



**ADVERTISEMENT**

**REQUEST FOR PROPOSALS  
FOR  
Backup Emergency Generator(s)  
FOR  
THE CITY OF GRAND ISLAND  
GRAND ISLAND, NEBRASKA**

Proposals will be received by the **City Clerk, 100 East First Street, Grand Island, NE 68801** or **PO Box 1968, Grand Island, NE 68802** until **4:00 PM** (local time) on **Tuesday, July 31, 2012**, for supplying Backup Emergency Generator(s). Proposals received after the specified time will be returned unopened to sender. Proposals must be based on the City's Request for Proposals. Contact Fred Hotz, Fire/EMS Administration Division Chief, at 308-385-5444 ext. 227 or [fhodz@grand-island.com](mailto:fhodz@grand-island.com) .

Proposals will be evaluated based upon price, completion date commitment, maintenance history, availability of manufacturer approved maintenance and repair service, and meeting the specifications, Proposals shall remain firm for a period of ninety (90) days after proposal due date. The City Of Grand Island reserves the right to refuse any or all proposals, to waive technicalities, and to accept whichever proposal that may be in the best interest of the City, at its sole discretion.

RaNae Edwards  
City Clerk

Grand Island Fire Department  
City Of Grand Island, Grand Island, NE



Request for Proposal  
(RFP)

Backup Emergency Generator(s)

Fire Station #2 - 1720 N. Broadwell Ave

Fire Station #4 - 3690 W. State St.

July 10, 2012

Contact:

Fred Hotz, Fire/EMS Administration Division Chief  
Grand Island Fire Department  
100 E First Street P.O. Box 1968  
Grand Island, NE 68802  
Office: 308-385-5444 ex. 227  
Fax: 308-385-5423  
[fredh@grand-island.com](mailto:fredh@grand-island.com)

## SUBMITTALS

Proposals must be delivered to the Grand Island City Clerk's Office no later than **4:00 P.M.** on the **31st day of July, 2012**. Please provide three (3) copies of your proposal in a sealed envelope clearly marked on the exterior as containing "Proposal for Fire Station Emergency Backup Generators". Submit proposals to RaNae Edwards, City Clerk, City of Grand Island, 100 East First Street, Grand Island, Nebraska 68801. Interested persons should submit their questions to the Grand Island Fire Administration Fire/EMS Division Chief Fred Hotz [fredh@grand-island.com](mailto:fredh@grand-island.com), 308-385-5444 ext. 227.

Proposals must remain firm for ninety (90) days from the proposal due date. The City of Grand Island reserves the right to reject any and all proposals, waive irregularities, and to select the proposal that is deemed to be in the City's best interest, at its sole discretion.

Price is not the sole selection factor and will be considered together with other factors allowed under Nebraska Law.

### **Fair Employment Practices**

Each bidder agrees that he/she will not discriminate against any employee or applicant for employment because of age, race, color, religious creed, ancestry, handicap, sex or political affiliation.

### **Drug Free Policy**

Each bidder agrees to maintain a drug free work policy.

### **Data Privacy**

Bidder agrees to abide by all applicable Local, State, and Federal laws and regulations concerning the handling and disclosure of private and confidential information concerning individuals and corporations as to inventions, patents and patent rights. The bidder agrees to hold the City harmless from any claims resulting from the bidder's unlawful disclosure or use of private or confidential information.

### **Independent Price Determination**

By signing and submitting bid, the bidder certifies that: the prices in the bid have been arrived at independently, without consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor.

### **Clarification of Specification Documents**

Vendors shall promptly notify the Purchasing Agent of any ambiguity, inconsistency or error, which they may discover upon examination of the specifications. Interpretations, corrections and changes made to the specifications will be made by written addenda. Oral interpretations or changes to the specifications made in any other manner will not be binding on the City; and bidders shall not rely upon such interpretations or changes.

### **Demonstration/Samples**

If requested, the bidders shall, at bidder's expense, demonstrate and/or furnish samples of the exact item(s) proposed within seven (7) calendar days from receipt of such request from the City.

### **Bid Evaluation and Award**

No bid shall be withdrawn for a period of thirty (30) days after bid due date. The City reserves the right to reject any and all bids, to waive technicalities and to accept the bid considered by the Purchaser to be in the City's best interest. The bid will be evaluated based on price, demonstration (if requested), quality, warranty, adherence to specifications, delivery, and adaptability of the particular equipment for the specific use intended.

**Gratuities and Kickbacks**

City Code states that it is unethical for any person to offer, give, or agree to give any City employee or former City employee, or for any City employee or former City employee to solicit, demand, accept, or agree to accept from another person, a gratuity or an offer of employment in connection with any decision, approval, disapproval, recommendation, or preparation of any part of a program requirement or a purchase request, influencing the content of any specification or procurement standard, rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a contract or subcontract, or to any solicitation or proposal therefore. It shall be unethical for any payment, gratuity, or offer of employment to be made by or on behalf of a subcontractor under a contract to the prime contractor or higher tier subcontractor or any person associated therewith, as an inducement for the award of a subcontract or order.

**Federal Immigration Verification System**

Every public contractor and his, her or its subcontractors who are awarded a contract by the City for the physical performance of services within the State of Nebraska shall register with and use a federal immigration verification system to determine the work eligibility status of new employees physically performing services within the State of Nebraska.

**REQUEST FOR PROPOSAL**  
**Emergency Backup Generator Proposal**  
**BY THE CITY OF GRAND ISLAND, NEBRASKA**

**Generator Proposal**

The City of Grand Island, Nebraska, is seeking proposals from qualified generator dealers or electrical contractors to supply and install a generator, electrical panels and wiring for each of the following four proposals, one of which to be accepted.

\*Specifications for Transfer Switch listed below on pages 5-10.

\*\*Specification of generator listed below on pages 10-16.

- 1) Station #2 - Supply and install 50kw Emergency Backup Generator, 400 amp 3 pole transfer switch, conduit and wiring to generator and existing Station main panel at the location of 1720 N. Broadwell Ave (Fire Station #2). All electrical work will be installed in accordance to city and state electrical codes and electrical permit will be the installers responsibility. All installation work of generator will be in accordance with City building ordinances and code.
- 2) Station #2 - Supply and install 50kw Emergency Backup Generator, 400 amp 3 pole transfer switch, conduit and wiring to generator and existing Station main panel at the location of 1720 N. Broadwell Ave (Fire Station #2). All electrical work will be installed in accordance to city and state electrical codes and electrical permit will be the installers responsibility. All installation work of generator will be in accordance with City building ordinances and code. In addition, supply 50kw Emergency Backup Generator delivered to 3690 W. State Street (Fire Station #4) – no installation.
- 3) Station #2 - Supply and install 50kw Emergency Backup Generator, 400 amp 3 pole transfer switch, conduit and wiring to generator and existing Station main panel at the location of 1720 N. Broadwell Ave (Fire Station #2). All electrical work will be installed in accordance to city and state electrical codes and electrical permit will be the installer's responsibility. All installation work of generator will be in accordance with City building ordinances and code. In addition, supply 50kw Emergency Backup Generator and 400 amp 3 pole transfer switch delivered to 3690 W. State Street (Fire Station #4) – no installation.
- 4) Station #2 and Station #4. Supply and install 50kw Emergency Backup Generator, 400 amp 3 pole transfer switch, conduit and wiring to generator and existing Station main panel at the location of 1720 N. Broadwell Ave (Fire Station #2) and 3690 W. State Street (Fire Station #4). All electrical work will be installed in accordance to city and state electrical codes and electrical permit will be the contractor's responsibility. All installation work of generator will be in accordance with City building ordinances and adopted codes.

## **\*Automatic Transfer Switch**

### **PART 1 – GENERAL**

#### **1.1 Scope**

- A. It is the intent of this specification to secure an automatic transfer switch that has been prototype tested, factory built, production tested and site tested that can be applied to installations requiring fully rated Service Entrance equipment. A transfer switch with the number of poles, voltage and current ratings shown on the plans and specified herein shall be provided.

#### **1.2 Codes and Standards**

- A. The automatic transfer switch shall conform to the requirements of:
1. UL 1008: Underwriters Laboratories standard for automatic transfer switches
  2. CSA: C22.2 No. 178 certified
  3. IEC: 947-6-1 at 480 VAC
  4. NFPA 70: National Electrical Code including use in emergency and standby systems in accordance with Articles 517, 700, 701, 702
  5. NFPA 99: Essential electrical systems for health care facilities
  6. NFPA 101: Life safety code
  7. NFPA 110: Standard for emergency and standby power systems
  8. IEEE 241: I.E.E.E. recommended practice for electrical power systems in commercial buildings
  9. IEEE 446: I.E.E.E. recommended practice for emergency and standby power systems
  10. NEMA ICS10: AC automatic transfer switch equipment
  11. UL 50/508: Enclosures
  12. ICS 6: Enclosures
  13. ANSI C33.76: Enclosures
  14. NEMA 250: Enclosures
  15. IEEE 472: (ANSI C37.90A): Ringing wave immunity
  16. EN55022 (CISPR22): Conducted and radiated emissions (Exceeds EN55011 & MILSTD 461 Class 3)
  17. EN61000-4-2: (Level 4): ESD immunity test Class B (Level 4)
  18. EN61000-4-3: (ENV50140): Radiated RF, electromagnetic field immunity
  19. EN61000-4-4: Electrical fast transient/burst immunity test
  20. EN61000-4-5: IEEE C62.41: Surge immunity test (1.2 x 50 $\mu$ s, 0.5 to 4 kV)
  21. EN61000-4-6: (ENV50141): Conducted immunity test
  22. EN61000-4-11: Voltage dips and interruption immunity
  23. UL 869A: Underwriters Laboratories reference standard for Service equipment.
  24. UL 891: Underwriters Laboratories standard for Dead-Front Switchboard applications.

### 1.3 Approved Manufactures

- A. The automatic transfer switch shall be as manufactured by Caterpillar Model CTGSE or approved equal. Alternate manufactures shall submit a request two weeks prior to bid and include a written list of deviations from this specification to be considered for approval.

## PART 2 – PRODUCTS

### 2.1 Performance and Construction

- A. The automatic transfer switch shall be of double throw construction operated by a reliable solenoid driven mechanism. There shall be a direct mechanical coupling to facilitate transfer in 6 cycles or less.
- B. The normal and emergency contacts shall be mechanically interlocked such that failure of any coil or disarrangement of any part shall not permit a neutral position.
- C. For switches installed in systems having ground fault protective devices, and/or wired so as to be designated a separately derived system by the NEC, a 4th pole shall be provided. This additional pole shall isolate the normal and emergency neutrals. The neutral pole shall have the same withstand and operational ratings as the other poles and shall be arranged to break last and make first to minimize neutral switching transients. Add-on or accessory poles that are not of identical construction and withstand capability will not be considered.
- D. The contact structure shall consist of a main current carrying contact, which is a silver alloy with a minimum of 50% silver content. The current carrying contacts shall be protected by silver tungsten arcing contacts on all sizes above 400 Amps.
- E. The transfer switch manufacturer shall submit test data for each size switch, showing it can withstand fault currents of the magnitude and the duration necessary to maintain the system integrity. Minimum UL listed withstand and close into fault ratings shall be as follows:

<u>Size (Amps)</u>	<u>Coordinated Breaker</u>	<u>Any Breaker</u>	<u>Current Limiting Fuse</u>
400	50,000	35,000	200,000

- F. A dielectric test at the conclusion of the withstand and closing tests shall be performed.
- G. The automatic transfer switch manufacturer shall certify sufficient arc interrupting capabilities for 50 cycles of operation between a normal and emergency source that are 120 degrees out of phase at 480 volts, 600% of rated current at .50 power factor. This certification is to ensure that there will be no current flow between the two isolated sources during switching.
- H. All relays shall be continuous duty industrial type with wiping contacts. Coils, relays, timers and accessories shall be readily front accessible. The control panel and power section shall be interconnected with a harness and keyed disconnect plugs for maintenance.
- I. Main and arcing contacts shall be visible without major disassembly to facilitate inspection and

maintenance.

- J. A manual handle shall be provided for maintenance purposes with the switch de-energized. An operator disconnect switch shall be provided to defeat automatic operation during maintenance, inspection or manual operation.
- K. Switches composed of molded case breakers, lighting contactors or components thereof will not be acceptable.
- L. The current rating shall be a continuous rating when the switch is installed in an enclosure, and shall conform to NEMA temperature rise standards.
- M. The unit shall be rated based on all classes of loads, i.e., resistive, tungsten, ballast and inductive loads. Switches rated 400 amperes or less shall be UL listed for 100% tungsten lamp load.
- N. Temperature rise tests in accordance with UL 1008 shall have been conducted after the overload and endurance tests to confirm the ability of the units to carry their rated currents within the allowable temperature limits.
- O. The switch shall be mounted in a NEMA 3R enclosure.
- P. The switch shall be rated 400 Amps, 120/208 Volts, 3-Phase.

## 2.2 Control

- A. The control panel shall be opto-isolated from electrical noise and provided with the following inherent control functions and capabilities:
  - 1. Easy-to-view 4x20 LCD display with long lasting LED indicators.
  - 2. Control panel shall display voltage and frequency of both sources.
  - 3. The user shall be able to view the last 16 recorded events.
  - 4. Capability for external communication and network interface.
  - 5. Adjustments to all settings shall be made from the front of the panel without opening the door.
- B. The transfer switch shall be equipped with a microprocessor based control panel. The control panel shall perform the operational and display functions of the transfer switch. The display functions of the control panel shall include ATS position, source availability, sequence indication and diagnostics.
- C. All programmable and control functions shall be pass code protected and accessible through the keypad.
- D. The control panel shall be provided with a simple user interface for transfer switch monitoring, control and field changeable functions and settings.
  - E. Touch pad test switch with Fast Test/Load/No Load selection capability to simulate a normal source failure.
  - F. The controller shall provide digital timer adjustments with 1-second resolution.



Voltage and Frequency shall be adjustable to 1% resolution to facilitate accurate transfer.

- G. To ensure reliable and consistent user operation the controls must be equipped with nonvolatile memory and allow automatic daylight savings time adjustment.
- H. The automatic transfer switch must be equipped with a solenoid protection scheme that removes any attempts of operating the solenoids after (3) consecutive trials until manual intervention by an operator.

### **2.3 Disconnecting and Overcurrent Protection**

- A. The Transfer System shall be service entrance rated with the normal connection supplied with a fully rated molded case circuit breaker, 3 pole.
- B. For equipment of 1000 amps and above, the normal connection shall be fitted with a fully rated insulated case circuit breaker capable of providing Long-Time, Short-Time, Instantaneous, and Ground Fault protection as required.
- C. All NEMA 3R rated transfer switches shall be secure and protected from the elements. The main building disconnect shall be opened via a keyed selector switch from the front of the enclosure. This switch shall also prevent the transfer switch from starting and transferring to emergency power. An indicating lamp will illuminate the position of this selector. Those switches using a double door design shall not be acceptable.

## **PART 3 – OPERATION**

### **3.1 Sequence of Operation**

- A. The Automatic Transfer Switch shall incorporate adjustable three phase under voltage sensing on the normal source.
- B. When the voltage of any phase of the normal source is reduced to 80% of nominal voltage, for a period of 0-10 seconds (programmable) a pilot contact shall close to initiate starting of the engine generator.
- C. The ATS shall incorporate adjustable under voltage and under frequency sensing on the emergency source.
- D. When the emergency source has reached a voltage value of 90% of nominal and achieved frequency within 95% of the rated value, the load shall be transferred to the emergency source after a programmable time delay.
- E. When the normal source has been restored to not less than 90% of rated voltage on all phases, the load shall be retransferred to the normal source after a time delay of 0 to 60 minutes (programmable). The generator shall run unloaded for 5 minutes (programmable) and then automatically shut down. The generator shall be ready for automatic operation upon the next failure of the normal source.

- F. If the engine generator should fail while carrying the load, retransfer to the normal source shall be made instantaneously upon restoration of proper voltage (90%) on the normal source.

### **3.2 Standard Required Accessories**

- A. Adjustable time delay to override momentary normal source failure prior to engine start. Field programmable 0-10 seconds factory set at 3 seconds.
- B. Adjustable time delay on retransfer to normal source, programmable 0-60 minutes factory set at 30 minutes. If the emergency source fails during the retransfer time delay, the transfer switch controls shall automatically bypass the time delay and immediately retransfer to the normal position.
- C. A time delay on transfer to emergency, programmable 0-5 minutes, factory set at 1 second.
- D. An in-phase monitor shall be provided. The monitor shall compare the phase angle difference between the normal and emergency sources and be programmed to anticipate the zero crossing point to minimize switching transients.
- E. An exerciser timer with momentary test pushbutton shall be incorporated within the microprocessor and shall be capable of starting the engine generator set and transferring the load (when selected) for exercise purposes on a daily, weekly or monthly basis. The exerciser shall contain a battery for memory retention during an outage.
- F. Provide a momentary pushbutton to bypass the time delays on transfer and retransfer and programmable commit/no commit control logic.
- G. The controller shall accept a remote peak shave or test input to signal the transfer switch to the emergency position.
- H. A set of customer contacts shall be provided to indicate both emergency and normal source position.

## **PART 4 – EXECUTION**

### **4.1 General**

- A. The transfer switch shall be installed as shown on the plans, in accordance with the manufacture's recommendations and all applicable codes.

### **4.2 Factory Tests**

- A. The transfer switch manufacturer shall perform a complete functional test on the switch, controller and accessories prior to shipping from the factory. A certified test report shall be available upon request.

#### 4.3 Service

- A. The manufacturer shall maintain a national service organization that is factory trained and certified for transfer switch equipment. In addition, the service organization shall be available 24 hours per day, 365 days per year.

#### 4.4 Warranty

- A. The automatic transfer switch shall be warranted against defective workmanship for a period of two (2) years, including both parts and labor. Extended warranties shall be available upon request.

END OF SECTION

### **\*\*Natural Gas-powered Engine-generator**

#### SPARK-IGNITED GENERATOR SET PART 1 - GENERAL

##### 1.1 Related Documents

Drawings and general provisions of the Contract apply to this Section.

##### 1.2 Scope of Work

Provide a natural gas powered engine-generator set of the latest commercial type and design.

##### 1.3 Materials

- A. The Supplier shall furnish:

1. A 50 kW Standby rated natural gas Engine-generator set, along with accessories, per this Specification.
2. A NEMA 3R Automatic Transfer Switch per Specification included.
3. Labor to test the generator with resistive load banks upon completion of installation.
4. Owner training services.

##### 1.4 Manufacturer

The generator set shall be a factory package of one manufacturer who has been regularly engaged in the design and production of generator sets for a minimum of 10 years. To qualify as a manufacturer, the supplier must manufacture the engine, the generator, or both items.

#### 1.4.1 Substitution Responsibility

The power system has been designed to the specified manufacturer's electrical and physical characteristics. The equipment sizing, spacing, amounts, electrical wiring, ventilation equipment, fuel, and exhaust components have all been sized and designed around CATERPILLAR supplied equipment. Should any substitutions be made, the CONTRACTOR shall bear responsibility for the installation, coordination and operation of the system as well as any engineering and redesign costs, which may result from such substitutions.

#### 1.6 Supplier

The completed engine-generator set shall be supplied by the Manufacturer's authorized distributor only.

#### 1.7 Power Rating

Power rating of the engine-generator set shall be based on operation at rated rpm when equipped with all necessary operating accessories, such as air cleaners, oil pump, jacket water pump, governor, alternating current generator, and exciter regulator. Radiator fan shall be included as necessary operating accessory.

A prototype test to the demands of NFPA 110, Level 1 and an endurance test of at least 1,000 hours at 100% of the Standby rating shall have been conducted for the engine-generator set being bid.

Package will be EPA certified for emergency power applications with air/fuel ratio controls built into the control panel.

#### 1.8 Submittal Data

- A. Make and model of engine-generator.
- B. Makes and models of switchgear and other major auxiliary equipment, including automatic transfer switch, vibration isolators, and radiator.
- C. Manufacturer-produced dimension drawings of the complete engine-generator set clearly showing entrance points for each of the interconnections required.
- D. Combustion air requirements.

- E. Location and descriptions of the supplier's parts and service facilities within a 25 mile radius of the job site, including parts inventory and number of qualified engine-generator set service personnel.
- F. Actual electrical diagrams, including schematic diagrams and interconnection wiring diagrams for all equipment to be supplied.
- H. Manufacturer warranty statements.
- I. Service agreements for the routine maintenance or total maintenance and repair of the engine-generator set shall be offered for a period of no less than 2 years.

## PART 2 - PRODUCTS

### 2.1 General

#### References and Standards

The generator set covered by these specifications shall be designed, tested, rated, assembled and installed in strict accordance with all applicable standards below:

ISO8528-5

BS5514

SAE J1349

ISO3046-1

DIN6271

UL2200

Designed to allow for installed compliance to NFPA 70, NFPA99 and NFPA 110

### 2.2 Engine

- A. The engine shall be spark ignited, a minimum 10-cylinder, water-cooled, V type, four-stroke cycle. The engine shall not use turbocharging.

The engine shall be equipped with fuel, lube oil, intake air filters, lube oil cooler, service meter, gear-driven water pump, instruments, water temperature gauge, and lubricating oil pressure gauge.

The engine speed will be optimized to maintain a BMEP (brake mean effective pressure) less than 84.8 psi, so as to minimize engine wear.

The engine will run at 1,800 rpm during periodic exercising.

- B. Governor: Engine governor shall be Electronic type which shall control the frequency within 3% of rated frequency from no load to full load for droop operation or isochronous frequency regulation when supplying electronic or other non-linear loads. The frequency of any constant load shall remain within a steady-state band width of  $\pm 0.25\%$  of rated frequency.

- C. **Mounting:** The engine-generator set shall be mounted on a structural base supplied by the manufacturer.
- D. **Protective Devices:** Safety shutoffs for high water temperature, low oil pressure, electrical over-speed, and engine over-crank shall be provided.
- E. **Enclosure:** The generator shall be enclosed by a weather-protective enclosure fabricated of 14-gauge steel. The enclosure shall have a minimum of five hinged lockable doors for access to the equipment. Doors shall be lift-off removable type with bolted stainless-steel hinges and hardware. The use of pop rivets as fasteners is not acceptable.

Enclosure must provide sound attenuation at a level of 73dBA at 7 meter (23ft).

All enclosure access points must use oil and rubber gasketing to provide protection against environmental wear.

Minimum wind ratings of 100 mph are required.

Proper intake and exhaust louvers shall be provided. Critical grade silencer must be enclosed within the unit in a separate discharge box with thermal grade wrapping. The enclosure shall be primed and painted with two coats of baked-on enamel paint; enclosure color shall be white.

### 2.3 Generator

- A. **Rating:** The generator shall be rated for standby electrical service as follows: 50 kW/62.5 kVA, at 0.8 pf, 120/208 volts, 3-phase, 60 Hz, 1,800 rpm.
- B. **Type:** The generator shall be three-phase, single-bearing, synchronous type, wet wound, tropicalized, and built to NEMA standards. The process for winding, insertion and varnish is machine precision wound and machine finished.  
The exciter field will be brushless type. Class H insulation shall be used on the stator and rotor, and both shall be further protected with an asphalt modified epoxy on all end coils. The rating will be at a generator temperature rise not to exceed 120° C at 40° C ambient so as to provide an extended life.  
The generator shall also include a resettable thermal protector and fuse for exciter/regulator protection against extended low power factor loads and faults. The generator rotor shall be dynamically balanced within 0.0005" peak-to-peak amplitude displacements at both ends of shaft and shall sustain 25% over-speed.
- C. **Alternator** shall be 12 lead reconnectable windings.
- D. **Regulator:** A digital automatic volts-per-Hz type, solid-state exciter/regulator, manufactured by the generator manufacturer, shall be included and shock mounted inside the generator control panel enclosure. Voltage regulation shall be  $\pm 0.25\%$  from no load to full-rated load. Readily

accessible voltage droop, voltage level, and voltage gain controls shall be included in the module. Voltage level adjustment shall be a minimum of  $\pm 10\%$ .

The module shall include the following protective features:

1. Current limit circuits shall restrain the exciter field current while allowing full forcing voltage to be applied to obtain rapid response during transient conditions or service overloading on the generator.
2. A time-delay circuit shall sense the current limit operation and cut off all field current to the generator after 10 seconds.

## 2.4 Cooling System

- A. Radiator: An engine-mounted radiator with Puller-type fan shall be provided to maintain safe operation at 110°F ambient temperature. Total airflow restriction to and from the radiator shall not exceed 0.5" H<sub>2</sub>O (0.12 KPA). The radiator shall have two core sections to service the engine jacket water and aftercooler circuits. Both cores are to be enclosed in a single housing. The aftercooler core shall be designed for 130°F maximum water temperature.
- B. Cooling System Treatment: The engine cooling system shall be pre-treated by the engine supplier for the inhibition of internal corrosion. A solution of 50% ethylene glycol shall be added.

## 2.5 Fuel System

The engine/generator shall be capable of operation on low pressure natural gas or propane. A normally closed 12 VDC gas valve and secondary pressure regulator will be factory installed. A braided flexible fuel connector will be furnished for installation between the gas valve and the gas piping. Special additional fittings and regulator will be installed for easy conversion to portable LP gas for rare cases when gas lines will be inoperable.

## 2.6 Exhaust Silencer

Critical grade silencer must be enclosed within the unit in a separate discharge box with thermal grade wrapping.

## 2.7 Starting Motor

The engine shall be equipped with an electric starting system with positive engagement drive and of sufficient capacity to crank the engine at a speed which will start the engine under operating conditions. The starting pinion will disengage automatically when the engine starts.

## 2.8 Automatic Controls

Fully automatic generator set start-stop controls in the generator control panel shall be provided. Controls shall provide shutdown for low oil pressure, high water temperature, low coolant level, over-speed, over-crank, over-voltage and one auxiliary contact for activating accessory items. Controls shall include cranking cycle without lockout and manual reset feature.

The same panel will provide voltage regulation.

## 2.9 Jacket Water Heater

An engine-mounted thermal circulation water heater incorporating an adjustable thermostatic switch shall be furnished to maintain engine jacket water to 90°F (32.2°C).

## 2.10 Battery and Battery Charger

- A. A lead/acid storage battery set of the heavy-duty diesel starting type shall be provided. Battery voltage shall be compatible with the starting system. A battery rack constructed in conformance with the NEC requirements and necessary cables and clamps shall be provided.
- B. A current-limiting, float-equalize charger shall be installed inside the generator enclosure to automatically recharge batteries. The charger shall float at 2.17 volts per cell and equalize at 2.33 volts per cell. It should include overload protection, silicon diode full wave rectifiers, voltage surge suppressors, DC ammeter, and fused AC output, and battery malfunctions alarm relay. AC input voltage shall be 120 volts, single phase. Amperage output shall be no less than 10 amperes.

## 2.11 Main Line Circuit Breaker

- A. A main line circuit breaker carrying the UL mark shall be factory installed. The circuit breaker shall meet standards established by UL, NEMA, and the NEC. The breaker shall be rated per the manufacturer's recommendations.
- B. The trip unit for each pole shall have elements providing inverse time delay during overload conditions and instantaneous magnetic tripping for short circuit protection.
- C. Generator/exciter field circuit breakers do not meet the above electrical standards and are unacceptable for line protection.

## 2.12 Generator Control Panel

- A. Control panel shall be obtained from same manufacturer as generator set and shall include factory warranty and manufacturer's parts and service support.  
Control panel will operate in -40 to +70 degrees C.
- B. Generator-mounted Control Panel: Designed and built by the system manufacturer and incorporating 100% solid-state circuitry, sealed dust-tight, watertight modular components and instrumentation. The panel shall be shock mounted to the generator.  
It shall comply with IEC, IEC 144, IP22, NEMA 1 for external environmental resistance and IP44/NEMA 12 resistance for internal sealed modules. The panel shall include the following equipment:
  - 1. General AC Output Metering Devices:
    - AC voltmeter 3-1/2" 2%
    - AC ammeter 3-1/2" 2%
    - Dial Frequency Meter 3-1/2" 2%



Voltmeter-Ammeter Phase selector switch, 4 Position

2. Engine Monitoring Devices:

Water temperature gauge

Running time meter

Oil pressure gauge

3. Start/Stop Controls:

1 start-stop switch, cycle cranking with cooldown timer, auto start-stop, manual start, off, and reset positions.

1 voltage adjust rheostat

1 alarm horn with silence switch. Horn must be 100 dB.

1 panel light and on/off switch for same

1 alarm module with five red flashing lights to annunciate shutdowns for over-speed, low oil pressure, high water temperature, and over-crank

Two communication ports, Modbus supported

All input signals from sensors will use 4-20 mA input signal.

Load imbalance thermal protection shall be provided.

C. Voltage regulator shall be internal to control panel in order to protect from environmental damage.

D. Convenience receptacles will be provided for the easy connection of auxiliary heaters.

## 2.12 Automatic Load Transfer Switch

A. See Below

## PART 3 – EXECUTION

### 3.1 After Sales Product Support

On completion of the installation, three copies of parts books covering the engine, generator, and major auxiliary equipment shall be provided to the Owner.

Procedures on operating and maintenance of the standby power system shall be explained to operating personnel.

### 3.2 Start-Up and Testing

Coordinate all start-up and testing activities with the Engineer and Owner. After installation is complete and normal power is available, the manufacturer's local dealer shall perform the following:

Perform a four hour load bank test at a 1.0 PF at full nameplate rating. Loadbank, cables and other equipment required for this test to be supplied by the genset supplier.

### 3.2 Generator Set Distributor

It is essential that the engine-generator supplier maintain a local parts and service facility within 25 miles of this installation. Further, the supplier shall have factory-trained service technicians to

furnish all installation, test, and start-up supervision necessary for final approval and acceptance as well as perform maintenance and repairs on all components as required.

Supplier must have a factory fill rate for emergency orders of >90% of all parts within two business days. Manufacturer must guarantee availability of spares for a period of no less than 10 years after final production of the model offered.

Distributor must make technical support available 7 x 24 hours; in addition, the manufacturer must have 7 x 24 emergency phone support available.

### 3.3 Service

The supplier shall maintain a national service organization that is factory trained and certified. In addition, the genset dealer organization shall be available 24 hours per day, 365 days per year.

### 3.4 Warranty

The engine-generator set shall be warranted against defects in materials and workmanship for a period of two years for standby applications; coverage to include both 100% parts and labor. Limits will be based upon the date of delivery to user.

If a defect in material or workmanship arises during the warranty period the Supplier will during normal working hours:

- Replace or, at the Supplier's discretion, repair the defective parts.
- Provide for reasonable and customary labor costs to correct the defect.
- Provide for the cost of service supplies such as coolant oil and filters which are made unserviceable by the defect.
- Provide travel labor, up to six hours and 250miles/400km round trip, if the generator set is inoperative due to a defect and, in the opinion of the Supplier, it cannot reasonably be transported to an appropriate service location.

### 3.5 Tooling

The distributor shall maintain all tooling required by the manufacturer to complete warranty and service repairs.

## END OF SECTION

**Proposals will be evaluated and scored based on the following criteria: High score wins**

1. Following directions of RFP.
  - a. Possible max. score 10
    - i. Minus one point for every deviation from RFP directions to a minimum of 0.

2. Price (including purchase price and pick-up costs).
  - a. Possible max. score 10
    - i. Lowest price will be given a ten score, and each consecutive higher price will have one point subtracted to a minimum of 0.
3. Proposed completion date.
  - a. Possible max. score 10
    - i. July 31, 2012 or prior - points 10
    - ii. August 15, 2012 - points 7
    - iii. August 31, 2012 - points 0
    - iv. Sept. 1, 2012 - disqualified
4. Meeting Specifications of Automatic Transfer Switch.
  - a. Possible max. score 20
    - i. Minus one point for every deviation from RFP directions to a minimum of 0.
5. Meeting Specifications of natural gas-powered engine-generator.
  - a. Possible max. score 20
    - i. Minus one point for every deviation from RFP directions to a minimum of 0.
6. Availability of manufacturer approved maintenance and repair service.
  - a. Possible max. score 20
    - i. Service location for generator within 10 miles of Grand Island City Limits– 20 points
    - ii. Service location for generator within 50 miles of Grand Island City Limits - 5 points
    - iii. No service meeting above criteria – 0 points
7. Exceptions from minimum specifications
  - a. Possible max. score 10
    - i. Minus one point per exception, not covered elsewhere in scoring, to a minimum of 0 points

## **GENERATOR PROPOSAL CONTENT**

The proposal packet for the generator packages and electrical installations should include the following referenced by number and letter where applicable:

1. Total price all expenses included
2. Exceptions to minimum specifications.
3. Name, address and telephone number of the proposer and the names, addresses and telephone numbers of individuals authorized to speak on behalf of the proposer.
4. Any and all expenses will be borne by the contractor if installation and billing is completed later than August 31, 2012.
5. A detailed description of the unit that includes the following information:
  - a. Manufacturer of generator and manufacturers specifications
    - i. Identification model of generator and electrical panels.
    - ii. Description of generator.
    - iii. New – Year Manufactured
  - b. Warranty information.
    - i. Electrical Installation
    - ii. Manufacturer’s Warranty of generator and electrical panels
  - c. Nearest maintenance and repair center qualified and licensed by the generator manufacturer.
  - d. Complete set of specification for generator, including any auxiliary equipment.
6. Provide a statement of any business, financial or other relationship with any member of the City Council or Grand Island City Administration.
7. The City may request additional information at any time that is deemed necessary.

### **CONTRACT NEGOTIATIONS**

An evaluation committee will rank the proposals according to the selection criteria and interviews may be scheduled accordingly. The City will attempt to negotiate an agreement with the highest ranked proposer subject to the approval of the governing body.