:

8.5.1 Each transformer individually shall not exceed the following percentages. Indemnification for transformers exceeding these tolerances shall be in accordance with 8.7 and 8.7.1 below.

Core Loss (Excitation or No Load)	+ 10%
Total Loss (Full Load Loss)	+ 6%

8.5.2 For orders of more than one unit by the City of Leesburg, the average of all units of that stock number shipped on any purchase order shall not exceed the quoted parameters. Indemnification for transformers exceeding these tolerances shall be in accordance with 8.7 and 8.7.4 below.

8.6 The actual impedance and exciting current of transformers received shall not exceed quoted values by more than the following values. Indemnification for transformers exceeding these tolerances shall be in accordance with 8.7 and 8.7.2 and 8.7.3 below.

Impedance	According to ANSI C57.12.00(9.2) - 1987
Exciting Current	+ 25%

8.7 The indemnification of distribution and step transformers for loss parameters, impedance and/or exciting current outside the tolerance levels established in Sections 8.5 and 8.6 of this specification shall be assessable and initiated within two (2) years from the date of receipt of production loss test data. Any penalties due from the manufacturer will be in the form of an unrestricted credit. Indemnification shall be as follows:

8.7.1 Individual transformers with core and/or total losses outside the tolerances established in Section 8.5 (a) of this specification shall:

8.7.1.1 Be returned to the manufacturer for replacement at the discretion of the City of Leesburg. Replacement shall be made, at no additional charge, within thirty (30) days after the expiration date of the current lead time once notification of rejection has been made by the City of Leesburg. All

shipping, installation and de-installation costs incurred by the City of Leesburg as a result of the nonconforming transformer shall be for the seller's account.

8.7.1.2 If not returned for replacement, be subject to a loss penalty charged to the manufacturer. The loss penalty shall be equal to the present value of the difference in annual loss costs (actual losses versus quoted losses) evaluated at the cost of money for the City of Leesburg over a fifteen (15) year period. The cost of money used in the evaluation shall be the same value used in the transformer bid evaluation. The loss penalty shall not exceed the quoted price of the transformer.

8.7.2 Individual transformers with impedance outside the tolerance established in Section 8.6 of this specification shall:

8.7.2.1 Be returned to the manufacturer for replacement at the discretion of the City of Leesburg. Replacement shall be made, at no additional charge, within thirty (30) days after the expiration date of the current lead time once notification of rejection has been made by the City of Leesburg. All shipping, installation, and de-installation costs incurred by the City of Leesburg as a result of the nonconforming transformer shall be for seller's account.

8.7.2.2 If not returned for replacement, be subject to a penalty charged to the manufacturer. The penalty shall be equal to the excess or non-normal costs incurred by the City of Leesburg in utilizing the nonconforming transformer. The penalty charge shall include engineering, transportation, installation, and material costs of any additional equipment and/or additional transportation of the said transformer deemed necessary by the City of Leesburg to utilize the transformer on the City of Leesburg's system. The impedance penalty shall not exceed the quoted price of the transformer.

8.7.3 Individual transformers with exciting current outside the tolerances established in Section 8.6 of this specification shall be returned to the manufacturer for replacement at the discretion of the City of Leesburg. Replacement shall be made, at no additional charge, within thirty (30) days after the expiration date of the current lead time once notification of rejection has been made by the City of Leesburg. All shipping, installation, and de-installation costs incurred by the City of Leesburg as a result of the nonconforming transformer shall be for seller's account.

8.7.4 Average core and/or total losses of all units of any individual City of Leesburg stock number that exceed the quoted parameters shall be subject to a loss penalty charged to the manufacturer. The average loss penalty shall exclude any units penalized on an individual basis and shall be equal to the present value of the difference in annual loss costs (the average of actual losses versus quoted losses) evaluated at the cost of

money for the City of Leesburg over a fifteen (15) year period. The cost of money used in the evaluation shall be the same value used in the transformer bid evaluation.

9. BID EVALUATION AND AWARD

- 9.1 All bids received will be evaluated and awarded on the basis of the total owning cost. The total owning cost shall be determined with the following formula:

$$\text{TOC} = \text{PRICE} + \text{NL WATTS} * 6.663 + \text{LL WATTS} * 2.144$$

Where: TOC = Total owning cost
PRICE = Purchase price quoted
NL WATTS = quoted no-load losses in watts
LL WATTS = quoted load losses in watts

For the determination of the award of business, FMPA 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.

- 9.2 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).
- 9.3 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.

10. PRODUCTION LOSS TEST DATA

- 10.1 A draft report showing the values for No Load Loss (at 85° C) and Full Load Loss (at 85° C) for each unit supplied under this Specification shall be included with each unit at the time of shipment to the City of Leesburg. Within two weeks of the date of shipment, the actual, certified values for No Load Loss and Full Load Loss shall be forwarded to the City of Leesburg. Invoices will not be paid until this report has been received. In addition, all test results for units shipped in any calendar quarter shall be placed on IBM compatible disks (3-1/2" DSHD) and forwarded to the City of Leesburg within two (2) weeks after the end of the quarter. Each transformer shall have its own record on the diskette which shall contain the date of manufacture, manufacturer, serial number, size, high and low voltage ratings, type, the City of Leesburg's purchase order number and stock number, unit cost, the above referenced test values, and any other information specified on the Purchase Order or deemed

desirable by the Manufacturer. The file format shall be ASCII or as specified by the City of Leesburg. The above information may also be supplied via e-mail, provided the City of Leesburg has the capability to accept e-mail.

- 10.2 Core (no load) and winding (full load) loss values shall be provided in watts to one (1) decimal place.
- 10.3 Accuracy of production loss test data is the responsibility of the manufacturer.
- 10.4 System cost factors used in the evaluation of bids are available upon request from Florida Municipal Power Agency.

11. ACCESSORIES

- 11.1 Low voltage terminations shall be on all units ordered by the City of Leesburg as specified below. This option modifies section 6.1 which requires ANSI standard low voltage terminations.

KVA	208y/120	480y/277
75	8 hole	N/A
112 ½	8 hole	N/A
150	8 Hole	N/A
225	8 hole	8 hole
300	10 hole	10 hole
500	10 hole	10 hole
750	10 hole	10 hole
1000	10 hole	10 hole

All holes shall be 9/16 inch.

- 11.2 All mild steel design.
- 11.3 All units are to include a Liquid Level and Temperature Gauge.
- 11.4 Amorphous cores are allowed along with traditional silicon cores. Amorphous core transformers may be bid as an option.
- 11.5 Provision for mounting momentary fault indicators: The City of Leesburg may require three holes drilled on the front face of the transformer cabinet door. The successful bidder shall provide these holes to the City of Leesburg specifications and also provide associated stainless steel bolts, lockwashers, nuts or cover plates. The specifications for these holes, including exact location, shall be provided by the City of Leesburg on the purchase order.
- 11.6 Transformers with a rating of 150 KVA or above shall have an access hole located in the top of the oil filled compartment, centered laterally and 6 inches

behind the bushing mounting surface. This access hole shall be 16 inches x 24 inches in area and sealed from weather using conventional methods.

- 11.7 Insulated supports for all low voltage bushings.
- 11.8 Each transformer shall include a 4-position loadbreak switch. The switch shall be a rotary "T-blade" type and shall be externally operated for loop feed switching. A spring loaded, quick make and break system shall be utilized and be hot stick operable. This oil-immersed mechanism will be rated as follows:

- 95 kV BIL
- Max voltage Line – Line 25 kV, Line – Ground 15.2 kV
- Continuous interrupt current – 300 A
- Momentary and making current – 8 kA, minimum
- RMS Sym / Assym – 10 kA, minimum

The four position switch will provide the following connections:

- Loop A Feed
- Loop B Feed
- Loop A and B Feed
- Transformer off – Loop Closed

12. SHIPPING

- 12.1 Transformers shall be shipped on open top trucks, single-tier freight trailers. Transformer will not be stacked. Transformers that are delivered stacked may be rejected by the City of Leesburg.
- 12.2 Transformers shall be arranged in the truck or freight trailer to prevent damage during shipping.
- 12.3 Shipments of transformers to the City of Leesburg shall be a single transformer to a pallet. 4x4 runners in lieu of a pallet are acceptable. Each transformer shall be secured (banding, bolting, or other suitable method) to a pallet to protect it from damage during shipping and handling. All packaging or palletizations used in shipping transformers shall have a minimum ground clearance of 2 inches, and to be capable of supporting transformers without damage. Minimum of 18" fork width will be provided.
- 12.4 Bidder shall provide the City of Leesburg 24 hours notice prior to delivery of transformers. The City of Leesburg shall not be responsible for off-loading delays when notice of delivery is not given as specified.

13. WARRANTY

- 13.1 Each transformer conforming to this material specification shall be unconditionally guaranteed against failure due to any cause, except

misapplication or abuse, for a minimum of one (1) year from the date of installation or 18 months from the date of shipment, whichever occurs first. Any transformer which does not conform to this warranty shall, at buyers option, be repaired or replaced by seller. Seller shall indemnify buyer for all costs incurred as a result of any such nonconformity.

14. ACCEPTED BRANDS

14.1 The following manufacturers are the only approved manufacturers under this specification:

ABB
General Electric
Cooper Power Systems
Howard Industries
ERMCO

ATTACHMENT 3

TECHNICAL SPECIFICATION OVERHEAD DISTRIBUTION TRANSFORMERS - 167 kVA AND SMALLER

1. SCOPE

- 1.1 This specification covers the general requirements for all single phase, 60 Hz, mineral oil filled, distribution transformers for overhead construction, 167 kVA and smaller, high voltage 12,470/7,200GndY, low voltages 120/240, 240/480, or 277. The required voltages shall be specified at the time an order is placed.
- 1.2 All requirements shall be in accordance with the latest revision of ANSI C57.12.20, except as modified by these specifications.

2. TRANSFORMER PARAMETERS

- 2.1 One of the considerations for purchase of distribution transformers will be total owning cost. To be considered, bidders must supply the following transformer parameters for evaluation:
- 2.1.1 The guaranteed average winding loss (full load) in watts, at 85C.
- 2.1.2 The guaranteed core loss (excitation or no load) in watts, at 85C.
- 2.1.3 Impedance in percent at 85C to three significant figures.
- 2.1.4 Exciting current in percent to three significant figures.
- 2.2 The actual core loss and total loss parameters of transformers received shall not exceed the quoted parameters by more than the following:
- 2.2.1 Each transformer individually shall not exceed the following percentages. Indemnification for transformers exceeding these tolerances shall be in accordance with Section 2.4 below.
- Core Loss (Excitation or No Load) + 10%
- Total Loss (Full Load Loss) + 6%
- 2.2.2 For orders of more than one unit by the City of Leesburg, the average of all units of that stock number shipped on any purchase order shall not exceed the quoted parameters. Indemnification for transformers exceeding these tolerances shall be in accordance with Section 2.4 below.
- 2.3 The actual impedance and exciting current of transformers received shall not exceed quoted values by more than the following values. Indemnification for transformers exceeding these tolerances shall be in accordance with Section 2.4 below.
- Impedance +7.5%
- Exciting Current +25%

2.4 The indemnification of distribution transformers for loss parameters, impedance and/or exciting current outside the tolerance levels established in Sections 2.2 and/or 2.3 of this specification shall be assessable and initiated within two (2) years from the date of receipt of production loss test data. Any penalties due from the manufacturer will be in the form of an unrestricted credit. Transformers (both individually or as an average when the City of Leesburg orders more than one unit of any stock number) with core and/or total losses outside the tolerances established in Section 2.2.1 of this specification, or impedance or exciting current outside the tolerances established in Section 2.3 of this specification shall:

2.4.1 Be returned to the manufacturer for replacement at the discretion of the City of Leesburg. Replacement shall be made, at no additional charge, within thirty (30) days after the expiration date of the current lead time once notification of rejection has been made by the City of Leesburg. All shipping, installation and de-installation costs incurred by the City of Leesburg as a result of the nonconforming transformer shall be for the seller's account.

2.4.2 If not returned for replacement, be subject to a loss penalty charged to the manufacturer. The loss penalty relative to out of tolerance losses shall be equal to the present value of the difference in annual loss costs (actual losses versus quoted losses) evaluated at the cost of money for the City of Leesburg over a fifteen (15) year period. The cost of money used in the evaluation shall be the same value used in the transformer bid evaluation. The loss penalty relative to impedance shall be equal to the excess or non-normal costs incurred by the City of Leesburg in utilizing the nonconforming transformer. The penalty charge shall include engineering, transportation, installation, and material costs of any additional equipment needed to utilize the transformer. There will be no loss penalty relative to out of tolerance exciting current. In all cases, the loss penalty shall not exceed the quoted price of the transformer.

3. PRODUCTION LOSS TEST DATA

3.1 A draft report showing the values for No Load Loss (at 85o C) and Full Load Loss (at 85o C) for each unit supplied under this Specification shall be included with each unit at the time of shipment to the City of Leesburg. Within two weeks of the date of shipment, the actual, certified values for No Load Loss and Full Load Loss shall be forwarded to the City of Leesburg. Invoices will not be paid until this report has been received. In addition, all test results for units shipped in any calendar quarter shall be placed on IBM compatible disks (3 1/2" DSHD) and forwarded to the City of Leesburg within two (2) weeks after the end of the quarter. Each transformer shall have its own record on the diskette which shall contain the

date of manufacture, manufacturer, serial number, size, high and low voltage ratings, type, the City of Leesburg's purchase order number and stock number, unit cost, the above referenced test values, and any other information specified on the Purchase Order or deemed desirable by the Manufacturer. The file format shall be ASCII or as specified by the City of Leesburg. The above information may also be supplied via e-mail.

- 3.2 Core (no load) and winding (full load) loss values shall be provided in watts to one (1) decimal place.
- 3.3 Accuracy of production loss test data is the responsibility of the manufacturer.
- 3.4 System cost factors used in the evaluation of bids are available upon request from Florida Municipal Power Agency.

4. NOISE LEVEL

- 4.1 Noise level shall not exceed ANSI standards for distribution class transformers.

5. THERMOSETTING INSULATION

- 5.1 All transformers shall employ an approved bonded thermosetting insulation system in the construction of the coil assembly.

6. TRANSFORMER CORE MATERIAL

- 6.1 All transformers shall employ cores constructed of traditional silicon steel unless otherwise specified on the purchase order.
- 6.2 All coil designs must meet or exceed the ANSI short circuit requirement. Only adhesive coated paper shall be used in the coil design. All manufacturers shall provide certified test results to each the City of Leesburg. These test results will indicate their product meets or exceeds this requirement.

7. DIELECTRIC FLUID

- 7.1 The transformer dielectric fluid shall be certified by the transformer manufacturer as having a PCB content of less than two (2) ppm on a dry weight basis when tested in accordance with an EPA approved method. Any transformer which is not in compliance with this requirement will be returned to the manufacturer for replacement.
- 7.2 All transformers shall have an approved durable label with medium blue background and white lettering describing the dielectric fluid as non-PCB and stating its maximum PCB concentration at the time of manufacture. The label shall be affixed on tank below secondary bushings.
- 7.3 The maximum PCB concentration shall also appear on the nameplate.

8. EXTERIOR FINISH

- 8.1 Conventional pole type transformer tanks shall be sky gray ANSI #70 color. Tank covers for conventional pole type transformers, 167 kVA and below shall be supplied with an insulated coating.
- 8.2 The tank finish must meet or exceed ANSI C57.12.28 requirement. The tank finish shall consist of sufficient coat(s) of high grade quality paint which will not fade, blister or chalk and will be scuff resistant. This is to insure long field life (20 years plus) with minimum maintenance under severe environmental conditions such as salt spray, high humidity and high ultraviolet levels.
- 8.3 The term stainless steel as used in this specification shall mean alloy 304L.
- 8.4 All transformers shall have decals instead of stenciling indicating transformer size. The decals shall be high grade, long lasting with reflective backing and shall be an Electromark decal or equal. The font size shall be 1" to 12" in height and each decal shall be continuous (not individual) labels to make up a sequence. The decals shall be 3M Scotchlite reflective yellow backing with black text and shall be U.V. Tedlar over laminate. The decals shall be located on the tank side opposite the hanger and approximately 6" below the secondary neutral bushing. The following information shall be included:
- 1) kVA size of the unit.
 - 2) Secondary voltage of the unit in the case of 240/480 or 277.

9. WARRANTY

- 9.1 Each transformer conforming to this material specification shall be unconditionally guaranteed against failure due to any cause, except misapplication or abuse, for a minimum of one (1) year from the date of installation or 24 months from the date of shipment, whichever occurs first. Any transformer which does not conform to this warranty shall, at buyers option, be repaired or replaced by seller. Seller shall indemnify buyer for all costs incurred as a result of any such nonconformity.

10. SHIPPING

- 10.1 Transformers shall be shipped on open top trucks, single-tier freight trailers and be forklift unloadable from the side. If desired by the vendor, the units may also be shipped on two-tier trucks or freight trailers with built-in unloading devices.
- 10.2 Transformers shall be arranged and stacked in the truck or freight trailer to prevent damage during shipping.
- 10.3 Bidder shall provide the City of Leesburg 24 hours notice prior to delivery of transformers.

10.4 Shipments of transformers to the City of Leesburg shall be a single transformer to a pallet. Each transformer shall be secured (banding, bolting, or other suitable method) to a pallet to protect it from damage during shipping and handling. Lifting lugs on conventional transformers shall be used for banding and lifting. All packaging or palletizations used in shipping transformers shall have a minimum ground clearance of 2 inches, and to be capable of supporting transformers without damage. Minimum of 18" fork width will be provided.

11. BID EVALUATION AND AWARD

11.1 All bids received will be evaluated and awarded on the basis of the total owning cost. The total owning cost shall be determined with the following formula:

$$\text{TOC} = \text{PRICE} + \text{NL WATTS} * 6.663 + \text{LL WATTS} * 2.144$$

Where:

TOC = Total owning cost

PRICE = Purchase price quoted

NL WATTS = quoted no-load losses in watts

LL WATTS = quoted load loss watts

For the determination of the award of business, the City of Leesburg 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.

11.2 All bidders shall supply NO LOAD, FULL 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).

11.3 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.

12. BASIC IMPULSE INSULATION LEVELS

12.1 High Voltage Insulation Class: 15 kV, 95 kV BIL

12.2 Low Voltage Insulation Class: 1.2 kV, 30 kV BIL

13. RATINGS

13.1 All transformers shall have the capability of meeting or exceeding the recommended load limits as shown in Section 3 of the Guide for Loading Mineral Oil-Immersed Overhead Type Distribution Transformers, C57.91. Transformers will be specified as a 2-bushing transformer with fully insulated winding.

14. CONSTRUCTION

- 14.1 All transformers shall be arranged and equipped for single position mounting.
- 14.2 All paint and/or coatings including top coats, intermediate coats and primers shall be free of lead and chromates. The color shall be gray ANSI #70.
- 14.3 All transformers shall be equipped with a solder-less tank grounding connector located in the tank ground pad.
- 14.4 All transformers shall be supplied with taps as provided in Section 20, Optional Accessories.
- 14.5 For protection from flashovers caused by wildlife, transformers shall be furnished with a non-peeling insulating tank cover coating. The insulating cover coating shall be able to withstand 12 kV ac RMS for 1 minute without puncturing.
- 14.6 High voltage bushings shall be porcelain unless otherwise specified on the purchase order.
- 14.7 Low voltage bushings shall be sidewall type.
 - 14.7.1 Low voltage terminals shall be tinned copper or tinned bronze suitable for either aluminum or copper conductors. Terminals shall be in conformance with Table 12, C 52.12.20 - 1988.
 - 14.7.2 All transformers, 75 kVA and above, shall have low voltage bushings capable of supporting a continuous vertical load of 100 pounds when applied to either outer hole of the connector spade or terminal without producing a deflection sufficient to produce a leak at the low voltage bushing or structural failure of the low voltage bushing or terminal.
 - 14.7.3 Pal nuts shall not be used to secure coil leads to secondary terminals.
- 14.8 The total weight, with oil, of all pole mounting transformers shall conform to Section 19 of this specification. These transformers shall be of such dimensions that they can be mounted (using a Type C adapter plate on transformers with Type C support lugs) on a three-position double-band cluster bracket meeting the specifications of the Aluma-Form Model #15M3-9 or the A.B. Chance Model C212-8015.
- 14.9 The instruction nameplate can be mounted on the lower support lug of transformers equipped with type A or B support lugs.

14.9.1 Nameplates mounted on support lugs must be free of sharp edges with a minimum of 1/16" clearance from all edges of the support lugs. In addition, the edges of the nameplate, as installed, must be flush with the support lug so as not to create an unsafe condition.

14.10 The transformer tank cover shall be metallurgically bonded to the transformer tank by means of an external strap and shall have slope for moisture run-off.

14.11 The transformer tank cover shall be made from mild steel. Band and band hardware shall be made from stainless steel or silicon bronze.

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

14.13 Transformers shall be provided with a ground strap between the secondary bushing and the tank ground.

15. PROTECTION FROM TANK RUPTURE

15.1 The transformer tank shall be constructed to conform to ANSI C57-12.20, latest revision, in regard to protection from tank rupture.

15.1 All transformers must be equipped with a replaceable pressure relief valve that conforms to ANSI c57-12.20, latest revision.

16. SECONDARY SURGE WITHSTAND

16.1 Secondary surge withstand is the ability of a transformer to withstand lightning surges into the low voltage windings without sustaining damaging insulation breakdown.

16.2 Transformers shall be protected from secondary surge induced failures by possessing interlaced low voltage windings.

17. PROTECTIVE DEVICES

17.1 Two mounting studs shall be provided for a distribution class lightning arrester rated to match the transformer voltage class, opposite each high voltage bushing.

18. NAMEPLATE INFORMATION

18.1 All transformer nameplates shall be made of stainless steel or anodized aluminum and indicate the following:

18.1.1 kVA, High voltage, and low voltage.

18.1.2 BIL rating of the high voltage winding.

18.1.3 Transformer weight.

18.1.4 Month and year of manufacture.

18.1.5 Serial number.

18.1.6 Bar-code in accordance with C57.12.35 - 1996.

18.1.7 PCB Content.

19. MAXIMUM TRANSFORMER DIMENSIONS AND WEIGHTS

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

Transformer size (kVA)	Maximum Weight in Pounds	Maximum Tank Height in Inches	Maximum Tank Diameter in Inches
5, 10, 15	375	32.0	16.0
25	490	32.0	18.5
37.5	690	33.5	22.5
50	750	34.5	23.0
75	1,010	36.5	25.5
100	1,150	39.5	25.5
167	1,560	40.0	25.5

20. OPTIONAL ACCESSORIES

20.1 The following items are options selected by the City of Leesburg:

20.1.1 No taps.

20.1.2 Primary lightning arrester installed. The arrester shall be 10kV distribution lightning arrester, heavy-duty class, direct disconnect polymer housed, Cooper type UHG1005A1C1C1A or exact equivalent. The arrester shall be provided with all associated hardware and mounting brackets for transformer mounted installation. The arrester shall be furnished with a jumper of adequate size installed from the arrester to the primary bushing terminal. The arrester shall also be furnished with an adequate size copper wire or strap to tank case.

20.1.3 Decals denoting the kVA size of the transformer and secondary voltage if other than 120/240. See section 8.4 of this specification.

21. ACCEPTED STANDARD

The following brand names are the only accepted brands for pole mounted transformers:

General Electric

Cooper

ABB

Central Moloney

Kulhman

Howard Industries

Ermco