



MISSOURI
HIGHWAYS and TRANSPORTATION
COMMISSION
JEFFERSON CITY, MISSOURI

BID
OF

Name _____

Address _____

FOR
CONSTRUCTING OR IMPROVING

DISTRICT - 4

PACKAGED ENGINE GENERATOR & AUTOMATIC TRANSFER SWITCH SYSTEM

LEE'S SUMMIT, MISSOURI

9-090529

BID NUMBER 9-090529

PACKAGED ENGINE GENERATOR AND AUTOMATIC TRANSFER SWITCH SYSTEM

LEE'S SUMMIT, MISSOURI

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Packaged Engine Generator Systems

INVITATION FOR BID (IFB) MISSOURI DEPARTMENT OF TRANSPORTATION
 GENERAL SERVICES - FACILITIES
 1320 CREEK TRAIL DRIVE – P.O. BOX 270
 JEFFERSON CITY, MO 65102

REQUEST NO.	9-090529
DATE	May 5, 2009
PAGE NO.	1
NO. OF PAGES	1

SEALED BIDS, SUBJECT TO THE CONDITIONS ON ALL PAGES OF THIS IFB WILL BE RECEIVED AT THIS OFFICE UNTIL:

May 29, 2009 at 3:00 PM Local Time

AND THEN PUBLICLY OPENED AND READ FOR FURNISHING THE FOLLOWING SUPPLIES OR SERVICES.

SIGN AND RETURN BEFORE TIME SET FOR OPENING.

BIDS TO BE BASED F.O.B. DESTINATION
 MISSOURI
 DEPARTMENT OF TRANSPORTATION
 Lee's Summit, Missouri

BUYER: Clayton Hanks BUYER
 EMAIL: Clayton.Hanks@modot.mo.gov

BUYER
 TELEPHONE: 573-522-9565

Supply one (1) Packaged Engine Generator and Automatic Transfer Switch System – construction and installation oversight is required and is included in the scope of work.

1. The undersigned, having examined the proposed Contract Documents titled: "PACKAGED ENGINE GENERATOR AND AUTOMATIC TRANSFER SWITCH SYSTEM" and having visited the site and examined the conditions affecting the Work, hereby proposes and agrees to furnish all labor, materials, equipment, transportation and everything which may be necessary or incidental thereto, as proposed by said Contract Documents, all to the satisfaction of the Chief Engineer of the Missouri Department of Transportation and the Missouri Highway and Transportation Commission, for the stipulated sum of:

_____ DOLLARS (\$_____).

- The undersigned, acknowledges having examined and being familiar with the contract documents including the drawings, the Instructions to Bidders, General Conditions, Supplementary Conditions and the body of technical specifications.
- The undersigned acknowledges receipt of Addenda number _____ through _____ inclusive.
- Enclosed with this bid is bid security in the amount of not less than 5% of the bidder's proposed Contract Sum, the amount being _____ DOLLARS (\$_____).

Alternate Pricing

Alternate #1: Provide price deduct for standard weatherproof enclosure in lieu of specified sound attenuated enclosure.
 _____ DOLLARS (\$_____).

Alternate #2: Provide price deduct for standard 2-year warranty, parts and labor in lieu of 5-year premium warranty.
 _____ DOLLARS (\$_____).

Alternate #3: Provide price deduct to eliminate the second 1200 Amp circuit breaker on the generator for load bank connection to generator.
 _____ DOLLARS (\$_____).

Alternate #4: Provide price add to provide 1200 amp isolation by-pass type transfer switch in lieu of standard ATS.
 _____ DOLLARS (\$_____).

Date: _____
 Telephone No.: _____
 Fax No.: _____
 Federal I.D. No. _____
 Email: _____

Firm Name: _____
 Address: _____
 By (Signature): _____
 Type/Print Name _____
 Title: _____

BID BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____,
as Principal, and _____,
as Surety, are held firmly bound unto the State of Missouri (acting by and through the Missouri Highway and
Transportation Commission) in the penal sum of _____ Dollars (\$ _____),
to be paid to the State of Missouri, or the Missouri Highway and Transportation Commission, to be credited to the
State Road Fund and Principal and Surety binding themselves, their heirs, executors, administrators, successors and
assigns, jointly and severally, firmly by these presents.

Sealed with our seals and dated this _____ day of _____, 20_____.

THE CONDITION OF THIS OBLIGATION is such that:
WHEREAS, the Principal is submitting herewith a bid to the Missouri Highway and Transportation Commission on
Route(s) _____,
in _____ County(ies), Project(s) _____,
for construction or improvement as set out in said proposal.

NOW THEREFORE, if the Missouri Highway and Transportation Commission shall accept the bid of the Principal,
and if said Principal shall properly execute and deliver to the Missouri Highway and Transportation Commission the
Contract, Contract Bond, Specifications and evidence of insurance coverage in compliance with the requirements of
the Proposal, to the satisfaction of the Missouri Highway and Transportation Commission, then this obligation shall
be void and of no effect, otherwise to remain in full force and effect.

In the event the said Principal shall, in the judgment of the Missouri Highway and Transportation Commission, fail to
comply with any requirement as set forth in the preceding paragraph, then the State of Missouri, acting through the
Missouri Highway and Transportation Commission, shall immediately and forthwith be entitled to recover the fees,
and any other expense of recovery.

Principal

Surety

By _____

Attorney in Fact (SEAL)

Attest: (CORPORATE SEAL)

Corporate Secretary

Note: This bond must be executed by the Principal and by a Corporate Surety authorized to conduct
surety business in the State of Missouri.

SUBCONTRACTOR LISTING

1. For portions of the Work equaling or exceeding 1% of the total proposed Contract Sum, the undersigned proposes to use the following subcontractors. Except as otherwise approved by the Owner, the undersigned proposes to perform all other portions of the Work with his own forces.

2. Portion of the Work:	Subcontractor name and address:
_____	_____

_____	_____

_____	_____

_____	_____

USE ADDITIONAL SHEETS
IF REQUIRED

PROVIDE SIGNATURE
IDENTICAL TO THAT
SHOWN ON THE BID FORM

BIDDER:

by _____

MISSOURI DOMESTIC PRODUCTS PROCUREMENT ACT

The bidder's attention is directed to the Missouri Domestic Products Procurement Act, Sections 34.350 to 34/359, RsMO, which requires all manufactured goods or commodities used or supplied in the performance of this contract or any subcontract to be manufactured or produced in the United States.

Section 34.355, RsMO, requires the vendor or contractor to certify his compliance with Section 34.353 and, if applicable, Section 34.359, RsMO, at the time of bidding **and** prior to payment. Failure to comply with Section 34.353, RsMO, during the performance of the contract **and** to provide certification of compliance prior to payment will result in nonpayment for those goods or commodities.

Section 34.353.2, RsMO, specifies that it does not apply where the total contract is less than Twenty-Five Thousand Dollars (\$25,000.00). If your total bid is Twenty-Five Thousand Dollars (\$25,000.00) or more, you **must** complete this form as directed below.

Failure to complete and return this document with this bid will cause the State to presume the manufactured goods or products listed in the bid are not manufactured or produced in the United States, and the bid will be evaluated on that basis. Please read the certification appearing below on this form.

- [] If all the goods or products specified in the attached bid which the bidder proposes to supply to the State shall be manufactured or produced in the "United States" as defined in Section 34.350, RsMO, check the box at left.

- [] If only one item of any particular goods or products specified in the attached bid is manufactured or produced in the "United States" as defined in Section 34.350, RsMO, check the box at left and list the items (or item number) here:

- [] If any or all of the goods or products specified in the attached bid which the bidder proposes to supply to the State are **not** manufactured or produced in the "United States" as defined in Section 34.350, RsMO, then: (a) check the box at left; (b) list below, by item (or item number), the country other than the United States where each good or product is manufactured or produced; and (c) check the boxes to the left of the paragraphs below if applicable and list the corresponding items (or item numbers) in the spaces provided.

Item (or item number)	Location Where Item Manufactured or Produced

(attach an additional sheet if necessary)

- [] The following specified goods or products cannot be manufactured or produced in the United States in sufficient quantities or in time to meet the contract specifications. Items (or item numbers): _____

- [] The following specified goods or products must be treated as manufactured or produced in the United States, in accordance with an existing treaty, law, agreement, or regulation of the United States, including a treaty between the United States and any foreign country regarding export-import restrictions or international trade. Items (or item numbers): _____

CERTIFICATION

By submitting this document, completed as directed above, with a bid, the bidder certifies under penalty of making false declaration (Section 575.060, RsMO) that the information contained in this document is true, correct and complete, and may be relied upon by the State in determining the bidders qualifications under and in compliance with the Missouri Domestic Products Procurement Act.

The bidder's failure to complete and return this document with the bid as directed above will cause the State to presume the manufactured goods or products listed in the bid are not manufactured or produced in the United States, and the bid will be evaluated on that basis pursuant to Section 34.353.3(2), RsMO.

PREFERENCE IN PURCHASING PRODUCTS

DATE: _____

The bidders attention is directed to Section 34.076 RSMo 2000 which gives preference to Missouri corporations, firms, and individuals when letting contracts or purchasing products.

Bids/Quotations received will be evaluated on the basis of this legislation.

All vendors submitting a bid/quotation must furnish ALL information requested below.

FOR CORPORATIONS:

State in which incorporated: _____

FOR OTHERS:

State of domicile: _____

FOR ALL VENDORS:

List address of Missouri offices or places of business:

THIS SECTION MUST BE COMPLETED AND SIGNED:

FIRM NAME: _____

ADDRESS: _____

CITY: _____ **STATE:** _____ **ZIP:** _____

BY (signature required): _____

Federal Tax I.D. #: _____ **if no Federal Tax I.D. # - list Social Security #:** _____

NOTE: For bid/quotation to be considered, the "Preference in Purchasing Products" form must be on file in the General Services (Facilities Management) Division and must be dated in the current calendar year.

MISSOURI SERVICE-DISABLED VETERAN BUSINESS PREFERENCE

By virtue of statutory authority, RSMo 34.074, a preference will be given all contracts for the performance of any job or service to service-disabled veteran business either doing business as Missouri firms, corporations, or individuals; or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing bids, in their entirety, are comparable.

Definitions:

Service-Disabled Veteran is defined as any individual who is disabled as certified by the appropriate federal agency responsible for the administration of veterans' affairs.

Service-Disabled Veteran Business is defined as a business concern:

- a. Not less than fifty-one (51) percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than fifty-one (51) percent of the stock of which is owned by one or more service-disabled veterans; and
- b. The management and daily business operations of which are controlled by one or more service-disabled veterans.

If an offeror meets the definitions of a service-disabled veteran and a service-disabled veteran business as defined in 34.074 RSMo and is either doing business as a Missouri firm, corporation, or individual; or maintains a Missouri office or place of business, the offeror **must** provide the following with the proposal in order to receive the Missouri service-disabled veteran business preference over a non-Missouri service-disabled veteran business when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing proposals, in their entirety, are comparable:

- a. A copy of a letter from the Department of Veterans Affairs (VA), or a copy of the offeror's discharge paper (DD Form 214, Certificate of Release or Discharge from Active Duty) from the branch of service the offeror was in, stating that the offeror has a service-connected disability rating ranging from 0 to 100% disability; and
- b. A completed copy of this exhibit

(NOTE: For ease of evaluation, please attach copy of the above-referenced letter from the VA or a copy of the offeror's discharge paper to this Exhibit.)

By signing below, I certify that I meet the definitions of a service-disabled veteran and a service-disabled veteran business as defined in 34.074 RSMo and that I am either doing business as a Missouri firm, corporation, or individual; or maintain Missouri offices or places of business at the location(s) listed below.

Veteran Information

Business Information

Service-Disabled Veteran's Name, (Please Print)

Service-Disabled Veteran's Signature

Service-Disabled Veteran Business Name

Missouri Address of Service-Disabled Veteran Business

Missouri Highways and Transportation Commission
Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

STANDARD SOLICITATION PROVISIONS

- a. The Missouri Department of Transportation (MoDOT) reserves the right to reject any or all bids/quotes/proposals, and to accept or reject any items thereon, and to waive technicalities. In case of error in the extension of prices in the bid/quote/proposal, unit prices will govern.
- b. All bids/quotes/proposals must be signed with the firm name and by a responsible officer or employee. Obligations assumed by such signature must be fulfilled.
- c. By virtue of statutory authority, a preference will be given to materials, products, supplies, provisions and all other articles produced, manufactured, made or grown, within the State of Missouri.
- d. Time of delivery is a part of the consideration and, if not otherwise stated in the solicitation documents, must be stated in definite terms by the Bidder/Offeror and must be adhered to. If time varies on different items, the Bidder/Offeror shall so state.
- e. If providing bids/quotes/proposals for commodities, the Bidder/Offeror will state brand or make on each item. If bidding or proposing other than the make, model or brand specified, the manufacturer's name, model number or catalog number must be given.
- f. **For bids/proposals of \$25,000 or more**, no bids/proposals by telephone, telegram or telefax will be accepted.
- g. The date specified for the returning of bids/quotes/proposals is a firm deadline and all bids/quotes/proposals must be received at the designated office by that time. The Department does not recognize the U.S. Mail, Railway Express Agency, Air Express, or any other organization, as its agent for purposes of accepting proposals. All proposals arriving at the designated office after the deadline specified will be rejected.

GENERAL TERMS AND CONDITIONS

General Performance

- a. This work is to be performed under the general supervision and direction of the Missouri Department of Transportation (MoDOT) and, if awarded any portion of the work, the Contractor agrees to furnish at his own expense all labor and equipment required to complete the work, it being expressly understood that this solicitation is for completed work based upon the price(s) specified and is not a solicitation for rental of equipment or employment of labor by MoDOT, and MoDOT is to have no direction or control over the employees used by the Contractor in performance of the work.

Deliveries

- a. Unless otherwise specified on the solicitation documents or purchase order, suppliers shall give at least 24 hours advance notice of each delivery. Delivery will only be received between the hours of 8:00 a.m. to 3:00 p.m., Monday through Friday. Material arriving after 3:00 p.m. will not be unloaded until the following workday. No material will be received on Saturday, Sunday or state holidays.
- b. If the prices bid herein include the delivery cost of the material, the Contractor agrees to pay all transportation charges on the material as FOB - Destination. Freight costs must be included in the unit price bid and not listed as a separate line item.
- c. Any demurrage is to be paid by the Contractor direct to the railroad or carrier.

Nondiscrimination

- a. The Contractor shall comply with the Regulations relative to nondiscrimination in federally-assisted programs of the Department of Transportation, Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.
- b. All solicitations either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials or leases of the Contractor's obligations under this contract and the Regulations, will be relative to nondiscrimination on the grounds of race, color, or national origin.
 - 1) **Sanctions for Noncompliance:** In the event of the Contractor's noncompliance with the nondiscrimination provisions of this contract, MoDOT shall impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:
 - i. withholding of payments to the Contractor under the contract until the Contractor complies, and/or,
 - ii. cancellation, termination or suspension of the contract, in whole or in part.

Contract/Purchase Order

- a. By submitting a bid/quote/proposal, the Bidder/Offeror agrees to furnish any and all equipment, supplies and/or services specified in the solicitation documents, at the prices quoted, pursuant to all requirements and specifications contained therein.
- b. A binding contract shall consist of: (1) the solicitation documents, amendments thereto, and/or Best and Final Offer (BAFO) request(s) with any changes/additions, (2) the Contractor's proposal and/or submitted pricing, and (3) the MHTC's acceptance of the proposal and/or bid by purchase order or post-award contract.
- c. A notice of award does not constitute an authorization for shipment of equipment or supplies or a directive to proceed with services. Before providing equipment, supplies and/or services, the Contractor must receive a properly authorized purchase order and/or notice to proceed.
- d. The contract expresses the complete agreement of the parties and performance shall be governed solely by the specifications and requirements contained therein. Any change, whether by modification and/or supplementation, must be accomplished by a formal contract amendment signed and approved by and between the duly authorized representative of the Contractor and the duly authorized representative of the MHTC, by a modified purchase order prior to the effective date of such modification. The Contractor expressly and explicitly understands and agrees that no other method and/or no other document, including correspondence, acts, and oral communications by or from any person, shall be used or construed as an amendment or modification.

Subcontracting

- a. It is specifically understood that no portion of the material or any interest in the contract, shall be subcontracted, transferred, assigned or otherwise disposed of, except with the written consent of MoDOT. Request for permission to subcontract or otherwise dispose of any part of the work shall be in writing to MoDOT and accompanied by documentation showing that the organization which will perform the work is particularly experienced and

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Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

equipped for such work.

- b. Consent to subcontract or otherwise dispose of any portion of the work shall not be construed to relieve the Contractor of any responsibility for the production and delivery of the contracted work and the completion of the work within the specified time.
- c. All payments for work performed by a subcontractor shall be made to the Contractor to whom the contract was awarded and the purchase order issued.

Invoicing and Payment

- a. MoDOT is exempt from paying Missouri Sales Tax, Missouri Use Tax and Federal Excise Tax. However, the Contractor may themselves be responsible for the payment of taxes on materials they purchase to fulfill the contract. A Project Tax Exemption Certificate will be furnished to the successful Bidder/Offeror upon request if applicable.
- b. Each invoice should be itemized in accordance with items listed on the purchase order and/or contract. The statewide financial management system has been designed to capture certain receipt and payment information. Therefore, each invoice submitted must reference the purchase order number and must be itemized in accordance with items listed on the purchase order. Failure to comply with this requirement may delay processing of invoices for payment.
- c. Unless otherwise provided for in the solicitation documents, payment for all equipment, supplies, and/or services required herein shall be made in arrears. The Missouri Highways and Transportation Commission (MHTC) shall not make any advance deposits.
- d. The MHTC assumes no obligation for equipment, supplies, and/or services shipped or provided in excess of the quantity ordered. Any authorized quantity is subject to the MHTC's rejection and shall be returned at the Contractor's expense.
- e. The MHTC reserves the right to purchase goods and services using the state-purchasing card.

Applicable Laws and Regulations

- a. The contract shall be construed according to the laws of the State of Missouri. The Contractor shall comply with all local, state, and federal laws and regulations related to the performance of the contract.
- b. The Contractor must be registered and maintain good standing with the Secretary of State of the State of Missouri and other regulatory agencies, as may be required by law or regulations. Prior to the issuance of a purchase order and/or notice to proceed, the Contractor may be required to submit to MoDOT a copy of their current Authority Certificate from the Secretary of State of the State of Missouri.
 - 1) Prior to the issuance of a purchase order and/or notice to proceed, all **out-of-state** Contractors **providing services** within the state of Missouri must submit to MoDOT a copy of their current Transient Employer Certificate from the Department of Revenue, in addition to a copy of their current Authority Certificate from the Secretary of State of the State of Missouri.
- c. The exclusive venue for any legal proceeding relating to or arising, out of the contract shall be in the Circuit Court of Cole County, Missouri.

Executive Order

- a. The Contractor shall comply with all the provisions of Executive Order 07-13, issued by the Honorable Matt Blunt, Governor of Missouri, on the sixth (6th) day of March, 2007. This Executive Order, which promulgates the State of Missouri's position to not tolerate persons who contract with the state engaging in or supporting illegal activities of employing individuals who are not eligible to work in the United States, is incorporated herein by reference and made a part of this Agreement.
 - 1) "By signing this Agreement, the Contractor hereby certifies that any employee of the Contractor assigned to perform services under the contract is eligible and authorized to work in the United States in compliance with federal law."
 - 2) In the event the Contractor fails to comply with the provisions of the Executive Order 07-13, or in the event the Commission has reasonable cause to believe that the contractor has knowingly employed individuals who are not eligible to work in the United States in violation of federal law, the Commission reserves the right to impose such contract sanctions as it may determine to be appropriate, including but not limited to contract cancellation, termination or suspension in whole or in part or both.
 - 3) The Contractor shall include the provisions of this paragraph in every subcontract. The Contractor shall take such action with respect to any subcontract as the Commission may direct as a means of enforcing such provisions, including sanctions for noncompliance.

Preferences

- a. In the evaluation of bids/quotes/proposals, preferences shall be applied in accordance with Chapter 34 RSMo. Contractors should apply the same preferences in selecting subcontractors.
- b. By virtue of statutory authority, RSMo. 34.076 and 34.350 to 34.359, a preference will be given to materials, products, supplies, provisions and all other articles produced, manufactured, made or grown within the State of Missouri. Such preference shall be given when quality is equal or better and delivered price is the same or less.

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- 1) If attached, the document entitled "**PREFERENCE IN PURCHASING PRODUCTS**" should be completed and returned with the solicitation documents.
 - 2) If attached, the document entitled "**MISSOURI DOMESTIC PRODUCTS PROCUREMENT ACT**" should be completed and returned with the solicitation documents. **Applies if bid is Twenty-Five Thousand Dollars (\$25,000.00) or more.**
- c. By virtue of statutory authority, RSMo 34.074, a preference will be given all contracts for the performance of any job or service to service-disabled veteran business either doing business as Missouri firms, corporations, or individuals; or which maintain Missouri offices or places of business, when the quality of performance promised is equal or better and the price quoted is the same or less or whenever competing bids, in their entirety, are comparable.
- 1) If attached, the document entitled "**MISSOURI SERVICE-DISABLED VETERAN PREFERENCE**" should be completed and returned with the solicitation documents.
- d. In the event of a tie of low bids, the MHTC reserves the right to establish the method to be used in determining the award

Remedies and Rights

- a. No provision in the contract shall be construed, expressly or implied, as a waiver by the MHTC of any existing or future right and/or remedy available by law in the event of any claim by the MHTC of the Contractor's default or breach of contract.
- b. The Contractor agrees and understands that the contract shall constitute an assignment by the Contractor to the MHTC of all rights, title and interest in and to all causes of action that the Contractor may have under the antitrust laws of the United States or State of Missouri for which causes of action have accrued or will accrue as the result of or in relation to the particular equipment, supplies, and/or services purchased or produced by the Contractor in the fulfillment of the contract with the MHTC.
- c. In the event a Contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Contractor may request MoDOT to enter into such litigation to protect the interests of the MHTC, and, in addition, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

Cancellation of Contract

- a. The MHTC may cancel the contract at any time for a material breach of contractual obligations or for convenience by providing the Contractor with written notice of cancellation. Should the MHTC exercise its right to cancel the contract for such reasons, cancellation will become effective upon the date specified in the notice of cancellation sent to the Contractor.
- b. If the MHTC cancels the contract for breach, the MHTC reserves the right to obtain the equipment, supplies, and/or services to be provided pursuant to the contract from other sources and upon such terms and in such manner as the MHTC deems appropriate and charge the Contractor for any additional costs incurred thereby.

Bankruptcy or Insolvency

- a. Upon filing for any bankruptcy or insolvency proceeding by or against the Contractor, whether voluntary or involuntary, or upon the appointment of a receiver, trustee, or assigned the benefit or creditors, the Contractor must notify MoDOT immediately. Upon learning of any such actions, the MHTC reserves the right, at its sole discretion, to either cancel the contract or affirm the contract and hold the Contractor responsible for damages.

Inventions, Patents, and Copyrights

- a. The Contractor shall defend, protect, and hold harmless the MHTC, its officers, agents, and employees against all suits of law or in equity resulting from patent and copyright infringement concerning the Contractor's performance or products produced under the terms of the contract.

Inspection and Acceptance

- a. No equipment, supplies, and/or services received by MoDOT pursuant to a contract shall be deemed accepted until MoDOT has had reasonable opportunity to inspect said equipment, supplies, and/or services.
- b. All equipment, supplies, and/or services which do not comply with the specifications and/or requirements or which are otherwise unacceptable or defective may be rejected. In addition, all equipment, supplies, and/or services which are discovered to be defective or which do not conform to any warranty of the Contractor upon inspection (or at any later time if the defects contained were not reasonably ascertainable upon the initial inspection) may be rejected.
- c. The MHTC reserves the right to return any such rejected shipment at the Contractor's expense for full credit or replacement and to specify a reasonable date by which replacements must be received.
- d. The MHTC's right to reject any unacceptable equipment, supplies, and/or services shall not exclude any other legal, equitable or contractual remedies the MHTC may have.

Warranty

- a. The Contractor expressly warrants that all equipment, supplies, and/or services provided shall: (1) conform to each and every specification, drawing, sample or other description which was furnished to or adopted by MoDOT, (2) be fit and sufficient for the purpose expressed in the solicitation documents, (3) be merchantable, (4) be of good materials and workmanship, and (5) be free from defect.
- b. Such warranty shall survive delivery and shall not be deemed waived either by reason of the MHTC's acceptance of or payment for said equipment, supplies, and/or services.

Status of Independent Contractor

- a. The Contractor represents itself to be an independent Contractor offering such services to the general public and shall not represent itself or its employees to be an employee of the MHTC. Therefore, the Contractor shall assume all legal and financial responsibility for taxes, FICA, employee fringe benefits, workers' compensation, employee insurance, minimum wage requirements, overtime, etc., and agrees to indemnify, save and hold the MHTC, its officers, agents and employees harmless from and against any and all losses (including attorney fees) and damage of any kind related to such matters.

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Indemnification

- a. The Offeror shall defend, indemnify and hold harmless the Commission, including its members and department employees, from any claim or liability whether based on a claim for damages to real or personal property or to a person for any matter relating to or arising out of the Offeror's performance of its obligations under this Agreement.

SPECIAL TERMS AND CONDITIONS

Insurance

- (1) Prior to contract signing, the Offeror may be asked about its ability to provide certificates of insurance which meet, or approach, the following coverages:

- | | |
|---|---|
| a. General Liability | Not less than \$500,000 for any one person in a single accident or occurrence, and not less than \$3,000,000 for all claims arising out of a single occurrence; |
| b. Automobile Liability | Not less than \$500,000 for any one person in a single accident or occurrence, and not less than \$3,000,000 for all claims arising out of a single occurrence; |
| c. Missouri State Workmen's Compensation policy or equivalent in accordance with state law. | |

Proposal/Bid Guaranty/Contract Bond

- a. Each proposal shall be accompanied by a Bid Bond, Certified Check, Cashier's Check or Bank Money Order payable to the Director of Revenue – Credit State Road Fund for an amount equal to Five Percent (5%) of the amount of the BID submitted. This is to act as a guarantee that the bidder, if awarded the contract, will furnish an acceptable performance and payment bond (Contract Bond) or a cashier's check, a bank money order or a certified check made payable to "Director of Revenue--Credit State Road Fund" in an amount equal to One Hundred (100%) of the contract price.
- b. If a BID BOND is used (in lieu of a certified check, cashier's check, or bank money order), it must be in the form provided and executed by the bidder as principal and by a surety company authorized to do business in the State of Missouri as surety. The agent executing the same on behalf of the surety company must attach a current Power of Attorney setting forth his authority to execute the bond involved.
- c. Certified Checks, Cashier's Checks or Bank Money Orders of unsuccessful bidders will be returned as soon as the award is made. The checks or bank money orders of the successful bidder(s) will be retained until the contract is executed and a satisfactory Performance and Payment (Contract Bond) is furnished. Bid Bonds will not be returned except on specific request of the bidder.

Information and Reports

- a. The Contractor shall provide all information and reports required by the Regulations, or Directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Missouri Department of Transportation or the Federal Highway Administration to be pertinent to ascertain compliance with such Regulations or Directives. Where any information required of a Contractor is in the exclusive possession of another who fails or refuses to furnish this information the Contractor shall so certify to the Missouri Department of Transportation, or the Federal Highway Administration as appropriate, and shall set forth what efforts it has made to obtain the information.

Permits, Licenses and Safety Issues

- a. The contract price shall include any necessary permits and licenses required by law incidental to the work. Local ordinances requiring building permits are not applicable to state agencies.
- b. The Contractor will comply with local laws involving safety in the prosecution of the work.

Award

- a. Award of this bid/quote/proposal will be made on an "All Or Nothing" basis using the "lowest and best" principle of award.

Failure to Execute Contract

- a. Failure to execute the contract and file acceptable performance payment (Contract Bond) or cashier's check, bank money order or certified check within **15 days** after the contract has been mailed to the bidder shall be just cause for the cancellation of the award and the forfeiture of the proposal guaranty. Award may then be made to the next lowest responsible bidder, or the work may be re-advertised and performed under contract or otherwise, as the Commission may decide. No contract shall be considered effective until it has been executed by all parties thereto.

Missouri Highways and Transportation Commission
Standard Bid/Proposal Provisions, General Terms and Conditions and Special Terms and Conditions

Notice to Proceed

- a. Within **30 days** after the execution of the contract, a "**Notice to Proceed**" will be issued by the Department. A purchase order will be attached to the "Notice to Proceed," which will specify the date or dates that the Contractor can start delivery, roadway or stockpile delivery and will also include the completion dates. These dates will be in accordance with the dates shown in the proposal.

Temporary Suspension of Work

- a. The **District Engineer** shall have authority to suspend work wholly or in part for such period or periods as may be deemed necessary when weather or other conditions are such that in the opinion of the engineer, the work may be done at a later time with advantage to the Department or for failure on the part of the Contractor to comply with any of the provisions of the Contract.
- b. If the Department suspends the work for its own advantages and not because of the Contractor's failure to comply with the Contract, the Contractor will be allowed an equal number of calendar days after the completion date for the completion of the work. The Department may at its discretion give the Contractor an extension of time for completing the work where the Contractor incurs delays for causes beyond his control.
- c. Normal rainfall is not considered a cause qualifying for an extension of time. Claim for extension of time for all causes must be submitted by the Contractor in writing within **30 Days** after the claimed cause for the delay has ceased to exist.

Cancellation of Contract

- a. If the Contractor/supplier fails to carry out the performance of the work with sufficient workmen and equipment to insure the completion of the delivery within the time specified or becomes insolvent or is adjudicated a bankrupt or commits any act of bankruptcy or insolvency or allows any final judgment to stand against him for a period of ten (10) days, the Missouri Department of Transportation may give notice in writing by registered mail to the Contractor/supplier and the surety of such delay, neglect or default.
- b. If, within ten (10) days after such notice the Contractor/supplier does not proceed to remedy to the satisfaction of the Department's representatives the faults specified in said notice, or the surety does not proceed to take over the deliveries, the Department shall have full power and authority, without impairing the obligation of the Contractor/supplier under the contract or the surety under the bond, to take over the completion of the work and arrange for the shipment of any materials necessary to complete the work and the Contractor/supplier and the surety will be responsible for any additional costs incurred by the Department in obtaining the completion of the deliveries.

Liquidated Damages

- a. In the event the successful Contractor fails to deliver the material within the time specified, the Department and the public will sustain damages because of such delay in delivery, the exact extent of which would be difficult to ascertain, and in order to liquidate such damage in advance it is agreed that the **sum of two-hundred fifty dollars (\$250.00) per day, per item**, for each assessable calendar day on which the delivery has not been completed, is reasonable and the best estimate which the parties can arrive at as liquidated damages, and it is therefore agreed that said amount will be withheld from payments due the Contractor or otherwise collected from the Contractor as liquidated damages.
- b. **Saturdays, Sundays, holidays and days whereas the Department has suspended work** shall not be assessable days.

Environmental Issues

Attention of the bidder is invited to the **Land Reclamation Act, Chapter 444, Laws of 1971, (House Bill 519)** and the necessity for compliance if applicable.

The Contractor shall take necessary precautions and shall schedule and conduct his operations so as to avoid or minimize siltation of streams while removing gravel there from.

Prohibition Of Employment Of Unauthorized Aliens:

- a. Pursuant to RSMo 285.530 (1), no business entity or employer shall knowingly employ, hire for employment, or continue to employ an unauthorized alien to perform work within the state of Missouri. As a condition for the award of any contract or grant in excess of five thousand dollars by the state or by any political subdivision of the state to a business entity, or for any business entity receiving a state-administered or subsidized tax credit, tax abatement, or loan from the state, the business entity shall, by sworn affidavit and provision of documentation, affirm its enrollment and participation in a federal work authorization program with respect to the employees working in connection with the contracted services. Every such business entity shall sign an affidavit affirming that it does not knowingly employ any person who is unauthorized alien in connection with the contracted services. [RSMO 285.530 (2)] A copy of the affidavit referenced above is provided within this document.

BID NUMBER 9-090529

**PACKAGED ENGINE GENERATOR AND AUTOMATIC TRANSFER SWITCH
SYSTEM**

LEE'S SUMMIT, MISSOURI

SUPPLEMENTAL DELIVERY TERMS

Timed delivery of the specified equipment is paramount and is contingent upon building construction start and progress which is subject to uncertain weather as well as other controlling events. We are attempting to contract for a backup power system well in advanced of the building construction to allow sufficient manufacturing and delivery time.

The successful bidder shall agree to supply and deliver specified equipment no earlier than October 7, 2009 and no later than December 31, 2009. The specific mandatory delivery date will be identified by the Missouri Department of Transportation at least 18-days before the equipment delivery.

**SECTION 16000
SUPPLEMENTAL GENERAL CONDITIONS**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Contractor shall furnish FOB MODOT, Lee's Summit District Office the generator and transfer switches as here-in specified.
- B. Provide all minor incidental items and accessories required.

1.02 CODES AND STANDARDS

Electrical equipment shall be manufactured in accordance with the most recently adopted edition of the Codes and Standards indicated.

1.03 GUARANTEES

- A. All materials, equipment, and devices furnished by this Contractor shall be guaranteed to be free from mechanical defects or faulty workmanship for a period of five years from date of acceptance by the Owner.

1.04 SUBMITTAL DATA

- A. Information on all equipment, and appurtenances to be furnished under Division 16 shall be submitted and approved prior to release for fabrication and/or shipment to the jobsite. Information shall be submitted allowing 14 days after receipt for return.
- B. Each Submittal shall include 12 complete copies. Six copies will be returned to the Contractor.
- C. Submittal Data including manufacturer's literature and data sheets showing quantity, model numbers, dimensions, weights, materials, and complete performance information shall be provided.
- D. This Contractor shall submit to the Engineered Designed Facilities four (4) copies of descriptive literature covering installation, as well as maintenance and operation data, and parts lists for each piece of equipment furnished under this Contract for inclusion in the Operations and Maintenance Manuals. Five percent of total Contract Amount shall be retained until O & M Materials are received.
- E. All submittals shall be in booklet form and grouped according to type e.g. generator equipment, transfer switches, etc. Submit only when all parts of an equipment submittal can be bound together and sent to the EDF.

MODOT

1.05 RECEIVING, UNLOADING AND HOISTING

- A. The installing Contractor shall be responsible for receiving, unloading and hoisting of materials and equipment furnished under this Contract.

1.06 RECORD DRAWINGS

- A. This contractor shall maintain at the site one copy of all his equipment drawings in good order and marked to record all changes made during installation.
- B. Upon completion of work, this contractor shall prepare and submit Record Drawings for his equipment. These drawings shall be complete with all "Record" conditions.

1.07 SEISMIC ANCHORAGE AND BRACING

- A. All equipment shall be designed, braced or anchored to resist a horizontal force acting in any direction as required by Building Codes.

1.08 START-UP ASSISTANCE

- A. This contractor shall provide qualified servicemen for the start-up and commissioning of mechanical, electrical and special systems.

End of Section 16000

**SECTION 16010
GENERAL PROVISIONS**

PART 1 - GENERAL

1.01 SCOPE OF WORK

- A. Applicable provisions of the General Conditions, Supplementary General Conditions, Special Conditions, and Electrical General Conditions shall govern work performed under this section.
- B. This section supplements all sections of this Division and shall apply to all phases of work hereinafter specified.

1.02 WORK INCLUDED

- A. Furnish all equipment specified herein.
- B. Provide certified factory trained technician to field inspect equipment installation and wiring. Provide Start-up services including field test and adjustments.

1.03 COORDINATION OF WORK.

- A. Contractor shall notify the Electrical Contractor of shipping date a minimum of fourteen (14) days prior shipping. Notification shall include equipment weights, center of gravity rigging and/or handling requirements for unloading and setting equipment. Conflicts arising from lack of coordination shall be this contractor's responsibility.

1.04 APPLICABLE PUBLICATIONS

- A. Design, manufacture, testing and method of installation of all apparatus and materials furnished under the requirements of these specifications shall conform to the latest publications or standard rules of the following:

Institute of Electrical and Electronic Engineers
(Formerly American Institute of Electrical Engineers) - IEEE
National Electrical Manufacturers' Association - NEMA
Underwriters' Laboratories, Inc. - UL
National Fire Protection Association - NFPA
Federal Specifications - FED. SPEC.
American Society for Testing and Materials - ASTM
American National Standards Institute - ANS
National Electrical Code - NEC
National Electrical Safety Code - NESC
Insulated Power Cable Engineers Association - IPCEA
American Institute of Steel Construction - AISC
State and Municipal Codes in Force

PART 2 - PRODUCTS

2.01 MATERIAL AND COMPONENTS

- A. All equipment and their components being furnished under this contract shall be new.

PART 3 - EXECUTION OF THE WORK

3.01 SPECIAL CONSIDERATIONS

- A. Shop Drawings shall be provided in accordance with the Mechanical and Electrical General Conditions sections and shall include shop drawings for:

Engine Generator and Transfer Switches

Provide, as part of the shop drawing submittal, system wiring diagrams for this installation. Partial or standard wiring diagrams will not be acceptable. The wiring diagrams shall be for the complete installed system and shall include point to point interconnecting wiring.

- B. Tests: Provide the tests as outlined hereinafter and other tests necessary to establish the adequacy, quality, safety, completed status and suitable operation of equipment being furnished under this Contract.
 - 1. Final Corrections: Correct promptly any failure or defects revealed by these tests as determined by the Engineered Design Facilities. Re-conduct tests on these corrected items as directed by the Engineered Design Facilities.

3.02 PROTECTION OF APPARATUS, MATERIALS AND EQUIPMENT

- A. Take such precautions as necessary to properly protect equipment and installations from damage of any kind during storage and shipping.

3.03 OPERATION AND MAINTENANCE MANUALS

- A. During the time of the contract and before final approval of the electrical installation, submit to the Engineered Design Facilities four (4) copies of descriptive literature, maintenance, recommendations from the equipment manufacturer, date of initial operation, wiring diagrams and parts list of each item of electrical equipment furnished under this contract. Submit all manufacturer's guarantees and warranties.

MODOT

Employ the necessary precautionary methods to prevent scratching or defacing of all electrical apparatus and devices. Provide "Touch-up" paint for electrical equipment furnished under this Contract.

3.04 TESTS

- A. Provide factory tests as outlined. Furnish to the Engineered Design Facilities the results of all factory tests.
- B. Field Tests
 - 1. Provide a factory trained technician for field inspection of equipment, start-up and field tests.
- C. Final Corrections

Correct promptly any failure or defects revealed by these tests as determined by the Electrical Construction Manager. Re-conduct tests on these corrected items as directed by the Electrical Construction Manager.

3.05 WARRANTIES

- A. This Contractor shall guarantee all materials and workmanship supplied by him to be free of defect for the period of five years after the acceptance date of work, and shall be required to replace or make adjustments for any defects due to faulty material or poor workmanship. The Electrical Designer or equipment manufacturer shall not be considered responsible for misuse of the installation or any of its parts by the Owner or owner's employees. All guarantees and warranties provided by manufacturers or others for longer periods shall be identified and passed through to the Owner. A complete list of all warranties shall be submitted with contact names, addresses and phone numbers prior to project completion.

End of Section 16010

**SECTION 16495
AUTOMATIC TRANSFER SWITCH**

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Automatic transfer switches.

1.2 REFERENCES

- A. NEMA ICS 1 - General Standards for Industrial Control and Systems
- B. NEMA ICS 2 - Standards for Industrial Control Devices, Controllers, and Assemblies
- C. NEMA ICS 2-447 - AC Automatic Transfer Switches
- D. NEMA ICS 6 - Enclosures for Industrial Controls and Systems
- E. UL 1008 - Standard for Automatic Transfer Switches

1.3 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in automatic transfer equipment with three (3) years documented experience.

1.4 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 16010.
- B. Submit product data for transfer switches showing overall dimensions, electrical connections, electrical ratings, and environmental requirements.
- C. Submit manufacturer's installation instructions under provisions of Section 16010.

1.5 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Section 16010.
- B. Include instructions for operating equipment.
- C. Include instructions for operating equipment under emergency conditions when engine generator is running.
- D. Identify operating limits which may result in hazardous or unsafe conditions.
- E. Document ratings of equipment and each major component.
- F. Include routine preventive maintenance and lubrication schedule.
- G. List special tools, maintenance materials, and replacement parts.

MODOT

1.6 REGULATORY REQUIREMENTS

- A. Conform to applicable code for emergency and standby electrical systems.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Asco
- B. Cummins
- C. Kohler.
- D. No substitution or alternates will be allowed or accepted.
- E. Models shall be designed and constructed equivalent to Asco Series 300

2.2 AUTOMATIC TRANSFER

- A. Configuration: electrically-operated, mechanically-held transfer switch.

2.3 SERVICE CONDITIONS

- A. Service Conditions: NEMA 1

2.4 RATINGS

- A. Rating : One (1) 1200 Amp and one (1) 150 Amp, 277/480V, 3-phase, 4-wire
- B. UL : : UL-1008.

2.5 AUTOMATIC SEQUENCE OF OPERATION

- A. Initiate Time Delay to Start Alternate Source Engine Generator: Upon initiation by normal source monitor.
- B. Time Delay to Start Alternate Source Engine Generator: 0 to 10 seconds, adjustable.
- C. Initiate Transfer Load to Alternate Source: Upon initiation by normal source monitor and permission by alternate source monitor.
- D. Time Delay Transfer to Alternate Power Source: 0 to 30 seconds, adjustable.
- E. Initiate Retransfer Load to Normal Source: Upon permission by normal source monitor.
- F. Time Delay Transfer to Normal Power: 0 to 30 minutes, adjustable; bypass time delay in event of alternate source failure.
- G. Time Delay Engine Shut Down: 0 to 30 minutes, adjustable, of unloaded operation.
- H. Engine Exerciser: Start engine every seven (7) days. Run for 30 minutes before shutting down. Bypass exerciser control if normal source fails during exercising period.

MODOT

2.6 ENCLOSURE

- A. Enclosure: NEMA ICS 6; Type 1.

2.7 ACCESSORIES

- A. Indicating Lights: Mount in cover of enclosure to indicate NORMAL SOURCE AVAILABLE, ALTERNATE SOURCE AVAILABLE, SWITCH POSITION.
- B. Test Switch: Mount in cover of enclosure to simulate failure of normal source.
- C. Return to Normal Switch: Mount in cover of enclosure to initiate manual transfer from alternate to normal source.
- D. Transfer Switch Auxiliary Contacts: 2 normally open; 2 normally closed indicating switch to normal source or emergency source.
- E. Normal Source Monitor: Monitor each line of normal source voltage and frequency; initiate transfer when voltage drops below 85 percent or frequency varies more than 3 Hertz from rated nominal value, values shall be field adjustable.
- F. Alternate Source Monitor: Monitor each line of alternate source voltage and frequency; inhibit transfer when voltage is below 85 percent or frequency varies more than 3 percent Hertz from rated nominal voltage, values shall be field adjustable.

PART 3 - EXECUTION

- 3.1 Manufacture, assemble, test and ship transfer switches as herein specified.

3.2 STARTUP

- A. Provide startup services in conjunction with the generator set.
- B. Set all settings for the application requirements or direction from the project engineer.

3.3 TRAINING

- A. Provide 2 hours of owner personnel training .

END OF SECTION

**SECTION 16622
PACKAGED ENGINE GENERATOR SYSTEMS**

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Packaged engine generator system
- B. Critical exhaust silencer and stainless flex
- C. Sound attenuated enclosure
- D. Battery and charger
- E. Subbase fuel tank
- F. Factory mounted vibration isolators

1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Section 15450 - Plumbing Equipment
- B. Automatic Transfer Switches

1.3 REFERENCES

- A. ANSI/NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)
- B. ANSI/NEMA MG 1 - Motors and Generators
- C. ANSI/NFPA 70 - National Electrical Code
- D. ANSI/NEMA AB 1 - Molded Case Circuit Breakers
- E. NFPA 37 – Installation and Use of Stationary Combustion Engines and Gas Turbines
- F. NFPA 110 – Emergency and Standby Power Systems
- G. UL 2200 – Standard for Stationary Engine Generator Assemblies
- H. Environmental Protection Agency EPA Emission Standards for Compressed Ignition Engines
- I. Noise Emission: Comply with applicable state and local government requirements for maximum noise level at property boundaries due to sound emitted by the generator set, its components and the operation thereof.

MODOT

1.4 SYSTEM DESCRIPTION

- A. Engine generator system to provide source of emergency and standby power.
- B. System Capacity: 800 Kw / 1000 KVA, 480/277 volt, 3-phase, 4-wire at an elevation of 1,000 feet above sea level, and ambient temperature between -20°F and **122°F**; standby rating using engine-mounted radiator.
- C. Operation: In accordance with NFPA 110.

1.5 SUBMITTALS : WITH BID

- A. Provide detailed compliance statement that the proposal meets the criteria set forth in the specifications including extended warranty, ambient rating, oversized generator rating, control panel requirements, enclosure system, fuel system and testing as minimum.

1.6 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 16010.
- B. Submit shop drawings showing plan and elevation views with overall and interconnection point dimensions, fuel consumption rate curves at various loads, ventilation and combustion air requirements, and electrical diagrams including schematic and interconnection diagrams.
- C. Submit product data showing dimensions, weights, ratings, interconnection points, and internal wiring diagrams for engine, generator, control panel, battery, battery rack, battery charger, exhaust silencer, vibration isolators, remote annunciator, and remote derangement annunciator.
- D. Interconnecting wiring diagram of complete emergency system, including generator, battery charger, fuel system and remote alarm indications as the site specification dictates. These drawings shall be specific to the project component requirements and provided by the dealer. Factory drawings that provide multiple interconnections for items not specific to the project will be rejected.
- E. Exhaust system calculations, in order to verify that the exhaust system does not violate the constraints of the generator maximum exhaust backpressure value when mounted indoor or package by an outside supplier other than the named manufacturer.. A system supplied direct as a package from the major manufacturer are exempt from this requirement.
- F. Submit certificates for compliance with EPA Emissions Standards for Compressed Ignition Engines.
- G. Engine and generator combination transient report at rated power factor for specific model supplied, of voltage and frequency transients response including recovery time at 50, 75 and 100% load application.
- H. Manufacturer's and dealer's written warranty disclosure statement for the period specified.
- I. Submit manufacturer's installation instructions under provisions of Section 16010.
- J. Authorized distributor shall provide copies of technician's factory training certificates specific to the proposed product on engine overhaul and electrical systems control repair in order to verify the level of support capabilities. Delegation of this service responsibility for any of the equipment listed herein will not be considered fulfillment of these specifications. Major engine and control parts shall be available within 24 hours from the time a component is deemed defective.

MODOT

1.7 PROJECT RECORD DOCUMENTS

- A. Submit record documents under provisions of Section 16010.
- B. Accurately record location of engine generator and mechanical and electrical connections.

1.8 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Section 16010.
- B. Include instructions for normal operation, routine maintenance requirements, service manuals for engine, oil sampling and analysis for engine wear, and emergency maintenance procedures.

1.9 QUALIFICATIONS

- A. Manufacturer: Company specializing in packaged engine generator system with minimum five (15) years documented experience.
- B. Supplier: Authorized distributor of engine generator manufacturer with service facilities within 50 miles of the project site.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Section 16010.
- B. Store and protect products under provisions of Section 16010.
- C. Accept packaged engine generator set and accessories on site in crates and verify damage.
- D. Protect equipment from dirt and moisture by securely wrapping in heavy plastic.

1.11 WARRANTY

- A. The standby electric engine-generator and instrumentation panel from the factory shall be warranted by the manufacturer against defective materials and factory workmanship for a period of **5 years with a 2,500 hour term**. Such defective parts shall be repaired or replaced at the manufacturer's option, free of charge **including** travel and labor. (Alternate #2)
 - 1. Warranty shall include all equipment as shipped consist from the factory excluding filters, fluids, vee belts, hoses, paint and batteries.
 - 2. Additional coverage is allowed if repairs cannot be completed within 48 hours of the "authorized dealer" technician's initial visit for a covered "mechanical breakdown" due solely to the nature of the "mechanical breakdown" or inability to supply the required repair components. Up to \$20,000 (US\$) is allowed for rental genset expenses that are hereby defined as the reasonable and customary rental charge, mileage per guidelines given in the "repairer" travel & mileage limitations section of this contract and the necessary labor for connection & disconnection to your facility of the Rental GenSet from an "authorized dealer".

MODOT

1.12 MAINTENANCE SERVICE

- A. Furnish the owner a proposal for service and maintenance of the packaged engine generator system and Automatic Transfer Switches for one (1) year, on the date after startup and initiation of the generator set warranty. Proposal to be submitted to the owner for their acceptance after startup and training has been completed.

1.13 EXTRA MATERIALS

- A. Provide five (5) extra DC incandescent lamps and five (5) compact fluorescent lamps if provided.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Caterpillar (As System Design Criteria), Model C27
- B. Cummins – DQFAB - QST30
- C. Kohler – 800REOZDB – 16V2000G43
- D. No substitutions, or alternates will be allowed or accepted.

2.2 PACKAGED ENGINE-GENERATOR SET

- A. Packaged engine-generator set shall be a coordinated assembly of compatible components.
- B. Safety Standard: Comply with ASME B15.1.
- C. Nameplates: Each major system component shall be equipped with a nameplate to identify manufacturer's name and address, model and serial number, and component rating in integrated set and as required by the contract documents.
- D. Mounting Frame: Adequate strength and rigidity to maintain alignment of mounted components without depending on concrete foundation. Mounting frame shall be free from sharp edges and corners and shall have lifting attachments arranged for lifting with slings without damaging components. Provide a rigging diagram permanently attached to the mounting frame to indicate the capacity of each lifting attachment and the generator-set center of gravity.

2.3 ENGINE

- A. Type: Water-cooled in-line or V-type, four-stroke cycle, compression ignition diesel electric ignition internal combustion engine.
- B. Rating: 800 kW Standby.
- C. Fuel: Appropriate for use of No. 2 fuel oil. Comply with current Federal Regulation requirements for Low Sulfur Diesel of 500 PPM and manufacturers fuel requirements.
- D. Engine Speed: 1800 RPM.
- E. The prime mover shall be a liquid cooled, diesel fueled, turbo charged, after cooled engine of 4-cycle design. The unit requires an operating speed of 1800 RPM.
 - 1. Engine shall meet the current Emission Tier II level at the time of production.
 - 2. Additional Emission Requirements : Guaranteed Not To Exceed Values

MODOT

- a. Total NOX (as NO₂) LB/HR - **17.02**
 - b. Total CO LB/HR - 1.13
 - c. Total HC LB/HR - .15
 - d. Part Matter (PM) LB/HR - .13
3. Maximum fuel consumption 57.22 gallon per hour at 100% load
- F. Governor: Electronic engine control, Isochronous type with speed sensing.
- G. Safety Devices: Engine shutdown on high water temperature, low oil pressure, overspeed, and engine overcrank. Limits as selected by manufacturer.
- H. Frequency Response:
1. Steady State Operational Bandwidth: 0.5 percent of rated frequency from no load to full load.
 2. Transient Response: Less than 10 percent voltage dip for a 50 percent step-load increase or decrease. Frequency shall not exceed 10 per cent and shall recover and remain within the steady state operating band within 3 seconds. Verify compliance with bid documents.
- I. Fuel System: Engine mounted diesel fuel pump and relief-bypass valve.
- J. Lubrication System: Engine mounted gear-driven oil pump with engine or skid mounted filter and strainer, thermostatic control valve capable of full flow and designed to be fail safe, and crankcase drain arranged for gravity drainage with siphon or pump.
- K. Engine Jacket Heater: Thermal circulation type water heater with integral thermostatic control, sized to maintain engine jacket water above 100°F, and suitable for operation on 208 Volts AC. The minimum wattage of the heater shall be as recommended by the manufacturer.
- L. Cooling System: Closed loop, liquid cooled, with radiator factory mounted on engine-generator set mounting frame and integral engine-driven coolant pump.
1. Fan and Core: Nonferrous-metal construction sized to contain expansion of total system. Blower type fan, sized to maintain safe engine temperature in a minimum ambient temperature of 122°F based on 50/50 glycol/water mixture.
 2. Radiator Airflow Restriction: 0.5 inches of water, maximum.
 3. Coolant: Solution of 50 percent ethylene-glycol-based antifreeze and 50 percent water, with anti-corrosive additives.
 4. Provide expansion tank with gage glass and low coolant level sensor.

MODOT

- M. Engine Starting: DC starting system with positive engagement, number and voltage of starter motors in accordance with manufacturer's instructions. Include remote starting control circuit, with MANUAL-OFF-REMOTE selector on engine-generator control panel. Provide the following accessories:
1. Battery: Minimum 1300 CCA. Voltage to match starter with capacity for three cranking cycles without recharge. Provide with battery cables and acid resistant battery tray, seismic rated.
 2. Provide battery disconnect switch.
 3. Battery-Charging Alternator: Factory mounted on engine with solid state voltage regulation.
 4. Battery Charger: Current limiting type, 10 amp minimum, designed to float at 2.17 volts per cell and equalize at 2.33 volts per cell. Include overload protection, full wave rectifier, DC voltmeter and ammeter, and 120 volts AC fused input. Provide wall-mounted enclosure to meet ANSI/NEMA 250, Type 1 requirements.
- N. Exhaust System: Critical slim cool pack series type silencer, side inlet with muffler companion flanges and flexible stainless steel exhaust fitting, suitable for horizontal orientation, sized in accordance with engine manufacturer's instructions. Silencer to mount integral to the enclosure.
- O. Engine Accessories: Fuel filter, lube oil filter, intake air filter, lube oil cooler, fuel transfer pump, fuel priming pump, fuel water separator with bypass valves, **fuel cooler**, gear-driven water pump.
- P. Mounting: Provide unit with suitable factory standard vibration isolation mounts.

2.4 GENERATOR

- A. Generator: ANSI/NEMA MG 1; three phase, brushless synchronous generator with brushless exciter and PMG alternator excitation. Comply with parameters set below to reduce site voltage dip.
- B. Rating: Standby.
- C. Voltage : 277/480 Vac
- D. Excitation Type : Permanent Magnet
- E. Insulation: ANSI/NEMA MG 1, Class H.
- F. Oversized Generator Rating: 900 KW 1125 KVA MODEL : OGNPMDR
- G. Temperature Rise By Resistance: 125° C.
- H. Minimum SKVA at 25% Voltage Dip: 1488
- I. Enclosure: ANSI/NEMA MG 1; open drip-proof.
- J. Voltage Regulation: Digital
1. Include solid-state type voltage regulator, separate from exciter to match engine and generator characteristics, with voltage regulation $\pm .5$ percent from no load to full load.
- K. Subtransient Reactance ($X'd$): Maximum .1549 pu.
- L. Windings: Optimum pitch Random Wound stator winding.

MODOT

2.5 CONTROLS AND INDICATION

- A. Operating and safety indications, protective devices, basic system controls, and engine gauges shall be grouped in a common control and monitoring panel mounted on the generator set. Mounting method shall isolate the control panel from generator-set vibration.
- B. The engine-generator set shall contain a complete 2-wire automatic engine start-stop control which starts the engine on closing contacts and stop the engine on opening contacts. A cyclic cranking limiter shall be provided to open the starting circuit after eight attempts if the engine has not started within that time. Engine control modules must be solid state plug-in type for high reliability and easy service. The engine controls shall also include a 3-position digital selector with the following positions: OFF/ON/AUTO.
- C. The panel shall include; digital monitor of AC voltage, AC current and AC frequency with a phase selector button, an emergency stop switch, an audible alarm and a programmable engine control and monitoring module.
- D. The programmable module shall include: a manual, off auto touch pad; four LEDs to indicate 1) Not in Auto, 2) Alarm Active, 3) Generator Running, 4) Generator Ready; a data entry keypad and a digital display panel.
- E. A generator run relay and common fault relay with dry contacts shall also be provided for customer use.
- F. Provide 8 dry contacts to signal the on site Building Management System.
- G. The module will store and display all pertinent unit parameters including.
 - 1. Generator Status
 - a. Current unit status in real time
 - 2. Instrumentation
 - a. Real time readouts of the engine and alternator digital values
 - 1) Oil pressure
 - 2) Coolant temperature
 - 3) DC battery voltage
 - 4) Run time hours
 - 5) Engine RPM
 - 6) Twenty (20) event fault log
 - 7) Engine hours
 - 8) Engine successful start counter
 - 9) Engine crank attempt counter
 - 10) Service Maintenance Interval
 - 11) Fuel Consumption gal/hr
 - 12) Total Fuel Consumed
 - 13) Air filter differential pressure
 - 14) Boost pressure
 - 15) Engine crankcase pressure
 - 16) Engine exhaust temperature (L & R)
 - 17) Engine intake manifold temperature
 - 18) Engine oil temperature
 - 19) Fuel filter differential
 - 20) Fuel pressure
 - 21) Oil filter differential pressure
 - 22) Fuel pressure

- 23) Oil filter differential pressure
 - 24) Oil temperature
 - b. Simultaneous viewing of all Instrumentation Digital
 - 1) AC L-L voltages
 - 2) AC L-N voltages
 - 3) All AC Line Current
 - 4) Frequency
 - c. Instrumentation Digital (Additional)
 - 1) Kw (total and per phase)
 - 2) Kva (total and per phase)
 - 3) kVAr (total and per phase)
 - 4) Power Factor (overall and per phase)
 - 5) kW hours
 - 6) KvarHours
 - 7) Kvars
 - 3. Generator Commands
 - a. Current engine start/stop status
 - 4. Alarm Status
 - a. Current alarm(s) condition
 - b. Overcrank
 - c. Low coolant temperature warning
 - d. High coolant temperature warning / shutdown
 - e. Loss of coolant warning / shutdown
 - f. Low oil pressure warning / shutdown
 - g. Overspeed
 - h. Control switch not in auto
 - i. High/Low battery voltage
 - j. Emergency stop activated
 - k. Low fuel pressure warning / shutdown
 - l. High fuel pressure warning / shutdown
 - m. Fuel filter restriction warning / shutdown
 - n. High intake manifold air temperature warning / shutdown
 - o. Over Under voltage
 - p. Over Under frequency
 - q. Reverse power
 - r. Overcurrent
 - 5. The panel must be accessible by PC based software via RS485 MODBUS RTU protocol. The software must display the module face, be updated in real time and allow for complete access to all module functions. Communication output and its software must be fully compatible and allow for incorporation into an existing control program.
- H. In addition to the relay contact outputs, supply a MODBUS RS 485 output converter to MODBUS TCP/IP for remote monitoring. It is the intent of this specification section that the owner be able to remotely monitor the generator and ATS over their network. Any hardware or software required should be supplied.

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2.6 ACCESSORIES

- A. An electronic 1200 amp frame, 1200 amp trip UL listed main line circuit breaker rated as specified and must be mounted in the AC connection panel. The line side connections are to be made at the factory.
- B. An electronic 1200 amp frame, 1200 amp trip UL listed load bank circuit breaker rated as specified and must be mounted in the AC connection panel. The line side connections are to be made at the factory (Alternate #3).
- C. Remote Manual Stop Station (Emergency Power Off EPO): Provide a remote manual stop station with weather proof stainless steel or die cast housing, red mushroom button - push to stop operation, breakable cover/lens to access mushroom button, 120 volt rated. The manufacturer shall provide automatic monitoring of the EPO switch. Placing the EPO switch in the "Generator Powered OFF" status shall initiate a visual and audible alarm at each generator annunciator panel.
 - 1. One mounted in owners building.

2.7 LOAD BANK ACCESS :

- A. See section 2.6

2.8 OUTDOOR GENERATOR-SET SOUND ENCLOSURE

- A. Prefabricated or pre-engineered Non Walk In Sound Attenuated weatherproof enclosure with the following features: (Alternate #1)
 - 1. Construction: Reinforced galvanized steel, metal clad, integral structural steel framed housing anchored to a concrete foundation. Construction shall allow access to control panels and service points.
 - 2. Structural Design and Anchorage: Wind resistant up to 100 mph.
 - 3. Louvers (Front) Discharge Vertical : Fixed
 - 4. Louvers (Rear) Inlet : Fixed.
 - 5. Hinged doors: Provide a minimum of two doors each side, one on rear with locking provisions. As standard, doors shall include rain-rail moldings above all door openings, recessed, keyed mortise locks and full weather-stripping. Doors shall be removable.
 - 6. Oil and water drain group piped to the exterior of the enclosure with plugs and interior ball valves.
 - 7. The exhaust system silencer shall be installed internal to the enclosure by the manufacturer.
 - 8. Base Mounted Fuel Tank: UL listed fuel tank with 1500 gallon capacity. Integral rupture basin with leak detection. Provide fueling port with lockable cap. The tank shall include structural steel supports for top mounted engine generator set. Furnish complete with flexible fuel line connectors and analog level gauge. Furnish complete with float switch to indicate low fuel level 40%.
 - a. Low fuel level alarm contact integrated with the Building Management System.

9. Electrical:
 - a. Accessory power feed from building is 120/240 volt single phase.
 - b. A 50 amp, 1 phase, 3 wire 120/240 volt panelboard shall be factory furnished and installed. Panel shall include circuit breakers for all electrical loads. This is waived if all connections are terminated at a single connection point.

10. Sound Level: 76.3 dbA at 23 ft.

PART 3 - EXECUTION

3.1 Manufacture, assemble, test and ship generator and accessories as herein specified.

3.2 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Section 16010 and in compliance with NFPA 110 requirements.
- B. Provide portable test bank for full load test. Simulate power failure including operation of transfer switch, automatic starting cycle, and automatic shutdown, and return to normal.
- C. Fill fuel tank prior to start of test (by contractor). This is waived if the system is filled by an on site fuel source.
- D. The on-site installation test shall be conducted as follows:
 1. With the prime mover in a "cold start" condition and the emergency load at standard operating level, a primary power failure shall be initiated by opening all switches or breakers supplying the primary power to the building or facility.
 2. The test load shall be that load that is served by the Emergency Power Supply System (EPSS).
 3. The time delay on start shall be observed and recorded.
 4. The cranking time until the prime mover starts and runs shall be observed and recorded.
 5. The time taken to reach operating speed shall be observed and recorded.
 6. The voltage and frequency overshoot shall be recorded.
 7. The time delay on transfer to emergency power for each switch shall be recorded. Life safety and critical branch transfer switches must transfer within 10 seconds.
 8. The time taken to achieve a steady-state condition with all switches transferred to the emergency position shall be observed and recorded.
 9. The voltage, frequency, and amperes shall be recorded.
 10. The prime mover oil pressure and water temperature shall be recorded, where applicable.
 11. The battery charge rate shall be recorded at 5-minute intervals for the first 15 minutes and at 15 minute intervals thereafter.

12. A load shall be applied for a 4-hour, full load test. The building load shall be permitted to serve as part or all of the load, supplemented by a load bank of sufficient size to provide a load equal to 100 percent of the nameplate rating of the Emergency Power Supply (EPS), less applicable derating factors for site conditions..
 13. When primary power is returned to the building or facility, the time delay on retransfer to primary for each switch with a minimum setting of 5 minutes shall be recorded.
 14. The time delay on the prime mover cool down period and shutdown shall be recorded.
 15. Allow prime mover to cool for 5 minutes.
 16. The load test with building load, or other loads that simulate the intended load, shall be continued for 2 hours, observing and recording load changes and the resultant effect on voltage and frequency
 17. The full load test shall be initiated immediately after the cooling time has expired by any method that starts the prime mover and, immediately upon reaching rated rpm, picks up 100 percent of the nameplate kW rating on one step, less applicable derating factors for site conditions.
 18. During test, record the following at 5-minute intervals for the first 15 minutes and every 15 minutes for the rest of the test:
 - a. Kilowatts
 - b. Amperes
 - c. Voltage
 - d. Frequency
 - e. Coolant temperature
 - f. Enclosure temperature (interior)
 - g. Oil pressure
 - h. Engine exhaust temperature
 - i. Engine inlet temperature
 - j. Oil Temperature
 - k. Battery charge rate
 19. Upon completion of the test and after a cool down period, the crank/rest cycle shall be tested.
 - a. Any method recommended by the manufacturer for the cycle crank test shall be utilized to prevent the prime mover from running.
 - b. The control switch shall be set at "run" to cause the prime mover to crank.
 - c. The complete crank/rest cycle shall be observed and recorded.
 20. Test alarm and shutdown circuits as typically performed by the generator supplier.
- E. Contractor shall fill fuel tanks upon completion of test.
- F. Testing documentation shall be submitted to the Engineer for review and approval.
- G. Generator testing worksheets are included with this specification section.

3.3 MANUFACTURER'S FIELD SERVICES

- A. Field inspect, start, test, and adjust systems under provisions of Section 16010.

3.4 ADJUSTING

- A. Adjust generator output voltage and engine speed.

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3.5 DEMONSTRATION

- A. Provide systems demonstration. Coordinate the demonstration schedule with the owner and architect/engineer.
- B. Describe loads connected to emergency and standby systems and restrictions for future load additions.
- C. Simulate power outage by interrupting normal source, and demonstrate that system operates to provide emergency and standby power.

3.6 TRAINING

- A. The supplier of the electric generating plant and associated items covered herein shall provide factory trained field service engineer to provide a comprehensive training of site personnel for a minimum of 4 hours.

PART 4 – ALTERNATES

- A. Alternate #1: Provide price deduct for standard weather proof enclosure in lieu of specified sound attenuated enclosure.
- B. Alternate #2: Provide price deduct for standard 2-year warranty, parts and labor in lieu of 5 year premium warranty.
- C. Alternate #3: Provide price deduct to eliminate the second 1200 Amp circuit breaker on the generator for load bank connection to generator.
- D. Alternate #4: Provide price add to provide 1200 amp isolation by-pass type transfer switch in lieu of standard ATS.

END OF SECTION 16622