



Iowa Department of Transportation

800 Lincoln Way, Ames, IA 50010

515-239-1310

Fax 515-239-1538

Fax Back Immediately

(This Page Only)

To above fax number, ATTN: Jerry B Giebelstein

Internet Bid Proposal Download Acknowledgement

This form must be faxed back to the Iowa Department of Transportation Purchasing Department so your company can receive any notifications or addendums to this proposal. Sealed bids may not be returned by fax. Sealed bids must be returned using the envelope provided or by attaching the label page provided in this package.

Failure to do so, may be cause to disqualify your bid proposal submission.

Proposal No.: 4342

Proposal Description: Natural Gas Powered Generator and Tranf. Switches
61 KW

Company Name: _____

Contact: _____

Email Address: _____

Address: _____

City/State/Zip: _____

Phone: _____

Fax: _____

Cell Phone: _____

Federal Tax ID: _____

If you have any questions or concerns, please call 515-239-1347 or Email jerry.giebelstein@dot.iowa.gov

Date Bids Due 11/18/2009		Time of Bid Opening 1:00 PM	Bid Opening Location Iowa DOT Purchasing Office, Ames, IA.	
Proposal Number 4342	Description Natural Gas Powered Generator and Tranf. Switches 61 KW			
Contract to Begin 12/9/2009	Date of Completion 3/31/2010	Proposal Guaranty Amount \$0.00		Liquidated Damages \$0.00
Additional Information Contact Jerry Giebelstein	E-Mail Address jerry.giebelstein@dot.iowa.gov	Phone (515) 239-1347		Fax (515) 239-1538
Company Name			Federal Tax ID	
Street Address		City	State	Zip Code
Individual preparing bid (type or print)	E-Mail Address	Phone	Fax	
Will you sell these items/services to political subdivisions within the State of Iowa under the same prices, terms and conditions as specified? <input type="checkbox"/> YES <input type="checkbox"/> NO			Are you a Iowa Targeted Small Business? <input type="checkbox"/> YES <input type="checkbox"/> NO	

GENERAL INFORMATION

This bid package includes the proposal, schedule of prices, standard terms and conditions, supplemental terms, specifications, mailing label and other information you need to prepare your bid. The pages of the document labeled "Bid response" must be typed or completed in ink, signed, and returned in a flat style envelope prior to the bid opening date and time. Please use the furnished mailing label, or indicate on your return bid by marking "Iowa Department of Transportation, proposal number & letting date" on the outside of the return envelope. The bidder may personally deliver, mail, or select a carrier that ensures timely delivery. Faxed bids will not be accepted.

If required, each bid must be accompanied by a proposal guaranty in an accepted form, in the sum indicated above. Refer to the Standard Terms and Conditions for the accepted forms in which the proposal guaranty requirement may be fulfilled. Bids lacking a required proposal guaranty will not be considered for award. If the contractor fails to enter into a formal contract within fifteen (15) days after award is made, the proposal guaranty may be retained by the State.

PROPOSAL STATEMENT

The entire contents of this Proposal, Addendums to the Proposal, Specifications, Supplemental Terms and Conditions, Standard Terms and Conditions, and Schedule of Prices shall become part of the contract.

We promise to enter into a contract within fifteen (15) days after award or forfeit the proposal guaranty furnished herewith.

We promise to furnish all materials, equipment and/or services specified, in the manner and the time prescribed, at prices hereinafter set out.

We certify that we have not, either directly or indirectly, entered into any agreement or participated in any collusion or otherwise taken any action in restraint of free competition; that no attempt has been made to induce any other person or firm to submit or not to submit a bid; that this bid has been independently arrived at without collusion with any other bidder, competitor, or potential competitor; and that this bid has not been knowingly disclosed prior to the opening of bids to any other bidder or competitor.

We certify that all materials, equipment and/or services proposed meet or exceed the specifications and will be supplied in accordance with the entire contents of this proposal.

We promise to complete the contract within the contract period, or pay any liquidated damages, if stipulated, for each calendar day as set forth in the bid documents.

Signed: _____ Date: _____



Schedule Of Prices

Proposal Number 4342

Letting Date

11/18/2009 1:00 PM

Natural Gas Powered Generator and Tranf.
Switches 61 KW

Item	Qty	Price	Unit	Shipping Terms
1	1	_____	Each	FOB Destination/Freight Prepaid
Council Bluffs North Generator Set/Tranf. Switch				2501 N. 25TH ST., COUNCIL BLUFFS 51502
Generator Set 61 KW, 254 Amps, Phase 1, 240/120 Volts, Natural Gas Transfer Switch 400 Amps, 60 Hz with Enclose Rating NEMA 3R				
Generator Set: As Per Section 16350: Natural Gas Fueled Generator Set, Dated: 09-23-09				
List Make _____ Model _____				
Automatic Transfer Switch System: As Per Section 16495: Automatic Transfer Switch System, Dated: 09-23-09				
List Make _____ Model _____				

I HEREBY CERTIFY THAT THIS PROPOSAL MEETS OR EXCEEDS THE MINIMUM REQUIREMENT INCLUDING SPECIFICATIONS AND ADDENDUMS

(Please Print)

COMPANY NAME: _____ PHONE: _____ FAX: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____

CONTACT PERSON: _____ E-MAIL: _____

SIGNATURE: _____ FED TAX ID: _____

AVAILABILITY AFTER RECEIPT OF P.O. (IN DAYS): _____

I ACKNOWLEDGE RECEIPT OF ADDENDUM NUMBERS: _____

Iowa Department of Transportation

PURCHASING PROPOSAL

Standard Terms and Conditions

Contents of Contract: The entire contents of this proposal shall become a part of the contract or purchase order. In case of a discrepancy between the contents of the contract documents, the following items listed by descending order shall prevail:

- Addendums
- Purchasing Proposal/Schedule of Prices
- Specifications, Plans and Drawings
- Supplemental Terms and Conditions
- Standard Terms and Conditions

For example, if there is a statement in the specifications that contradicts a statement in the Standard Terms and Conditions, the statement in the specifications shall apply.

Preparation of Proposal: All proposals must be completed in every respect and must clearly answer all questions contained in the proposal. Bids must be typed or completed in ink on the forms supplied by the department. **You must sign your bid and seal it in the envelope.** Bids must be received prior to the bid opening date and time. The bidder may personally deliver, mail, or select a carrier that ensures timely delivery

Proposal Guaranty: If required, a proposal guaranty, in the sum listed on the proposal form, can be supplied in one of the following ways: (1) A certified check or credit union certified share draft, cashier's check, or bank draft, drawn on a solvent bank or credit union, may be certified furnished with your bid. Certified checks and certified share drafts shall be drawn and endorsed in the amount indicated. Checks or drafts shall be made payable either to the Iowa Department of Transportation (Iowa DOT) or to the bidder. If payable to the bidder, the check or draft shall be endorsed, without qualifications, to the Iowa DOT by the bidder or his authorized agent. (2) An insurance or surety company may be retained to provide a bond in fulfillment of the proposal guaranty requirement. A properly completed and signed copy of the Proposal Guaranty (Form 131071) must accompany the bid. The Iowa DOT's Proposal Guaranty form must be used, no other forms or formats will be accepted.

Bid Opening: Bid Openings are public and conducted at the Ames complex unless otherwise specified. Proposals received after the time of the bid opening will be returned unopened.

Debarment and Vendor Suspension: By submitting a proposal, the contractor is certifying that it and its Principals and/or subcontractors are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by the State of Iowa or any Federal department or agency.

Communications: Questions concerning this proposal should be directed to the Purchasing Agent listed on the Purchasing Proposal. Inquiries can be written, phoned, or faxed. In all cases, written communication will take precedence over verbal communication.

Acceptance/Rejection: The State of Iowa reserves the right to accept or reject any or all bids and to waive irregularities or technicalities, provided such waiver does not substantially change the offer or provide a competitive advantage to any vendor, in the judgement of the Iowa DOT. The Iowa DOT also reserves the right to accept that bid which is deemed to be in the best interests of the state. Any unauthorized changes, additions, or conditional bids including any ties to another bid or proposal or any reservations about accepting an award or entering into a contract, may result in rejection of the bid. Bids must remain available for award for thirty (30) days from date of bid opening.

Method of Award: Award shall be made to the lowest responsible, responsive bidder unless otherwise specified. By virtue of statutory authority preference will be given to products and provisions grown and coal produced within the State of Iowa.

Award Protests: Protests of award recommendations are to be addressed to the Director of Purchasing, and shall be made in accordance with paragraph 761--20.4(6)"e", Iowa Administrative Code.

Bid Results & Disclosure: A bid tabulation will be sent to all responsive bidders with an award recommendation indicated. At the conclusion of the selection process, the contents of all proposals will be placed in the public domain and be open to inspection by interested parties, according to state law. Trade secrets or proprietary information that are recognized as such and are protected by law may be withheld if clearly identified as such in the proposal.

Contracts: Successful contractor(s) may be sent either a formal Contract or a Notification of Award as confirmation of acceptance and award. Contracts shall be for the term stated on the Proposal and may be extended for additional period(s) under the same terms and conditions upon mutual agreement. The contractor may not assign the contract to another party without written authorization from the Office of Procurement and Distribution.

Pricing and Discount: Unit prices shown on the bid/proposal shall be quoted as the price per unit (e.g., gal., case, each, etc.) as stated on the request. If there is a discrepancy between the unit bid prices, extension, or total amount of bid, the unit prices shall prevail. Unless otherwise indicated, prices shall be firm for the duration of the contract or purchase. Discounts for early payment are allowed, but not considered in award of the contract.

Taxes: Prices quoted shall not include state or federal taxes from which the state is exempt. Exemption certificates will be furnished upon request.

Faxed bids will not be accepted.

Payment Terms: The Iowa DOT will normally pay properly submitted vendor invoices within fifteen (15) days of receipt, providing goods and/or services have been delivered, installed or inspected (if required), and accepted. Invoices presented for payment must be only for quantities received by the Iowa DOT, must reference the purchase order number, and be submitted for processing.

Quality: All material shall be new and of first quality. Items which are used, demonstrators, refurbished, obsolete, seconds, or which have been discontinued are unacceptable without prior written approval by the Iowa DOT.

Recycled Content: The Iowa Code encourages purchase of products and materials with recycled content, including but not limited to paper products, oils, plastic products, compost materials, aggregate, solvents, and rubber products. When bidding recycled items or alternatives, note on your bid the recycled content, if known.

Infringement: Goods shall be delivered free of the rightful claim of any third party by way of infringement. Contractor shall indemnify and save harmless the State of Iowa and the Iowa DOT against all claims for infringement of, and/or royalties claimed under, patents or copyrights on materials and equipment furnished under this bid.

Default: Failure of the contractor to adhere to specified delivery schedules or to promptly replace rejected materials shall render the contractor liable for all costs in excess of the contract price when alternate procurement is necessary. This shall not be the exclusive remedy and the Iowa DOT reserves the right to pursue other remedies available to it by law or under the terms of this contract.

Ames Deliveries: Materials delivered to the Distribution Center's Receiving Section, 800 Lincoln Way, Ames, IA shall be delivered between the hours of 7:30 a.m. and 3:30 p.m. on any day except Saturday, Sunday, or a holiday. For deliveries to locations other than the Distribution Center, the contractor may wish to contact the destination location for available times to deliver, as some Iowa DOT offices and locations work a non-standard work week.

Delivery: Deliveries shall be F.O.B. destination unless otherwise specified. All deliveries shall be accompanied by a packing slip indicated the vendor, quantities shipped, and the purchase order number(s). All delivery charges shall be included in the bid price and paid by the contractor. No collect or C.O.D. deliveries will be accepted. When entering into a contract, the contractor shall notify the freight company that all freight and delivery charges are to be prepaid by the contractor. The Iowa DOT will not be liable for any freight claims or unpaid freight bills arising from this contract.

Applicable Law: The contract shall be governed under the laws of the State of Iowa. The contractor shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of this contract and which in any manner affect the work or its conduct. Any legal action relating to the contract shall only be commenced in the Story County, Iowa, District Court or the United States District Court for the Southern District of Iowa.

Administrative Rules: For Additional details on the rules governing the actions of the Office of Procurement and Distribution refer to 761 IAC, Chapter 20, Iowa Administrative Code, entitled "Procurement of Equipment, Materials, Supplies and Services".

Equal Opportunity: Firms submitting bids must be an "Equal Opportunity Employer" as defined in the Civil Rights Act of 1964 and in Iowa Executive Order Number Thirty-four.

Affirmative Action: The contractor (and also subcontractor, vendor, or supplier) is prohibited from engaging in discriminatory employment practices forbidden by federal and state law, executive orders and rules of the Iowa Department of Management, pertaining to equal employment opportunity and affirmative action. Contractor may be required to have on file a copy of their affirmative action program, containing goal and time specifications. Contractors doing business with Iowa in excess of \$5,000 annually and employing 50 or more full time employees may be required to file with the Iowa Department of Management a copy of their affirmative action plan. Failure to fulfill these non-discrimination requirements may cause the contract to be canceled and the contractor declared ineligible for future state contracts or subject to other sanctions as provided by law or rule.

Targeted Small Businesses: The Iowa DOT seeks to provide opportunities for women and/or minority small business enterprises. To apply for certification as an Iowa Targeted Small Business, contact the Iowa Department of Inspection and Appeals (515-281-7357). Contractors shall take documented steps to encourage participation from Targeted Small Businesses for the purpose of subcontracting and supplying of materials.

Interest in Contract: No state or county official or employee, elective or appointive shall be directly or indirectly interested in any contract issued by the Iowa DOT, See Code of Iowa 314.2.

Records Audit: The contractor agrees that the Auditor of the State of Iowa or any authorized representative of the state, and where federal funds are involved, the Comptroller General of the U.S. Government, shall have access to and the right to examine, audit, excerpt, and transcribe any directly pertinent books, documents, papers, and records of the contractor relating to orders, invoices, or payments of this contract.

Iowa Department of Transportation
SUPPLEMENTAL TERMS & CONDITIONS
For
Generators for Maintenance Garages
Proposal No.: 4342
Letting Date: November 18, 2009

Proposal Guarantee

Proposal guarantee is not required on this proposal.

Exceptions or Equals

Any equipment being offered as an equal to the specified make/model must be submitted on the enclosed form "Bidder's Request for Exceptions or Equal." The form must specifically state the requested equal and be accompanied by adequate supporting information to evaluate the request.

The "Bidder's Request for Exceptions or Equal" form must be received in sufficient time *prior* to the bid opening to evaluate and respond with the appropriate action. It is suggested that any requests for equal be submitted either by mail or fax immediately upon receipt of the proposal in order to receive full consideration. Fair treatment to all vendors shall be the primary concern in evaluation of requests for equal, particularly those submitted just prior to the bid opening. **Do not submit "Bidder's Request for Exception or Equal" with your bid.**

Separate Bids

A bidder may quote prices on more than one model. Complete a separate Schedule of Prices for each make/model bid.

Approved Brands

Brands listed have been pre-approved by the Iowa DOT. Equivalent brands may be bid, but if not previously tested may be subject to testing by the Iowa DOT prior to the award.

Product Literature

Two (2) complete sets of catalogs, specification sheets, or other literature giving detailed information about the item bid shall be included with the proposal. The items shall be identified in the literature by make/model name or number. Modifications or deviations from the printed literature or accessory items not covered shall be described by a written statement, unless included in the information supplied on the Detailed Information Sheet if included with this proposal.

Additional Information

If any additional information is required to properly evaluate the bid, the bidder shall furnish the requested information within three (3) working days after notification from the Office of Procurement and Distribution.

Ties and Reservations

No ties and reservations by the bidders are permitted on this proposal.

Contract Award

One contract will be awarded for all line item. Items are tied.

Contract Period

Only one (1) award will be made for the contract period.

Contract Quantities

The Iowa DOT will make a one-time purchase of the entire quantity listed on this proposal.

Purchase Orders

One purchase order will be issued for each Line item.

Delivery Location

Material shall be delivered to the Iowa Department of Transportation Garages Listed on the Schedule of Prices.

Invoicing & Packing List

Each Packing list and invoice must reflect only the merchandise relating to one purchase order. Multiple orders may be shipped together but each order requires individual invoicing and packing list stating purchase order number.

(Vendor may copy as needed)

**Due on or Before
7 days before letting
date**

**If Required
Mail At Once**

Letting Date: November 18, 2009

**If Required
Mail At Once**

**Iowa Department of Transportation
Bidders Request for Exceptions or Equal
Proposal No.: 4342**

Item: Generators

Spec. No. _____

Bid Proposal

Requests: _____

Bidder Proposes to furnish in lieu of above: _____

Mail/Fax to:

By _____

Iowa Department of Transportation
Attention: Jerry Giebelstein
Office of Procurement and Distribution
800 Lincoln Way
Ames, Iowa 50010
Phone No. 515-239-1347
Fax No. 515-239-1538
jerry.giebelstein@dot.iowa.gov

Company _____

Address _____

_____ City State Zip Code

Phone No. _____

Fax No. _____

=====

DOT USE ONLY

Approved _____

Disapproved _____

Reason _____

Signature: _____

Date: _____

SECTION 16350**NATURAL GAS FUELED GENERATOR SET****PART 1 - GENERAL****SECTION INCLUDES**

Natural gas fueled generator set.

CODES AND STANDARDS

The generator set shall conform to the requirements of the following codes and standards:

CSA C22.2, No. 14 – M91 Industrial Control Equipment.

EN50082-2, Electromagnetic Compatibility – Generic Immunity Requirements, Part 2: Industrial.

EN55011, Limits and Methods of Measurement of Radio Interference Characteristics of Industrial, Scientific and Medical Equipment.

IEC8528 part 4. Control Systems for Generator Sets.

IEC Std 801.2, 801.3, and 801.5 for susceptibility, conducted, and radiated electromagnetic emissions.

IEEE446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications.

Mil Std 461D –1993. Military Standard, Electromagnetic Interference Characteristics.

Mil Std 462D - 1993. Military Standard, Measurement of Electromagnetic Interference Characteristics.

NFPA 70 – National Electrical Code (2008). Equipment shall be suitable for use in systems in compliance to Article 700, 701, and 702.

NFPA 110 – Emergency and Standby Power Systems. The generator set shall meet all requirements for Level 1 systems. Level 1 prototype tests required by this standard shall have been performed on a complete and functional unit; component level type tests will not substitute for this requirement.

UL2200. The genset shall be listed to UL2200.

WARRANTY

A one year warranty for the generator set shall be included to guarantee against defective material and workmanship in accordance with the manufacturer's published warranty from date of start-up.

PART 2 - PRODUCTS**ACCEPTABLE MANUFACTURERS-GENSETS**

Caterpillar

Generac

Kohler

RATINGS

Refer to the Genset Schedule Drawings for rating information.

GENERAL

The emergency generator set shall be completely assembled and factory tested. Both engine and generator shall be the responsibility of a single manufacturer and be of a standard model or series in regular production at the manufacturer's place of business. No unit assembled by anyone other than a recognized manufacturer will be accepted.

The engine, generator, and all major items of auxiliary equipment shall be manufactured in the United States.

The generator set shall be mounted on skids which in turn shall be mounted on high efficiency pad type vibration isolators.

The generator set shall start and deliver power in less than 10 seconds from the time of the power failure signal.

Provide a re-settable line current sensing circuit breaker with inverse time versus current response shall be furnished which protects the generator from damage due to its own high current capability. This breaker shall not trip within the 10 seconds specified above to allow selective tripping of down-stream fuses or circuit breakers under a fault condition. This breaker shall not automatically reset, preventing restoration of voltage if maintenance is being performed. A field current-sensing breaker will not be acceptable.

ENGINE

The engine shall be a four stroke cycle, turbocharged, internal combustion engine, natural gas fueled, liquid cooled by radiator and fan, and shall have an engine driven type full pressure lubrication system. Speed regulation shall be $\pm 1/4\%$ from no load to standby rated load. The unit shall be supplied with a unit-mounted electric solenoid fuel shut-off valve, flexible fuel line, and secondary fuel pressure regulator.

The engine shall be equipped with lube oil, lube oil coolers, carburetor(s), engine driven water pump, and engine mounted fuel filter.

The engine shall have a minimum of 8 cylinders, and be liquid-cooled by a unit-mounted radiator, blower fan, water pump, and thermostats. This system shall properly cool the engine with up to 0.5 inches H2O static pressure on the fan in an ambient temperature up to 122°F/50°C.

The engine fuel rate shall not be adjusted higher than the fuel rate recommended by the engine manufacturer.

The engine shall be provided with one or more dry type air cleaners of sufficient capacity to effectively protect the working parts of the engine from dust and grit. Air cleaner(s) shall be provided with a visual service indicator for regularly scheduled maintenance.

The engine shall be equipped with such devices that in the event of abnormally high jacket water temperature, excessively low lubricating oil pressure, over crank or over speed conditions, the engine will automatically shut itself down. Per-alarms shall also be installed for at least approach to low oil pressure, approach high jacket water temperature, low battery voltage, and low jacket water temperature.

Provide thermostatically controlled engine block heater sized to maintain manufacturers recommended engine coolant temperature to meet the start-up requirements of NFPA-99 and NFPA-110, Level 1.

GENERATOR (PMG)

The generator shall be designed and constructed to match the life of the engine and have the following electrical and mechanical characteristics. The generator shall be rated in accordance with NEMA Standard MG1-2006. The generator shall be rated at the prime eKW and standby eKW rating at 0.8 power factor and at the voltage, frequency, and RPM as indicated. Generator insulating materials shall be Class H. The NEMA eKW rating at the rated voltage shall be stamped on the nameplate. The generator shall be of the brushless type.

The generator shall be of heavy duty ball bearing drip proof construction and be suitable for direct coupling to the engine flywheel housing. It shall be connected to the engine through a semi-flexible coupling.

A generator mounted regulator shall be provided to match the characteristics of the generator and engine. Voltage regulations shall be $\pm 2\%$ from no load to full rated load.

Voltage level adjustment shall be a minimum of $\pm 5\%$. The solid state regulator module shall be shock mounted and suitably protected against vibration and atmospheric deterioration.

The field circuit shall have inherent protection to prevent excessive field currents and field over-voltage.

The generator output circuit breaker shall be mounted on the generator and sized according to the standby eKW output of the generator set. Provide a junction box large enough for wiring access and connections to the circuit breaker lugs.

CONTROLS

Kohler Model 550, generator set mounted, or equal from Caterpillar and Generac: The control panel shall be designed and built by the engine-generator manufacturer. The panel shall be properly labeled for identification of all control and monitoring devices and be equipped with load shed controls (2 levels) to operate if system load is greater than the rating of the generator.

Include an interior remote annunciator panel and mount near main distribution panel.

OUTDOOR ENCLOSURE

Weather resistant painted steel, sound-attenuating close enclosure with exterior mounted silencer. Air intake and discharge openings shall be designed for temperatures from 35°F below zero to 120°F above zero. Side panels will be lockable and easily removed for servicing.

Total sound output from the generator set shall not exceed 75 dBA at 23 feet.

Include a conduit stub up area.

Wiring: Provide internally wired circuits for 120V convenience GFCI duplex receptacle, battery charger, and jacket water heater. Include steel junction boxes for simple connection to external power.

ACCESSORIES

Include the following accessories:

Remote annunciator panel enabling the generator status to be viewed remotely.

Run Relay to provide a contact for indicating that the generator is running.

Common Failure relay to remotely signal auxiliary faults, emergency stop, high engine temperature, low oil pressure, over-crank, and overspeed via one contact.

STARTING SYSTEM

The engine starting system shall include 12 volt DC starting motor, starter relay, automatic reset circuit breaker. Batteries shall be low maintenance, lead acid type mounted near the starting motor. A corrosion resistant or coated steel battery rack shall be provided for the battery. Required cables shall be furnished and sized to satisfy starting requirements. The system shall be capable of starting a properly equipped engine within 10 seconds at the ambient temperature stated. Battery warranty shall be the responsibility of the generator set manufacturer and his authorized dealer.

Provide an automatic float-type battery charger with 120VAC input. The charger shall have automatic overload protection, DC voltmeter and ammeter, fused AC input and DC output, provisions for automatically switching to float mode when the battery is fully charged and proper NFPA alarm contacts.

JACKET WATER HEATER

Jacket water heater(s) shall be provided to maintain coolant temperature at 120°F while the engine idle. Heaters shall be 3KW, 120/240 volts AC, single phase power and include thermostatic control. Isolation valves shall be installed on both sides of the heater(s) element to facilitate servicing.

PART 3 - EXECUTION

PREDELIVERY INSPECTION

A predelivery inspection must be performed by the system manufacturer's local dealer at the dealer's facility to ensure no damage occurred in transit and all generator set components, controls, and switchgear are included as specified herein.

SHIPMENT TO JOBSITE

Delivery shall be FOB to the jobsite by the system manufacturer's authorized dealer. Approximate delivery locations are indicated on the schedule.

INSTALLATION

The installation shall be performed in accordance with shop drawings, specifications, and the manufacturer's instructions and shall be regularly monitored and inspected by a qualified representative of the manufacturer's authorized local dealer.

FIELD QUALITY CONTROL

The complete installation (by others) shall be checked for procedural and operational compliance by a representative of the system manufacturer's authorized local dealer. The engine lubrication oil and antifreeze, as recommended by the system manufacturer, shall be provided and installed by the generator set dealer. If switchgear and generator sets are furnished by different manufacturers, technical representatives of both manufacturers' authorized dealers shall verify that installation meets requirements. Any deficiencies shall be noted and corrected by the contractor.

The system manufacturer's dealer representative shall be present to perform, startup, systems check, adjusting, and site testing after the installation is complete. The load test will be accomplished using a variable load bank capable of load increments of 25%, 50%, 75%, and 100% of the generator set rating. Run the unit for 30 minutes at 25%, 50%, and 75% followed by a 100% for 3 hours. Record voltage, frequency, load current, oil pressure and coolant temperature periodically during the test (a minimum of every 20 minutes). Block load the generator set at 50%, 75%, and 100% to verify performance.

Upon completion of the installation and testing, inspect system components, replace any if necessary, and clean the unit and surrounding areas as necessary.

The engineer, regular operators, and the maintenance staff shall be notified of the time and date of the site test.

Accessories that normally function while the set is standing by shall be checked prior to cranking the engine. These shall include: block heaters, battery charger, generator strip heaters, remote annunciator, etc.

Start-up under test mode to check for exhaust leaks, cooling air flow, movement during starting and stopping, vibration during running, normal and emergency line-to-line voltage and frequency, and phase rotation.

Automatic start-up by means of simulated power outage to test remote-automatic starting, transfer of the load, and automatic shutdown. Prior to this test, all transfer switch timers shall be adjusted for proper system coordination. Engine coolant temperature, oil pressure, and battery charge level along with generator voltage, amperes, and frequency shall be monitored throughout the test.

DOCUMENTATION

The system manufacturer's authorized local dealer shall furnish one copy of each of the manuals and books listed below for each unit under this Contract.

Operating Instructions with description and illustration of all switchgear controls and indicators, and engine and generator controls.

Parts Books that illustrate and list all assemblies, sub-assemblies, and components except standard fastening hardware (nuts, bolts, washers, etc.).

Preventative Maintenance Instructions on the complete system that cover daily, weekly, monthly, biannual, and annual maintenance requirements and include a complete lubrication chart.

Routine Test Procedures for all electronic and electrical circuits and for the main AC generator.

Trouble Shooting Chart covering the complete generator set showing description of trouble, probable cause, and suggested remedy.

Wiring Diagrams and Schematics showing function of all electrical components.

All manuals and books described above shall be contained in rigid plastic binders. Two complete sets per generator set.

END OF SECTION

SECTION 16495**AUTOMATIC TRANSFER SWITCH****PART 1 - GENERAL****SECTION INCLUDES**

Automatic transfer switch.
Start-up services.

SUMMARY OF WORK

Provide an automatic transfer switch that is new, and completely assembled and factory tested by an approved manufacturer, and that is matched to the ratings of the Generator Set specified in Section 16350.

The automatic transfer switch and all major items of auxiliary equipment shall be manufactured in the United States.

Include installation, testing and start-up services as specified herein.

CODES AND STANDARDS

UL 1008--Standard for Automatic Transfer Switches.

NFPA 70--National Electrical Code, including use in emergency and standby systems in accordance with Articles 517, 700.

NFPA 99--Essential Electrical Systems for Health Care Facilities.

NFPA 110--Standard for Emergency and Standby Power Systems.

IEEE Standard 446--Recommended Practice for Emergency and Standby Power Systems (Orange Book).

IEEE Standard 241--Recommended Practice for Electric Power Systems in Commercial Buildings (Gray Book).

NEMA Standard IC10 (formerly ICS 2-447) Automatic Transfer Switches.

UL 508 – Standard for industrial Control Equipment.

EN61000-4-5 Surge Immunity Class 4 (voltage sensing and programmable inputs only).

EN61000-4-4 Fast Transient Immunity Severity Level 4.

IEC Specifications for EMI/EMC Immunity as follows:

CISPR 1 Radiated Emissions.

IEC 1000-4-2, Electrostatic Discharge.

IEC 1000-4-3, Radiated Electromagnetic Fields.

IEC 1000-4-4, Electrical Fast Transient (Bursts).

IEC 1000-4-5, Surge Voltage.

IEC 1000-4-6, Conducted RF Disturbances.

IEC 1000-4-8, Magnetic Fields.

IEC 1000-4-11, Voltage Variations and Interruptions.

SUBMITTALS

Provide submittal that includes prototype test certification and specification sheets showing all standard and optional accessories to be supplied, schematic wiring diagrams, dimension drawings, and interconnection diagrams identifying by terminal number, each required interconnection between the generator set and the transfer switch if it is included elsewhere in these specifications.

TESTING

The manufacturer and/or local representative shall be responsible for three separate tests: design prototype tests, final production tests, and site tests.

PRODUCTION TESTS

Final Production Tests: Each transfer switch shall be tested under load with all guards in place.

The complete automatic transfer switch shall be tested to ensure proper operation of the individual components and correct overall sequence of operation and to ensure that the operating transfer time, voltage, frequency, and time delay settings are in compliance with the specification requirements.

The complete automatic transfer switch shall be subjected to a dielectric strength test per NEMA Standard ICS 1-109.05.

The control panel shall meet or exceed the voltage surge withstand capability in accordance with ANSI C37.90a-2978 and the impulse withstand voltage test in accordance with NEMA Standard ICS 1-109.

Upon request, arrangements to either witness this test will be made, or a certified test record will be sent prior to shipment.

SITE TESTS

The manufacturer's local representative shall perform an installation check, start-up, and building load test. The engineer, regular operators, and the maintenance staff shall be notified of the time and date of the site test.

WARRANTY & MAINTENANCE

A one year warranty for the automatic transfer switch shall be included to guaranteed against defective material and workmanship in accordance with the manufacturer's published warranty from date of start-up. Optional warranties shall be available upon request.

The automatic transfer switch manufacturer and its distributor shall maintain a 24-hour parts and service organization. This organization shall be regularly engaged in a maintenance contract program to perform preventive maintenance and service on equipment similar to that specified. A service agreement shall be available and shall include system operation under simulated operating conditions, adjustment to the generator, transfer switch, and switchgear controls as required, and certification in the owner's maintenance log of repairs made and proper functioning of all systems.

PART 2 - PRODUCTS

ACCEPTABLE MANUFACTURERS-AUTOMATIC TRANSFER SWITCH

ASCO

Kohler

AUTOMATIC TRANSFER SWITCH

Refer to the Automatic Transfer Switch Schedule Drawings for model information.

Including the following features and accessories:

- UL listed as suitable for service entrance equipment.
- Current Limiting Electronic Main Breaker (Square D).
- Time Delay Engine Start.
- Time Delay Normal to Emergency.
- Time Delay Emergency to Normal.
- Test Switch.
- Exerciser Clock.

MAINTENANCE BYPASS

Provide an open transition bypass switch.

ELECTRICAL REQUIREMENTS

Provide automatic transfer switches that are rated for continuous duty.

The automatic transfer switch shall be rated in amperes for total system transfer including control of motors, electric-discharge lamps, electric heating, and tungsten-filament lamp load. Switches rated 400 amperes and below shall be suitable for 100% tungsten-filament lamp load.

The automatic transfer switch shall be rated to withstand 35,000 rms symmetrical short circuit current at the automatic transfer switch line terminals.

EQUIPMENT RATINGS

Refer to the Automatic Transfer Switch Schedule Drawings for model information.

MECHANICAL REQUIREMENTS

All main contacts shall be of silver composition. The main contacts shall be protected by arcing contacts in sizes 400 amperes and above. The main contacts shall be of the blow-on configuration and of segmented construction in ratings 600 amperes and above.

All contacts, coils, springs, and control elements shall be conveniently removable from the front of the transfer switch without major disassembly or disconnection of power conductors.

The contact transfer time shall not exceed one-sixth of a second.

All moveable parts of the operating mechanism shall remain in positive mechanical contact with the main contacts during the transfer operation without the use of separate mechanical interlocks.

All contacts, coils, springs, and control elements shall be conveniently removable from the front of the transfer switch without major disassembly or disconnection of power conductors.

The neutral conductor shall be solidly connected, a neutral conductor terminal plate with fully rated AL-CU pressure connectors shall be provided.

TRANSFER SWITCH CONTROL SYSTEM

The control module shall direct the operation of the transfer switch. The module's sensing and logic shall be a built-in microprocessor-based system for maximum reliability, minimum maintenance, and inherent digital communications capability. The control settings shall be stored in nonvolatile EEPROM. The module shall contain an integral battery-backed programmable clock and calendar. The control module shall have a keyed disconnect plug to enable the control module to be disconnected from the transfer mechanism for routine maintenance.

The control module shall be mounted separately from the transfer mechanism unit for safety and ease of maintenance. Interfacing relays shall be industrial control grade plug-in type with dust cover.

The control module shall include a user interface keypad with tactile feedback pushbuttons and light-emitting diode status indication. These features shall be user accessible when the enclosure door is closed:

Keypad pushbuttons:

- Start/end system test

- Set/end exercise

- End time delay

- Lamp test/service reset

Light-emitting diode status indicators:

Contactor Position: Normal, Off, Emergency
Source Available: Normal, Emergency
Service required: immediate, maintenance
Not in automatic mode
Four stage time delay remaining
Exercise: load, no load, set/disabled
Test: load, no load
Load control active: peak shave, load shed, pre/post-transfer signal
In-phase monitor active

Output Contacts:

Generator engine start gold flashed contact rated 2 amps @ 30 VDC/250VAC.
Pre-transfer load control, one normally open contact rated 10 amps @ 30 VDC/250 VAC.
One Programmable output, factory-set to load bank control rated 2 amps @ 30 VDC/250 VAC.

OPERATION

All phases of normal and all phases of emergency shall be monitored for over and under voltage and single phase of normal and emergency for over- and under-frequency. In addition, the controller shall use anti-single phasing protection that detects regenerative voltage (using the phase angle of the source) to determine a failed source condition.

Voltage and frequency sensing:

Undervoltage pick-up set at 90% of nominal voltage, adjustable 85% - 100% of nominal voltage.
Undervoltage dropout set at 90% of pickup voltage, adjustable 75% - 98% of pickup voltage.
Overvoltage dropout set at 110% of nominal voltage, adjustable 105% - 135% of nominal voltage.
Overvoltage pick-up set at 95% of dropout voltage, adjustable 85% - 100% of nominal voltage.
Voltage dropout time set at 0.5 seconds adjustable 0.1 – 9.9 seconds.
Voltage accuracy: 2%.
Under frequency pick-up set at 90% of nominal frequency, adjustable 85% - 95% of nominal frequency.
Under frequency dropout set at 99% of pick-up frequency, adjustable 95% - 99% of pick-up frequency.
Over frequency dropout set at 101% of pick-up frequency, adjustable 101% - 105% of nominal frequency.
Over frequency pick-up set at 110% of nominal frequency, adjustable 105% - 120% of nominal frequency.
Frequency accuracy: 1%

Time Delays:

Time delay for engine start to delay initiation of transfer for momentary source outages: Range 0-6 seconds. Factory set at 3 seconds.
Time delay for transfer to standby: Range 0-60 minutes. Factory set at 1 second.
Time delay for transfer back to normal: Range 0-60 minutes. Factory set at 15 minutes.
Time delay for engine cool down: Range 0-60 minutes. Factory set at 0 minutes.
Failure to acquire standby source: Range 0-60 minutes. Factory set at 1 minute.
Pre-transfer to normal signal: Range 0-60 minutes. Factory set at 3 second.
Pre-transfer to standby signal: Range 0-60 minutes. Factory set at 3 second.
Post-transfer to normal signal: Range 0-60 minutes. Factory set at 0 minute.
Post-transfer to standby signal: Range 0-60 minutes. Factory set at 0 minute.

User terminals shall be available to connect a normally open contact that, when closed, signals the control module to start and transfer load to the engine-generator. Opening these contacts shall initiate a retransfer and engine cool down sequence. The load shall be transferred to an available utility source immediately if the generator source should fail.

The following features shall be built into the control module logic. These features shall be enabled at the factory or in the field:

Phase rotation sensing programmable ABC or CBA.

In-phase monitoring shall continuously monitor the contactor transfer times, source voltage, frequency and phase angle to provide a self-adjusting, zero crossing contactor transfer signal. A flashing LED on the user interface panel shall indicate active in-phase monitoring.

Plant Exerciser: Programmable seven-day or fourteen-day exerciser with user selectable load or no-load operation. An LED, on the user interface, shall indicate the type of exercise (load or no load). The time remaining on the exercise shall be indicated. The exercise time may be reset at any time with a single keystroke. The engine shall be allowed to run when the exercise period is terminated. The exerciser may be disabled for maintenance purposes. An amber LED shall flash on the user interface if the exerciser has been disabled.

The exerciser shall have the capability of being programmed, using up to twenty-one (21) event for a calendar mode.

The controller shall have provisions for disconnecting a load bank (during exercise) if there is a loss of normal power.

PART 3 - EXECUTION

START-UP SERVICES

Provide start-up services by a factory representative of the transfer switch manufacturer. Responsibilities shall include inspection of completed installation, supervision of start-up, and adjustments required for proper operation.

Comply with the Site test specification.

TESTING AND ADJUSTMENT

Test the completed system for proper functioning. Notify the Owner so that the test may be witnessed. Make any adjustments required for proper operation.

END OF SECTION

GENERATOR SET SCHEDULE

TAG	MANUFACTURER	MODEL	POWER RATING				NAMEPLATE RATING (kW/kVA)	FUEL	LOCATION	NOTES
			VOLTS	PHASE	AMPS	FREQ.				
GENSET-1	KOHLER	50REZG-4P8	208/120	3	173	60 Hz	50/63	NATURAL GAS	ROCKWELL CITY, IA	1
GENSET-2	KOHLER	50REZG-4P8	208/120	3	173	60 Hz	50/63	NATURAL GAS	WAUKON, IA	1
GENSET-3	KOHLER	80REZG-4S7	240/120	1	254	60 Hz	61/61	NATURAL GAS	COUNCIL BLUFFS, IA	1

NOTES:

1. CATERPILLAR AND GENERAC ARE APPROVED EQUALS.

TRANSFER SWITCH SCHEDULE

TAG	TYPE	MANUFACTURER	MODEL	POWER RATING				LOCATION	ENCLOSURE RATING	NOTES
				VOLTS	PHASE	AMPS	FREQ.			
ATS-1	AUTOMATIC	ASCO	7AUBA3400CM	208/120	3	400	60 Hz	ROCKWELL CITY, IA	NEMA 3R	1-3
ATS-2	AUTOMATIC	ASCO	7AUBA3400CM	208/120	3	400	60 Hz	WAUKON, IA	NEMA 3R	1-3
ATS-3	AUTOMATIC	ASCO	7AUBA2400FM	240/120	1	400	60 Hz	COUNCIL BLUFFS, IA	NEMA 3R	1-3

NOTES:

1. SERVICE ENTRANCE RATED.
2. KOHLER IS AN APPROVED EQUAL.
3. PROVIDE OPEN TRANSITION BYPASS.

Bidder _____

SEALED BID

LETTING DATE: Wednesday, November 18, 2009
PROPOSAL NO: 4342
PROPOSAL DESCRIPTION: Natural Gas Powered Generator and Tranf.
Switches 61 KW

Iowa Department of Transportation
PURCHASING - SEALED BID PROPOSAL
800 Lincoln Way
Ames, IA 50010