Invitation to Bid

Substation Power Transformer
116-21.8/12kV

RFP No.: 07-17        Closing Date: 03/09/2017        Time: 2:00 PM PT
Description: Emerald People’s Utility District (Emerald) requests bids for the purchase of a substation power transformer in Creswell, OR.

Contact Information:  Contact: Matt Mills, Purchasing Agent
                      Phone: 541-744-7419
                      Email: MattM@epud.org

Technical Information:  Contact: Doug Barab, System Engineer
                        Phone: 541-744-7467
                        Email: Doug@epud.org

SEALED BIDS will be received until the closing date and time noted above by the EPUD FRONT OFFICE at:

Emerald People’s Utility District
Attn: Matt Mills  Bid: 7-17
33733 Seavey Loop Rd
EUGENE, OREGON 97405

SINGLE POINT OF CONTACT: There will be only one point of contact for the entire Invitation for Bid process. The contact point is the Emerald People’s Utility District Main Office, and the contact person is the Purchasing Agent listed above. Any questions or issues that may arise regarding the specifications, the bidding process, and/or the award process shall be directed to the Purchasing Agent listed above. Emerald’s official response to any questions or requests will be in writing through direct letters or the Addendum process.
LEGAL ADVERTISEMENT

RFP 07-17
Transformer for Creswell Substation

Emerald People’s Utility District (“EPUD”) requests proposals from companies interested in providing a transformer for its Creswell Substation in Creswell, OR.

Proposals shall be submitted to Matt Mills, Purchasing Agent, 33733 Seavey Loop Rd. Eugene, OR, before, 2:00 PM, March 9th, 2017. Proposals will not be accepted after this hour and date.

RFP documents may be obtained from the Purchasing Department by calling (541) 744-7419, or emailing Mattm@epud.org

No proposal may be withdrawn after the hour set for the opening thereof until the elapse of sixty (60) days from the date and time set for opening.

Dated this 27th day of February, 2017.

Matt Mills
Purchasing Agent
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GENERAL
This specification is for one 116-21.8GrdY/12.6kV, 15/20/25MVA, power transformer to be delivered to Emerald People’s Utility District (EPUD), F.O.B. Creswell, Oregon. Supplier is responsible for construction, shipping, unloading onto EPUD foundation, and supervising the installation of the accessories.

STANDARDS
The transformer specified shall be furnished in accordance with the latest applicable ANSI, IEEE, and NEMA standards, and the latest applicable codes, except as required otherwise by this specification.

The latest revision of the following publications shall be used in conjunction with this specification, and form a part of this specification to the extent specified herein.

Industry Publications

- ANSI C57.12.00, Standard General Requirements for Liquid-Immersed Distribution, Power, and Regulating Transformers (IEEE)


- ANSI C57.91, Guide for Loading Mineral-Oil Immersed Transformers (IEEE)

- NEMA TR1, Transformers, Regulators, and Reactors
SPECIFIC REQUIREMENTS

1. **TRANSFORMER TYPE**
   Transformer shall be three-phase, two-winding, outdoor, 60-Hertz, oil-immersed, 55/65°C average winding temperature rise, and 80°C hot-spot.

2. **TRANSFORMER RATINGS**
   Transformer shall be rated for an elevation up to 3300 feet. Ratings shall be for 55 degrees C rise above a 30 degrees C ambient.

   **A. Capacity (MVA)**

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Self-Cooled</th>
<th>First Stage</th>
<th>Second Stage</th>
</tr>
</thead>
<tbody>
<tr>
<td>H &amp; X</td>
<td>ONAN (OA)</td>
<td>ONAF (FA)</td>
<td>ONAF (FA)</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

   **B. Voltage**

   The transformer shall be furnished with five high-voltage taps for de-energized operation: two 2.5% taps above nominal rated voltage and two 2.5% taps below nominal rated voltage for a total of five taps when including rated. The following voltage and BIL ratings shall be furnished for each terminal designation:

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Nominal System</th>
<th>Nominal Voltage</th>
<th>Winding BIL</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁H₂H₃</td>
<td>115kV</td>
<td>550kV</td>
<td></td>
</tr>
<tr>
<td>X₁X₂X₃</td>
<td>20.8kV</td>
<td>150kV</td>
<td></td>
</tr>
<tr>
<td>X₀</td>
<td>20.8kV</td>
<td>150kV</td>
<td></td>
</tr>
</tbody>
</table>

   **C. Surge Arresters**

   The transformer shall be furnished with metal-oxide, gapless type surge arresters. Arresters shall be capable of operating at elevations up to 10,000 feet.

   Station class arresters with the following duty cycle rating shall be furnished:

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Duty Cycle Rating (kV)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁H₂H₃</td>
<td>96 (76kV MCOV)</td>
</tr>
<tr>
<td>X₁X₂X₃</td>
<td>21 (17kV MCOV)</td>
</tr>
</tbody>
</table>

   **D. Impedances**

   The total impedance used for the short-circuit-withstand design of the transformer shall be the transformer impedances only, without considering any
benefit of system impedances. The transformer impedance for the H winding to the X winding on the 15MVA base shall be 8%.

E. **Bushings**

Bushings shall be manufactured by PCORE. H bushings shall be POC550G0800S. X bushings shall be PCORE 89293-70. Adapters for draw leads shall not be permitted.

F. **Current Transformers**

Five-tap multi-ratio bushing current transformers shall be furnished as follows:

<table>
<thead>
<tr>
<th>Terminals</th>
<th>Qty.</th>
<th>Full Winding Amperes</th>
<th>Relaying Accuracy</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₁H₂H₃</td>
<td>2</td>
<td>600:5</td>
<td>C800</td>
<td>Relay Accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Five-tap multi-ratio</td>
</tr>
<tr>
<td>X₁X₂X₃</td>
<td>1</td>
<td>2000:5</td>
<td>C800</td>
<td>Relay Accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Five-tap multi-ratio</td>
</tr>
<tr>
<td>X₀</td>
<td>1</td>
<td>2000:5</td>
<td>C800</td>
<td>Relay Accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Five-tap multi-ratio</td>
</tr>
<tr>
<td>X₁X₂X₃</td>
<td>1</td>
<td>800:5</td>
<td>0.3 B 0.1-1.8</td>
<td>Meter Accuracy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Fixed-ratio</td>
</tr>
</tbody>
</table>

G. **Angular Displacement**

The angular displacement between the high voltage and the low voltage phase voltages shall be 30°, with the low voltage lagging the high voltage as shown below:

![Angular Displacement Diagram]

3. **TRANSFORMER LOADING**

The complete transformer, including the windings, the cooling system, and all external and internal auxiliary components and capabilities (such as bushings, current transformers, leads, oil expansion, pressure in sealed units, stray flux heating, etc.) shall be suitable for operation in accordance with ANSI C57.91. It is the intent of this requirement that no transformer auxiliary component or capability shall have or cause greater loss of life, or result in more restrictive limitations on transformer loading, than the loss of life and loading limitations associated with the transformer windings and cooling system.
4. COOLING EQUIPMENT

A. Transformer Cooling Class

Transformer cooling class designations are given in Table 1. Self-cooled and forced-cooled ratings shall be as specified in 2A. All fans shall be initially furnished by the supplier.

<table>
<thead>
<tr>
<th>Class</th>
<th>Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-cooled</td>
<td>ONAN</td>
</tr>
<tr>
<td>One forced-cooled rating</td>
<td>ONAN/ONAF</td>
</tr>
<tr>
<td>Two forced-cooled ratings</td>
<td>ONAN/ONAF/ONAF</td>
</tr>
</tbody>
</table>

B. Winding Hot-Spot Control

Cooling equipment control from winding hot-spot temperature shall be furnished. Winding temperature simulating equipment shall be furnished as outlined below. Necessary current transformers shall be in addition to the current transformers specified in 2F.

1. Temperature Indicating Relay(s)
   A dial-type temperature indicating relay shall be furnished for each set of winding temperature simulating equipment. The dial indicator design and mounting arrangement shall permit reading and manual reset from the ground. The indicator shall have a current temperature indicating hand and a manual reset maximum temperature indication hand.

2. Winding Temperature Simulating Equipment
   One set of winding temperature simulating equipment shall be furnished to simulate the hot-spot temperature in each phase of the low-voltage winding. Winding temperature equipment shall be operated with a current transformer in each of the three phases of the low voltage winding.

3. Temperature-Indicating-Relay Contacts and Settings
   Each relay shall be furnished with four contacts: one to start the first stage of forced-cooling equipment at 75°C, one to start the second stage of forced-cooling equipment at 80°C, one to activate an alarm at 110°C, and one to trip user’s switching device at 130°C. All contact settings shall be adjustable.

C. Radiators
Radiators shall be removable. The supplier shall furnish suitable valves on the radiator and transformer sides of the radiator mounting flanges, pipe taps with plugs (minimum 1/2 inch) on the top radiator connections, and capped valves on the bottom connections, to permit removal of the radiators without draining oil from either the radiators or the transformer tank. Radiators shall be equipped with lifting eyes. Vendor shall provide adequate bracing to eliminate movement of the radiators under normal operating conditions and when subjected to wind gusts. Radiators shall be located in segments 2, 3, and/or 4 (not on the low voltage side) as shown in the Accessory Location Diagram in Section 13.

D. Cooling Fans

Cooling fans shall be 240VAC single phase, weatherproof, corrosion resistant, and have sealed ball bearings. Fans shall be located on the sides (not on the top or bottom) of the radiators to provide maintenance accessibility with adequate safety clearances from transformer live parts. All fan motors shall be provided with overload protection. In addition, air circuit breakers with manual reset for each group of fans shall be provided. Fan guards shall be OSHA approved.

Manual and automatic control of each stage of cooling fans with selector switch shall be provided. The selector switch shall be a three-position switch with ON/OFF/AUTO positions.

E. Circulating Pumps

Oil circulating pumps are not permitted.

F. Fan Deenergization

Wiring for the cooling fans shall be arranged to allow for de-energization of these circuits on command from user's external relay in the event user's transformer lockout relay operates.

G. Auxiliary Relay

An auxiliary relay shall be furnished to provide an alarm indication of loss of power to the cooling equipment. This relay shall have a 30-second time delay to avoid an alarm for a momentary power loss.

H. Location of Control Devices

Cooling equipment control devices shall be housed in the control compartment (see 5l).

I. Control Testing

Leads from the current transformers and heating coils used for winding temperature simulation shall be wired to suitable terminal blocks in the control compartment (see 5l). This location will permit complete control testing at ground level without de-energizing the power transformer.
5. TRANSFORMER CONSTRUCTION REQUIREMENTS

A. Winding Design and Conductor Material

The transformer windings shall be circular design. The conductor material shall be copper. Winding bracing shall be manufacturer's choice. Type of bracing system shall be identified in the bid submittal. Any system using jacking bolts to apply pressure to the coils shall not be allowed.

B. Accessory Location

Bushings, surge arresters, and load tap changing equipment, as applicable, shall be located as shown in the Accessory Location Diagram in Section 13. Other accessories shall be located in accordance with standards wherever applicable, or as convenient for maintenance if not covered by standards.

C. De-energized Tap Changer External Operation

De-energized tap changer shall be furnished with an external operating handle with provisions for padlocking in any position.

D. Ground Connections

A minimum of two NEMA two-hole ground pads shall be provided. The ground pads shall be welded on the base or on the tank wall near the base on opposite sides of the transformer. The pads shall be located so as not to interfere with jacking facilities. Pad locations shall be near the intersection of segments 1-2 and segments 3-4 as shown in the Accessory Location Diagram in Section 13.

E. Surge Arrester Ground Connections

The supplier shall furnish suitable electrical ground connections using bus bar between the arrester ground terminals and ground pads at the base of the transformer tank.

F. External Fasteners and Hardware

All external fasteners and hardware (such as bolts, screws, hinges, and handles) shall be stainless steel. All hardware including fasteners used in shipping shall be in US customary units (inch-foot-pound system), not SI (metric).

G. Auxiliary Equipment Voltages

The transformer shall be equipped for operation with user supplied AC and DC power supplies as specified below:

1. The AC power will be single phase, 120/240V.

2. The DC power will be 48V.
H. **Wiring**

Auxiliary power and control wiring shall consist of stranded copper wire, 600V class, with insulation (or outer covering over the insulation) that is flame-retardant, heat-resistant, oil-resistant, and moisture-resistant. Wiring runs outside of weatherproof compartment shall be in rigid steel or flexible, ultraviolet-resistant, weatherproof conduit. Both ends of all wires and all terminal block points shall be clearly marked with the designation shown on the supplier’s wiring diagrams.

All user interface terminal blocks shall be one-piece molded type, rated 600V, 30 ampere, equipped with #10-32 washer-head binder screws, and suitable for wire sizes No. 18 through No. 8 AWG. All wires shall be terminated with non-insulated ring-type terminals. All other interface terminations shall also be made on suitable weatherproof terminal blocks; no wires shall be spliced.

All current transformer secondary leads shall be wired to short-circuiting type terminal blocks in control compartment. A separate terminal block shall be furnished for the wiring from each current transformer.

I. **Control Compartment**

A NEMA 3R control compartment shall be furnished to house cooling equipment control devices and terminal blocks for terminating all auxiliary wiring. User will bring all external auxiliary power and control wiring in conduit to the control compartment; the compartment shall be furnished with a removable bottom plate for drilling by user. The compartment door shall be vertically hinged, removable, and operated by a single handle. Door shall be capable of being latched in the open position.

The controls, terminal blocks, and other devices requiring access for operation and maintenance shall be mounted in the compartment at a height less than 6 feet above foundation level. The bottom of the compartment shall be not less than 2 feet above foundation level.

The compartment shall be furnished with two space heaters and an interior light. Each heater shall be controlled by a separate ON-OFF switch and a separate thermostat. Interior light shall be controlled by a door operated switch. The thermostats shall be adjustable and the adjustment provisions shall include clear indication of at least three specific temperatures on the adjustment range. The compartment shall be located towards the center of the side of the unit identified as segment 1 in the Accessory Location Diagram in Section 13 under the X2 bushing.

J. **Core Ground**

Core ground connection shall be external, furnished by means of an insulated cable brought up to a suitable bushing on the tank cover or near the top of the tank wall above the oil level, with a removable strap located between the bushing
terminal and the tank. The bushing shall be rated not less than 5kV, and shall be located and labeled to avoid confusion with other bushings. The bushing shall be protected with a removable, weatherproof metal cover. The transformer shall be shipped with this bushing installed.

K. Insulating Oil

The necessary quantity of insulating oil shall be furnished by the transformer supplier. Oil when tested in accordance with ASTM D4059 shall be such that polychlorinated biphenyl levels (PCBs) are not detectable and this shall be so stated on the nameplate. Oil shall be prepared and refined specially for use in power transformers.

L. Oil Preservation System

A conservator system shall be used and shall include an expansion tank, and a nitrile or urethane air cell vented to outside air through a desiccant (such as silica gel). The tank shall be located on the end of the transformer closest to the X3 bushings (segment 4 of the Accessory Location Diagram in Section 13).

The air cell shall be designed for flange installation (clamps not allowed), and shall prevent contact between oil in the expansion tank and the air. The expansion tank shall be of sufficient volume to operate through an ambient temperature range of minus 40°C to plus 50°C without causing the low-oil-level alarm contacts to close at the lower limit, and without exceeding the recommended full oil level at the upper limit.

The desiccant container shall be located so it can be safely maintained with the transformer energized. Suitable valves shall be furnished in the oil line between the expansion tank and the main transformer tank, one valve on each side of the Buchholz-type relay (see 8E). The design of the container shall permit visible inspection of the desiccant and allow for replacing the desiccant without replacing the entire container.

A temporary pressure-vacuum gauge shall be furnished for monitoring the pressure in the main transformer tank during shipment.

M. Tank Design/Oil Filling

The transformer tank shall be designed for full-vacuum filling.

Manufacturer shall utilize a kerosene vapor phase process for drying out the core coil prior to vacuum filling. Details of this vapor phase process shall be submitted with the bid.

The tank center of gravity shall be marked near the tank base.

The transformer shall have a welded main cover constructed so that the cover can be removed and re-welded without damage to the core and coil assembly.
The cover shall have at least one manhole with sloped cover, 15 inches minimum in diameter, for access to the lower ends of the bushings, terminals and upper portion of the core and coil assembly. All manhole covers shall be bolted on.

All gasketed surfaces shall be provided with gasketed recess and gasket compression limit stops.

N. Valve Requirements

A two-inch sampling ball valve shall be furnished within the top one-third of the transformer tank wall. A globe-type combination drain and filter valve with a sampling device shall be furnished at the bottom of the tank wall. All other valves shall be ball-type except for radiator valves.

A two-inch flanged globe valve shall be provided on the cover for an upper filter press connection. Valve shall be located diametrically opposite flange connection for vacuum filling.

A ½ inch bronze or brass globe valve shall be installed in a horizontal position at the highest point of the transformer for venting when filling and testing.

A flange shall be located on the cover for connection of vacuum processing equipment. The flange shall be 4-inch pipe size. The flange shall be suitable for connecting 4-inch vacuum valves such as Airco Temescal Vacuum Valve, Series 2520. The flange shall be separated from the oil-fill valve as far as practical.

O. Seismic Requirement

The assembled transformer and accessories, including arresters, bushings and radiators, shall be designed to comply with the requirements of Seismic Zone 3.

P. Short Circuit Strength

The transformer shall be designed to withstand frequent short circuits of magnitude and duration as specified in ANSI C57.12.00. The transformer shall also be able to withstand frequent and infrequent faults of magnitude and duration as specified in ANSI C57.109. When determining maximum short circuit current, supplier shall use actual expected transformer impedance only. Supplier shall use design methods to provide adequate core and coil strength to meet this requirement.

Q. Lifting Lugs

The transformer shall be equipped with lifting lugs of adequate strength and size, so arranged on the transformer tank to provide a suitable lift of the transformer unit. In addition, lifting eyes shall be provided for lifting the cover and for lifting the core and coil.

R. Jacking and Handling Facilities
The transformer shall be equipped with suitable jacking facilities at the bottom of the transformer. Jacking plates shall be located as near the corners of the tank as possible and shall not interfere with valves, radiators, ground pads, etc. Jacking plates and tank bottom shall be designed so that during lifting of the completely assembled unit, no bending, buckling or damage to the transformer occurs.

6. **BUSHINGS AND SURGE ARRESTERS**

A. **Terminals**
   Each bushing and surge arrester shall be furnished with a straight, vertical flat-pad line terminal with NEMA standard four-hole drilling. Terminals shall be bronze, copper, or aluminum with tin plating; the minimum plating thickness shall be 0.001 inch. Arresters shall also be supplied with a clamp-type ground terminal connector. Terminal fittings shall be sized to match current rating of respective bushing/arrester.

B. **Mounting Brackets**
   A mounting bracket for each arrester shall be furnished on the transformer adjacent to the associated bushing.

C. **Vendor Preference**
   The only acceptable manufacturers of station class arresters, for use on this transformer are:
   - ABB type EXLIM-Q, -P
   - Cooper Power Systems type Varistar ATZ
   - General Electric type Tranquell XE, XGA or XTA
   - Ohio Brass type Dynavar VL or VN

D. **Internal Surge Protection Devices**
   Transformer designs utilizing internal surge protection devices are not allowed.

7. **LOAD TAP CHANGER (LTC)**
   A load tap changer is not included as part of this specification.
8. ADDITIONAL AUXILIARY PROTECTION DEVICE REQUIREMENTS

A. Auxiliary Device Contacts
   All auxiliary device contacts shall be normally open and ungrounded. Both sides of each contact shall be isolated from all other contacts and shall be independently wired to terminal blocks in the control compartment.

B. Oil Level Indication and Protection
   A dial-type oil level indicator shall be furnished on the conservator oil preservation system expansion tank. Indicator design and mounting arrangement shall permit reading from the ground. The indicator shall be furnished with two contacts: one shall be set to close at the minimum safe operating level and the second shall be set to close at a level below the minimum safe operating level, but above the level which would result in transformer failure.

C. Other Indication Devices
   The following additional indication devices shall be furnished by the supplier on the main transformer tank:

   1. A dial-type top oil temperature indicator with an adjustable alarm contact set to close at 90°C. Indicator design and mounting arrangement shall permit reading and manual reset from the ground. Thermometer shall permit true temperature indication after alarm point is passed. A thermal well shall be provided in order that the thermometer bulb may be removed without lowering the oil in the tank. The thermometer shall have a current temperature indicating hand and a manual reset maximum temperature indication hand.

D. Rapid-Pressure-Rise Relay
   A separate rapid pressure rise relay is not required.

E. Buchholz-Type Relay
   A Buchholz-type relay(s) shall be furnished for the expansion tank. The relay shall have provisions for operational testing without removing the relay from the transformer. The relay shall be equipped with two detecting mechanisms and a contact associated with each mechanism. One mechanism shall provide detection of gas accumulation, and the other mechanism shall provide detection of rapid pressure rise. One seal-in relay shall be furnished in the control compartment, Qualitrol model 909-210-01, for use with the contact associated with the rapid-pressure-rise mechanism.

F. Alarm Contacts
   The supplier shall furnish individual wiring of all alarm circuits to dedicated alarm terminal blocks in the control compartment for user’s connection.
9. **NAMEPLATE REQUIREMENTS**
   Transformer nameplates and instruction plates shall show all values in U.S. customary units. Information shown on the main transformer nameplate shall include: Diagram of connections including polarities, Voltage of taps and corresponding ampere rating, Impedances and corresponding MVA capacity ratings, Weight of core and coils, tank and fittings, oil and total weight, Quantity of oil, Permissible vacuum, CT connections, ratings and polarity, 55 degree C kVA rating for each level of cooling, 65 degree C kVA rating for all stages of cooling, Serial number and other information as prescribed in ANSI C57.12.00.

10. **PAINT AND FINISH**
    
    A. **Tank Exterior Finish and Porcelain Color**
       The transformer tank exterior paint finish shall be ANSI #70 gray. The surge arrester ground-bus-bar paint finish, and all bushing and surge arrester porcelain shall be Munsell 5.0 BG 7.0/0.4 light gray. The exterior paint on the transformer cover shall be a nonskid composition. Prior to painting, the exterior surface of the transformer shall be thoroughly cleaned and free from scale, rust, oil, and grease.

    B. **Tank Interior Finish**
       The transformer tank interior shall be painted white or light gray. Prior to painting, the interior surface of the transformer shall be thoroughly cleaned and free from scale, rust, oil, and grease.

11. **SPECIAL DESIGN AND TEST REQUIREMENTS**
    
    A. **General**
       EPUD to review and approve design prior to the commencement of construction.
       All test results, measurements, and calculated values shall be recorded on the supplier’s certified test report. All data shall be reviewed by the supplier before the transformer is shipped. All testing shall be witnessed by EPUD representative. Supplier shall contact EPUD as soon as possible, but no later than four weeks prior to anticipated testing in order to establish a mutually acceptable test date. Supplier shall provide EPUD representative’s transportation, room and board expenses. If the transformer fails any tests, EPUD may at its discretion require a complete retest of all tests.

    B. **Test Bushings**
       The bushings installed for transformer tests shall be those that will be furnished with the transformer.

    C. **Dissolved Gas Analysis**
A dissolved gas analysis shall be performed on transformer oil samples taken (1) after the unit is filled and before any tests are performed, and (2) after all tests have been completed, except unintentional-core-ground test (see 11N).

D. **Hot-Spot Winding Temperature**
The supplier shall furnish the calculated hot-spot winding temperature rise corresponding to the highest measured value of average winding temperature rise at both the self-cooled rating and maximum forced-cooled rating.

E. **Switching Impulse**
ANSI switching impulse tests shall be performed on all terminals.

F. **Short-Circuit Testing**
At EPUD option, the transformer supplied under this specification may be short-circuit tested in accordance with ANSI C57.12.90 prior to shipment. Supplier shall include as an alternate, a quotation for the performance of such tests. EPUD will notify the supplier no later than two weeks prior to shipment whether these tests will be required.

G. **Positive-Sequence Impedance**
H-winding to X-winding positive-sequence impedance shall be measured at the nominal rated voltage and de-energized tap extremes at both hi-side voltages.

H. **Zero-Sequence Impedance**
Zero-sequence impedances shall be measured and shall be recorded in an equivalent-T form if applicable (both R and X values).

I. **No-Load Loss and Excitation Current**
No-load loss and excitation current shall be measured both at nominal rated voltage and at 110 percent of nominal rated voltage, both before and after impulse tests and at both hi-side voltages.

J. **Loss Compliance**
Values of no-load loss and excitation current measured at nominal rated voltage after impulse tests shall be the values used in determining compliance with the supplier’s quoted loss and excitation performance. These values shall not exceed the values measured before impulse tests by more than 7.5 percent.

ANSI tolerances from the supplier’s performance quotation for no-load loss at nominal rated voltage shall also apply to the excitation current at nominal rated voltage.

Supplier shall not ship a transformer that exceeds the quoted loss value by 10% or more for no-load losses (NL) or load losses (LL) or by 6% or more for total losses (NL + LL).

K. **Insulation Resistance**
Insulation resistance shall be measured at 2.5kVDC and shall include a 1-minute: 10-minute comparative polarization index. The certified test report shall include
actual readings and readings corrected to 20°C. Resistance shall be measured between the windings, and between each winding and ground.

L. **Power-Factor and Excitation-Current Tests**
A power-factor test shall be performed on all windings and bushings at 10kV. No winding shall exceed a 0.5% power factor. For each H-terminal, an excitation-current test shall be performed at 10kV on each de-energized tap. The excitation-current test shall be performed with the de-energized tap changer connected at the highest ratio. Both the power-factor and the excitation-current tests shall be performed using Doble procedures and format.

M. **Control Wiring**
Control wiring and contacts shall be tested with 60-hertz voltage of 1,500 volts applied for 60 seconds. Test jigs may be used to apply the test voltage to multiple terminals at the same time. “Touch testing” for periods less than 60 seconds will not be acceptable.

N. **Unintentional Core Ground**
A final test for unintentional core grounds shall be performed after all other tests are complete and as late as practical in the handling sequence prior to shipment.

O. **Audible Sound Level**
The following sound level tests shall be performed: (1) ANSI average audible sound level tests (a) without forced-cooling equipment in operation and (b) with forced-cooling equipment in operation for each forced-cooled capacity rating, and (2) ANSI one-third octave-band audible sound level test at maximum forced-cooled capacity rating for mid-band frequency of 125 Hz.

P. **System Test**
Tests shall be performed to verify that control circuits operate as intended. Supplier shall prepare and submit a test procedure to EPUD for approval.

Q. **Acceptance Testing**
EPUD will conduct the following tests as part of its acceptance process: Megger, TTR, and power factor.

R. **Test Reports**
All factory test results shall be included in the final test report. Four copies of the test report, which define the tests and list the test results shall be delivered with the transformer. The test results should be presented on forms similar to NEMA TR 1-7.02 and 7.03.

12. **DRAWINGS AND OTHER INFORMATION**

A. **General**
All documentation, other than drawings, shall be submitted on US standard size paper (i.e. 8 1/2” x 11” or 11” x 17”).

B. Drawings

Drawings shall be full size (not reduced). All values on drawings and other information shall be shown in both US customary and SI units.

Two sets of prints of the following drawings shall be furnished for approval:

1. Assembled transformer outline drawing (including structural details of transformer base; center of gravity of installed unit and of unit prepared for shipment; and minimum dimensions and weight of unit prepared for shipment)

2. Nameplate drawing

3. Identification of type of winding construction and conductor material used in each winding; this information shall be shown on transformer nameplate drawing, outline drawing, or other documentation

4. Bushing outline drawings

5. Surge arrester outline drawings

6. Schematic and wiring diagrams showing complete terminal box wiring (including customer connection points); number, size, and power requirements of fans and pumps; fan and pump control; alarm and relay connections; and current transformer connections

7. Current transformer nameplate drawings (or, this information may be shown on the main transformer nameplate drawing); CT resistance per winding turn, and resistance of each lead; CT relaying accuracy classes; and CT characteristic curves showing ratio correction and secondary excitation for relaying accuracy CTs

Final drawings and other information listed below shall be furnished as follows:

- One set of prints shall be attached and shipped with the transformer in a weatherproof envelope or in the control compartment.
- One set of drawings shall be furnished in AutoCAD 2013, or in DXF file format if not available in AutoCAD.
- One set of prints shall be included with each Instruction Manual.
C. **Certification of Insulating Oil**
The supplier shall furnish certification that the insulating oil used to fill the transformer for testing, and the oil supplied with the unit if applicable, shall be such that polychlorinated biphenyl levels (PCBs) are not detectable (i.e.-less than 1.0 ppm).

D. **Certified Test Report**
The supplier shall furnish six sets of the complete certified test report (see 11Q). The report shall be submitted as soon as possible after tests are complete, but no later than the transformer ship date.

E. **Outline Drawing**
The supplier shall furnish an assembled transformer outline drawing, including (1) the structural details of the transformer base, (2) the weight and center of gravity of the installed unit and the unit prepared for shipment, and (3) the minimum dimensions of the unit prepared for shipment.

F. **Nameplate and Instruction Plate Drawings**
The supplier shall furnish a drawing of each nameplate and instruction plate. Identification of the conductor material used in each winding shall be shown on the main transformer nameplate drawing.

G. **Bushing Outline Drawings**
The supplier shall furnish detailed bushing outline drawings.

H. **Surge Arrester Outline Drawings**
The supplier shall furnish detailed surge arrester outline drawings.

I. **Schematic and Wiring Diagrams**
The supplier shall furnish schematic and wiring diagrams showing complete auxiliary equipment wiring, including: (1) customer connection points, (2) the number, size, and power requirements of fans and pumps, (3) the fan and pump control, (4) the alarm and relay connections, and (5) the current transformer connections.

J. **Current Transformer Nameplate Drawings**
The supplier shall furnish current transformer nameplate drawings or include this information on the main transformer nameplate drawing.

K. **Current Transformer Information**
The supplier shall furnish the following: (1) current transformer resistance per winding turn, (2) resistance of each lead, and (3) curves showing ratio correction and secondary excitation for relaying.

L. **Winding Hot-Spot Calibration**
The supplier shall furnish a test circuit diagram for the winding hot-spot temperature equipment (including complete identification of all devices and terminal points), calibration curves, and complete factory test data.
M. Instruction Manuals
The supplier shall furnish three sets of instruction manuals covering the receiving, handling, installation, operation, and maintenance of the transformer and all auxiliary equipment. Instruction books shall include a complete parts list including part names, suppliers, catalog numbers, quantities, and references by item numbers included on drawings. A complete set of drawings shall be included in each manual. Manuals shall be delivered to EPUD at least two weeks prior to delivery of the transformer.

N. Renewal Parts
The supplier shall furnish a complete list of renewal parts for the transformer and all auxiliary equipment, including identification of each part by name and part number. Parts lists and drawings shall relate specifically to the equipment covered by this specification; typical drawings will not be acceptable.

O. Spare Parts
The supplier shall furnish with the transformer a complete set of gaskets for cover, manhole, hand holes, radiators and any other location where field maintenance would require re-gasketing.
Supplier shall provide prices for additional spare parts that may be purchased with the transformer at Owners option. Prices shall be included in the Proposal Data Sheets. Additional spare parts are as follows:

a. One high voltage bushing.
b. One low voltage bushing.
c. One complete set of contacts and coils for each type of contactor or relay furnished.
d. One complete motor and fan assembly.
e. Additional spare parts as may be recommended by the supplier.
13. **ACCESSORY LOCATION DIAGRAM**

Bushings, surge arresters, and load tap changing equipment, as applicable, shall be located as shown below. Other accessories shall be located in accordance with the specifications or standards where applicable, or as convenient for design if not covered by standards. Note maximum dimensions as shown for the transformer base.
INSTRUCTIONS TO PROPOSERS

All bids and contracts are subject to the provisions and requirements of the Oregon Revised Statutes 279A, 279B, 279C, and EPUD Purchasing Policies.

BID PREPARATION

1.1 BID FORMAT
Bids shall be typewritten or prepared in ink and shall be submitted on the form provided in the Request for Bids. No oral, telegraphic, telephone or facsimile bids shall be accepted.

1.2 SIGNATURE ON BID
Bids shall be signed in ink by an authorized representative of the Proposer. Signature on a bid certifies that the bid is made without connection with any person, firm or corporation making a bid for the same goods and/or services and is in all respects fair and made without collusion or fraud. Signature on a bid also certifies that the Proposer has read, fully understands and agrees with all solicitation requirements, terms and conditions. No consideration will be given to any claim resulting from bidding without fully comprehending all requirements of the Request for Bids.

Proposers shall only enter information within the RFP document where it is requested or required. Proposers shall NOT make any alterations to the Original Solicitation Document. Any bid that has been altered may be rejected.

BID SUBMISSION

1.3 BID SUBMISSION
(A) Bids, containing a minimum of one (1) original signed bid response including any addenda which require signature shall be received and date and time-stamped by the EPUD Purchasing Agent prior to RFP closing. No proposal received after RFP closing date and time shall be considered. To ensure that your proposal receives priority treatment within our mailing system, your proposal should be labeled with the following information:

RFP #7-17, 08-30-2016, 2:00 PM PT
EMERALD PEOPLE’S UTILITY DISTRICT
ATTN: Power Transformer RFP 7-17

Sealed proposals shall be delivered as follows:
If by Courier: Matt Mills, Purchasing Agent, Emerald People’s Utility District, 33733 Seavey Loop Rd, Eugene, OR 97405.

If in person: Matt Mills, Purchasing Agent, Emerald People’s Utility District, 33733 Seavey Loop Rd, Eugene, OR 97405. Proposer will need to call Purchasing Agent in order to deliver proposal. Call 541-744-7419.

If by email: MattM@epud.org and follow up call to 541-744-7419 to confirm receipt.

Note: Proposers submitting proposals in person are required to coordinate a delivery time, prior to the closing time and date, with the Purchasing Agent at Emerald People
Utility’s District Main Office, 33733 Seavey Loop, Eugene, OR 97405. Proposals will be date and time stamped by the Purchasing Agent and held until proposal opening.

Emerald is not responsible for proposals submitted in any manner, format or to any delivery point other than as required by the Solicitation Document

(B) Proposer MUST complete, sign, and return the following pages with their RFP response:

- **BID PROPOSAL/CONTRACTUAL ACCEPTANCE**: Statement accepting ALL terms and conditions contained in this solicitation.

1.4 PROPOSAL MODIFICATION

Modifications or erasures made before proposal submission shall be initialed in ink by the person signing the proposal. Proposals, once submitted, may be modified in writing before the time and date set for proposal closing. Any modification shall be prepared on company letterhead, shall be signed by an authorized representative, and shall state that the new document supersedes or modifies prior proposal submissions and any other prior proposal modifications. Proposal modifications shall be submitted in a sealed envelope clearly marked “Proposal Modification,” identifying the RFP number and closing date and time. Proposers may not modify proposals after RFP closing date and time.

1.5 PROPOSAL WITHDRAWALS

Proposals may be withdrawn in writing on company letterhead signed by an authorized representative and received by the EPUD Purchasing Agent prior to RFP closing time. Proposals may also be withdrawn in person before RFP closing time upon presentation of appropriate identification.

1.6 PROPOSAL OPENING

Unless otherwise provided by Law or Rule, proposals received in response to this Request for Proposals shall be opened at the scheduled closing date and time at the Emerald’s Main Office located at 33733 Seavey Loop Rd. Eugene, Oregon 97405.

1.7 PROPRIETARY DATA/PUBLIC RECORD

This Request for Proposal, together with copies of all documents pertaining to the award of a contract, shall be kept by EPUD and made a part of a file or record which shall be open to public inspection. If a proposal contains any information that is considered a trade secret under ORS 192.501(2), each sheet of such information shall be marked with the following legend:

"This data constitutes a trade secret under ORS 192.501(2), and shall not be disclosed except in accordance with the Oregon Public Records Law, ORS Chapter 192."

The Oregon Public Records Law exempts from disclosures only bona fide trade secrets, and the exemption from disclosure applies only "unless the public interest requires disclosure in the particular instance" ORS 192.501(2). Therefore, non-disclosure of documents or any portion of a document submitted as part of a proposal may depend upon official or judicial determinations made pursuant to the Public Records Law.

The above restriction may not include cost or price information, which shall be open to
1.8 EVALUATION

Award of contract shall be to the most responsive and responsible bidder meeting all requirements set forth herein. Evaluated cost, past performance of product and service will be determining factors.

Loss Evaluation:

An equivalent Total Cost will be calculated from the transformer bid price the present value of manufacturer’s quoted losses as shown below. The ETC will be one of the determining factors for award of contract.

\[
ETC = \text{BID PRICE} + (A \times \text{NL}) + (B \times \text{LL}) + (C \times \text{AP})
\]

Where:

ETC = Equivalent Total Owning Cost in Dollars

BID PRICE = Manufacturer quoted bid price

A = Loss cost multiplier for no-load losses in dollars per watt.

B = Loss cost multiplier for load losses in dollars per watt.

C = Cost multiplier for auxiliary power in dollars per watt.

NL = No-load losses at 20 deg. C in watts

LL = Load Losses at 85 deg. C in watts (at self-cooled rating, excluding no-load losses and auxiliary power)

AP = Auxiliary power in watts (with all forced-cooling equipment in service)

Loss Cost Multipliers:

The loss cost multipliers to be used in the evaluation method will be as specified below:

No-load loss cost multiplier \((A) = \$3.85/\text{watt}\)

Load Loss cost multiplier \((B) = \$1.59/\text{watt}\)

Auxiliary power cost multiplier \((C) = \$1.28/\text{watt}\)

Loss Penalty:

In the event that the combined evaluated cost of actual tested no-load losses (NL), load losses (LL), and auxiliary power (AP) exceed the combined evaluated cost of the respective guaranteed losses and auxiliary power, credit shall be given Emerald for dollar difference. Any such credit shall be included by the Manufacturer of the transformer invoice.
SPECIAL TERMS AND CONDITIONS

2.1 AMENDMENTS TO THE CONTRACT
EPUD may amend this contract, agree to appropriate increases in the maximum consideration payable under this contract should any substantial approved increase occur in the scope, character, schedule or complexity of services as outline in the statement of work. The Contractor may petition EPUD for such an amendment, or EPUD may initiate the action on its own. Any amendment must have received all necessary approvals, and be executed by EPUD prior to Commencement of any such work by the Contractor.

2.2 PAYMENT
Fees will be paid by EPUD on a monthly basis in accordance with its standard terms: Net 30 days.

2.3 DISPUTES
In case of any doubt or differences of opinions as to the items or services to be furnished hereunder, or the interpretation of the provisions of the RFP, the decision of EPUD shall be final and binding upon the parties.

2.4 EXAMINATION OF CREW REQUIREMENTS
Bidders are expected to examine the bid, crew requirements and equipment, and all other bid documents, and thoroughly familiarize themselves with the character of transformer commissioning as well as related testing, as well as with federal, state and local laws. Failure to do so will not relieve a successful bidder of the obligation to furnish all equipment and labor necessary to comply with the contract and complete the contemplated work for the consideration set forth in the successful bid. Any explanations and clarifications as to crew and equipment requirements can be obtained by calling Matt Mills 541-744-7419.

2.5 SUBSTITUTION OF PERSONNEL
It is the intention of EPUD that the Contractor's personnel proposed for the contract will be available for the initial contract term. In the event the Contractor wishes to substitute personnel, the Contractor shall propose personnel of equal or higher qualifications and all replacement personnel are subject to EPUD approval. In the event substitute personnel are not satisfactory to EPUD and the matter cannot be resolved to the satisfaction of EPUD, EPUD reserves the right to cancel the Contract for cause.

2.6 PERFORMANCE
Contractor shall perform all services required by this contract within the time specified in this contract, including extensions. All services shall be performed in highest professional manner, and in accordance with the utmost industry standards. Unless the means or methods of performing a task are specified elsewhere in this contract, Contractor shall employ methods that are generally accepted and used by the industry. Failure to meet the performance requirements of this contract shall constitute breach of contract. EPUD, by written notice to Contractor, may cancel the whole or any part of this contract:

2.6.1 If Contractor fails to provide the services required by this contract within the time specified, or fails to perform any other provision of this contract; and
2.6.2 If Contractor, after receipt of written notice from EPUD fails to correct such failures within the number of days specified in the written notice.

The rights and remedies of EPUD provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

2.7 EARLY TERMINATION

This Contract may be terminated as follows:

2.7.1 EPUD and Contractor, by mutual written agreement, may terminate this Contract at any time.

2.7.2 EPUD in its sole discretion may terminate this Contract for any reason on 30 days written notice to Contractor.

2.7.3 EPUD's Right to Terminate For Cause and/or non-appropriation of funds. EPUD may terminate this Contract, in whole or in part, immediately upon notice to Contractor, or at such later date as EPUD may establish in such notice, upon the occurrence of any of the following events:

2.7.3.1 EPUD fails to receive funding, or appropriations, limitations or other expenditure authority at levels sufficient to pay for Contractor's Work;

2.7.3.2 Federal or state laws, regulations or guidelines are modified or interpreted in such a way that either the Work under this Contract is prohibited or EPUD is prohibited from paying for such Work from the planned funding source;

2.7.3.3 Contractor no longer holds any license or certificate that is required to perform the Work

2.7.3.4 Contractor commits any material breach or default of any covenant, warranty, obligation or agreement under this Contract, fails to perform the Work under this Contract within the time specified herein or any extension thereof, or so fails to pursue the Work as to endanger Contractor's performance under this Contract in accordance with its terms, and such breach, default or failure is not cured within 15 business days after delivery of EPUD 's notice, or such longer period as EPUD may specify in such notice.

2.7.4 Contractor's Right to Terminate for Cause.

2.7.4.1 If EPUD fails to pay Contractor pursuant to the terms of this Contract, Contractor may terminate this Contract by giving notice to EPUD, and EPUD fails to cure within 15 business days after receipt of Contractor's notice, or such longer period of cure as Contractor may specify in such notice. EPUD shall pay Contractor for all work performed in accordance with the terms of the Contract prior to termination date, if Contractor is not otherwise in default.

2.7.4.2 Contractor may terminate this Contract, for reasons other than nonpayment, if EPUD commits any material breach or default of any covenant, warranty, obligation or agreement under this Contract, fails to perform under the Contract within the times specified, or so fails to perform as to endanger Contractor's performance under this Contract, and
such breach, default or failure is not cured within 15 business days after delivery of Contractor's notice, or such longer period as Contractor may specify in such notice.

2.8 PAYMENT ON EARLY TERMINATION
Upon termination pursuant to paragraph 2.9, payment shall be made as follows:

If terminated under 2.9.1 or 2.9.2 for the convenience of EPUD, EPUD shall pay Contractor for work performed prior to the termination date if such work was performed in accordance with the Contract. EPUD shall not be liable for direct, indirect, special, or consequential damages. Termination shall not result in a waiver of any other claim EPUD may have against Contractor.

2.8.1 If terminated under 2.9.3 by EPUD due to a breach by the Contractor, then EPUD shall pay the Contractor for work performed prior to the termination date provided such work was performed in accordance with the Contract less any setoff to which EPUD is entitled.

2.8.2 If terminated under 2.9.4 by the Contractor due to a breach by EPUD, then EPUD shall pay the Contractor for work performed prior to the termination date if such work was performed in accordance with the Contract.

2.8.3 If terminated under 2.9.3.1 or 2.9.3.2 by EPUD for non-appropriation of funds, then EPUD shall pay the Contractor for work performed prior to the termination date no later than 30 days after EPUD’s approval of its next year’s budget, if such work was performed in accordance with the Contract.

2.9 REMEDIES
In the event of breach of this Contract the parties shall have the following remedies:

2.9.1 If terminated under 2.9.3 by EPUD due to a breach by the Contractor, EPUD may complete the work either itself, by agreement with another Contractor, or by a combination thereof. If the cost of completing the work exceeds the remaining unpaid balance of the total compensation provided under this Contract, then the Contractor shall pay to EPUD the amount of the reasonable excess.

2.9.1.1 In addition to the remedies in paragraphs 2.9 and 2.10 for a breach by the Contractor, EPUD also shall be entitled to any other equitable and legal remedies that are available.

2.9.1.2 If EPUD breaches this Contract, Contractor’s remedy shall be limited to termination of the Contract and receipt of Contract payments to which Contractor is entitled.

2.10 FORCE MAJEURE
Unless this contract is executed to remedy an act(s), occurrence(s), or event(s) stated herein, neither Party shall be liable for delays in the execution of its obligations due to causes beyond its reasonable control including but not limited to acts of God, fires, strikes, labor disturbances, floods, epidemics, quarantine restrictions, war, insurrection or riot, acts of a civil or military authority, compliance with priority orders or preference ratings issued by the federal Government, acts of Government authorities with respect to
revocation of export or re-export permits/licenses, wrecks, or unusually severe weather. The Party shall, however, make all reasonable efforts to remove or eliminate such cause of delay or default and shall, upon the cessation of the cause, diligently pursue performance of its obligations under this Contract.

In the event of any such delay, the required date of services will be extended for a period of time equal to the period of the delay, or as short a period as is reasonably possible.

EPUD may terminate this Contract upon written notice after reasonably determining that such delay or default will likely prevent successful performance of this Contract.

2.11 LIMITATION OF LIABILITIES
NEITHER PARTY SHALL BE LIABLE FOR (i) ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES UNDER THE CONTRACT OR (ii) ANY DAMAGES OF ANY SORT ARISING SOLELY FROM THE TERMINATION OF THIS CONTRACT IN ACCORDANCE WITH ITS TERMS.

2.12 ACCESS TO RECORDS
Contractor shall maintain fiscal records and all other records pertinent to this Contract. Records shall be maintained pursuant to generally accepted accounting standards, and other records shall be maintained to the extent necessary to clearly reflect actions taken in the provision of the products required herein. All such records shall be retained and kept accessible for at least three years following final payment. EPUD’s authorized representatives shall have the right to direct access to documents, papers and records related to this Contract for the purpose of conducting audits and examinations and making copies, excerpts and transcripts. EPUD shall reimburse Contractor for Contractor’s cost of preparing copies.

2.13 COMPLIANCE WITH APPLICABLE LAW
Contractor shall comply with all federal, state, and local laws applicable to the work under this Contract, and all regulations and administrative rules established pursuant to those laws.

Contractor shall maintain in effect all licenses, permits and certifications required for the performance of the work. Contractor shall notify EPUD immediately if any license, permit, or certification required for performance of this Contract ceases to be in effect for any reason.

2.14 WAIVER
Waiver of any default under this Contract by EPUD shall not be deemed to be a waiver of any subsequent default or a modification of the provisions of this Contract.

2.15 GOVERNING LAW
The provisions of this Contract shall be construed in accordance with the laws of the State of Oregon and ordinances of Lane County, Oregon. Any legal action involving any question arising under this Contract must be brought in Lane County, Oregon. If the claim must be brought in a federal forum, then it shall be brought and conducted in the United States District Court for the District of Oregon.
2.16 **SEVERABILITY**
If any term or provision of this Contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular term or provision held invalid.

2.17 **ANTI-DISCRIMINATION**
Contractor shall not discriminate based on race, religion, color, sex, marital status, familial status, national origin, age, mental or physical disability, sexual orientation, source of income, or political affiliation in programs, activities, services, benefits or employment. Contractor shall not discriminate against minority-owned, women-owned or emerging small businesses.

2.18 **NON-APPROPRIATION CLAUSE**
If payment for work under this Contract extends into EPUD’s next fiscal year, EPUD’s obligation to pay for such work is subject to approval of future appropriations to fund this Contract by the EPUD Board of Commissioners. If such future appropriations are not approved, EPUD shall terminate the contract and pay Contractor for work performed in accordance with paragraph's 2.10 and 2.11.

2.19 **PUBLICITY**
Any publicity giving reference to this solicitation, whether in the form of press releases, brochures, photographic coverage, or verbal announcement, shall be done only after prior approval of EPUD.

2.20 **DOCUMENTS TO BE FILED WITH THE DISTRICT**
The contractor selected by the District for completion of the project shall be required to file the following documents with the District:

- **Minimum Limits of Insurance**
  Contractor shall maintain limits no less than the following amounts for insurance and shall provide Emerald PUD with Certificates of Insurance reflecting there, or greater, amounts prior to commencing any work:
  
  - Commercial General Liability: $1,000,000.00 Each Occurrence
  - $2,000,000.00 General Aggregate
  - $2,000,000.00 Products Aggregate
  - $1,000,000.00 Personal Injury
  
  - Automobile Liability: $1,000,000.00 per Occurrence
  
  - Employers Liability: $500,000.00 Each Accident
  - $500,000.00 Disease Aggregate
  - $500,000.00 Disease Each Employee

- **Signed indemnity agreement**
- **Workers’ compensation certificate**
- **Written guarantee obligating the contractor to repair all defective work resulting from the contractor’s operations at no cost to the District.**
The contractor will be responsible for all documents required of subcontractors pursuant to this paragraph.
I, the undersigned, on behalf of _______________________ (hereinafter “Bidder”) hereby agree to provide equipment and labor described in the specifications of Bid Number 7-16:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>116.21.8 GrdY/12.6kV – 15/20/25 MVA Power Transformer</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>No-Load(Core) Losses at 20C _____ watts cost at $3.85 / watt</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Load (Copper) Losses at 85C _____ watts cost at $1.59 / watt</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Auxiliary Power _____ watts cost at $1.28 / watt (With all forced cooling equipment in service)</td>
<td></td>
</tr>
</tbody>
</table>

**Total Evaluated Cost**

**Delivery and Submittals:**

Transformer Delivery Date: ______________________

Approval Drawings ______________________

Certified Construction Drawings ______________________

Instruction Manuals ______________________
Circle each Addendum received: 1, 2, 3, 4, 5, 6.
Check if not applicable or no addenda were received: ____
Bidder acknowledges and agrees that the District has reserved the right to reject any or all bids.

Bidder represents that Bidder has examined the specifications, Instructions to Bidders, and has made all necessary inquiries, investigations, and has obtained all necessary clarifications and explanations in order to arrive at the above price.

Bidder agrees that during the term of this contract that Bidder will comply with the provisions of ORS 261.345 and/or 40 U.S.C. 276a.

Bidder agrees that Bidder, its subcontractors, if any and all employers working under this contract are subject employers under the Oregon Workers’ Compensation law and shall comply with ORS 656.017, which requires them to provide Workers’ Compensation coverage for all their subject workers.

If Bidder is a joint venture
list all principals

- or -

If partnership, list all
general partners

Bidder-Full Legal Name of Firm

Authorized Signature & Title

Date