Invitation for Bid (IFB)

Date: February 11, 2015  
Bid No: IFB #SL2000008558

Cal Poly State University, San Luis Obispo is soliciting bids for one (1) Liquid Filled Utility Transformer.

Bids are subject to the attached Exhibits:

“A” - CSU Solicitation Provisions and Bidder Certifications, consisting of nine (9) pages;  
“B” - General Provisions for Good Acquisition, consisting of eight (8) pages;  
“C” - Supplemental Provisions, consisting of one (1) page;  
“D” – Liquid-Filled Utility Transformer Specifications, consisting of twenty-three (23) pages;  
“E” – Cost Proposal, consisting of one (1) page;  
“F” - Specification of Compliance, consisting of one (1) page.

Please review thoroughly all exhibits – Bid located electronically at:  
http://afd.calpoly.edu/cprm/bidsinprocess.asp?pid=4

To be deemed a responsible and responsive bidder submit Exhibits E and Exhibit F and return in a sealed package labeled with the bid number or emailed before 3:00 PM, PST March 4, 2015.

Deliver bids to:  
California Polytechnic State University  
IFB SL2000008558  
1 Grand Avenue, Building 1, Room 128  
San Luis Obispo, CA  93407

You may submit bids by e-mail. Email bid to purchasing@calpoly.edu only. Please do not send copies to any other email addresses. Make sure to reference the bid number in the Subject field, so the email can easily be identified as an Invitation for Bid (IFB). The bids will be opened on March 4, 2015 at 3:00 PM PST.

Bids received after the closing date and time will not be opened; they will be marked “LATE” and returned to the respective bidder. Bids submitted by mail or any means other than personal delivery must be submitted sufficiently in advance of the bid opening to ensure delivery to the above address prior to the specified opening date and time.

Furthermore, Contractors should familiarize themselves with the General Provisions before proceeding, also with particular attention to the other requirements in this document.

Contractors claiming preference as a certified California small business must attach a copy of their certification letter from the Office of Small & DVBE Services (OSDS) with their bid.  
Information at: http://www.dgs.ca.gov/pd/Programs/OSDS.aspx

Contractors claiming certified Disabled Veteran Business Enterprise must attach a copy of their certification letter from the Office of Small Business Certification and Resources with their bid.  
Information at: http://www.dgs.ca.gov/pd/Programs/OSDS/CommunicationsOutreach.aspx
Schedule of Events

Bidding Events

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Post IFB to prospective suppliers</td>
<td>Tuesday, February 11, 2015</td>
</tr>
<tr>
<td>Last day for Questions (1) (Request for Information)</td>
<td>Tuesday, February 24, 2015</td>
</tr>
<tr>
<td>Cal Poly publishes responses to questions</td>
<td>Tuesday, February 26, 2015</td>
</tr>
<tr>
<td>Bid Closing/Bid Opening (2)</td>
<td>Wednesday, March 4, 2015 3:00pm PST</td>
</tr>
</tbody>
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Notes:

(1) Questions pertaining to the bid terms, conditions, or bid specifications must be submitted by e-mail to:

Suzanne LaCaro
E-mail: slacaro@calpoly.edu
Reference: IFB 2000008558

(2) Bids will be opened, and prices read, March 4, 2015 at 3:00 PM:

Administration Building, Building 1, Room 128
California Polytechnic State University (Cal Poly)

Contract Events

<table>
<thead>
<tr>
<th>Event</th>
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<tr>
<td>Contract Award (tentative)</td>
<td>March 11, 2015</td>
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<tr>
<td>Delivery</td>
<td>December 1, 2015</td>
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</table>

AWARD OF THIS REQUIREMENT WILL GO TO THE LOWEST RESPONSIBLE AND RESPONSIVE BIDDER
I. SOLICITATION PROVISIONS

1. Definitions:

   (a) The Trustees of the California State University are referred to as “CSU” or “University.”

   (b) The terms “bid” and “proposal” are synonymous and mean an offer made in response to a solicitation to perform a contract for work and labor or to supply goods at a specified price, whether or not it is considered a “seal bid” or results in award of a contract to a single or sole source.

   (c) “Bidder” or “Proposer” is used interchangeably and each shall apply to the business entity that submits a bid/proposal or is awarded a contract.

2. Preparation of Bids and Proposals:

   (a) Proposer shall carefully review all documents referenced and made a part of this solicitation to ensure that all information required to properly respond to the solicitation has been received or made available and all requirements are priced in the proposal. Failure to examine any document, drawing, specification, or instruction will be at the proposer’s sole risk.

   (b) All bids submitted, including electronic bids, must indicate unit prices for each separate line item quoted in addition to showing the totals. In case of discrepancy between the unit price and the extension set forth for the item, the unit price shall prevail; however, if the amount set forth as a unit price is ambiguous, unintelligible, or uncertain for any cause, or is omitted, the amount set forth in the "Extension" column shall be divided by the quantity for the item and the price thus obtained shall be the unit price. In case of discrepancy between the totals shown on the bid form and the actual sum of the item totals, the actual sum of all item totals shall prevail.

   (c) Brand names: Any reference to brand names and numbers in the bid solicitation is intended to be descriptive, but not restrictive, unless otherwise specified. Bids on equivalent items meeting the indicated standards of quality will be considered, unless otherwise specified, providing the bid clearly describes the article offered and how it differs from the reference brands.

      Unless the bidder specifies otherwise in the bid, it is understood that the bidder is offering a referenced brand item as specified in the bid solicitation. The CSU reserves the right to determine whether a substitute offer is equivalent to and meets the standards of quality indicated by the brand name references; the CSU
may require a bidder offering a substitute to supply additional descriptive material and a sample.

(d) Time of delivery (whether a commodity or a service) is a part of the bid and must be strictly observed. Time, if stated as a number of days, shall mean calendar days.

(e) Bids shall be completed in all respects as required by this solicitation. A bid may be rejected if conditional or incomplete, or if it contains any alterations or other irregularities of any kind, and will be rejected if any such defect or irregularity could have materially changed the quality of the bid. Bids which contain false or misleading statements, or which provide references which do not support an attribute or condition claimed by the Bidder, may be rejected. If, in the opinion of the evaluation committee, such information was intended to erroneously and fallaciously mislead the CSU in its evaluation of the bid, and the attribute, condition, or capability is a requirement of this solicitation, the bid will be rejected. Statements made by a bidder shall also be without ambiguity, and with adequate elaboration, where necessary, for clear understanding.

The CSU reserves the right to request additional information which in the CSU's opinion is necessary to assure that the proposer's competence, experience, number of qualified employees, business organization and financial resources are adequate to perform according to contract.

3. Submission of Bids:

(a) Whenever the CSU so designates, bids must be signed and sealed, with the bid number, bidder's name and address, and closing date, on the outside of the envelope.

(b) Bids or partial bids, and modifications or corrections thereof received after the closing time specified may not be considered.

(c) The bidder is solely responsible for ensuring that the bid is delivered to the CSU prior to the date and time specified and in accordance with the solicitation requirements. The CSU shall not be responsible for any delays in mail delivery, including delay occasioned by the internal CSU mailing system, or transmission errors or delivery errors.

4. Cancellation: This solicitation does not obligate CSU to enter into an agreement. CSU reserves the right to cancel this solicitation at any time, should the project be canceled, CSU loses the required funding or it is deemed in the best interest of CSU. No obligation either expressed or implied, exists on the part of CSU to make an award or to pay any cost incurred in the preparation or submission of a bid.
5. Bidder’s Cost: Costs for developing bids are entirely the responsibility of the bidder and shall not be chargeable to the CSU.

6. Revisions in Bid Solicitation: In the event a bidder believes that the CSU’s bid solicitation is unfairly restrictive or has substantive errors or omissions in it, the matter must be promptly brought to the attention of the CSU's procurement office, either by telephone, telegraph, letter, or visit, immediately upon receipt of the bid solicitation, in order that the matter may be fully considered and appropriate action taken by the CSU prior to the closing time set for bids.

7. Removal of Names from Bidders' List: The CSU may remove the name of any vendor or contractor from its lists of potential bidders whenever the CSU has received no recent responses to its bid solicitations from that vendor or contractor.

8. Award of Contracts:
   
   (a) Contracts will be made or entered into with (1) the lowest responsible bidder meeting specifications, (2) the bidder with the highest score attained at the end of a competitive evaluation process, or (3) as otherwise specified in the bid solicitation. The CSU reserves the right to determine the results of the prescribed evaluation process and the awardee.

   (b) Where more than one item is specified in the bid solicitation, the CSU reserves the right to determine the low bidder either on the basis of individual items or on the basis of all items included in the bid solicitation.

   (c) Unless the bidder specifies otherwise in the submitted bid, the CSU may accept any portion or group of items or services offered in the bid, or accept none of them at all.

   (d) The CSU reserves the right to reject any or all bids and to waive informalities and minor irregularities in bids received.

   (e) A CSU purchase order mailed or otherwise furnished to the successful bidder within the time for acceptance specified in the bid solicitation results in a binding agreement without further action by either party. The binding agreement shall be interpreted, construed, and given effect in all respects according to the laws of the State of California.

9. Bid Evaluation Preferences: In evaluating bids, the CSU will give preferences in accordance with the law for suppliers who are a California certified Small Business. If the bidder claims preferences under the Target Area Contract Preference Act (TACPA) the bidder must complete and return the appropriate form incorporated in the solicitation.
If applicable, preferences may also be given for bidders using recycle products in accordance with Public Contract Code Sections 10408 and 12150 et seq. Where multiple preferences are claimed, the CSU will verify eligibility for the preference(s) and evaluate and apply preference(s) in accordance with law and established procedures.

10. Small Business Preference Request
The State of California requires agencies to provide a five percent (5%) preference to Proposers or Bidders who qualify as either California certified small businesses or non-small businesses that commit 25% of the contract value to California certified small businesses. To be eligible, the small businesses must be certified by The Office of Small Business and DVBE Services. The rules and regulations of this law, including the definition of a small business for the delivery of services, are contained in Title 2, California Government Code, Section 14838, et seq. and Title 2, California Administrative Code, Section 1896, et seq. Copies of the codes and regulations are available online or upon request.

If requesting the Small Business Preference, then complete the form in the appendices and indicate the total Small Business participation.

The use of the Small Business Preference shall be in compliance with the law and specifically Government Code Section 14838.B.2. In solicitations where an award is to be made to the highest scored bidder based on evaluation factors in addition to price, the preference to small businesses or microbusiness shall be 5 percent of the highest responsible bidder’s total score. The preference to non-small business bidders that provide for small business or microbusiness subcontractor participation shall be up to a maximum 5 percent of the highest responsible bidder’s total score, determined according to rules and regulations established by the Department of General Services. In solicitations where an award is to be made to the low bid, the preference is applied by factoring 5 percent of a non-small business low bid total and subtracting this amount from the small business bid total.

12. Financing of Acquisition: Bidder shall include within the contents of its bid or proposal the best financing alternatives it has to offer the CSU whenever the solicitation document expresses the CSU’s desire to consider financing (including third-party possibilities) as an option.

13. Patent, Copyright, and Trade Secret Indemnity: A contractor may be required to furnish a bond to the CSU against any and all loss, damage, costs, expenses, claims and liability for patent, copyright and trade secret infringement.

14. Protests:

(a) Prior to Bid Opening - Potential bidders are afforded the opportunity to take exception to or “protest” the specifications and/or requirements of the bid
solicitation. Such protests must be conveyed in writing to the CSU and also be resolved in writing by the CSU each within the timeframes specified, prior to the scheduled bid submittal deadline. However, any protests of specifications or requirements received after the deadline identified in the bid solicitation shall be considered untimely and shall be rejected. The CSU’s decision on a protest is final.

(b) Prior to Contract award - If, prior to award of a contract, a protest is received in writing within 5 calendar days and filed on the grounds that the intended award is not in conformance with the specifications or requirements of the bid solicitation, the contract shall not be awarded until the protest has been withdrawn or a decision has been reached by the CSU. The CSU shall review the merits and timeliness of the protest and submit a decision in writing or otherwise furnish to the bidder the decision in such a manner as to ensure receipt. The CSU’s decision on a protest is final.

15. Accommodations for the Disabled: It is the policy of the CSU to make every effort to ensure that its programs, activities and services are available to all persons, including persons with disabilities. Persons with a disability needing a reasonable modification to participate in the procurement process, or persons having questions regarding reasonable modifications for the procurement process may contact the buyer listed elsewhere in this solicitation.

16. Confidentiality: Final bids are public upon bid opening; however the contents of all proposals, drafts bids, correspondence, agenda, memoranda, working papers, or any other medium which discloses any aspect of a bidder’s proposal shall be held in the strictest confidence until Notice of Intent to Award.

The content of all working papers and discussions relating to the bidder’s proposal shall be held confidential indefinitely unless the public interest is best served by an item’s disclosure because of its direct pertinence to a decision, agreement or an evaluation of the bid.

II. BIDDER CERTIFICATIONS

By submitting a bid, the Bidder certifies to the following:

1. Americans With Disabilities Act (ADA): Contractor assures the CSU that it complies with the Americans with Disabilities Act (ADA) of 1990, which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA. (42 U.S.C. 12101 et seq.)

2. Unfair Practices Act: Contractor warrants that its bid complies with the Unfair Practices Act (Business and Professions Code Section 17000 et seq.).
3. Violation of Air or Water Pollution Laws: Unless the contract is less than $25,000.00 or with a sole-source provider, Government Code Section 4477 prohibits the State from contracting with a person, including a corporation or other business association, who has been determined to be in violation of any State or federal air or water pollution control law. By a proposal the Contractor warrants that the Contractor has not been found to be in violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air pollution district, or is subject to a cease and desist order not subject to review issued pursuant to Section 13310 of the Water Code for violation of waste discharge requirements or discharge prohibitions, or is finally determined to be in violation of provisions of federal laws relating to air or water pollution. By submitting a bid, the Bidder certifies that it has not been identified either by published notices or by Board notification as a person in violation of State or federal air or water pollution control laws.

4. Compliance with NRLB Orders: In submitting a bid or signing a contract the Contractor swears under penalty of perjury that no more than one final, unappealable finding of contempt of court by a federal court has been issued against the Contractor within the immediately preceding two-year period because of the Contractor's failure to comply with an order of a federal court which orders the Contractor to comply with an order of the National Labor Relations Board. This provision is required by, and shall be construed in accordance with, Public Contract Code Section 10296.

5. Assignment of Antitrust Actions: The bidder's attention is directed to the following provisions of Government Code Sections 4552, 4553, and 4554, which shall be applicable to the bidder:

In submitting a bid to a public purchasing body, the bidder offers and agrees that if the bid is accepted, it will assign to the procurement body all rights, title, and interest in and to all causes of action it may have under Section 4 of the Clayton Act (15 U.S.C. Sec. 15) or under the Cartwright Act (Chapter 2, [commencing with Section 16700] of Part 2 of Division 7 of the Business and Professions Code), arising from purchases of goods, materials, or services by the bidder for sale to the procurement body pursuant to the bid. Such assignment shall be made and become effective at the time the procurement body tenders final payment to the bidder (Government Code Section 4552).

If an awarding body or public procurement body receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under this chapter, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the public body any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the public body as part of the bid price, less the expenses incurred in obtaining that portion of the recovery (Government Code Section 4553).
Upoun demand in writing by the assignor, the assignee shall, within one year from such
demand, reassign the cause of action assigned under this part if the assignor has been or
may have been injured by the violation of law for which the cause of action arose and (a)
the assignee has not been injured thereby, or (b) the assignee declines to file a court
action for the cause of action (Government Code Section 4554).

6. Noncollusion Affidavit: By submitting a bid, Bidder hereby certifies that the bid is not
made in the interest of, or on behalf of, any undisclosed party; that the bid is genuine and
not collusive, false, or sham; that the Bidder has not directly or indirectly induced or
solicited any other Bidder to put in a false or sham bid, and has not directly or indirectly
agreed with any Bidder or anyone else to put in a false or sham bid, or to refrain from
bidding; that the Bidder has not in any manner, directly or indirectly, sought to fix any
overhead, profit or cost element of the bid, of that of any other Bidder, or to secure any
advantage against the public body awarding the contract or anyone interested in the
proposed contract.

7. Safeguards for confidential information: By submitting a bid, Bidder acknowledges
Federal privacy laws such as Gramm-Leach-Bliley Act (Title 15, United States Code,
Sections 6801(b) and 6805(b)(2)) applicable to financial transactions and Family
Educational Rights and Privacy Act (Title 20, United States Code, Section 1232g)
applicable to student records and information from student records. In the event that such
information is required for the performance of the work specified, the Bidder hereby
certifies that it has the appropriate safeguards in place as required by Title 16 Code of
Federal Regulation Chapter 1 Section 314 et seq.

8. Covenant Against Gratuities: The Contractor shall warrant that no gratuities (in the form
of entertainment, gifts, or otherwise) were offered or given by the Contractor, or any
agent or representative of the Contractor, to any officer or employee of the CSU with a
view toward securing the Contract or securing favorable treatment with respect to any
determinations concerning the performance of the Contract. For breach or violation of
this warranty, the CSU shall have the right to terminate the Contract, either in whole or in
part, and any loss or damage sustained by the CSU in procuring on the open market any
items, which the Contractor agreed to supply, shall be borne and paid for by the
Contractor. The rights and remedies of the CSU provided in this clause shall not be
exclusive and are in addition to any other rights and remedies provided by law or under
the Contract.

9. Public Contracts Code Restrictions For CSU Employees: CSU employees and immediate
past employees must comply with restrictions regarding contracting with the CSU.
Bidder needs to be aware of the following provisions regarding current or former CSU
employees. In submitting a bid, bidder certifies that the bidder is eligible to contract with
the CSU pursuant to the Public Contracts Code (PCC) sections list below:

Current CSU Employees (PCC Section 10831):
CSU SOLICITATION PROVISIONS AND BIDDER CERTIFICATIONS

Revised 10/14/14

(a) No officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any CSU department through or by a CSU contract unless the employment, activity or enterprise is within the course and scope of the officer’s or employee’s regular CSU employment.

(b) No officer or employee shall contract on his or her own behalf as an independent contractor with any CSU department to provide goods or services.

(c) This prohibition does not apply to officers or employees of the CSU with teaching or research responsibilities.

Former CSU Employees (PCC Section 10832):

(a) For the two-year period from the date he or she left CSU employment, no former CSU officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any CSU department.

(b) For the twelve-month period from the date he or she left state employment, no former CSU officer or employee may enter into a contract with any CSU department if he or she was employed by that CSU department in a policy-making position in the same general subject area as the proposed contract within the 12-month period prior to his or her leaving CSU service.

10. In submitting a bid for electronic devices, as defined by the Electronic Waste Recycling Act of 2003, Part 3 Division 30 Chapter 8.5 of the Public Resource Code, the Bidder certifies that it, and its agents, subsidiaries, partners, joint venturers, and subcontractors for the procurement, have complied with the Electronic Waste Recycling Act of 2003 and any regulations adopted pursuant to the Act, or have demonstrated to the CSU that the Electronic Waste Recycling Act of 2003 is inapplicable to all lines of business engaged in by the bidder, its agents, subsidiaries, partners, joint venturers, or subcontractors. In addition the Bidder agrees to cooperate fully in providing reasonable access to its records and documents that evidence compliance with the Electronic Waste Recycling Act of 2003.

11. DARFUR CONTRACTING ACT
PCC sections 10475 et seq., the Darfur Contracting Act of 2008, establish restrictions against contracting with vendors conducting certain types of business in Sudan. The Act sets forth criteria to determine if a vendor is a “scrutinized company” and therefore ineligible to bid on or submit a proposal for State contracts.
Upon submitting a bid, bidders that have had business activities outside of the United States within the previous three years certify that they are not a scrutinized company as defined, or demonstrate they obtained permission under the statute. (PCC §§ 10478, 10477(b).) False certifications shall cause the bid to be invalidated. (PCC § 10479.)

12. IRAN CONTRACTING ACT
PCC sections 2202 et seq., the Iran Contracting Act of 2010, establish restrictions against contracting with vendors that provide specified levels of goods or services or other investment activities, as defined, in the energy sector of Iran. By submitting a bid in excess of $1 million, bidder certifies that bidder is not a financial institution extending credit to an ineligible vendor on the list published by the California Department of General Services on the web site:
(PCC § 2204.) The Act includes certain exceptions. (PCC § 2203(c).)

13. THE CONGO – SECURITIES EXCHANGE ACT
PCC § 10490 establishes restrictions on contracting for certain goods and services relating to compliance with the Securities Exchange Act of 1934. The CSU will not accept bids or proposals or contract for goods or services related to products or services from companies designated as a “scrutinized company” by the Federal Government. By submitting a bid, bidder certifies that they are not a scrutinized company as defined. False certifications shall cause the bid to be invalidated.

For purposes of this section, a “scrutinized company” is a person that has been found to be in violation of Section 13(p) of the Securities Exchange Act of 1934 by final judgment or settlement entered in a civil or administrative action brought by the Securities and Exchange Commission and the person has not remedied or cured the violation in a manner accepted by the commission on or before final judgment or settlement.
General Provisions for Good Acquisition

1. Commencement of Work
   Contractor shall not commence work under the Contract until Contractor has received a fully executed Contract and been given written approval to proceed. Any work performed by Contractor prior to the date of approval shall be considered as having been performed at Contractor’s own risk and as a volunteer.

2. Contract Alterations & Integration
   No alteration or variation of the Contract shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated in writing in the Contract shall be binding on any of the parties hereto.

3. Severability
   Contractor and CSU agree that if any provision of this Contract is found to be illegal or unenforceable, such term or provision shall be deemed stricken and the remainder of the Contract shall remain in full force and effect. Either party having knowledge of such term or provision shall promptly inform the other of its presumed non-applicability of such provision. Should the illegal or unenforceable provision be a material or essential term of the Contract, the Contract shall be terminated in a manner commensurate with the interests of both parties, to the maximum extent reasonable.

4. Independent Status
   Contractor and its employees and agents, and subcontractors, in the performance of this Contract, shall act in an independent capacity and not as officers, employees or agents of CSU or the State of California. While Contractor may be required by this Contract to carry Worker’s Compensation Insurance, in no event shall Contractor and its employees and agents be entitled to unemployment or workers’ compensation benefits from the CSU.

5. Governing Law
   To the extent not inconsistent with applicable federal law, this Contract shall be construed in accordance with and governed by the laws of the State of California.

6. Contractor's Power and Authority
   Contractor warrants it has full power and authority to enter into this Contract and will hold CSU harmless from and against any loss, cost, liability, and expense (including reasonable attorney fees) arising out of any breach of this warranty. Further, Contractor shall not enter into any arrangement, agreement or contract with any third party that might abridge any rights of the CSU under this Contract.

7. Assignments
   Contractor shall not assign this Contract, either in whole or in part, without CSU’s written consent, which will not be unreasonably withheld.

8. Personnel
   Contractor shall give its personal attention to the performance of the Contract and shall make every effort consistent with sound business practices to honor CSU’s requests regarding Contractor’s assignment of its employees. However, Contractor maintains the sole right to determine the assignment of its employees in order to keep all phases of work under its control. If an employee of Contractor is unable to perform due to illness, resignation or other factors beyond Contractor’s control, Contractor shall use its best effort to provide suitable substitute personnel.

9. Waiver of Rights
Any action or inaction by CSU or the failure of CSU on any occasion to enforce any right or provision of this Contract shall not be a waiver by CSU of its rights hereunder and shall not prevent CSU from enforcing such provision or right on any future occasion. CSU’s rights and remedies provided in this Contract shall not be exclusive and are in addition to any other rights and remedies provided by law.

10. Time
   Time is of the essence in the performance of this Contract.

11. Entire Contract
   This Contract sets forth the entire agreement between the parties with respect to the subject matter hereof and shall govern the respective duties and obligations of each party.

12. Appropriation of Funds
   (a) If the term of this Contract extends into fiscal years subsequent to that in which it is approved such continuation of the Contract is subject to the appropriation of funds for such purpose by the Legislature. If funds to effect such continued payment are not appropriated, Contractor agrees to take back any commodities furnished under the Contract and not yet paid for by CSU, terminate any future services and commodities to be supplied to the CSU under the Contract, and relieve the CSU of any further obligation therefore.
   (b) CSU agrees that if provision (a) above is involved, commodities shall be returned to Contractor in substantially the same condition in which they were delivered, subject to normal wear and tear. CSU further agrees to pay for packing, crating, transportation to Contractor’s nearest facility and for reimbursement to Contractor for expenses incurred for its assistance in such packing and crating.

13. Cancellation
   CSU has the right to cancel this Contract at any time and without future financial obligation upon thirty (30) days written notice to Contractor.

14. Termination for Default
   CSU may terminate the Contract and be relieved of the payment of any consideration to Contractor should Contractor fail to perform the covenants herein contained at the time and in the manner herein provided. In the event of such termination, the CSU may proceed with the work in any manner deemed proper by the CSU. The cost to the CSU shall be deducted from any sum due the Contractor under the Contract, and the balance, if any, shall be paid the Contractor upon demand.

15. Rights and Remedies of CSU for Default
   (a) In the event any Deliverables furnished or services provided by Contractor in the performance of this Contract should fail to conform to the requirements herein, or to the sample submitted by Contractor, CSU may reject the same, and it shall thereupon become Contractor’s duty to forthwith reclaim and remove all nonconforming deliverables and correct the performance of services, without expense to the CSU, and to immediately replace all such rejected items with others conforming to the specifications or samples. Should Contractor fail, neglect, or refuse to do so, CSU shall thereupon have the right, but not the obligation, to purchase in the open market, in lieu thereof, a corresponding quantity of any such items and to deduct the cost of such cover from any moneys due or that may thereafter become due to Contractor.
   (b) In the event Contractor fails to make prompt delivery of any item as specified in the Contract, the same conditions as to CSU’s right, but not obligation, to purchase in the open market and receive reimbursement from Contractor, as set forth in (a), above shall apply.
   (c) In the event the CSU terminates this Contract, either in whole or in part, for Contractor’s default or breach, Contractor shall compensate CSU, in addition to any other remedy CSU may have available to it, for any loss or damage sustained and cost incurred by the CSU in procuring any items that Contractor agreed to supply.
   (d) CSU’s rights and remedies provided above shall not be exclusive and shall be in addition to any other rights and remedies provided by law, equity or this Contract.

16. Warranty
Contractor warrants that (i) Deliverables and services furnished hereunder will conform to the requirements of this Contract (including, without limitation, all descriptions, specifications, and drawings identified in the Statement of Work), and (ii) the Deliverables will be free from defects in materials and workmanship. Where the parties have agreed to design specifications in the Statement of Work directly or by reference, Contractor warrants the Deliverables shall provide all functionality required thereby. In addition to the other warranties set forth herein, where the Contract calls for delivery of Commercial Software, Contractor warrants such Software shall perform in accordance with its license and accompanying Documentation. CSU’s approval of designs or specifications furnished by Contractor shall not relieve Contractor of its obligations under this warranty.

Contractor warrants that at the time of delivery, deliverables (i) shall be free of harmful code (i.e. computer viruses, worms, trap doors, time bombs, disabling code, or any similar malicious mechanism designed to interfere with the intended operation of, or cause damage to, computers, data, or software); and (ii) shall not infringe or violate any U.S. Intellectual Property Right. Without limiting the generality of the foregoing, if CSU believes harmful code may be present in any Commercial Software delivered, Contractor shall, upon CSU’s request, provide a master copy of the Software for comparison and correction. (c) Unless otherwise specified in the Statement of Work: (i). Where Contractor resells Hardware or Software it purchased from a third party, and such third party offers additional or more advantageous warranties than those set forth herein, Contractor shall pass through any such warranties to CSU and shall cooperate in enforcing them. Such warranty pass-through shall be supplemental to, and not relieve Contractor from, Contractor's warranty obligations set forth above.

(d) All warranties, including special warranties specified elsewhere herein, shall inure to CSU, its successors, assigns, customer agencies, and other governmental users of the Deliverables or services.

17. General Indemnity

Contractor shall indemnify, defend, and hold harmless the State of California, Board of Trustees of the California State University, CSU, and their respective officers, agents and employees from any and all claims and losses accruing or resulting to any other person, firm or corporation furnishing or supplying work, service, materials or supplies in connection with the performance of this Contract, and from any and all claims and losses accruing or resulting to any person, firm or corporation related to, arising out of or resulting from Contractor’s performance of this Contract.

18. Invoices

Invoices shall be submitted, in arrears, to the address provided in the Contract. Each invoice must contain the Contract number and Contractor's Identification number. Final invoice shall be marked as such. Contractor shall submit invoices to CSU for payment of goods and services rendered. Unless otherwise specified, CSU shall pay properly submitted invoices not more than 45 days after (i) CSU’s acceptance of goods; (ii) the performance completion date of services; or (iii) receipt of an undisputed invoice, whichever is later. Late payment penalties shall not apply to this Contract. The consideration to be paid Contractor, as described within the Contract, shall be in full compensation for all of Contractor’s expenses incurred in the performance of this Contract, including travel and per diem, unless otherwise expressly so provided.

19. Packing and Shipment

(1) All goods are to be packed in suitable containers for protection in shipment and storage, and in accordance with applicable specifications. Each container of a multiple container shipment shall be identified to:

(i) show the number of the container and the total number of containers in the shipment; and
(ii) the number of the container in which the packing sheet has been enclosed.

(2) All shipments by Contractor or its subcontractors must include packing sheets identifying: the CSU’s contract number; item number; quantity and unit of measure; part number and description of the goods shipped; and appropriate evidence of inspection, if required. Goods for different contracts shall be listed on separate packing sheets.

20. Delivery

Contractor shall strictly adhere to the delivery and completion schedules specified in this contract. Time, if stated as a number of days shall mean calendar days unless otherwise specified. The quantities specified herein are the only quantities required. If Contractor delivers in excess of the quantities specified herein, the CSU shall not be required to
make any payment for the excess deliverables, and may return them to Contractor at Contractor’s expense or utilize any other rights available to the CSU at law or in equity.

21. Substitutions
   Substitution of Deliverables may not be tendered without advance written consent of the CSU. Contractor shall not use any specification in lieu of those contained in the Contract without written consent of the CSU.

22. Inspection, Acceptance and Rejection
   Unless otherwise specified in the Statement of Work all deliverables may be subject to inspection and test by the CSU.

23. Taxes, Fees, Expenses, and Extras
   (a) Contractor certifies that it shall comply with all California Sale and Use Tax requirements. Articles sold to CSU are exempt from certain Federal Excise Taxes. CSU will furnish an exemption certificate on request.
   (b) Unless specified otherwise, prices quoted shall include all required and applicable taxes.
   (c) No charge for delivery, drayage, express, parcel post, packing, cartage, insurance, license fees, permits, cost of bonds, or for any other purpose will be paid by CSU unless expressly included and itemized in the Contract. Unless otherwise indicated on the Purchase Order or Contract, on "FOB Shipping Point" transactions vendor shall arrange for lowest cost transportation, prepay, add freight to invoice, and furnish supporting freight bills over $50. On "FOB Shipping Point" transactions, should any shipments under this Contract be received by CSU in a damaged condition and any related freight loss and damage claims filed against the carrier or carriers by wholly or partially declined by the carrier or carriers with the inference that damage was the result of the act of the shipper, such as inadequate packing or loading or some inherent defect in the equipment and/or material, vendor shall, at its own expense, assist CSU in establishing carrier liability.
   (d) Contractor certifies it will immediately advise CSU of any change in its retailers seller’s permit or certification of registration or applicable affiliate’s sellers permit or certificate of registration.

24. Electronic Software Tax Liability
   Contractor further agrees to deliver purchased software solely in an intangible form and via electronic means. Contractor shall be responsible for ensuring that the software is not delivered to the CSU in tangible form, and shall defend and indemnify the CSU for any and all tax liability resulting from Contractors failure to deliver the software as required by this Agreement.

25. Document Referencing
   All correspondence, invoices, bills of lading, shipping memos, packages, etc., must show the Contract number. If factory shipment, the factory must be advised to comply. Invoices not properly identified with the Contract number and Contractor identification number may be returned to Contractor and may cause delay in payment.

   (a) Contractor shall indemnify, defend, and hold harmless the State of California, Board of Trustees of the California State University, CSU, and their respective officers, agents, and employees (collectively referred to as CSU), from any and all third party claims, costs (including without limitation reasonable attorneys’ fees), and losses for infringement or violation of any Intellectual Property Right, domestic or foreign, by any product or service provided hereunder. With respect to claims arising from computer Hardware or Software manufactured by a third party and sold by Contractor as a reseller, Contractor will pass through to CSU, in addition to the foregoing provision, such indemnity rights as it receives from such third party (“Third Party Obligation”) and will cooperate in enforcing them; provided that if the third party manufacturer fails to honor the Third Party Obligation, Contractor will provide CSU with indemnity protection.
   (i) CSU will notify Contractor of such claim in writing and tender its defense within a reasonable time; and
   (ii) Contractor will control the defense of any action on such claim and all negotiations for its settlement or compromise, except when substantial principles of government or public law are involved, when litigation might create precedent affecting future CSU operations or liability, or when involvement of the CSU is otherwise mandated by law. In such case no settlement shall be entered into on behalf of CSU without CSU’s written approval.
   b) Contractor may be required to furnish CSU a bond against any and all loss, damage, costs, expenses, claims and liability for patent, copyright and trade secret infringement.
c) Should the Deliverables or Software, or the operation thereof, become, or in the Contactor’s opinion are likely to become, the subject of a claim of infringement or violation of a Intellectual Property Right, whether domestic or foreign, CSU shall permit Contractor at its option and expense either to procure for CSU the right to continue using the Deliverables or Software or to replace or modify the same so they become non-infringing, provided they comply with Contract and performance requirements and/or expectations. If neither option can reasonably practicable or if the use of such Deliverables or Software by CSU shall be prevented by injunction, Contractor agrees to take back such Deliverables or Software and use its best effort to assist CSU in procuring substitute Deliverables or Software at Contractors cost and expense. If, in the sole opinion of CSU, the return of such infringing Deliverables or Software makes the retention of other Deliverables or Software acquired from Contractor under this Contract impracticable, CSU shall then have the option of terminating this Contract, or applicable portions thereof, without penalty or termination charge. Contractor agrees to take back such Deliverables or Software and refund any sums CSU paid Contractor less any reasonable amount for use or damage.
(d) Contractor certifies it has appropriate systems and controls in place to ensure State funds will not be used in the performance of this Contract for the acquisition, operation or maintenance of computer Software in violation of copyright laws.

27. Rights in Work Product
   a) All inventions, discoveries, intellectual property, technical communications and records originated or prepared by Contractor pursuant to this Contract, including papers, reports, charts, computer programs, and other Documentation or improvements thereto, and including Contractor's administrative communications and records relating to this Contract (collectively, the "Work Product"), shall be Contractor's exclusive property. The provisions of this sub-section a) may be revised in a Statement of Work.

28. Examination and Audit
   For contracts in excess of $10,000, Contractor shall be subject to the examination and audit by (a) the Office of the University Auditor, and (b) the Bureau of State Audits, for a period of three (3) years after final payment under the Contract. The examination and audit shall be confined to those matters connected with the performance of the contract, including, but not limited to, the costs of administering the Contract. Note: Authority Cited: Government Code Section 8546.7; Education Code Section 89045(c&d), respectively.

39. Dispute
   Any dispute arising under or resulting from this Contract that is not resolved within 60 days of time by authorized representatives of Contractor and CSU shall be brought to the attention of Contractor’s Chief Executive Officer (or designee) and CSU’s Chief Business Officer (or designee) for resolution. Either Contractor or CSU may request that the CSU Vice Chancellor, Business and Finance (or designee) participate in the dispute resolution process to provide advice regarding CSU contracting policies and procedures. If this informal dispute resolution process is unsuccessful, the parties may pursue all remedies not inconsistent with this Contract. Despite an unresolved dispute, Contractor shall continue without delay in performing its responsibilities under this Contract. Contractor shall accurately and adequately document all service it has performed under this Contract.

30. Conflict of Interest
   CSU requires a Statement of Economic Interests (California Form 700) to be filed by any Consultant (or Contractor) who is involved in the making or participation in the making of decisions which may foreseeably have a material effect on any CSU financial interest.

31. Endorsement
   Nothing contained in this Contract shall be construed as conferring on any party, any right to use the other party’s name as an endorsement of product/service or to advertise, promote or otherwise market any product or service without the prior written consent of the other party. Furthermore nothing in this Contract shall be construed as endorsement of any commercial product or service by the CSU, its officers or employees.

32. Covenant Against Gratuities
Contractor shall warrant that no gratuities (in the form of entertainment, gifts, or otherwise) were offered or given by Contractor, or any agent or representative of Contractor, to any officer or employee of CSU with a view toward securing the Contract or securing favorable treatment with respect to any determinations concerning the performance of the Contract. For breach or violation of this warranty, CSU shall have the right to terminate the Contract, either in whole or in part, and any loss or damage sustained by CSU in procuring on the open market any items that Contractor agreed to supply shall be borne and paid for solely by Contractor. CSU’s rights and remedies provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law, equity or under the Contract.

33. Nondiscrimination

(a) During the performance of this Contract, Contractor and its subcontractors shall not unlawfully discriminate, harass or allow harassment, against any employee or applicant for employment because of sex, sexual orientation, race, color, ancestry, religious creed, national origin, disability (including HIV and AIDS), medical condition, age, marital status, and denial of family care leave. Contractor and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free from such discrimination and harassment.

(b) Contractor and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code, Section 12990 et seq.) and the applicable regulations promulgated thereunder (California Code of Regulations, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code Section 12990 (a-f), set forth in Chapter 5 of Division 4 of Title 2 of the California Code of Regulations are incorporated into this Contract by reference and made a part hereof as if set forth in full. Contractor and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement.

(c) Contractor shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the Contract.

34. Compliance with NLRB Orders

Contractor declares under penalty of perjury under the laws of the State of California that no more than one final, unappealable finding of contempt of court by a federal court has been issued against Contractor within the immediately preceding two-year period because of Contractor’s failure to comply with an order of a federal court to comply with an order of the National Labor Relations Board. Note: Cite Authority: PCC 10296

35. Drug-Free Workplace Certification

Contractor certifies that Contractor shall comply with the requirements of the Drug-Free Workplace Act of 1990 and shall provide a drug-free workplace by taking the following actions:

(a) Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations

(b) Establish a Drug-Free Awareness Program to inform employees about all of the following:

(i) the dangers of drug abuse in the workplace;

(ii) the person's or organization's policy of maintaining a drug-free workplace;

(iii) any available counseling, rehabilitation and employee assistance programs; and, (iv) penalties that may be imposed upon employees for drug abuse violations.

(c) Provide that every employee who works on the proposed or resulting Contract:

(i) will receive a copy of the company's drug-free policy statement; and,

(ii) will agree to abide by the terms of the company's statement as a condition of employment on the Contract. Note: Authority Cited: Government Code Section 8350-8357.

36. Forced, Convict, Indentured and Child Labor

By accepting a contract with CSU, Contractor:

(a) Certifies that no equipment, materials, or supplies furnished to CSU pursuant to this Contract have been produced in whole or in part by sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor, or with the benefit of sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor. Contractor further certifies it will adhere to the Sweat Free Code of Conduct as set forth on the California Department of
Industrial Relations website located at http://www.dir.ca.gov/, and Public Contract Code Section 6108.

(b) Agrees to cooperate fully in providing reasonable access to its records, documents, agents or employees, or premises if reasonably required by authorized officials of the State, the Department of Industrial Relations, or the Department of Justice to determine Contractor's compliance with the requirements under paragraph (a).

37. Recycled Content Certification
   Contractor shall certify in writing the minimum, if not exact, percentage of postconsumer material, as defined in Public Contract Code Section 12200, in products, materials, goods, or supplies offered or sold to CSU regardless whether the product meets the requirements of Section 12209. With respect to printer or duplication cartridges that comply with the requirements of Section 12156(e), the certification required by this subdivision shall specify that the cartridges so comply (PCC 12205).

38. Child Support Compliance Act
   For any contract in excess of $100,000, Contractor acknowledges in accordance with Public Contract Code Section 7110, that:
   (a) Contractor recognizes the importance of child and family support obligations and shall fully comply with all applicable state and federal laws relating to child and family support enforcement, including, but not limited to, disclosure of information and compliance with earnings assignment orders, as provided in Chapter 8 (commencing with Section 5200) of Part 5 of Division 9 of the Family Code; and
   (b) Contractor, to the best of its knowledge, is fully complying with the earnings assignment orders of all employees and is providing the names of all new employees to the New Hire Registry maintained by the California Employment Development Department.

39. Americans With Disabilities Act (ADA)
   Contractor warrants that it complies with California and federal disabilities laws and regulations. (Americans with Disabilities Act of 1990, 42 U.S.C. 12101et seq). Contractor hereby warrants the products or services it will provide under this Contract comply with the accessibility requirements of Section 508 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794d), and its implementing regulations set forth at Title 36, Code of Federal Regulations, Part 1194. Contractor agrees to promptly respond to and resolve any complaint regarding accessibility of its products or services. Contractor further agrees to indemnify and hold harmless CSU from any claims arising out of Contractor’s failure to comply with the aforesaid requirements. Failure to comply with these requirements shall constitute a material breach of this Contract.

40. Expatriate Corporations
   Contractor declares and certifies that it is not and expatriate corporation, and is not precluded from contracting with CSU by The California Taxpayer and Shareholder Protection Act of 2003, Public Contract Code Section 10286, et seq.

41. Citizenship and Public Benefits
   If Contractor is a natural person, Contractor certifies he or she is a citizen or national of the United States or otherwise qualified to receive public benefits under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-193; 110 STAT.2105, 2268-69).

42. Loss Leader
   Contractor certifies and declares it is not engaged in business within this State of California to sell or use any article or product as a "loss leader" as defined in Section 17030 of the Business and Professions Code. Note: Authority Cite: (PCC 12104.5(b).)

43. DVBE and Small Business Participation
   (a) If Contractor has committed to achieve small business (SB) participation it shall, within 60 days of receiving final payment under this Contract (or within such other time period as may be specified elsewhere in this Contract), report to CSU:
      (1) the name and address of the SB(s) who participated in the performance of the Contract;
      (2) the total amount the prime Contractor received under the Contract; and
(3) the amount each SB received from the prime Contractor. (Govt. Code § 14841.)

(b) If Contractor has committed to achieve disabled veteran business enterprise (DVBE) participation, it shall, within 60 days of receiving final payment under this Contract (or within such other time period as may be specified elsewhere in this Contract), report to CSU:

(1) the name and address of the DVBE(s) who participated in the performance of the Contract;

(2) the total amount the prime Contractor received under the Contract; and

(3) the amount each DVBE received from the prime Contractor. The Contractor shall also certify that all payments under the Contract have been made to the DVBE. A person or entity that knowingly provides false information shall be subject to a civil penalty for each violation. (Mil. & Vets. Code § 999.5(d); Govt. Code §14841).
Supplemental Provisions

1. Contractor agrees to these General Provisions as well as the other provisions contained in the Contract.
2. Exceptions to General and Supplemental Provisions: Each Contractor must identify on Exhibit H, Specification of Compliance any exceptions which it takes to the contract requirements.
4. All Contractors who provide a bid in response to this IFB are responsible for all costs associated with preparing that proposal, answering all questions, providing the University with requested information and making any requested presentations to the University. The University is under no obligation to incur or reimburse any Contractor for any proposal costs.
5. The awarded contractor’s pricing shall remain fixed for one (1) year.
6. Cal Poly reserves the right to reject any or all bids. Cal Poly may negotiate the terms of the contract, including pricing, with the selected Contractor prior to entering into a contract.
7. Parking: Observe University traffic and parking regulations. Park vehicles in areas designated by the Cal Poly Project Manager. Maintain clear access ways and parking of emergency vehicles. Obtain parking permits for passenger or work vehicles. Permits are available for purchase at the Information Booth or University Cashier’s Office. Parking outside and within the areas designated in the Contract Documents as Contractor Designated Parking shall require a permit issued by the campus. A limited number of permits will be available for work trucks (trucks with tools, equipment, supplies) to park near project buildings or work area during project hours. These permits will be available at a cost of approximately $10.00 for each permit for a 6-month period (actual cost subject to change).
PART 1 - GENERAL

1.01 SUMMARY

A. This specification covers three-phase liquid-filled substation transformers for outdoor applications. Transformers will be, circular coil, core-form design with ratings, characteristics and features as listed.

B. Approved manufacturers are:
   1. ABB Inc.-Kuhlman
   2. SPX/Waukesha
   3. Delta Star

1.02 SCOPE OF WORK

A. Furnish all labor, materials and equipment required to manufacture and deliver one (1) primary substation transformer and related appurtenances as specified herein. The work shall include manufacturing, factory testing, shipping, and factory representative on site assistance for field assembly and field testing of the primary substation transformer as specified herein. The transformer shall be designed and manufactured in the USA.

1.03 SUBMITTALS

A. Submit to the Engineer shop drawings and product data, of the following:
   1. Equipment elevations and side views, floor plan, one line diagram, dimensions, weight and packaging for shipment. An AutoCAD format dwg file of the plan and all exterior elevations shall be provided, in electronic format, with the submittal.
   2. Field wiring diagrams for power and control circuits.
   4. Transformer nameplate information.
   5. Itemized bill of materials for accessories.
   6. Itemized bill of materials for OLTC controls for existing Virginia Transformer.
   7. Warranty Terms and Conditions with Bid Submittal.

B. Test Reports
   1. Certified factory production test reports for transformer and OLTC.

C. Operation and Maintenance Data
   1. Installation and maintenance manuals.

1.04 REFERENCE STANDARDS

A. American National Standards Institute (ANSI)
   1. IEEE C57.12.00 Standard General Requirements for Liquid- Immersed Distribution, Power and Regulating Transformers.
   2. IEEE C57.12.10 -IEEE Standard Requirements for Liquid- Immersed Power Transformers
   3. IEEE C57.12.28 - Sections 5.3, 5.4, 5.5 -Coating System Requirements
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7. IEEE C57.91 IEEE Guide for Loading Mineral-Oil-Immersed Transformers and Step-Voltage
8. IEEE C57.93 - IEEE Guide for Installation and Maintenance of Liquid-Immersed Power Transformers
9. C57.131 IEEE Standard Requirements for Tap Changers
10. C57.142 IEEE Guide to Describe the Occurrence and Mitigation of Switching Transients Induced by Transformers, Switching Device, and System Interaction
11. IEEE Std C57.150 IEEE Guide for the Transportation of Transformers and Reactors Rated 10 000 kVA or higher

B. National Electrical Manufacturers Association (NEMA)
1. NEMA Standard TRI - Transformers, Regulators and Reactors.

C. Institute of Electrical and Electronic Engineers (IEEE)
1. IEEE Std. 462A, B-1978 "Short Circuit Requirements Supplement to ANSI C57.12.00-1973".

D. Codified Federal Regulations (CFR)

E. American Society of Testing and Materials (ASTM)
F. National Electrical Safety Code C2-2007 (NESC)
G. California Electrical Code (CEC)
H. Transformers shall be designed, built and tested in accordance with the latest revision of the above standards.
I. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.
J. It shall be the Manufacturer's responsibility to be, or to become, knowledgeable of the requirements of these Codes and Standards. Any required changes or alterations to the equipment to meet the Codes and Standards requirements shall be at the expense of the Manufacturer.
K. Equipment proposed by the Manufacturer that cannot fully meet the requirements of this specification shall have all exceptions clearly stated in the proposal. No exception shall be allowed, unless approved by the Engineer in writing.

1.05 QUALITY ASSURANCE
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A. The equipment furnished under this Section shall be the product of a manufacturer who has produced this same type of equipment for a period of at least 10 consecutive years.

B. Transformers shall be designed, assembled and tested by the manufacturer of the core and coil assemblies used in the transformer.

1.06 ENVIRONMENTAL CONDITIONS

A. All equipment furnished with the outdoor transformer shall be capable of satisfactory operation and maintenance under the following environmental and service conditions:
   1. Ambient temperature range 0ºC to +40 ºC
   2. Humidity 0 to 100 percent
   3. Elevation 380 feet above sea level
   4. Air Quality Wind-blown dust and ozone
   5. Solar Radiation 100 Watts per sq. ft. direct isolation (peak)

1.07 SHIPPING REQUIREMENTS

A. Preparation for Shipment
   1. A complete oil screen test, including dissolved gas analysis, and gas pressure and moisture content shall be measured and recorded prior to shipment and submitted to Cal Poly when the transformer is shipped.
   2. All parts shall be properly stenciled or marked for ease of assembly in the field. Radiators shall be sealed to prevent entrance of moisture or contamination.
   3. Transformers and all components shall be prepared for shipment to prevent damage during handling in transit and shall be suitable for outdoor storage at the jobsite.
   4. A fully functional three-axis impact recorder shall be provided with transformer, during transit from the factory to the Jobsite.
   5. Manufacturer shall submit a written transportation plan for delivery of the transformer to the destination for Cal Poly review and approval.
   6. The main tank shall be filled with dry air before shipping.
   7. Transformer shall be prepared as follows before shipment to Cal Poly.
      a. Radiators shipped loose
      b. Bushings shipped loose
      c. Surge arrestors shipped loose
      d. Fans shipped loose
      e. Fill with dry air pressurized with a dry cylinder and pressure reducing regulator.

B. Delivery
   1. Manufacturer shall be fully responsible for designing and manufacturing the transformer in such physical size and weight so that it can be shipped to the point of delivery.
   2. The manufacturer is responsible to ship the transformer F.O.B. destination via truck and/or rail.
      a. Destination shall be offloaded on the pad and assembled at Mustang Substation
         California Polytechnic State University
         San Luis Obispo, CA 93407
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1.08 WARRANTY AND SERVICE

A. Manufacturer shall warranty the equipment to be free from defects in material and workmanship for 5 years from date of commissioning and Cal Poly acceptance.

B. Dissolved Gas Analysis (DGA), ASTM 3612 test values that exceed Condition 1 limits with a Total Combustible Gas (TCG) of 700ppm or greater, that is increasing at a rate of 5% per month will constitute a condition for a warranty claim.

C. Manufacturer shall maintain a national service organization of company-employed personnel located throughout the contiguous United States. The service center's personnel must be factory trained and must be on call 24 hours a day, 365 days a year.

1.09 SEISMIC REQUIREMENTS

A. Cal Poly Mustang Substation is located in a seismically active area. All equipment, supporting structures, accessories, and the mounting of the equipment and accessories shall be designed and qualified in accordance with IEEE Standard 693. The equipment and their components shall meet the High Seismic Qualification Level.

B. The seismic report shall be submitted four (4) weeks after the design review. Bushings and surge arresters shall be included within the seismic report.

C. The Anchorage design shall utilize the new foundation with containment. The manufacturer shall provide design assistance to the project structural engineer to design the anchorage requirements including the size, location, type and show the points for attachment on the manufacturer's installation drawing and on the seismic outline drawing. The Owner will design the concrete foundations using concrete with a 28-day minimum compressive strength of 3000 psi.

D. General Requirements:
   1. Transformer shall remain functional and operable during and subsequent to the combined application of the deadweight, the normal operating (live) loads and the seismic acceleration loading.
   2. Unless otherwise stated, materials making up the transformer shall not be stressed in excess of that allowed by applicable codes and standards when subjected to the combined loads described in "A" above.

E. Seismic Loading
   1. Seismic acceleration loads shall be determined by the dynamic method using the High Required Response Spectra shown by Figure "1" which is the same as Figure "A.1" in IEEE Standard 693.
   2. The horizontal Zero Period Acceleration (ZPA) is 0.5g and the vertical ZPA is 0.33g; damping greater than 5% is not acceptable.
   3. The two forces in the horizontal direction (X and Y axes) of the seismic motion shall be combined and considered to be applied to the transformer simultaneously, with the forces in the vertical direction.
   4. The resultant stress at any point in the transformer shall be determined by combining all the stresses from each mode of shape and direction of seismic motion by the Square Root of the Sum of the Squares (SRSS) method.
   5. To prevent overturning or sliding during earthquakes, the transformer base shall be welded to embedded anchor plates in the foundation; the location, size and the lengths of the required weld shall be determined by
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the structural engineer and the information supplied to Cal Poly by the manufacturer.

6. The seismic anchoring provisions shall be welded to the transformer’s base area. Provisions for anchor bolts shall be included.
7. Anchoring plates shall be flush with transformer foundation.
8. Anchoring should be designed so that the transformer can twist, turn, or move 3-inches in any direction prior to being permanently clamped down.

F. Verification
1. Vendor shall perform analysis, tests, or a combination of both as recommended by IEEE Standard 693 to verify compliance with these seismic requirements.
2. All seismic calculations shall be documented in a form understood by persons trained in seismic analysis and available for review by Cal Poly.
3. All test procedures, records and reports shall be prepared as recommended in IEEE Standard 693.
4. Special requirements for mounting the baseplate or skid of the transformer and anchor bolts to the foundation shall be part of the seismic analysis.

G. Statement of Compliance
1. Manufacturer shall submit to Cal Poly a statement attesting to their compliance with the seismic requirements of this Specification.
2. A seismic qualification identification plate shall be designed and attached to the transformer to last its service life. The plate shall include as a minimum the following: IEEE 693-"year", date of report, high qualification level, seismic qualification report number and qualification method.

PART 2 - PRODUCTS

2.01 PRIMARY SUBSTATION TRANSFORMER

A. Ratings
1. Number of Phases: Three
2. Capacity LV
   a. LV Capacity @ 55°C Rise 15/20/25 MVA
   b. LV Capacity @ 65°C Rise 16.8/22.4/28 MVA
3. Cooling Class
   a. 55°C Rise: KNAN/KNAF/KNAF
   b. 65°C Rise: KNAN/KNAF/KNAF
4. Coolant: Natural Ester Fluid, preferably BIOTEMP
5. Frequency: 60 Hertz
6. High Voltage: 70,000 Volts, delta connected
7. High Voltage Basic Impulse Level (BIL): 350 kV
9. Low Voltage Basic Impulse Level (BIL): 110kV
   a. LV Neutral BIL: 110kV
10. Impedance: Not less than 8.60%, and not greater than 8.75% @ 15 MVA, including any change in impedance resulting from short circuit testing.
   a. Manufacturer shall state the guaranteed impedance in the quotation. Transformer design and construction shall ensure that a short circuit test of the transformer will not result in an impedance
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change exceeding 2% of the impedance value measured prior to short circuit testing.

11. Tap Changers

a. High Voltage No Load-Tap Changer

1) In addition to the LTC on the low side of the transformer, a
3 phase, gang-operated, no load-tap changer with five (5)
full-capacity steps to cover a minimum tap range of +/- 5%
range is to be installed at high voltage winding of the
transformer. The full capacity shall include the emergency
erating of the transformer. The center voltage tap is 70kV.
The ranges are 73.50kV, 71.75kV, 70kV, 68.25kV,
66.50kV respectively. Only externally operated no load-tap
changer designs approved by Cal Poly are acceptable.
Taps shall be located in the high voltage windings. The tap
changer shall be capable of carrying the full transformer
short circuit current without damage or contact separation.
The operating handle shall have padlock provision and its
location shall be easily accessible by a 5'-0" person
standing at the transformer base. A three-phase, gang-
operated, no load-tap changer with five (5) full capacity
steps to cover a minimum tap range is to be installed at the
high voltage winding of the transformer base.

b. Low Voltage Tap Changer

1) The transformer shall have a full capacity load tap changer
conforming to IEEE C57.12.10 Section 6 suitable for full
current operation through all taps at 28MVA @ 65°C.
Load tap changing equipment shall be placed in low
voltage winding and shall provide +/-10% automatic
adjustment of the low voltage winding voltage in
approximately 95V steps with sixteen (16) above and
sixteen (16) steps below, for a total of thirty three steps,
rated nominal winding voltage. There shall be a constant
voltage variation between steps over the full tap range.
Neutral voltage tap is 12.470kV. The tap voltage steps
shall match the existing 10MVA Virginia Transformer with
ABB OLTC, Type UZERT 200, 600A. Refer to the ABB
OLTC catalog number and voltage step values provided in
section 33 7313 Annex 1.

2) The load tap changing apparatus shall be only the
reactance vacuum type and conform to IEEE 131 latest
revision and IEEE C57.12.10, latest revision, except as
otherwise specified herein. The load tap changer and
operating mechanism shall be installed on the side of the
transformer tank. Only Reinhausen type RMV-II load tap
changer rated at 2500 Ampere, designed to handle
transformer full emergency capacity, is acceptable.

3) The load tap changer shall be capable of performing not
less than 500,000 load operations at rated current and at
rated step voltage without replacing or rebuilding any of its
components.
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4) For each load tap changing apparatus, a type test certificate shall be provided to Cal Poly as verification of the above specified capabilities.

5) The load tap changing apparatus, including all selector and transfer switches, shall be in separate, oil filled compartments that are attached to the main tank. The barrier between the load tap changer compartments and the main tank shall be capable of withstanding the forces imposed by the full vacuum filling of the main transformer tank. Internal inspection within the tap changer compartment shall not require lowering the oil level in the main tank.

6) The load tap changer shall be capable of both automatic and manual operation under load and shall meet IEEE Standard C57.12.30 latest revision. The load tap changer shall have a pressure relief device with mechanical flag (that can easily be seen from ground level) and alarm contact wired to the cabinet terminal block.

7) The automatic control equipment for the LTC shall be provided in the Reinhausen type MD-III motor drive and including among others the following features:
   a) Reinhausen TAPCON 250 automatic voltage regulating relay with the paralleling option allowing LTC potentiometer position input and DNP3.0 level 2 protocol communications to SCADA via fiber optic installed in Reinhausen MD-II type motor drive.
   b) MANUAL AUTOMATIC transfer switch.
   c) Voltage testing terminals.
   d) All necessary switches and relays for manual, automatic and remote controlled LTC operation.
   e) Reversing selector switch.
   f) Digital line drop compensator.
   g) RS-232, RS-485 and Fiber Optic ports for communication to a SCADA System via DNP 3.0.
   h) Separate front mounted RS-232 port for controller configuration.
   i) LTC Load Tap Changer Accessories
      (1) Reinhausen-Messko Maintenance free dehydrating breather DB 100 RM

12. Load Tap Changer Controls
   a. The manufacturer will provide the Reinhausen automatic control equipment for LTC control of the existing Virginia Transformer with ABB OLTC that is needed to replace the existing Beckwith Load Tap Changer Controls and Paralleling controls.
   1) Submit a complete bill of materials of all components needed to completely replace the existing Beckwith LTC controls to allow for both individual LTC control of the Virginia Transformer ABB OLTC and paralleling control between the two transformers.
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b. A tap-position indicator shall be mounted on the transformer, with all necessary controls to electrically reset the MIN/MAX drag hands with a 120V voltage supply. References to "raise" and "lower" shall be relative to the low-voltage side.

c. The manufacturer shall provide and utilize the LTC controller's fiber optic ports for communication back to the Cal Poly Substation Automation system. The manufacturer shall provide technical support to the Cal Poly SCADA system integrator for both programming and commissioning.

d. All tap-changer motor controls and tap-position indicator controls shall be capable of operating with a 208/240V, 60Hz, single-phase circuit. The use of other voltages is subject to approval by Cal Poly.

e. The transformer shall include tap-changer controls on the transformer include the hand crank for manual operation, and shall be operable from the ground. The tap-position indicator shall be visible from the operating position.

f. The manufacturer shall provide a MR1 MU transducer and a potentiometer with following characteristics:
   1) Range: 350 Ohms
   2) Output: 4-20mA (for interfacing to M-2025)
   3) Power supply: 48-368VDC, 48-260VAC 60Hz

g. The motor for the load-tap-changing mechanism shall be noted for 60Hz operation and rated at 208/240VAC, single-phase. Other options are subject to approval by Cal Poly.

h. Provide hand crank provisions for maintenance operation of LTC. Hand crank shall be stored within LTC control cabinet.

13. Vector Relationship: Primary voltage shall lead the Secondary voltage by 30 degrees. Match the coil arrangement of existing transformer.

14. Elevation: The transformer will be located at 380 Ft above sea level.

15. Ambient temperature: Average high 28°C, Recorded high 34°C.

B. Electrical Design

1. The transformer shall be designed to operate continuously in parallel with the existing transformer. The existing transformer was manufactured by Virginia Transformer Corporation.
   a. SL Number: 47010MA141-A837A
   b. Manufacture: 05/2006
   c. ABB OLTC: Type UZERT 200, 600A
   d. Impedance of 8.74 at 10,000kVA

2. The transformer, including all core and coil assemblies, shall be power class, round core/circular coil design and construction. High voltage and low voltage windings for the main core/coil assembly shall be helical construction or as necessary to match the windings of the existing transformers. All windings shall be copper conductors.
   a. Cal Poly reserves the right to inspect the completed core and coil assembly prior to tanking. The manufacturer shall notify Cal Poly not less than ten days prior to the date of tanking to allow Cal Poly to witness tanking, if so desired.

3. The core induction at 110% voltage and no load shall be limited to 1.93 Tesla with step lap joints and 1.90 Tesla without.
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4. All cooling ducts in the core and between the tie plates and core shall utilize high temperature material capable of withstanding the expected temperatures.

5. The core hot spot temperature shall be less than 125°C at full rated load, 105% voltage, and 30°C Average ambient temperature (Core Hot Spot Gradient over Top Oil Rise + Top Oil Rise Over Ambient + 30°C Average Ambient Temperature).

6. The core surface temperature shall be less than 95°C at full rated load, 105% voltage, and 30°C Average ambient temperature (Core Surface Gradient over Top Oil Rise + Top Oil Rise Over Ambient + 30°C Average Ambient Temperature).

7. The maximum allowed burr on the edges would be .05 mm or .00078 inches.

8. The gap between sheets at the corners of the yokes shall not exceed 5mm.

9. Core steel must be supplied by AK or ORB.

10. The core shall be connected to ground through a terminal located on the tank wall.

11. The transformer design shall be adequate to withstand short circuits, with the fault current limited only by the impedance of the transformer itself. The coil assembly shall be rigidly braced in a high strength frame that distributes clamping forces around the full circumference of the windings.

12. Internal surge arresters or non-linear resistors shall not be included as part of the internal insulation system, unless written authorization is first obtained from the engineer.

13. Insulation on all conductors used in the coil winding process shall be cellulose insulating paper. It shall be wound onto the conductor employing a spinning process. The paper insulation shall be applied in single or multiple strands such that a minimum of 30% of the paper surfaces are overlapped to provide for a continuous insulating surface. Sufficient tension shall be maintained on the paper strands so as to prevent loose wraps. All coils shall include full circumference clamping rings. Core and coils shall be dried using a "vapor phase" system prior to filling and power factor after vapor phase shall be less than 0.5 percent.

14. Spacer, barrier pressboard, and electrical grade papers shall be made from high quality pulp. Pressboard and paper shall be produced from selected grades of purified 100% sulfate, virgin, unbleached Kraft pulp. The electrical paper and board production must be monitored by computer controlled inspection systems for detection and removal of defects and imperfections.

15. Pressboard for spacers, barriers, and cylinders shall be manufactured using the pre-compressed pressboard method. All materials used in the pressing column shall be high density.

16. Paper insulation shall be thermally upgraded Kraft paper (65°C ratings) as defined by ANSI/IEEE C57.100 as cellulose based paper, which has been chemically modified to reduce the rate at which the paper decomposes. Values for nitrogen content of acceptable thermally upgraded papers shall be between 1 and 4 percent when measured in accordance with ASTM D-982. Paper shall be thermally stabilized using the Insuldur® system or alternative utilizing a combination of dicyandiamide, melamine, and polyacrylamide. Paper insulation for
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Continuous Transposed Conductor or single / bundled conductors shall be elongated papers such as WEIDMANN crepe paper 22HCC and Cottrell high density elongated paper. The minimum density shall be 1 gm/cc and the elongation shall be 19%. WEIDMANN is the preferred vendor.

17. Lignostone or similar material (laminated wood) shall not be used in high electrical stress areas or in direct contact with any current carrying components.

18. Manufacturer shall provide an alternate cost to provide Nomex paper insulation.

19. All electrical connections require through bolts and nuts.

20. Lock washers are acceptable only if fully retained by cup washers.

21. All electrical connections shall be made with a minimum of two bolts.

C. Cooling Equipment and Controls

1. Cooling equipment shall be furnished as required to provide the transformer's rated capacity without exceeding the guaranteed temperature rise.

2. Forced cooling capacity shall be provided by the use of fans for forced air cooling. Temperature control shall be provided by winding temperature equipment, including a temperature indicator and relay contacts to automatically actuate forced cooling equipment in proportion to the transformer load.

3. Cooling equipment motors shall be rated for service on a 120/240 volt, single phase power supply. Control circuit devices shall be rated 120 volt single phase. Alarm circuit devices shall be rated for 48 volts DC. Manufacturer shall confirm the substation DC control voltage of 48VDC or 125VDC prior to submitting the approval drawings.

4. Manual control switches shall be provided in the control cabinet to allow testing and maintenance of the cooling fans, and to enable selection of which group of fans is used for the first forced cooled stage. Transformer cooling equipment shall be designed for continuous self-cooled/force-cooled operation.

5. Removable radiators will be supplied with individual shut-off valves at each tank connection. Radiators shall be galvanized. Each radiator will be supplied with means for draining and venting.

6. All radiators shall be interchangeable.

7. All fans shall have galvanized fan guards and be provided with one piece fan blades.

D. Mechanical Construction

1. The tank and radiators shall be fabricated from steel with sufficient strength to withstand normal service stresses without distortion or damage. The tank shall be welded using precision cut, cold-rolled steel plate and equipped with extra-heavy duty, welded-in-place lifting lugs and jacking pads. The tank base shall be designed to allow skidding or rolling in any direction.

2. The tank shall be designed to withstand an internal operating pressure of 7 psig without permanent distortion, and 15 psig without rupturing with margin for a minimum of 25% over pressure, and full vacuum. All joints in
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the tank and radiators shall be made oil tight and gas tight by welding inside and outside.

3. Cover shall be domed to shed water. Cover shall be welded to the tank. Prevent the entrance of weld spatter into the tank during welding of the transformer cover to the tank.

4. All gasketed openings shall be designed with means provided for controlled compression of the gasket, utilizing metal-to-metal stops, and re-usable gaskets of oil resistant material. All gasketed joints on top of the transformer shall utilize flanges which are raised at least 3/4 inch above the cover surface.

5. Radiators shall be constructed to withstand tank operating pressure and full vacuum.

6. All tank seams shall be double welded (inside and outside) and shall be a minimum of six (6) inches from the corner. Corner welds are not acceptable.

7. All external tank supports or stiffeners shall be box beam construction and continuously welded.

8. Bolts, studs, and washers exposed to weather: non-magnetic 316 grade stainless steel; with mild steel or silicone bronze nuts when used on cover access plates; lubricated before installation.

9. Plated bolts, nuts, and washers shall not be used inside the tank.

10. Paint
   a. The tank shall be cleaned with an alkaline cleaning agent to remove grease and oil. An iron phosphate coating shall then be chemically bonded to the metal to assure coating adhesion and retard corrosion.
   b. The tank shall be primed with an electrodeposited powder epoxy to provide a barrier against moisture, salt, and corrosives. The tank shall then be coated with an electrostatically-applied, oven-cured polyester powder coat to enhance abrasion and impact resistance.
   c. The top-coat shall be a liquid polyurethane coating to seal and add ultraviolet protection. External paint color shall be Sky Gray, ANSI 70. The tank coating shall meet all requirements in ANSI C57.12.28 - latest revision.
   d. Inside of main tank and control equipment cabinet shall be painted white. Accelerated aging test must be performed on the paint to be used inside the tank. A plate steel sample coated with the white paint shall be submerged in transformer insulating oil and heated to 130°C. After 1,000 hours, there may not be any change in the painted surface, or in the power factor of the oil used for the test.
   e. The top of the main tank shall be a non-skid coating.
   f. Electrostatic application of the paint is required on the radiators. Radiators shall be galvanized.
   g. Finish Performance Requirements
      1) The tank coating shall meet all requirements in ANSI C57.12.28 including:
         a) Crosshatch adhesion
         b) Humidity
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11. Oil System
   a. Oil preservation shall be accomplished by means of a sealed transformer tank system.
   b. Oil Preservation System
      1) Inert gas, dry nitrogen, positive pressure system complete with standard gas cylinder (nominal 200 cu. ft., right hand thread, Linde Type K), three stage regulator (complete with manual bypass valve around third stage regulator to allow fast purging of transformer tank), main tank shutoff valve between third stage and tank, gas sampling valve (at eye level), and gauges and connections.
      2) The gas cylinder shall be a steel tank. The cabinet mounting height shall not be higher than 6" above ground.
      3) Weatherproof cabinet shall house cylinder, regulators and gauges, cabinet door with twist latch type handle with 3-point latch. Two (2) gauges with three (3) wired out alarm contacts to be supplied as follows:
         a) Nitrogen Cylinder Low-Pressure Alarm
         b) Main Tank Low-Pressure
         c) Main Tank High-Pressure
   c. INSULATING LIQUID: A sufficient quantity of dielectric coolant shall be furnished for the transformer to fill it to the normal operating level. The dielectric coolant shall be listed less-flammable fluid meeting the requirements of National Electrical Code Section 450-23 and the requirements of the National Electrical Safety Code (IEEE C2-2002), Section 15. The dielectric coolant shall be non-toxic*, non-bioaccumulating and be readily and completely biodegradable per EPA OPPTS 835.3100. The base fluid shall be 100% derived from edible seed oils and food grade performance enhancing additives. The fluid shall not require genetically altered seeds for its base oil. The fluid shall result in zero mortality when tested on trout fry *. The fluid shall be certified to comply with the US EPA Environmental Technology Verification (ETV) requirements, and tested for compatibility with transformer components. The fluid shall be Factory Mutual Approved, UL Classified Dielectric Medium (UL-EOUV) and UL Classified Transformer Fluid (UL-EOVK), Envirotend® FR3 fluid and shall be certified "Non-PCB" in accordance with current EPA Regulations. *(Per OECD G.L. 203)

12. Auxiliary Power and Control Circuits
   a. All auxiliary power and control circuits which are supplied for connection to external circuits shall be brought to suitable terminal blocks located in a common, weather-resistant, NEMA 3R control cabinet. All contacts on auxiliary devices shall be wired to terminal blocks in the same cabinet for Owner's use. Terminal blocks shall be with washer head binding screws and white circuit identification

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marking strips. Shorting type terminal blocks shall be used on current transformer leads.

b. Cabinet shall be equipped with a stainless steel 3-point latching mechanism, and a continuous stainless steel hinge.

c. All welds on all enclosures shall be continuous to prevent moisture from entering.

d. Wire for control and power circuits shall be rated for use in conduits as well as cabinets, and shall utilize insulation which is both fire resistant and resistant to transformer insulating oil.

E. Transformer Loss Evaluation

1. The guaranteed no-load and load losses shall be stated in the submittal. Losses shall be calculated based upon a total load of 15MVA using 44.5% of the load for 14hrs and 80.5% of the load for 10hrs for a period of 4 years.

2. The total cost of ownership of the proposed transformer shall be calculated by the following formula:

   a. Total cost of ownership = Total transformer bid cost = (No-load loss x $4,250.00) + (Load loss x $850.00). Manufacturer shall coordinate with Cal Poly to establish energy cost values for evaluation of transformer cost. Use $0.12/kwhr for initial estimating of costs.

3. Reported losses shall use ANSI reference temperatures of 20°C for No Load Losses and 75°C for 55°C rise winding ratings and 85°C for 65°C rise winding ratings for Full Load Losses.

4. Actual no-load losses shall not exceed quoted by 10%. Actual load losses shall not exceed quoted by 6%.

5. If the tested core and/or winding losses of the completed transformer exceeds the kW losses quoted by the percentages in 2.01 E.4, the Contract price shall be reduced by the above amounts per kW actual core loss and/or actual winding loss in excess of that quoted in the Proposal. Core loss penalties will be evaluated separately from winding loss penalties. No additional payment will be made to the Manufacturer or Bidder if the actual losses are lower than the losses quoted in the Proposal.

2.02 ACCESSORY EQUIPMENT

A. The transformer shall be equipped with all accessories required by ANSI Standards, including:

1. Magnetic liquid level indicator with form "C" alarm contacts.

   a. Qualitrol model#032-106-01 magnetic liquid-level gauge, or approved equal, which conforms to ANSI Standard C57.12.10. One (1) shall be furnished for the main tank.

   b. Each gauge shall have two (2) sets of contacts for high and low alarms.

2. Liquid temperature indicator with form "C" alarm contacts.

   a. Qualitrol #104 Liquid Temperature gauge (remote mount thermometer)

   b. Gauge shall cover range of 0°C to 160 °C, and shall be equipped with universal type probe that is connected to a thermal well on
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the transformer tank; no alarms or control wiring shall be tied to this indicator.

3. Drain valve and the oil sampling valve located to allow draining or sampling from the bottom of the tank.
4. Lifting lugs for lifting complete oil filled transformers.
5. Lifting eyes for cover only.
6. Facilities for lifting core and coil assembly from tank.
7. Jacking facilities at four corners of the base.
8. Cover-mounted mechanical pressure relief device
   a. With automatic resealing operation
   b. With form "C" alarm contacts.
   c. Mechanical signal for indication of device operation.
9. Winding Temperature Gauge
   a. Transformer shall be equipped with Qualitrol #104 Winding Temperature gauge (remote mount thermometer).
   b. Gauge shall cover range of 0ºC to 180ºC, and shall be equipped with universal type probe that is connected to a thermal well on the transformer tank; no alarms or control wiring shall be tied to this indicator.
10. Sudden Pressure Relay
    a. The transformer shall be equipped with a Sudden Pressure Relay made by Qualitrol (Series 910) for 125 VDC operation, with 21/2" threaded flange mounted vertically, with external high speed 125 VDC seal-in relay having three (3) "a" tripping contacts and an auxiliary relay, wired out to cabinet terminal blocks.
    b. The sudden pressure relay shall be packaged and shipped as part of the transformer accessories.
    c. The relay shall be mounted on top of the transformer at or near the intersection of the centerline of the tank cover on the transformer. A boss shall be welded to the cover for the purpose of mounting a sudden pressure relay.
    a. The transformer shall be provided with monitoring equipment including:
       1) On line DGA monitors. This shall include two sampling valves, one near the top oil/top winding and the second near the bottom winding/ about 1-2 feet above the base in the segment the transformer control box is located within 4 feet of the centerline of the control cabinet. For the best results, the sampling shall be in the active oil flow between the cooling/radiators and windings.
       2) Thermal wells for thermal digital monitoring systems for the top oil, HV and LV winding temperature monitoring in the same segment at the top oil and winding hot spot above.
       3) Provide space in the transformer control cabinet for supplying power to these devices and bringing the outputs back to the control cabinet.
12. Diagrammatic nameplate of engraved stainless steel. Information provided on the nameplate shall be included with the bid documents.
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13. A minimum of two 24-inch diameter circular, bolted manhole covers shall be provided. Covers shall be located such that they are accessible without the removal of any other equipment.

14. An external core ground shall be provided and be:
   a. Removable without entry into the tank or removal of any transformer oil.

15. A device shall be provided for mounting a safety device in the approximate center of the tank cover and capable of supporting hardware including harnesses utilizing gravity brakes.

B. Bushings
   1. High voltage line bushings shall be located on the transformer cover in ANSI Segment 3; and shall be a minimum of 400 amperes, 72.5kV, 350kV BIL.
   2. Low voltage phase bushings shall be located on the side of the transformer in a full height air terminal chamber, ANSI Segment I; and shall be a minimum of 2000 amperes, 15kV, 110kV BIL.
   3. Low voltage neutral bushing shall be located on the side of the transformer with the phase bushings in a full height air terminal chamber, ANSI Segment 1; and shall be 600 amperes, 15kV, 1150V BIL.

C. All bushings shall be Sky Gray (ANSI 70) and shall have provisions for power factor testing. Bushings shall be oil-filled condenser type.

D. Current Transformers
   1. Multi-ratio bushing type current transformers for relaying service shall be furnished as described below:
   2. Each high voltage bushing (H1, H2, H3):
      a. Quantity 2 per bushing, 400:5 MR, with accuracy of C400.
   3. Low voltage bushing (X1, X2, X3):
      a. Quantity 1 per bushing, 1200:5 MR, with accuracy of C400.
      b. Quantity 1, per bushing 1200:5 SR 0.3 accuracy (Metering)
   4. Low Voltage bushing (X0):
      a. Quantity 1, 600:5 MR, with accuracy of C400.
   5. All Current Transformers shall have fully distributed windings and a minimum Thermal Rating Factor of 2.0.
   6. Cover mounted enclosures for current transformer wiring shall be provided with seep holes to avoid accumulated liquid.
   7. Transformer tanks must be manufactured in the United States, at the same facility where the main element is being built.

E. Surge Arresters: Provide six metal-oxide station type transformer mounted surge arresters.
   1. Three 72.5kV, 80kA surge arresters, rated 72kV MCOV, mounted near and connected to the primary high voltage bushings.
   2. Three 15kV, 50kA surge arrestors, rated 9kV MCOV, mounted near and connected to the secondary bushings.
   3. The transformer shall be equipped with a ground bus for connection of all surge arresters to ground pad(s) at the base of the transformer.
   4. Porcelain shall be ANSI 70 Sky Gray. Arresters shall meet the requirements of ANSI C62.11.

PART 3 - EXECUTION

3.01 FACTORY TESTS
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A. All routine tests listed in ANSI C57.12.00, plus additional tests as specified herein, are required. The transformer shall be fully assembled, including all permanent radiators and bushings, during test.

B. Five certified copies of the certified test report shall be delivered to Cal Poly not later than 10 days after completion of all factory tests.

C. The manufacturer shall notify Cal Poly of any unusual event or damage occurring during the fabrication of the transformer and of all tests which do not meet the specified or guaranteed values. Cal Poly reserves the right to inspect such damages or test failures. Corrective measures to overcome such damage or failure shall be reviewed with Cal Poly.

D. All routine tests listed in IEEE C57.12.00 and C57.12.90 for class II substation power transformers plus additional tests as specified herein, are required.

E. The transformer must be completely assembled for all Class II testing including:
   1. Winding insulation resistance
   2. Core insulation resistance
   3. Insulation Power factor
   4. Control (auxiliary) cooling losses
   5. No Load losses and exciting current @ 100 and 110%
   6. Dielectric Tests:
      a. Low frequency testing including 1 hour induced test with partial discharge measurements
      b. Low frequency on auxiliary devices control and current transformer circuits
      c. Lightning Impulse
   7. Dissolved gasses in oil
   8. Additional factory tests:
      a. Zero Sequence impedance tests
      b. Temperature rise
      c. Time Constant heat runs
      d. Overload heat runs
      e. Audible Sound Level
   9. Baselines for field acceptance test data including:
      a. 10kV Single phase excitation tests using a Doble M4000 Insulation Analyzer.
      b. 10kV leakage reactance tests using a Doble M4000 Insulation Analyzer with the M4110 Leakage Reactance Module.
      c. Sweep Frequency Response Analysis (SFRA) testing of the fully assembled, oil-filled configuration prior to shipping.
   10. Five certified copies of the certified test report shall be delivered to Cal Poly after completion of all factory tests.

F. Partial Discharge (PD) and Radio Influence Voltage (RIV) tests to include Picocoulomb measurements shall be performed. A maximum of 200pc is acceptable.

G. Insulation power factor tests shall be performed on all winding-to-winding and winding-to-ground insulation. Measured values exceeding 0.5% (corrected to 20C) will not be accepted.

H. Cal Poly reserves the right to request through-fault testing (at extra cost) at any time prior to final testing of assembled unit.
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I. Cal Poly reserves the right to witness testing. The manufacturer shall notify Cal Poly of the performance dates for all tests not less than five days prior to the date of a test to allow Cal Poly to witness testing if so desired.

J. The manufacturer shall notify Cal Poly of any unusual event or damage occurring during the fabrication of the transformer and during performance of all factory tests which do not meet the specified or guaranteed values. Cal Poly reserves the right to inspect such damages or test failures. Corrective measures to overcome such damage or failure shall be reviewed with Cal Poly.

3.02 FIELD ASSEMBLY

A. Contractor shall assemble the transformer and all accessories in accordance with the manufacturer's instructions.

B. Contractor shall remove temporary lifting angles, lugs and shipping braces. Touch up damaged paint finishes.

C. Manufacturer shall include the cost to provide on-site services to inspect and assist with pre-energization field testing, commissioning, and energization. The cost shall include on-site representation for five consecutive days inclusive of travel, lodging, and per diem.

3.03 FIELD TESTING

A. Contractor shall engage the services of an independent testing firm, acceptable to Cal Poly, to inspect and test the installed equipment, under the supervision of the manufacturer's representative, prior to energization. The testing firm shall provide all material, labor, equipment and technical supervision to perform the tests and inspection. Notify the manufacturer's representative and Cal Poly at least 2 weeks prior to scheduling any testing.

B. Equipment testing and inspection shall be performed in accordance with NETA Standard ATS and shall include the following:
   1. Visual and mechanical inspection.
   2. Insulation resistance tests, winding-to-winding and winding-to-ground, using a meg-ohmmeter, at nominal tap position with all cables disconnected.
   3. Perform insulation power factor tests or dissipation factor tests on all windings and bushings. Test voltage shall be limited to the line-to-ground voltage rating of the winding.
   4. Sample and test insulating liquid for dissolved gas analysis, dielectric breakdown voltage, acid neutralization number, specific gravity, interfacial tension, color and visual condition. Perform PPM water and P.C.B. tests on 25 kV units and higher and on silicone filled transformers.
   5. Perform individual excitation current tests on each phase.

C. In the event of an equipment fault, notify the Engineer immediately. After the cause of the fault has been identified and corrected, a joint inspection of the equipment shall be conducted by the Contractor, the Engineer and the equipment manufacturer's factory service technician. Repair or replace the equipment as directed by the Engineer.

D. During the five day period the manufacturer's on-site representative is present and on-site, the contractor shall complete all inspection and pre-energization activity in close coordination with the manufacturer's site representative and provide written notification to Cal Poly that all inspection is ready for energization.
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E. The contractor shall coordinate energization of the transformer with Cal Poly, PG&E and all service personnel for a day and time acceptable to all parties. The contractor shall participate in development of switching procedures that will be written prior to energizing the transformer.

F. The contractor shall conduct and coordinate completion of the functional performance commissioning tests of the energized transformer in accordance with the commissioning plan.

END OF SECTION 33 7313

ANNEX 1 TO SECTION 33 7313

PART 4 - TRANSFORMER INFORMATION STATEMENT (TIS)

Important: The following information and data sheets must be submitted with the transformer bid. Failure to include this information may result in the bid being considered non-responsive.

The Proposal for the equipment and/or material specified in the attached Specification shall contain the following specific information as a minimum and shall be supplied in the following manner. All proposal drawings and information furnished shall be in clear English. Dimensions shall be in English units. If desired, or where additional space is required by the Bidder, references may be given on the TIS indicating specifically where in the Proposal the required information may be found.

4.01 GENERAL INFORMATION

A. Any and all exceptions to this Specification and general conditions must be listed individually and accompany the proposal. If there are no exceptions, the words "No Exceptions" must be included on a separate page.

B. The lump sum price included in the bid for shipping of the transformer from the factory to the pad (drayage expense).

C. Concise information on any alternate construction or revision(s) being proposed by the Manufacturer.

D. The time required from placement of order to receipt of drawing(s) for Cal Poly approval.

E. A realistic delivery schedule based on date of order placement, upon which the successful bidder will be evaluated.

F. Location where the transformer will be assembled and factory tested.

G. Statement of Qualifications:
   1. Number of years in business
      a. _____ years
   2. Number of years’ experience manufacturing transformers comparable with that required under the proposed contract, including rating, voltages, and tap changing equipment.
      a. _____ years

H. A partial list of transformers the Bidder has manufactured that are similar in design and in magnitude to that required in the proposed contract (if none, so specify). List no more than 20 contracts and include the following for each contract:
   1. Year of completion
LIQUID-FILLED UTILITY TRANSFORMER

2. Owner
3. Location (city and state)
4. Contract amount
5. MVA
6. Voltages
7. Month from Purchase Order to Delivery

I. Provide a statement from an authorized company representative that gives the guaranteed accuracy of the test equipment and measurement method used to measure both no load and load losses of the transformer (attached). Also provide a statement from an authorized company representative that verifies that the accuracy of the test equipment used for loss measurements has been or will be checked and recalibrated, if necessary, within 12 months of testing the transformer (attach). Provide the basis for determination of the accuracy of the test equipment and measurement method (i.e. National Institute of Science and Technology Note 1204) and traceability of calibration process to United States (National) Standards. (Note: no payments will be made without certification of loss measurement accuracy and proof of data that accuracy was verified or recalibrated.)

J. Provide a statement from an authorized company representative that outlines the availability of spare parts, service, and engineering support within domestic United States. Assurance of long-term commitment to product support must be provided.

K. Any additional information required by Cal Poly as listed in main Specifications.

4.02 TRANSFORMER WARRANTED CHARACTERISTICS

A. Transformer and cooling equipment losses will be considered in the bid evaluation. The Transformer Bidder warrants that the transformer losses listed below are at rated voltage, 60 Hertz, and unity power factor 1.0 at 12.47kV terminals, and will be equal to or less than the losses measured when the transformer and the auxiliaries are tested in accordance with the procedure outlined in Cal Poly Specifications for 115-12.47kV distribution power transformers. The losses indicated by the Bidder will be maximum guaranteed values at a standard reference temperature of 75°C.

1. Losses (to nearest tenth of a kilowatt):
   a. Transformer no load losses (at neutral position)
      1) _____kW
   b. Transformer load losses at self-cooled rating and neutral position
      1) _____kW
   c. Forced cooling total power requirements
      1) Stage 1: _____kW
   d. Where the guaranteed accuracy of the Bidder's test method used to measure no-load and load losses exceeds 1 percent, the Bidder's no-toad and load Loss figures will be increased by the following percentage:
      1) Loss adjustment factor in percent = percent accuracy of loss measurement - 1.0 percent.
   e. No adjustment will be made for an accuracy of test method better than 1 percent. Adjusted kW figures will be used in Cal Poly's loss evaluation to determine the low-evaluated Bidder. No-load and
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load losses will be adjusted separately where the accuracy of measurement varies in each case.

2. Impedance at 15MVA self-cooled rating and 75°C reference temperature
   a. _____%

3. Regulation at rated voltage and rated load (KNAN rating)
   a. Unity power factor: _____%
   b. 0.8 power factor lagging: _____%

4. Excitation current at rated frequency:
   a. 100% rated voltage: _____A
   b. 110% rated voltage: _____A

5. Contractor shall coordinate with Cal Poly to establish energy cost values for evaluation of transformer cost. The transformer losses will be evaluated at the transformer self-cooled rating with one stage of cooling running using the following data for bid comparison:
   a. No-load (core) losses: $4,250.00/kW
   b. Load (winding) losses: $850.00/kW

6. If the tested core and/or winding losses of the completed transformer exceed the kW losses quoted above, the Contract price shall be reduced by the above amounts per kW actual core loss and/or actual winding loss in excess of that quoted in the Proposal. Core loss penalties will be evaluated separately from winding loss penalties. No additional payment will be made to the Manufacturer of Bidder if the actual losses are lower than the losses quoted in the Proposal.

7. Cal Poly has the option to independently measure no-load losses for the transformer in order to verify the accuracy of the test results supplied by the successful Bidder. Costs for additional testing will be at the expense of Cal Poly unless the test results conclusively show that the Manufacturer’s test data is in error.

4.03 TRANSFORMER DATA

A. The following information shall be supplied with the Bidder’s Proposal to illustrate and describe the various features of the transformer.
   1. Preliminary general arrangement and outline drawings proposed.
   2. Descriptive material, drawings and/or photographs to illustrate type of construction and materials proposed for major components.
   3. Description of handling and shipment proposed including maximum shipping weights and dimensions.
   4. Description of location of major shop facilities proposed for use in construction the electrical equipment and auxiliaries.
   5. Description and location of service shop and personnel under direct ownership and control of the Bidder which is the closest to the Project and which will be available for service work on the equipment if requested by Cal Poly. The description shall also state the length of time this service shop has been in operation.

6. Transformer weights
   a. Weight of core and coils (pounds)
   b. Weight of tank and fittings (pounds)
   c. Weight of oil (pounds)
   d. Gallons of oil
   e. Total weight of unit including oil (pounds)
f. Weight of heaviest part shipped (pounds)

7. Transformer dimensions
   a. Height, overall, including bushings (inches)
   b. Overall length (dimension parallel to a line from XI bushing to X3 bushing), overall (inches)
   c. Overall depth (dimensions parallel to line from H2 bushing to X2 bushing), overall (inches)
   d. Height, over case (inches)
   e. Minimum untanking height foundation to crane hook (inches)
   f. Height, center of gravity of transformer in place (inches)
   g. Base dimensions for foundation design:
      1) Length
      2) Depth

8. Foundation Impact Loading Information and Mounting Requirements.
9. Description of core and coil construction and materials.
10. Verification that transformer will meet or exceed the capacity tables for percent life loss at various ambient temperatures, oil temperatures, and peak load periods of ANSI C57.92 Tables 3m through 3q.
12. Complete description of controls proposed, including manufacturer(s), types, and options available.
13. Description of manual no-load tap changer.
14. Manufacturer, type, voltage and current ratings, and dimensions of all high and low voltage bushings (include all bushing stud sizes - these are essential to proceed with bus design).
15. Description of bushing current transformers, including: type, rating, ratios, location, accuracy class, thermal rating, and number supplied with each bushing.
16. A full description of the surge arresters, including all spark-over voltages and IR discharge voltages.
17. The maximum guaranteed radio influence voltage as measured in accordance with the test requirements of these Contract Documents.
18. Main no-load inrush current
   a. 70kV tap
   b. 71.75kV tap
19. The following guaranteed withstand voltage values in kV
   a. Basic insulation level
      1) 70kV WDG: _____
      2) 12.47kV WDG: _____
   b. Chopped wave 3 microsecond
      1) 70kV WDG: _____
      2) 12.47kV WDG: _____
   c. Low frequency
      1) 70kV WDG: _____
      2) 12.47kV WDG: _____
20. Number of groups of forced cooling equipment, voltage, and hp rating of each group.
21. Guaranteed maximum noise level at each rating in dBA.
22. Guarantee or warranty on transformer, spare parts, and accessories.
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23. Verification statement by an authorized company representative that foreign components are made to ANSI, NEMA, IEEE, and ASMB standards.

24. A signed statement by the Manufacturer's authorized representative detailing the number of years' experience making transformers similar to the ones described in this specification.

25. A list of special tools or equipment that are necessary for installation or maintenance of the transformer.

26. Recommended spare parts list.

27. Any additional information required by Cal Poly as listed in the main specification.

4.04 TESTS

A. Specific tests recommended by the Manufacturer to be made in the field at time of energization; indicate which tests and equipment will be furnished by the Manufacturer's Installation Engineer as a part of the price bid for the transformer.

B. Description of the supervision and installation services to be provided as part of the bid price.

C. List cost for following transformer tests per specification requirements:
   1. Temperature Rise Test
   2. Impulse Test
   3. Switching Surge Test
   4. Radio Influence Voltage (RIV)

END OF ANNEX 1 TO SECTION 33 7313
## Cost Proposal

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Description</th>
<th>Total</th>
</tr>
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<tr>
<td>1</td>
<td>Liquid Filled Utility Transformer</td>
<td>$</td>
</tr>
<tr>
<td>1</td>
<td>Freight (FOB Destination)</td>
<td>$</td>
</tr>
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<td>1</td>
<td>Delivery (FOB Destination)</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
<td>$</td>
</tr>
</tbody>
</table>

Additional Comments:

1. If installment payments are required, specify the terms

2. Provide estimated lead time and delivery date

**AUTHORIZED SIGNATURE:**

____________________________________________________

**AUTHORIZED NAME and EMAIL ADDRESS (Print):**

____________________________________________________

**SUPPLIER NAME:**

____________________________________________________

**DATE:**

____________________________________________________
Specification of Compliance

The Contractor must indicate below if their Bid is compliant with all exhibits of the IFB.

YES ____________ NO ____________

If Contractor has indicated the Bid does not comply in all respects, please list and explain all deviations below:

Failure to comply may cause the Bid to be deemed non-responsive.

AUTHORIZED SIGNATURE: ____________________________________________

AUTHORIZED NAME (Print): __________________________________________

CONTRACTOR: ___________________________________________________

DATE: ___________________________________________________________