REQUEST FOR BIDS

BID NUMBER: 2013-17

THE EMERALD COAST UTILITIES AUTHORITY INVITES YOUR COMPANY TO SUBMIT A BID ON ITEM (S) AS LISTED IN THIS BID REQUEST. IT IS THE INTENT OF THE EMERALD COAST UTILITIES AUTHORITY TO RECEIVE BIDS THAT WILL BE PUBLICLY OPENED AT **2:00 P.M., SEPTEMBER 19, 2019**, FOR THE FOLLOWING:

ITEM A – PERMANENT DIESEL EMERGENCY/STANDBY POWER SYSTEM

SEALED BIDS WILL BE RECEIVED UNTIL 2:00 P.M., **SEPTEMBER 19, 2019**, BY THE PURCHASING AND STORES MANAGER, EMERALD COAST UTILITIES AUTHORITY, 9255 STURDEVANT STREET, ELLYSON INDUSTRIAL PARK, PENSACOLA, FLORIDA 32514. THE PROPOSALS RECEIVED WILL THEN BE PUBLICLY OPENED AND READ. THE EMERALD COAST UTILITIES AUTHORITY RESERVES THE RIGHT TO WAIVE INFORMALITIES IN ANY BID; REJECT ANY OR ALL PROPOSALS, IN WHOLE OR IN PART; RE-BID A PROJECT, IN WHOLE OR IN PART; AND TO ACCEPT A PROPOSAL THAT IN ITS JUDGMENT IS THE LOWEST AND BEST BID OF A RESPONSIBLE BIDDER. IN ACCEPTING A BID, ECUA MAY AWARD A CONTRACT BASED ONLY ON THE BASE BID, THE BASE BID PLUS ALL ALTERNATES, OR THE BASE BID PLUS ANY ALTERNATES WHICH ECUA SELECTS – WITH ALL DECISIONS BEING MADE BASED UPON WHAT ECUA BELIEVES TO BE THE BEST INTERESTS OF ITS RATEPAYERS, IN THE REASONABLE EXERCISE OF ITS DISCRETION. ECUA FURTHER RESERVES THE RIGHT TO INCREASE OR DECREASE QUANTITIES AS MAY BE REQUIRED TO MEET THE NEEDS OF ECUA, AT THE UNIT PRICE WHICH WAS BID.

LEGAL ADVERTISEMENT

Sealed bids for Bid Number 2013-17, Permanent Diesel Emergency/Standby Power System, will be received by the Emerald Coast Utilities Authority Purchasing and Stores Manager, 9255 Sturdevant Street, Ellyson Industrial Park, Pensacola, FL 32514, until 2:00 p.m., September 19, 2013, at which time bids submitted will be publicly opened and read. Specifications and information may be obtained from the ECUA website at www.ecua.fl.gov, or the ECUA Purchasing and Stores Manager (850-969-3350). Bids received after the closing time will be returned unopened. ECUA reserves the right to reject any or all proposals and re-advertise.

Advertised 08-15-13

Emerald Coast Utilities Authority
Purchasing and Stores Division
9255 Sturdevant Street
Pensacola, Florida 32514-7038
850-969-3350

STATEMENT OF NO BID

If you **do not** intend to bid on this commodity/service, please return this form to the above address immediately. If this statement is not completed and returned, your company may be deleted from the Emerald Coast Utilities Authority Vendors' list for this commodity/service.

We the undersigned have declined to bid on requested commodity/service Bid Number 2013-17, PERMANENT DIESEL EMERGENCY/STANDBY POWER SYSTEM for the following reasons:

_____ Specifications too "tight," i.e. geared toward one brand or manufacturer only (explain below).

_____ Insufficient time to respond to the Invitation to Bid.

_____ We do not offer this product or service.

_____ Our schedule would not permit us to perform.

_____ Unable to meet bond/insurance requirements.

_____ Specifications are unclear (explain below).

_____ Remove us from your vendors' list for this commodity/service.

_____ Other (specify below).

Remarks: _____

_____

_____

Company Name: _____

Signature: _____

Telephone: _____ Date: _____

NOTE: Statement of No Bid may be faxed into the Purchasing Division (850-969-3384) Attention: Amy Williamson or emailed to amy.williamson@ecua.fl.gov

INSTRUCTIONS TO BIDDERS

ALL THESE TERMS AND CONDITIONS ARE A PART OF THIS BID REQUEST.

1. BID SCHEDULE:

BIDS ARE PRESENTLY SCHEDULED TO BE RECEIVED BY 2:00 P.M., SEPTEMBER 19, 2013 IN THE ECUA PURCHASING SECTION, 2ND FLOOR, EMERGENCY OPERATIONS SUPPORT ADDITION, 9255 STURDEVANT STREET, ELLYSON INDUSTRIAL PARK. ECUA STAFF WILL REVIEW ALL BIDS AND FORWARD THEIR RECOMMENDATIONS TO THE ECUA CITIZENS' ADVISORY COMMITTEE SCHEDULED TO MEET AT 2:00 P.M., OCTOBER 16, 2013 IN THE ECUA BOARD ROOM, 1ST FLOOR, EMERGENCY OPERATIONS SUPPORT ADDITION, 9255 STURDEVANT STREET, ELLYSON INDUSTRIAL PARK, PENSACOLA FL 32514. THE ECUA CITIZENS' ADVISORY COMMITTEE RECOMMENDATION WILL BE PRESENTED TO THE ECUA BOARD AT THEIR MEETING SCHEDULED FOR OCTOBER 24, 2013, IN THE ECUA BOARD ROOM

2. BID SUBMISSION:

ONE ORIGINAL AND FOUR COPIES OF ALL BIDS TO BE CONSIDERED MUST BE IN THE POSSESSION OF THE EMERALD COAST UTILITIES AUTHORITY PURCHASING AND STORES MANAGER. BIDS MAY BE MAILED OR DELIVERED TO HIS OFFICE AT 9255 STURDEVANT STREET, ELLYSON INDUSTRIAL PARK, PENSACOLA, FLORIDA, 32514, IN A SEALED ENVELOPE CLEARLY MARKED WITH THE TIME AND DATE OF THE OPENING. REGARDLESS OF THE METHOD OF DELIVERY, EACH BIDDER SHALL BE RESPONSIBLE FOR HIS BID(S) BEING DELIVERED ON TIME, AS THE EMERALD COAST UTILITIES AUTHORITY ASSUMES NO RESPONSIBILITY FOR SAME. PROPOSALS OFFERED OR RECEIVED AFTER THE TIME SET FOR THE BID OPENING WILL BE REJECTED AND RETURNED UNOPENED TO THE BIDDER.

3. CONVICTION OF PUBLIC ENTITY CRIME

A PERSON OR AFFILIATE WHO HAS BEEN PLACED ON THE CONVICTED VENDOR LIST FOLLOWING A CONVICTION FOR A PUBLIC ENTITY CRIME MAY NOT SUBMIT A BID ON A CONTRACT TO PROVIDE ANY GOODS OR SERVICES TO A PUBLIC ENTITY, MAY NOT SUBMIT A BID ON A CONTRACT WITH A PUBLIC ENTITY FOR THE CONSTRUCTION OR REPAIR OF A PUBLIC BUILDING OR PUBLIC WORK, MAY NOT SUBMIT BIDS ON LEASES OF REAL PROPERTY TO A PUBLIC ENTITY, MAY NOT BE AWARDED OR PERFORM WORK AS A CONTRACTOR, SUPPLIER, SUBCONTRACTOR, OR CONSULTANT UNDER A CONTRACT WITH ANY PUBLIC ENTITY, AND MAY NOT TRANSACT BUSINESS WITH ANY PUBLIC ENTITY IN EXCESS OF THE THRESHOLD AMOUNT PROVIDED IN SECTION 287.017, FOR CATEGORY TWO ($35,000) FOR A PERIOD OF 36 MONTHS FROM THE DATE OF BEING PLACED ON THE CONVICTED VENDOR LIST.

4. BID WITHDRAWAL:

NO BID MAY BE WITHDRAWN FOR A PERIOD OF NINETY (90) DAYS FROM THE BID OPENING. PRICES MAY NOT BE MODIFIED DURING THIS PERIOD. PROPOSALS MAY BE WITHDRAWN AT ANY TIME PRIOR TO THE BID OPENING TIME.

5. BID AUTHORIZATION:

ONE ORIGINAL AND FOUR COPIES OF THE BID MUST BE SUBMITTED ON THE FORM PROVIDED BY THE EMERALD COAST UTILITIES AUTHORITY AND MUST BE SIGNED BY AN AUTHORIZED REPRESENTATIVE OF THE COMPANY PLACING THE BID. ONE COMPLETE SET OF BID FORMS WILL BE FURNISHED EACH COMPANY INTERESTED IN BIDDING.

6. BID ERRORS:

A BIDDER MAY NOT MODIFY ITS BID AFTER BID OPENING. ERRORS IN THE EXTENSION OF UNIT PRICES STATED IN A BID OR IN MULTIPLICATION, DIVISION, ADDITION, OR SUBTRACTION IN A BID MAY BE CORRECTED BY THE PURCHASING AND STORES MANAGER PRIOR TO AWARD. IN SUCH CASES, UNIT PRICES SHALL NOT BE CHANGED.

7. AWARD OF BID:

ECUA RESERVES THE RIGHT TO ESTABLISH PRIORITIES AND TO AWARD THE CONTRACT TO A SINGLE BIDDER BASED UPON THE TOTAL BID OR TO MULTIPLE VENDORS BASED UPON THE ITEMS INDIVIDUALLY BID. ECUA ALSO RESERVES THE RIGHT TO SELECTIVELY PURCHASE ANY SINGLE OR ANY MULTIPLE ITEMS FROM THIS BID.

8. TAXES:

DO NOT INCLUDE ANY TAX WITH YOUR BID. THE EMERALD COAST UTILITIES AUTHORITY IS EXEMPT FROM FEDERAL, STATE AND LOCAL TAXES. TAX EXEMPT NUMBER 85-8012640192C-4 APPLIES.

9. TERMS:

MINIMUM TERMS WILL BE NET 30 (30 DAYS AFTER RECEIPT OF MATERIAL/SERVICE) UNLESS A DISCOUNT IS INVOLVED. TERMS OFFERING A DISCOUNT FOR PROMPT PAYMENT WILL ONLY BE CONSIDERED IN DETERMINING THE LOW BID IF THE DISCOUNT PERIOD IS 19 DAYS OR GREATER (19 DAYS AFTER RECEIPT OF MATERIAL/SERVICE OR INVOICE, WHICHEVER IS GREATER).

10. BID TABULATIONS:

BID TABULATIONS WILL BE POSTED FOR REVIEW IN THE PURCHASE SECTION, 9255 STURDEVANT STREET, ELLYSON INDUSTRIAL PARK ON OR ABOUT SEPTEMBER 19, 2013, AND WILL REMAIN POSTED FOR 72 HOURS EXCLUDING WEEKENDS AND HOLIDAYS.

17. BID QUESTIONS:

IF ANY BIDDER HAS A QUESTION CONCERNING THE BID SPECIFICATIONS OR BID PROCEDURES, PLEASE FORWARD THE INQUIRY TO THE PURCHASING AND STORES MANAGER BEFORE SEPTEMBER 13, 2013, FOR CONSIDERATION.

EMERALD COAST UTILITIES AUTHORITY
ATTN: PURCHASING AND STORES MANAGER
9255 STURDEVANT STREET
PENSACOLA, FLORIDA 32514-7038
PHONE: 850-969-6531
FAX: 850-969-3384
EMAIL: amy.williamson@ecua.fl.gov

12. COMPLIANCE WITH SPECIFICATIONS:

IN ORDER TO DETERMINE THAT YOUR BID COMPLIES WITH BID SPECIFICATIONS, PRODUCT LITERATURE AND/OR DATA/INFORMATION SHOULD BE INCLUDED WITH THE BID PROPOSAL. ANY DEVIATIONS FROM THE BID SPECIFICATIONS SHOULD BE IDENTIFIED SEPARATELY.

19. UNIFORM COMMERCIAL CODE:

THE UNIFORM COMMERCIAL CODE (FLORIDA STATUTES, CHAPTER 672) SHALL PREVAIL AS THE BASIS FOR CONTRACTUAL OBLIGATIONS BETWEEN THE AWARDED VENDOR/CONTRACTOR AND EMERALD COAST UTILITIES AUTHORITY FOR ANY TERMS AND CONDITIONS NOT SPECIFICALLY STATED IN THIS INVITATION FOR BID.

14. EXECUTION OF CONTRACT:

ANY ACTION OF ECUA IN AWARDING THE PURCHASE OF ANY MATERIAL OR PERFORMANCE OF A SERVICE IS SUBJECT TO AND CONDITIONED UPON THE EXECUTION OF A WRITTEN PURCHASE CONTRACT AND/OR A PURCHASE ORDER BETWEEN ECUA AND THE VENDOR.

19. CONTRACTUAL AGREEMENT:

THIS INVITATION FOR BID SHALL BE INCLUDED AND INCORPORATED IN THE FINAL CONTRACT OR PURCHASE ORDER. THE ORDER OF CONTRACT PRECEDENCE WILL BE THE CONTRACT (PURCHASE ORDER), BID DOCUMENT AND RESPONSE. ANY AND ALL LEGAL ACTION NECESSARY TO ENFORCE THE CONTRACT WILL BE HELD IN ESCAMBIA COUNTY AND THE CONTRACT WILL BE INTERPRETED ACCORDING TO THE LAWS OF FLORIDA.

16. PROTESTS:

ANY PERSON WHOSE SUBSTANTIAL INTERESTS ARE DIRECTLY AND ADVERSELY AFFECTED BY THE AWARD OR INTENDED AWARD OF A PURCHASE ORDER OR CONTRACT OR BY PLANS OR SPECIFICATIONS CONTAINED IN AN INVITATION TO BID OR REQUEST FOR PROPOSALS MAY FILE A PROTEST IN ACCORDANCE WITH THE FOLLOWING RULES AND SECTION 12 OF THE ECUA ACT (CHAPTER 2001-324, LAWS OF FLORIDA AS AMENDED).

NOTICE OF PROTEST OF PLANS, SPECIFICATIONS OR OTHER REQUIREMENTS CONTAINED IN AN INVITATION TO BID OR IN A REQUEST FOR PROPOSALS SHALL BE FILED NOT LATER THAN 5:00 P.M. OF THE THIRD BUSINESS DAY FOLLOWING RECEIPT OF THE PLANS OR SPECIFICATIONS. NOTICE OF PROTEST OF THE REJECTION OF A BID OR PROPOSAL AS NON-RESPONSIVE SHALL BE FILED NOT LATER THAN 5:00 P.M. OF THE THIRD BUSINESS DAY FOLLOWING NOTICE TO THE BIDDER OF THE REJECTION. NOTICE OF PROTEST OF THE AWARD OR INTENDED AWARD OF A PURCHASE ORDER OR CONTRACT TO THE LOWEST BIDDER SHOWN ON A POSTED BID TABULATION SHALL BE FILED NOT LATER THAN 5:00 P.M. OF THE THIRD BUSINESS DAY FOLLOWING THE POSTING OF THE BID TABULATION. NOTICE OF PROTEST OF THE AWARD OR INTENDED AWARD OF A PURCHASE ORDER OR CONTRACT TO A BIDDER OTHER THAN THE LOWEST BIDDER SHOWN ON A POSTED BID TABULATION SHALL BE FILED NOT LATER THAN 5:00 P.M. OF THE THIRD BUSINESS DAY FOLLOWING NOTICE OF THE AWARD OF A PURCHASE ORDER OR CONTRACT.

A NOTICE OF PROTEST SHALL BE IN WRITING AND SHALL STATE THE SUBJECT MATTER OF THE PROTEST.

A FORMAL WRITTEN PROTEST SHALL BE FILED WITHIN SEVEN (7) BUSINESS DAYS AFTER THE FILING OF NOTICE OF PROTEST. A FORMAL WRITTEN PROTEST SHALL STATE WITH PARTICULARITY THE FACTS AND THE LAW ON WHICH THE PROTEST IS BASED.

NOTICE OF PROTEST AND FORMAL WRITTEN PROTEST OF PLANS OR SPECIFICATIONS FOR OR THE AWARD OR INTENDED AWARD OF A CONTRACT SHALL BE FILED WITH THE EXECUTIVE DIRECTOR OR HIS OR HER DESIGNEE. FAILURE TO FILE A NOTICE OF PROTEST OR FAILURE TO FILE A FORMAL WRITTEN PROTEST WITHIN THE TIMES PERMITTED SHALL CONSTITUTE A WAIVER OF PROCEEDINGS UNDER THESE RULES AND UNDER SECTION 12 OF CHAPTER 2001-324, LAWS OF FLORIDA, AS AMENDED.

UPON RECEIPT OF A NOTICE OF PROTEST WHICH HAS BEEN TIMELY FILED, THE EXECUTIVE DIRECTOR SHALL STOP THE BID SOLICITATION OR PURCHASE ORDER OR CONTRACT AWARD PROCESS UNTIL THE PROTEST HAS BEEN RESOLVED. HOWEVER, THE BID SOLICITATION OR PURCHASE ORDER OR CONTRACT AWARD PROCESS MAY PROCEED WHEN THE EXECUTIVE DIRECTOR DETERMINES THAT DELAY WOULD BE DETRIMENTAL TO THE INTERESTS OF ECUA. ANY AWARD OF A PURCHASE ORDER OR CONTRACT UNDER SUCH CONDITIONS SHALL BE SUBJECT TO THE OUTCOME OF THE PROTEST. AFTER THE AWARD OF A CONTRACT OR PURCHASE ORDER RESULTING FROM A BID IN WHICH A TIMELY PROTEST WAS RECEIVED AND IN WHICH ECUA DID NOT PREVAIL, ECUA MAY TAKE SUCH ACTION AS IT CONSIDERS APPROPRIATE, WHICH MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, AWARD OF THE CONTRACT OR PURCHASE ORDER TO THE PREVAILING PARTY, CANCELLATION OF THE CONTRACT OR PURCHASE ORDER, OR REBIDDING.

THE EXECUTIVE DIRECTOR SHALL PROVIDE REASONABLE OPPORTUNITY TO RESOLVE A PROTEST BY AGREEMENT. IF AGREEMENT IS NOT REACHED WITHIN SUCH TIME AS THE EXECUTIVE DIRECTOR OR HIS OR HER DESIGNEE CONSIDERS REASONABLE UNDER THE CIRCUMSTANCES, THE EXECUTIVE DIRECTOR OR HIS OR HER DESIGNEE SHALL REVIEW THE FACTS AND THE LAW ON WHICH THE PROTEST IS BASED, AND SHALL RENDER A DECISION WHICH SHALL BE IN WRITING AND SHALL BE PROMPTLY TRANSMITTED TO THE PROTESTOR.

IF THE PROTESTOR WISHES TO CONTINUE THE PROTEST BEYOND THE DECISION OF THE EXECUTIVE DIRECTOR OR HIS OR HER DESIGNEE, THE PROTESTOR SHALL BE REQUIRED TO FILE A PETITION FOR REVIEW BY THE ECUA BOARD. THIS PETITION SHALL BE MADE IN WRITING AND PRESENTED TO THE EXECUTIVE DIRECTOR WITHIN TEN (10) DAYS AFTER NOTICE OF THE DECISION OF THE EXECUTIVE DIRECTOR OR HIS OR HER DESIGNEE; OTHERWISE, THE DECISION OF THE EXECUTIVE DIRECTOR OR HIS OR HER DESIGNEE SHALL BE FINAL AND BINDING. SUCH PETITION SHALL STATE THE PARTICULAR GROUNDS ON WHICH IT IS BASED AND MAY INCLUDE PERTINENT DOCUMENTS AND EVIDENCE RELATING THERETO. ANY GROUNDS NOT STATED SHALL BE DEEMED TO HAVE BEEN WAIVED BY THE PROTESTOR. THIS PETITION MUST ALSO BE ACCOMPANIED BY A PROTEST BOND OF AN AMOUNT EQUAL TO 1.0 PERCENT (1%) OF THE VALUE OF THE SOLICITATION, BUT IN NO CASE NEITHER LESS THAN $1,000 NOR GREATER THAN $10,000.00. THIS BOND SHALL BE IN THE FORM OF A

MONEY ORDER, CERTIFIED CASHIER'S CHECK, OR CERTIFIED BANK CHECK MADE PAYABLE TO THE EMERALD COAST UTILITIES AUTHORITY. FAILURE TO POST SUCH BOND WITHIN TEN (10) BUSINESS DAYS AFTER THE DECISION OF THE EXECUTIVE DIRECTOR OR HIS OR HER DESIGNEE SHALL RESULT IN THE PROTEST BEING DISMISSED BY THE EXECUTIVE DIRECTOR.

THE BOND REQUIRED BY THE ABOVE PARAGRAPH SHALL BE CONDITIONED UPON THE PAYMENT OF ALL COSTS AND CHARGES WHICH MAY BE ADJUDGED AGAINST THE PERSON FILING THE PETITION FOR REVIEW. IF THE PROTESTOR PREVAILS, THE BOND SHALL BE RETURNED TO THE PROTESTOR. IF HOWEVER, ECUA PREVAILS, THE BOND SHALL BE FORFEITED, AND ECUA SHALL BE ENTITLED TO RECOVER THE COSTS AND CHARGES, EXCLUDING ATTORNEY'S FEES, OF SUCH HEARING. THE ENTIRE AMOUNT OF THE BOND ALSO SHALL BE FORFEITED IF IT IS DETERMINED THAT A PROTEST WAS FILED FOR A FRIVOLOUS OR IMPROPER PURPOSE, INCLUDING, BUT NOT LIMITED TO, THE PURPOSE OF HARASSING, CAUSING UNNECESSARY DELAY, OR CAUSING NEEDLESS COST FOR ECUA OR ANOTHER INTERESTED PARTY/PARTIES.

ANY NOTICE REQUIRED OR PERMITTED UNDER THIS BID PROTEST PROCEDURE SHALL BE EFFECTIVE WHEN DELIVERED PERSONALLY OR BY FACSIMILE, OR WHEN DEPOSITED IN THE U.S. MAIL; IF NOTICE IS GIVEN ONLY BY MAIL, THREE (3) DAYS SHALL BE ADDED TO THE TIME WITHIN WHICH A PROTESTOR MAY FILE A NOTICE OF PROTEST OR PETITION FOR REVIEW.

17. CONTRACTS EXCEEDING ONE YEAR:

WHEN APPLICABLE, A CONTRACT MAY BE RENEWED CONTINGENT UPON COST FACTORS, MUTUAL AGREEMENT, SATISFACTORY PERFORMANCE EVALUATIONS, AVAILABILITY OF FUNDS AND ECUA BOARD APPROVAL. ECUA'S PERFORMANCE AND OBLIGATION TO PAY FOR THE PURCHASE OF SERVICES OR TANGIBLE PERSONAL PROPERTY OF A PERIOD IN EXCESS OF ONE (1) FISCAL YEAR UNDER ANY CONTRACTUAL RELATIONSHIP IS CONTINGENT UPON AN ANNUAL BUDGET APPROVAL BY THE ECUA BOARD.

EMERALD COAST UTILITIES AUTHORITY
BID NUMBER: 2013-17
PERMANENT DIESEL EMERGENCY/STANDBY POWER SYSTEM
SPECIFICATIONS

SECTION 1.0:GENERAL REQUIREMENTS

1.0 SCOPE:

PROVIDE, AND ACCEPTANCE TEST A COMPLETE AND OPERABLE EMERGENCY/STANDBY ELECTRIC GENERATING SYSTEM WITH DIGITAL ELECTRONIC CONTROLS, INCLUDING ALL DEVICES AND EQUIPMENT SPECIFIED HEREIN. EQUIPMENT SHALL BE NEW, FACTORY TESTED, AND DELIVERED READY FOR INSTALLATION.

1.0.1 APPROVED MANUFACTURERS: EQUIPMENT, DOCUMENTATION, AND SERVICES DESCRIBED IN THIS SPECIFICATION:
1. CUMMINS POWER GENERATION
2. KOHLER
3. TAYLOR POWER SYSTEMS

1.0.2 APPROVAL OF SUBSTITUTES: **PROPOSED SUBSTITUTIONS SHALL INCLUDE COMPLETE SUBMITTAL DATA, AS SPECIFIED HEREIN, CLEARLY DENOTING ANY AND ALL DEVIATIONS AND/OR EXCEPTIONS TO THE EQUIPMENT SPECIFIED**. **THE PROPOSAL MUST ALSO INCLUDE A LINE BY LINE COMPLIANCE STATEMENT, BASED ON THIS SPECIFICATION.** THE COMPLETE PROPOSAL MUST BE SUBMITTED TO THE OWNER/ENGINEER FOR APPROVAL/DISAPPROVAL AT LEAST 14 DAYS PRIOR TO THE PUBLISHED BID DATE. IF APPROVED, THE SUPPLIER IS RESPONSIBLE FOR ALL CHARGES REQUIRED, TO MAKE ANY NECESSARY REVISIONS.

1.1 SUBMITTALS:

AS A MINIMUM FOR ALL EQUIPMENT SPECIFIED, 6 EACH SPECIFICATION AND DATA SHEETS INCLUDING RATED CAPACITIES AND OPERATING CHARACTERISTICS:

A. PRODUCT DATA: FOR EACH TYPE OF PACKAGED ENGINE GENERATOR INDICATED. INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES. IN ADDITION, INCLUDE THE FOLLOWING:

1. THERMAL DAMAGE CURVE FOR GENERATOR.
2. TIME-CURRENT CHARACTERISTIC CURVES FOR GENERATOR PROTECTIVE DEVICE.

B. SHOP DRAWINGS: DETAIL EQUIPMENT ASSEMBLIES AND INDICATE DIMENSIONS, WEIGHTS, LOADS, REQUIRED CLEARANCES, METHOD OF FIELD ASSEMBLY, COMPONENTS, AND LOCATION AND SIZE OF EACH FIELD CONNECTION.

1. SHOP DRAWINGS SHOWING PLAN AND ELEVATION VIEWS WITH CERTIFIED OVERALL AND INTERCONNECTION POINT DIMENSIONS AND OUTLINE PLAN WITH ELEVATION DRAWINGS OF ENGINE-GENERATOR SET AND OTHER COMPONENTS SPECIFIED.
2. DESIGN CALCULATIONS: MANUFACTURER'S CERTIFICATION OF PROTOTYPE TESTING. SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER. CALCULATE REQUIREMENTS FOR SELECTING VIBRATION ISOLATORS AND SEISMIC RESTRAINTS AND FOR DESIGNING VIBRATION ISOLATION BASES.
3. VIBRATION ISOLATION BASE DETAILS: SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER. DETAIL FABRICATION, INCLUDING ANCHORAGES AND ATTACHMENTS TO STRUCTURE AND TO SUPPORTED EQUIPMENT. INCLUDE BASE WEIGHTS.
4. WIRING DIAGRAMS: POWER, SIGNAL, AND CONTROL WIRING. INTERCONNECTION WIRING DIAGRAMS SHOWING ALL EXTERNAL CONNECTIONS REQUIRED; WITH FIELD WIRING TERMINALS MARKED IN A CONSISTENT POINT TO POINT MANNER.

C. CLOSEOUT SUBMITTALS

1. OPERATION AND MAINTENANCE DATA: (6 COPIES) FOR PACKAGED ENGINE GENERATORS TO INCLUDE IN EMERGENCY, OPERATION, AND MAINTENANCE MANUALS. IN ADDITION INCLUDE THE FOLLOWING:

    a. LIST OF TOOLS AND REPLACEMENT ITEMS RECOMMENDED TO BE STORED AT THE SITE FOR READY ACCESS. INCLUDE PART AND DRAWING NUMBERS, CURRENT UNIT PRICES, AND SOURCE OF SUPPLY.
    b. PROVIDE A COPY OF ALL SOFTWARE; CONFIGURATION SETTING AND PLC PROGRAMS.

1.2 WARRANTY:

A NO DEDUCTIBLE WARRANTY SHALL BE PROVIDED, **BY THE MANUFACTURER,** FOR ALL PRODUCTS LISTED IN THIS SECTION. THEY SHALL BE WARRANTED AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF FIVE YEARS FROM THE DATE OF INITIAL SYSTEM START-UP. THE MANUFACTURER'S WARRANTY SHALL BE COMPREHENSIVE AND COVER ALL PARTS, LABOR, TRAVEL TIME, AND MILEAGE CHARGES, WITH THE EXCEPTION OF CONSUMABLE ITEMS, SUCH AS FILTERS, BELTS, HOSES, ETC.

1.3 MAINTENANCE SERVICE

INITIAL MAINTENANCE SERVICE: BEGINNING AT SUBSTANTIAL COMPLETION, PROVIDE 12 MONTHS' FULL MAINTENANCE BY SKILLED EMPLOYEES OF MANUFACTURER'S DESIGNATED SERVICE ORGANIZATION. INCLUDE QUARTERLY EXERCISING TO CHECK FOR PROPER STARTING, LOAD TRANSFER, AND RUNNING UNDER LOAD. INCLUDE ROUTINE PREVENTIVE MAINTENANCE AS RECOMMENDED BY MANUFACTURER AND ADJUSTING AS REQUIRED FOR PROPER OPERATION. PROVIDE PARTS AND SUPPLIES SAME AS THOSE USED IN THE MANUFACTURE AND INSTALLATION OF ORIGINAL EQUIPMENT.

1.4 **CODES AND STANDARDS**

THE GENERATOR SET AND ITS INSTALLATION AND ON-SITE TESTING SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:

CSA C22.2, NO. 14 – M91 INDUSTRIAL CONTROL EQUIPMENT.

CSA 282, 1989	**EMERGENCY ELECTRICAL POWER SUPPLY FOR BUILDINGS**
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.**

FCC PART 15, SUBPART B.

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**
IEEE587	**FOR VOLTAGE SURGE RESISTANCE.**
MIL STD 461D –1993	**MILITARY STANDARD, ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS.**
MIL STD 462D - 1993.	**MILITARY STANDARD, MEASUREMENT OF ELECTROMAGNETIC INTERFERENCE CHARACTERISTICS.**
NEMA ICS10-1993 –	**AC GENERATOR SETS.**
NFPA70 –	**NATIONAL ELECTRICAL CODE. EQUIPMENT SHALL BE SUITABLE FOR USE IN SYSTEMS IN COMPLIANCE TO ARTICLE 700, 701, AND 702.**
NFPA99 –	**ESSENTIAL ELECTRICAL SYSTEMS FOR HEALTH CARE FACILITIES**
NFPA110 –	**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.**
UL508.	**THE ENTIRE CONTROL SYSTEM OF THE GENERATOR SET SHALL BE UL508 LISTED AND LABELED.**
UL2200.	**THE GENSET SHALL BE LISTED TO UL2200 OR SUBMIT TO AN INDEPENDENT THIRD PARTY CERTIFICATION PROCESS TO VERIFY COMPLIANCE AS INSTALLED.**

1.5 MANUFACTURERS' REQUIREMENTS:

SINGLE MANUFACTURER RESPONSIBILITY IS MANDATORY FOR COMPLETE ENGINE-GENERATOR SETS, AUTOMATIC TRANSFER SWITCH, INCLUDING MANUFACTURING OF ENGINE AND THE ALTERNATOR, BUILDING OF SET, MANUFACTURING OF THE AUTOMATIC TRANSFER SWITCH, FACTORY TEST, FACTORY WARRANTY, & SHIPPING. TO BE CLASSIFIED AS A MANUFACTURER, THE BUILDER OF THE GENERATING SET MUST

MANUFACTURE THE ENGINE AND THE ALTERNATOR (GENERATOR), AND IT MUST BE BUILT AT THE MANUFACTURING PLANT. COORDINATION BETWEEN MANUFACTURER, SERVICE FIRM, & INSTALLER IS MANDATORY.

THE MANUFACTURER SHALL HAVE PRINTED LITERATURE & BROCHURES DESCRIBING THE STANDARD SERIES OFFERED (NOT A ONE OF A KIND FABRICATION). THE MANUFACTURER SHALL FURNISH SCHEMATIC & WIRING DIAGRAMS FOR THE ENGINE/ALTERNATOR SETS, TRANSFER SWITCHES, AND SWITCHGEAR EQUIPMENT. SETS NOT FACTORY ASSEMBLED AS A STANDARD MODEL WITH ALL CONTROLS, ALTERNATOR, & ENGINE, AND TESTED TOGETHER, AS A SYSTEM, WILL NOT BE ACCEPTABLE.

1.6 SINGLE SUPPLIER:

THE SUPPLIER SHALL BE THE MANUFACTURER'S AUTHORIZED DISTRIBUTOR, WHO HAS SERVED IN THIS CAPACITY FOR THE LAST TWENTY-FIVE (25) YEARS, AND IS LOCATED NO MORE THAN 70 MILES FROM THE JOBSITE. THE SUPPLIER SHALL PROVIDE INITIAL START-UP SERVICES, CONDUCT FIELD ACCEPTANCE TESTING, AND WARRANTY SERVICE ON ALL OF THE EQUIPMENT SPECIFIED HEREIN. THE SUPPLIER SHALL HAVE 24-HOUR SERVICE AVAILABILITY AND FACTORY-TRAINED SERVICE TECHNICIANS AUTHORIZED TO DO WARRANTY SERVICE ON ALL WARRANTABLE PRODUCTS, AND MAINTAIN STOCK OF STANDARD SPARE PARTS INCLUDING 80% OF THE ENGINE PARTS. FACILITIES OPEN FOR INSPECTION AND APPROVAL OF THE ENGINEER.

SECTION 2.0: DIESEL ENGINE-GENERATOR SETS

2.1 DIESEL ENGINE-GENERATOR SETS: U.L. 2200 LISTED, PROVIDE FOUR (4) TOTAL UNITS AS DESCRIBED BELOW AND SHALL INCLUDE INHERENT OVERCURRENT, SHORT CIRCUIT AND OVERLOAD PROTECTION, DIGITAL AND ANALOG AC METERING EQUIPMENT, SENSOR FAILURE DETECTION, AND REMOTE MONITORING AND CONTROL CAPABILITY. NO EXCEPTIONS OR DEVIATIONS TO THESE REQUIREMENTS WILL BE PERMITTED:

A. ONE (1) DIESEL ENGINE-GENERATOR SET RATED TO SUPPLY 200 KW WITHOUT DE-RATING, AT A CONTINUOUS STANDBY RATING, BASED UPON AN ALTITUDE OF SEA LEVEL TO 1000 FEET, AND AMBIENT TEMPERATURES UP TO 122 DEGREES F; 277(CENTER-TAP)/480Y VOLT (WYE), THREE PHASE, 60 HERTZ, 1800 RPM FOR LIFT STATION 12. PROVIDE ATS SIZED FOR THIS LOCATION PER ATTACHED ATS SPECIFICATION.

B. ONE (1) DIESEL ENGINE-GENERATOR SET RATED TO SUPPLY 250 KW WITHOUT DE-RATING, AT A CONTINUOUS STANDBY RATING, BASED UPON AN ALTITUDE OF SEA LEVEL TO 1000 FEET, AND AMBIENT TEMPERATURES UP TO 122 DEGREES F; 277(CENTER-TAP)/480Y VOLT (WYE), THREE PHASE, 60 HERTZ, 1800 RPM FOR ELLYSON FIELD CNG STATION.

C. ONE (1) DIESEL ENGINE-GENERATOR SET RATED TO SUPPLY 350 KW WITHOUT DE-RATING, AT A CONTINUOUS STANDBY RATING, BASED UPON AN ALTITUDE OF SEA LEVEL TO 1000 FEET, AND AMBIENT TEMPERATURES UP TO 122 DEGREES F; 277(CENTER-TAP)/480Y VOLT (WYE), THREE PHASE, 60 HERTZ, 1800 RPM FOR GODWIN LANE CNG STATION.

D. ONE (1) DIESEL ENGINE-GENERATOR SET RATED TO SUPPLY 500 KW WITHOUT DE-RATING, AT A CONTINUOUS STANDBY RATING, BASED UPON AN ALTITUDE OF SEA LEVEL TO 1000 FEET, AND AMBIENT TEMPERATURES UP TO 122 DEGREES F; 277(CENTER-TAP)/480Y VOLT (WYE), THREE PHASE, 60 HERTZ, 1800 RPM FOR WARRINGTON.

E. NATURAL GAS ALTERNATE TO DIESEL ENGINE-GENERATOR SETS; PROVIDE THE FOLLOWING:

1. 205KW
2. 250KW
3. 450KW
4. 550KW

NOTE: ALL OTHER PROVISIONS OF THIS SPECIFICATION APPLY FOR NATURAL GAS UNITS.

2.1.1 PROTOTYPE TESTS AND EVALUATION:

PROTOTYPE TESTS SHALL HAVE BEEN PERFORMED ON A COMPLETE AND FUNCTIONAL UNIT, COMPONENT LEVEL TYPE TESTS WILL NOT SUBSTITUTE FOR THIS REQUIREMENT. THE PERFORMANCE TEST OF THE GENERATING SET SERIES SHALL BE IN ACCORDANCE WITH PROCEDURES CERTIFIED BY AN INDEPENDENT TESTING LABORATORY. PROTOTYPE TESTING SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 110 FOR LEVEL 1 SYSTEMS, WHICH WILL INCLUDE:

MAXIMUM POWER LEVEL, MAXIMUM MOTOR STARTING CAPACITY, STRUCTURAL SOUNDNESS TORSION GRAPH ANALYSIS PER MIL-STD-705B, METHOD 504.2 FUEL CONSUMPTION, ENGINE ALTERNATOR TEMPERATURE RISE PER NEMA MG1-22.40 SINGLE STEP LOAD PICK UP, HARMONIC ANALYSIS & VOLTAGE WAVE FOR DEVIATION PER MIL-STD-705B, METHOD

601.4, 3 PHASE, SHORT CIRCUIT TEST FOR MECHANICAL & ELECTRICAL STRENGTH.

2.1.2 PERFORMANCE:

VOLTAGE REGULATION SHALL BE +/- 0.5 PERCENT FOR ANY CONSTANT LOAD BETWEEN NO LOAD AND RATED LOAD.

FREQUENCY REGULATION SHALL BE ISOCHRONOUS FROM STEADY STATE NO LOAD TO STEADY STATE RATED LOAD. RANDOM FREQUENCY VARIATION WITH ANY STEADY LOAD FROM NO LOAD TO FULL LOAD SHALL NOT EXCEED PLUS OR MINUS 0.25%.

THE DIESEL ENGINE-GENERATOR SET SHALL BE CAPABLE OF SINGLE STEP LOAD PICK UP OF 100% NAMEPLATE KW AND POWER FACTOR, LESS APPLICABLE DE-RATING FACTORS, WITH THE ENGINE-GENERATOR SET AT OPERATING TEMPERATURE.

THE GENERATOR SETS SHALL BE CAPABLE OF SUSTAINING A MINIMUM OF 90% OF RATED NO LOAD VOLTAGE WITH THE SPECIFIED KVA LOAD AT NEAR ZERO POWER FACTOR APPLIED TO THE GENERATOR SET.

2.1.3 ENGINE: THE ENGINES SHALL BE DIESEL, 4 CYCLE, AND CERTIFIED TO TIER 2, U.S. NON-ROAD SOURCE EMISSION STANDARDS, CFR 40 AND COMPLIANCE WITH SUBPART 63 FOR EMERGENCY CI ENGINES. THE ENGINES SHALL HAVE THE FOLLOWING ACCESSORIES AND FEATURES.

AN ELECTRONIC GOVERNOR SYSTEM SHALL PROVIDE AUTOMATIC ISOCHRONOUS FREQUENCY REGULATION. THE GOVERNING SYSTEM DYNAMIC CAPABILITIES SHALL BE CONTROLLED AS A FUNCTION OF ENGINE COOLANT TEMPERATURE TO PROVIDE FAST, STABLE OPERATION AT VARYING ENGINE OPERATING TEMPERATURE CONDITIONS. THE CONTROL SYSTEM SHALL ACTIVELY CONTROL THE FUEL RATE AND EXCITATION AS APPROPRIATE TO THE STATE OF THE GENERATOR SET. FUEL RATE SHALL BE REGULATED AS A FUNCTION OF STARTING, ACCELERATING TO START DISCONNECT SPEED, ACCELERATING TO RATED SPEED, AND OPERATING IN VARIOUS ISOCHRONOUS OR PARALLEL STATES. THE ENGINE GOVERNING SYSTEM SHALL NOT UTILIZE ANY EXPOSED OPERATING LINKAGE.

THE ENGINE MUST MEET THE BUY AMERICAN ACT. FOR THE ALTERNATIVE BID, THE NATURAL GAS ALTERNATE, DOOSAN ENGINES ARE NOT ACCEPTABLE.

THE ENGINE SHALL BE COOLED BY A UNIT-MOUNTED CLOSED LOOP RADIATOR SYSTEM RATED FOR FULL RATED LOAD OPERATION IN 50

DEGREES C (122F) AMBIENT CONDITION WITH THE AMBIENT TEMPERATURE AS MEASURED AT THE GENERATOR AIR INLET. RADIATORS SHALL BE PROVIDED WITH A DUCT ADAPTER FLANGE. THE COOLING SYSTEM SHALL BE FILLED WITH 50/50 ETHYLENE GLYCOL/WATER MIXTURE BY THE EQUIPMENT SUPPLIER. ROTATING PARTS SHALL BE GUARDED AGAINST ACCIDENTAL CONTACT.

AN ELECTRIC STARTER(S) CAPABLE OF THREE COMPLETE CRANKING CYCLES WITHOUT OVERHEATING; POSITIVE DISPLACEMENT; MECHANICAL, FULL PRESSURE; LUBRICATION OIL PUMP; FULL FLOW LUBRICATION OIL FILTERS WITH REPLACEABLE SPIN-ON CANISTER ELEMENTS AND DIPSTICK OIL LEVEL INDICATOR.

AN ENGINE DRIVEN, MECHANICAL, POSITIVE-DISPLACEMENT FUEL PUMP; FUEL FILTER WITH REPLACEABLE SPIN-ON CANISTER ELEMENT; FLEXIBLE SUPPLY AND RETURN FUEL LINES.

REPLACEABLE DRY ELEMENT AIR CLEANER WITH RESTRICTION INDICATOR.

ENGINE MOUNTED BATTERY CHARGING ALTERNATOR, 35 AMPERE MINIMUM, AND SOLID-STATE VOLTAGE REGULATOR.

2.1.4 AC GENERATOR: THE AC GENERATOR SHALL BE; SYNCHRONOUS, FOUR POLE, 2/3 PITCH, REVOLVING FIELD, DRIP-PROOF CONSTRUCTION, SINGLE PRE-LUBRICATED SEALED BEARING, AIR COOLED BY A DIRECT DRIVE CENTRIFUGAL BLOWER FAN, AND DIRECTLY CONNECTED TO THE ENGINE WITH FLEXIBLE DRIVE DISC.

ALL INSULATION SYSTEM COMPONENTS SHALL MEET NEMA MG1 TEMPERATURE LIMITS FOR CLASS H INSULATION SYSTEM. ACTUAL TEMPERATURE RISE MEASURED BY RESISTANCE METHOD AT FULL LOAD SHALL NOT EXCEED 105 DEGREES CENTIGRADE.

THE GENERATOR SHALL BE CAPABLE OF DELIVERING RATED OUTPUT (KVA) AT RATED FREQUENCY AND POWER FACTOR, AT ANY VOLTAGE NOT MORE THAN 5 PERCENT ABOVE OR BELOW RATED VOLTAGE.

A PERMANENT MAGNET GENERATOR (PMG) SHALL BE INCLUDED TO PROVIDE A RELIABLE SOURCE OF EXCITATION POWER FOR OPTIMUM MOTOR STARTING AND SHORT CIRCUIT PERFORMANCE. THE PMG AND CONTROLS SHALL BE CAPABLE OF SUSTAINING AND REGULATING CURRENT SUPPLIED TO A SINGLE PHASE OR THREE PHASE FAULT AT

APPROXIMATELY 300% OF RATED CURRENT FOR NOT MORE THAN 10 SECONDS.

2.1.5 ENGINE-GENERATOR SET CONTROL:

THE GENERATOR SET SHALL BE PROVIDED WITH A MICROPROCESSOR-BASED CONTROL SYSTEM WHICH IS DESIGNED TO PROVIDE AUTOMATIC STARTING, MONITORING, AND CONTROL FUNCTIONS FOR THE GENERATOR SET. THE CONTROL SYSTEM SHALL ALSO BE DESIGNED TO ALLOW LOCAL MONITORING AND CONTROL OF THE GENERATOR SET, AND REMOTE MONITORING AND CONTROL AS DESCRIBED IN THIS SPECIFICATION. THE CONTROL SHALL BE MOUNTED ON THE GENERATOR SET AND SHALL BE VIBRATION ISOLATED AND PROTOTYPE TESTED TO VERIFY THE DURABILITY OF ALL COMPONENTS IN THE SYSTEM UNDER THE VIBRATION CONDITIONS ENCOUNTERED. THE CONTROL SHALL BE UL508 LABELED, CSA282-M1989 CERTIFIED, AND MEET IEC8528 PART 4. ALL SWITCHES, LAMPS AND METERS SHALL BE OIL-TIGHT AND DUST-TIGHT, AND THE ENCLOSURE DOOR SHALL BE CASKETED. THERE SHALL BE NO EXPOSED POINTS IN THE CONTROL (WITH THE DOOR OPEN) THAT OPERATE IN EXCESS OF 50 VOLTS. THE CONTROLS SHALL MEET OR EXCEED THE REQUIREMENTS OF MIL-STD 461C PART 9, AND IEC STD 801.2, 801.3., AND 801.5 FOR SUSCEPTIBILITY, CONDUCTED, AND RADIATED ELECTROMAGNETIC EMISSIONS. THE ENTIRE CONTROL SHALL BE TESTED AND MEET THE REQUIREMENTS OF IEEE587 FOR VOLTAGE SURGE RESISTANCE.

THE GENERATOR SET MOUNTED CONTROL SHALL INCLUDE THE FOLLOWING FEATURES AND FUNCTIONS:

THREE POSITION CONTROL SWITCH LABELED RUN/OFF/AUTO. IN THE RUN POSITION THE GENERATOR SET SHALL AUTOMATICALLY START, AND ACCELERATE TO RATED SPEED AND VOLTAGE. IN THE OFF POSITION THE GENERATOR SET SHALL IMMEDIATELY STOP, BYPASSING ALL TIME DELAYS. IN THE AUTO POSITION THE GENERATOR SET SHALL BE READY TO ACCEPT A SIGNAL FROM A REMOTE DEVICE TO START AND ACCELERATE TO RATED SPEED AND VOLTAGE.

RED "MUSHROOM-HEAD" PUSH-BUTTON EMERGENCY STOP SWITCH SHALL CAUSE THE GENERATOR SET TO IMMEDIATELY SHUT DOWN, AND BE LOCKED OUT FROM AUTOMATIC RESTARTING.

PUSH-BUTTON RESET SWITCH: THE RESET SWITCH SHALL BE USED TO CLEAR A FAULT AND ALLOW RESTARTING THE GENERATOR SET AFTER IT HAS SHUT DOWN FOR ANY FAULT CONDITION. PUSH-BUTTON PANEL LAMP SWITCH: DEPRESSING THE PANEL LAMP SWITCH SHALL CAUSE THE

ENTIRE PANEL TO BE LIGHTED WITH DC CONTROL POWER. THE PANEL LAMPS SHALL AUTOMATICALLY BE SWITCHED OFF 10 MINUTES AFTER THE SWITCH IS DEPRESSED, OR AFTER THE SWITCH IS DEPRESSED A SECOND TIME.

GENERATOR SET AC OUTPUT METERING: THE GENERATOR SET SHALL BE PROVIDED WITH BOTH AN ANALOG AND DIGITAL METERING SET WITH THE FOLLOWING FEATURES AND FUNCTIONS:

COLOR CODED ANALOG BAR GRAPH METERING SHALL BE PROVIDED TO INCLUDE VOLTMETER, AMMETER, FREQUENCY METER, AND KILOWATT (KW) METER. THESE METERS SHALL BE COLOR CODED IN THE FOLLOWING FASHION: READINGS FROM 0-90% OF GENERATOR SET STANDBY RATING: GREEN; READINGS FROM 90-100% OF STANDBY RATING: AMBER; READINGS IN EXCESS OF 100%: RED.

DIGITAL METERING SET, 0.5% ACCURACY, TO INDICATE GENERATOR RMS VOLTAGE AND CURRENT, FREQUENCY, OUTPUT CURRENT, OUTPUT KW, KW-HOURS, AND POWER FACTOR. GENERATOR OUTPUT VOLTAGE SHALL BE AVAILABLE IN LINE-TO-LINE AND LINE-TO-NEUTRAL VOLTAGES, AND SHALL DISPLAY ALL THREE PHASE VOLTAGES (LINE TO NEUTRAL OR LINE TO LINE) SIMULTANEOUSLY.

GENERATOR SET ALARM AND STATUS MESSAGE DISPLAY: THE GENERATOR SET SHALL BE PROVIDED WITH ALARM AND STATUS INDICATING LAMPS TO INDICATE NON-AUTOMATIC GENERATOR STATUS AND EXISTING ALARM AND SHUTDOWN CONDITIONS. THE LAMPS SHALL BE HIGH-INTENSITY LED TYPE. THE LAMP CONDITION SHALL BE CLEARLY APPARENT UNDER BRIGHT ROOM LIGHTING CONDITIONS. THE GENERATOR SET CONTROL SHALL INDICATE THE EXISTENCE OF THE FOLLOWING ALARM AND SHUTDOWN CONDITIONS ON A DIGITAL DISPLAY PANEL:

LOW OIL PRESSURE (ALARM)
LOW OIL PRESSURE (SHUTDOWN)
OIL PRESSURE SENDER FAILURE (ALARM)
LOW COOLANT TEMPERATURE (ALARM)
HIGH COOLANT TEMPERATURE (ALARM)
HIGH COOLANT TEMPERATURE (SHUTDOWN)
ENGINE TEMPERATURE SENDER FAILURE (ALARM)
LOW COOLANT LEVEL (ALARM OR SHUTDOWN--SELECTABLE)
FAIL TO CRANK (SHUTDOWN)
OVERCRANK (SHUTDOWN)
OVERSPEED (SHUTDOWN)
LOW DC VOLTAGE (ALARM)

HIGH DC VOLTAGE (ALARM)
WEAK BATTERY (ALARM)
LOW FUEL LEVEL (ALARM)
HIGH AC VOLTAGE (SHUTDOWN)
LOW AC VOLTAGE (SHUTDOWN)
UNDER FREQUENCY (SHUTDOWN)
OVER CURRENT (WARNING)
OVER CURRENT (SHUTDOWN)
SHORT CIRCUIT (SHUTDOWN)
GROUND FAULT (ALARM)
OVER LOAD (ALARM)
EMERGENCY STOP (SHUTDOWN)

IN ADDITION, PROVISIONS SHALL BE MADE FOR INDICATION OF TWO CUSTOMER-SPECIFIED ALARM OR SHUTDOWN CONDITIONS. LABELING OF THE CUSTOMER-SPECIFIED ALARM OR SHUTDOWN CONDITIONS SHALL BE OF THE SAME TYPE AND QUALITY AS THE ABOVE SPECIFIED CONDITIONS. THE NON-AUTOMATIC INDICATING LAMP SHALL BE RED, AND SHALL FLASH TO INDICATE THAT THE GENERATOR SET IS NOT ABLE TO AUTOMATICALLY RESPOND TO A COMMAND TO START FROM A REMOTE LOCATION.

PROVIDE SURGE PROTECTION OR OPTICAL ISOLATION FOR ANY FIELD I/O POINTS.

ENGINE STATUS MONITORING:

THE FOLLOWING INFORMATION SHALL BE AVAILABLE FROM A DIGITAL STATUS PANEL ON THE GENERATOR SET CONTROL:

ENGINE OIL PRESSURE (PSI OR kPA)
ENGINE COOLANT TEMPERATURE (DEGREES FOR C; BOTH LEFT AND RIGHT BANK TEMPERATURE SHALL BE INDICATED ON V-BLOCK ENGINES.)
ENGINE OIL TEMPERATURE (DEGREES F OR C)
ENGINE SPEED (RPM)
NUMBER OF HOURS OF OPERATION (HOURS)
NUMBER OF START ATTEMPTS
BATTERY VOLTAGE (DC VOLTS)
FUEL LEVEL ANALOG SIGNAL

CONTROL FUNCTIONS:

THE CONTROL SYSTEM PROVIDED SHALL INCLUDE A CYCLE CRANKING SYSTEM, WHICH ALLOWS FOR USER SELECTED CRANK TIME, REST TIME, AND # OF CYCLES. INITIAL SETTINGS SHALL BE FOR 3 CRANKING PERIODS OF 15 SECONDS EACH, WITH 15 SECOND REST PERIOD BETWEEN CRANKING PERIODS.

THE CONTROL SYSTEM SHALL INCLUDE AN ENGINE GOVERNOR CONTROL, WHICH FUNCTIONS TO PROVIDE STEADY STATE FREQUENCY REGULATION AS NOTED ELSEWHERE IN THIS SPECIFICATION. THE GOVERNOR CONTROL SHALL INCLUDE ADJUSTMENTS FOR GAIN, DAMPING, AND A RAMPING FUNCTION TO CONTROL ENGINE SPEED AND LIMIT EXHAUST SMOKE WHILE THE UNIT IS STARTING. THE GOVERNOR CONTROL SHALL BE SUITABLE FOR USE IN PARALLELING APPLICATIONS WITHOUT COMPONENT CHANGES.

THE CONTROL SYSTEM SHALL INCLUDE TIME DELAY START (ADJUSTABLE 0-300 SECONDS) AND TIME DELAY STOP (ADJUSTABLE 0-600 SECONDS) FUNCTIONS.

THE CONTROL SYSTEM SHALL INCLUDE SENDER FAILURE MONITORING LOGIC FOR SPEED SENSING, OIL PRESSURE, AND ENGINE TEMPERATURE WHICH IS CAPABLE OF DISCRIMINATING BETWEEN FAILED SENDER OR WIRING COMPONENTS, AND AN ACTUAL FAILURE CONDITIONS.

ALTERNATOR CONTROL FUNCTIONS:

THE GENERATOR SET SHALL INCLUDE AN AUTOMATIC VOLTAGE REGULATION SYSTEM WHICH IS MATCHED AND PROTOTYPE TESTED WITH THE GOVERNING SYSTEM PROVIDED. IT SHALL BE IMMUNE FROM MIS-OPERATION DUE TO LOAD-INDUCED VOLTAGE WAVEFORM DISTORTION AND PROVIDE A PULSE WIDTH MODULATED OUTPUT TO THE ALTERNATOR EXCITER. THE VOLTAGE REGULATION SYSTEM SHALL BE EQUIPPED WITH THREE-PHASE RMS SENSING AND SHALL CONTROL BUILDUP OF AC GENERATOR VOLTAGE TO PROVIDE A LINEAR RISE AND LIMIT OVER-SHOOT. THE SYSTEM SHALL INCLUDE A TORQUE-MATCHING CHARACTERISTIC, WHICH SHALL REDUCE OUTPUT VOLTAGE IN PROPORTION TO FREQUENCY BELOW A THRESHOLD OF [58-59] HZ. THE VOLTAGE REGULATOR SHALL INCLUDE ADJUSTMENTS FOR GAIN, DAMPING, AND FREQUENCY ROLL-OFF. THE VOLTAGE REGULATION SYSTEM SHALL INCLUDE PROVISIONS FOR REACTIVE LOAD SHARING AND ELECTRONIC VOLTAGE MATCHING FOR PARALLELING APPLICATIONS.

MOTORIZED VOLTAGE ADJUST POT IS NOT ACCEPTABLE FOR VOLTAGE MATCHING.

CONTROLS SHALL BE PROVIDED TO MONITOR THE OUTPUT CURRENT OF THE GENERATOR SET AND INITIATE AN ALARM WHEN LOAD CURRENT EXCEEDS 110% OF THE RATED CURRENT OF THE GENERATOR SET ON ANY PHASE FOR MORE THAN 60 SECONDS. THE CONTROLS SHALL SHUT DOWN AND LOCK OUT THE GENERATOR SET WHEN OUTPUT CURRENT LEVEL APPROACHES THE THERMAL DAMAGE POINT OF THE ALTERNATOR.

CONTROLS SHALL BE PROVIDED TO MONITOR THE KW LOAD ON THE GENERATOR SET, AND INITIATE AN ALARM CONDITION WHEN TOTAL LOAD ON THE GENERATOR SET EXCEEDS THE GENERATOR SET RATING FOR IN EXCESS OF 5 SECONDS.

CONTROLS SHALL INCLUDE A LOAD SHED CONTROL, TO OPERATE A SET OF DRY CONTACTS (FOR USE IN SHEDDING CUSTOMER LOAD DEVICES) WHEN THE GENERATOR SET IS OVERLOADED. AN AC OVER/UNDER VOLTAGE MONITORING SYSTEM WHICH RESPONDS ONLY TO TRUE RMS VOLTAGE CONDITIONS SHALL BE PROVIDED. THE SYSTEM SHALL INITIATE SHUTDOWN OF THE GENERATOR SET WHEN ALTERNATOR OUTPUT VOLTAGE EXCEEDS 110% OF THE OPERATOR-SET VOLTAGE LEVEL FOR MORE THAN 10 SECONDS, OR WITH NO INTENTIONAL DELAY WHEN VOLTAGE EXCEEDS 130%. UNDER VOLTAGE SHUTDOWN SHALL OCCUR WHEN THE OUTPUT VOLTAGE OF THE ALTERNATOR IS LESS THAN 85% FOR MORE THAN 10 SECONDS.

CONTROL INTERFACES FOR REMOTE MONITORING: ALL CONTROL AND INTERCONNECTION POINTS FROM THE GENERATOR SET TO REMOTE COMPONENTS SHALL BE BROUGHT TO A SEPARATE CONNECTION BOX. NO FIELD CONNECTIONS SHALL BE MADE IN THE CONTROL ENCLOSURE OR IN THE AC POWER OUTPUT ENCLOSURE. PROVIDE THE FOLLOWING FEATURES IN THE CONTROL SYSTEM:
FORM "C" DRY COMMON ALARM CONTACT SET RATED 2A @ 30VDC TO INDICATE EXISTENCE OF ANY ALARM OR SHUTDOWN CONDITION ON THE GENERATOR SET.

ONE SET OF CONTACTS RATED 2A @ 30VDC TO INDICATE GENERATOR SET IS READY TO LOAD. THE CONTACTS SHALL OPERATE WHEN VOLTAGE AND FREQUENCY ARE GREATER THAN 90% OF RATED CONDITION.

A FUSED 10 AMP SWITCHED 24VDC POWER SUPPLY CIRCUIT SHALL BE PROVIDED FOR CUSTOMER USE. DC POWER SHALL BE AVAILABLE FROM THIS CIRCUIT WHENEVER THE GENERATOR SET IS RUNNING.

A FUSED 20 AMP 24VDC POWER SUPPLY CIRCUIT SHALL BE PROVIDED FOR CUSTOMER USE. DC POWER SHALL BE AVAILABLE FROM THIS CIRCUIT AT ALL TIMES FROM THE ENGINE STARTING/CONTROL BATTERIES.

THE CONTROL SHALL BE PROVIDED WITH PROVISIONS FOR CONNECTION OF REMOTE MONITORING EQUIPMENT AS DESCRIBED HEREIN OR SHOWN ON THE DRAWINGS.

2.1.6 A BATTERY MONITORING SYSTEM SHALL BE PROVIDED TO LOAD TEST THE BATTERY BANK EACH TIME THE ENGINE STARTS AND A "WEAK BATTERY" ALARM SHALL BE INITIATED, WHEN STARTING VOLTAGE DROP IS OUTSIDE OF NORMAL LIMITS. SYSTEMS THAT DO NOT MEASURE VOLTAGE DROP ACROSS THE BATTERY BANK EACH TIME THE ENGINE STARTS, ARE NOT ACCEPTABLE.

2.1.7 BASE: THE ENGINE-GENERATOR SET SHALL BE MOUNTED ON A HEAVY DUTY STEEL BASE TO MAINTAIN ALIGNMENT BETWEEN COMPONENTS. THE BASE SHALL INCORPORATE A BATTERY TRAY WITH HOLD-DOWN CLAMPS WITHIN THE RAILS.

2.1.8 GENERATOR SET AUXILIARY EQUIPMENT AND ACCESSORIES:

COOLANT HEATER: ENGINE MOUNTED, THERMOSTATICALLY CONTROLLED, COOLANT HEATER(S) FOR EACH ENGINE. HEATER VOLTAGE SHALL BE 240V, 2 PHASE, 30A CIRCUIT. THE COOLANT HEATER SHALL BE UL499 LISTED AND LABELED.

THE COOLANT HEATER SHALL BE INSTALLED ON THE ENGINE WITH SILICONE HOSE CONNECTIONS. STEEL TUBING SHALL BE USED FOR CONNECTIONS INTO THE ENGINE COOLANT SYSTEM WHEREVER THE LENGTH OF PIPE RUN EXCEEDS 12 INCHES. THE COOLANT HEATER INSTALLATION SHALL BE SPECIFICALLY DESIGNED TO PROVIDE PROPER VENTING OF THE SYSTEM. THE COOLANT HEATERS SHALL BE INSTALLED USING QUICK DISCONNECT COUPLERS TO ISOLATE THE HEATER FOR REPLACEMENT OF THE HEATER ELEMENT. THE QUICK DISCONNECT/AUTOMATIC SEALING COUPLERS SHALL ALLOW THE HEATER ELEMENT TO BE REPLACED WITHOUT DRAINING THE ENGINE COOLING SYSTEM OR SIGNIFICANT COOLANT LOSS. THE COOLANT HEATER SHALL BE PROVIDED WITH A 24VDC THERMOSTAT, INSTALLED AT THE ENGINE THERMOSTAT HOUSING. AN AC POWER CONNECTION BOX SHALL BE PROVIDED FOR A SINGLE AC POWER CONNECTION TO THE COOLANT HEATER SYSTEM. THE CONTRACTOR SHALL PROVIDE BRANCH CIRCUIT TO HEATERS. THE COOLANT HEATER(S) SHALL BE SIZED AS RECOMMENDED BY THE ENGINE MANUFACTURER TO WARM THE ENGINE TO A MINIMUM OF 100F (40C) IN A 40F AMBIENT, IN COMPLIANCE WITH

NFPA110 REQUIREMENTS**,** OR THE TEMPERATURE REQUIRED FOR STARTING AND LOAD PICKUP REQUIREMENTS OF THIS SPECIFICATION. STARTING AND CONTROL BATTERIES: STARTING BATTERY BANK FOR EACH GENERATOR SHALL BE CALCIUM/LEAD ANTIMONY TYPE, 24 VOLT DC, SIZED AS RECOMMENDED BY THE ENGINE MANUFACTURER, COMPLETE WITH BATTERY CABLES AND CONNECTORS INCLUDING A BATTERY DISCONNECTING SWITCH.

BATTERY CHARGER: A UL LISTED/CSA CERTIFIED 12 AMP VOLTAGE REGULATED BATTERY CHARGER SHALL BE PROVIDED FOR EACH ENGINE-GENERATOR SET. THE CHARGER MAY BE LOCATED IN AN AUTOMATIC TRANSFER SWITCH, OR MAY BE WALL MOUNTED IF THE GENERATOR IS LOCATED INDOORS. INPUT SHALL BE 120V AC VOLTAGE AND 12/24V DC OUTPUT VOLTAGE SHALL BE AS REQUIRED. CHARGERS SHALL BE EQUIPPED WITH FLOAT, TAPER AND EQUALIZE CHARGE SETTINGS. OPERATIONAL MONITORS SHALL PROVIDE VISUAL OUTPUT ALONG WITH INDIVIDUAL FORM C CONTACTS RATED AT 4 AMPS, 120 VAC, 30VDC FOR REMOTE INDICATION OF:

LOSS OF AC POWER - RED LIGHT
LOW BATTERY VOLTAGE - RED LIGHT
HIGH BATTERY VOLTAGE - RED LIGHT
POWER ON - GREEN LIGHT (NO RELAY CONTACT)
ANALOG DC AMMETER, 12 HOUR EQUALIZE CHARGE TIMER, AC AND DC FUSES SHALL ALSO BE PROVIDED ON THE CHARGER.

OUTDOOR ALUMINUM WEATHER-PROTECTIVE HOUSING: THE GENERATOR SET SHALL BE PROVIDED WITH AN ALUMINUM WEATHER PROTECTIVE HOUSING WHICH ALLOWS THE GENERATOR SET TO OPERATE AT FULL RATED LOAD IN THE AMBIENT CONDITIONS PREVIOUSLY SPECIFIED. THE ENCLOSURE SHALL BE RATED, BY THE ENGINE MANUFACTURER TO WITHSTAND WINDS UP TO 150 MPH. THE MEASURED SOUND LEVEL OF THE ENCLOSURE SHALL BE AT A MINIMUM 89 DB @ 7 METERS FROM THE ENCLOSURE TAKEN VIA AN 8 POSITION CIRCULAR AVERAGE.

THE ENCLOSURE SHALL INCLUDE HINGED DOORS FOR ACCESS TO BOTH SIDES OF THE ENGINE AND ALTERNATOR, AND THE CONTROL EQUIPMENT. KEY-LOCKING AND PAD LOCKABLE DOOR LATCHES SHALL BE PROVIDED FOR ALL DOORS. DOOR HINGES SHALL BE STAINLESS STEEL.

PROVIDE ONE 120V, 15 A GFCI CONVENIENCE OUTLET IN THE GENERATOR ENCLOSURE TO CONNECT AT A SINGLE CONNECTION POINT. IN ADDITION, PROVIDE LIGHTING INSIDE THE ENCLOSURE TO PERFORM MAINTENANCE DURING NIGHT AND INCLEMENT WEATHER CONDITIONS.

THE ENCLOSURE SHALL BE PROVIDED WITH A CRITICAL GRADE EXHAUST SILENCER MOUNTED INSIDE OF THE ENCLOSURE. MOUNTING OF THE MUFFLER OUTSIDE OF THE ENCLOSURE WILL NOT BE ALLOWED.

ALL PANELS SHALL BE PRIMED FOR CORROSION PROTECTION AND FINISH PAINTED WITH THE MANUFACTURER'S STANDARD COLOR. ALL SURFACES OF ALL METAL PARTS SHALL BE PRIMED AND ELECTRO STATICALLY OR POWDER COATED.

FASTENERS USED SHALL BE CORROSION RESISTANT, AND DESIGNED TO MINIMIZE MARRING OF THE PAINTED SURFACE WHEN REMOVED FOR NORMAL INSTALLATION OR SERVICE WORK. THE ENCLOSURE SHALL BE ANCHORED TO THE SUB-BASE FUEL TANK, PRIOR TO SHIPMENT.

PROVIDE VIBRATION ISOLATORS, INSTALLED BETWEEN THE ENGINE-GENERATOR SET AND SUB-BASE DIESEL FUEL STORAGE TANK, QUANTITY AS RECOMMENDED BY THE GENERATOR SET MANUFACTURER. ISOLATORS SHALL INCLUDE SEISMIC RESTRAINTS IF REQUIRED BY SITE LOCATION. IN ADDITION, PLEASE PROVIDE PAD ISOLATORS TO CREATE AN AIR GAP BETWEEN THE FUEL TANK AND FOUNDATION.

ALL GENERATORS ARE TO BE PROVIDED WITH DIESEL FUEL STORAGE, SUB-BASE TANKS. THE AMOUNT OF FUEL STORAGE CAPACITY SHALL BE SIZED IN ORDER TO PROVIDE 72 HOURS OF OPERATION AT FULL LOAD. THE FUEL TANKS SHALL BE U.L. 142 LISTED, DOUBLE WALL TYPE AND INCLUDE LOW FUEL LEVEL AND INTERNAL TANK LEAK DETECTION ALARM SWITCHES WIRED TO THE GENERATOR SET CONTROL PANEL.

THE COMPLETE GENERATOR PACKAGE, WHICH INCLUDES THE GENERATOR SET, HOUSING, AND SUB-BASE DIESEL FUEL TANK, SHALL BE U.L. 2200 LISTED AND LABELED AS A COMPLETE PACKAGE. THE U.L. 2200 LISTING ON JUST THE GENERATOR SET DOES NOT MEET THIS SPECIFICATION, AND WILL NOT BE ACCEPTED.

THE GENERATOR SETS SHALL BE PROVIDED WITH THE FOLLOWING CIRCUIT BREAKER SIZES:

1. 200KW UNIT: 300A
2. 250KW UNIT: 400A
3. 350KW UNIT: 600A
4. 500KW UNIT: 800A

THE BREAKERS SHALL BE U.L. LISTED, 100% RATED LINE CIRCUIT BREAKER. IN ADDITION, THE GENERATOR SET SHALL ALSO BE INHERENTLY SELF-PROTECTING. THE INHERENT PROTECTION DEVICE SHALL ALSO BE U.L. LISTED AS OVERCURRENT PROTECTION. SUPPLY CUMMINS AMPSENTRY, OR PRIOR APPROVED EQUAL. THE SUPPLIER

SHALL SUBMIT TIME OVERCURRENT CHARACTERISTIC CURVES AND THERMAL DAMAGE CURVE FOR THE ALTERNATOR, DEMONSTRATING THE EFFECTIVENESS OF THE PROTECTION PROVIDED.

2.2 TRANSFER SWITCH EQUIPMENT: SEE TRANSFER SWITCH SPECIFICATIONS. (ATTACHMENT A, PAGE 51)

3.0 EXECUTION

3.1 FACTORY TESTS:

GENERATOR SET FACTORY TESTS ON THE EQUIPMENT TO BE SHIPPED, SHALL BE PERFORMED AT RATED LOAD AND .8PF. GENERATOR SETS THAT HAVE NOT BEEN FACTORY TESTED AT RATED PF WILL NOT BE ACCEPTABLE. TESTS SHALL INCLUDE: RUN AT FULL LOAD, MAXIMUM POWER, VOLTAGE REGULATION, TRANSIENT AND STEADY-STATE GOVERNING, SINGLE STEP LOAD PICKUP AND SAFETY SHUTDOWNS. PROVIDE TEST REPORT TO THE ENGINEER.

TRANSFER EQUIPMENT FACTORY TESTS: EACH TRANSFER SWITCH SUPPLIED SHALL BE FACTORY TESTED BEFORE SHIPMENT. FACTORY TESTS SHALL INCLUDE A COMPLETE FUNCTIONAL TEST OF THE TRANSFER SWITCH CONTROLS, INCLUDING CALIBRATION OF THE VOLTAGE SENSORS.

SERVICE AND SUPPORT:

THE EMERGENCY POWER SYSTEM, INCLUDING GENERATOR SETS, AND AUTOMATIC TRANSFER SWITCHES, SHALL BE SERVICED BY A SINGLE LOCAL SERVICE ORGANIZATION THAT IS TRAINED AND FACTORY CERTIFIED IN BOTH GENERATOR SET AND AUTOMATIC TRANSFER SWITCH SERVICE. THE SUPPLIER SHALL MAINTAIN AN INVENTORY OF CRITICAL REPLACEMENT PARTS AT THE LOCAL SERVICE ORGANIZATION, AND IN SERVICE VEHICLES. THE SERVICE ORGANIZATION SHALL BE ON CALL 24 HOURS PER DAY, 365 DAYS PER YEAR.

3.2 ON-SITE ACCEPTANCE TEST:

THE COMPLETE INSTALLATION SHALL BE TESTED FOR COMPLIANCE WITH THE SPECIFICATION FOLLOWING COMPLETION OF ALL SITE WORK. TESTING SHALL BE CONDUCTED BY REPRESENTATIVES OF THE MANUFACTURER, WITH REQUIRED FUEL SUPPLIED BY CONTRACTOR. THE ENGINEER SHALL BE NOTIFIED IN ADVANCE AND SHALL HAVE THE OPTION TO WITNESS THE TESTS. INSTALLATION ACCEPTANCE TESTS TO BE CONDUCTED ON-SITE SHALL INCLUDE TESTING THE LOCAL AND REMOTE PANELS, SIMULATE ENGINE SHUTDOWNS, CONDUCT A "COLD

START" TEST, A TWO HOUR FULL LOAD TEST USING A RESISTIVE LOAD BANK, AND A ONE-STEP RATED LOAD PICKUP TEST IN ACCORDANCE WITH NFPA 110. DEMONSTRATE THAT THE BATTERIES AND STARTING MOTOR ARE CAPABLE OF 3 STARTING ATTEMPTS OF 15 SECOND CRANKING AT 15 SECOND INTERVALS. IF DURING THE LOAD TEST A SHUTDOWN SHOULD OCCUR, THE CAUSE OF THE SHUTDOWN WILL BE CORRECTED AND THE 2 HOUR TEST RESTARTED.

DURING THE LOAD TEST, RECORD AT 15 MINUTE INTERVALS:

- TIME OF DAY
- KW
- VOLTAGE AND AMPERES ON EACH PHASE
- ENGINE RPM
- FREQUENCY
- ENGINE COOLANT TEMPERATURE
- OIL PRESSURE
- AMBIENT TEMPERATURE

AT COMPLETION OF THE TESTING, INSTRUCT THE OWNER'S PERSONNEL IN THE PROPER OPERATION AND MAINTENANCE OF THE SYSTEM, AND LEAVE THE SITE WITH THE SYSTEM IN A FULLY OPERATIONAL CONDITION.

RISK MANAGEMENT POLICY AND STANDARDS
FOR
AGREEMENTS, CONTRACTS AND LEASES

DEFINITIONS

The following definitions apply to these Risk Management Provisions:

Contract - The contract or agreement of which these Risk Management Provisions are a part for the construction, alteration, repair, or demolition of a structure or facility.

Organization - The Emerald Coast Utilities Authority, a local governmental body of the State of Florida, its Board, officers, employees, volunteers, representatives, and agents.

Other Party - The other party to the Contract of which these Risk Management Provisions are a part, any subsidiaries or affiliates, officers, employees, volunteers, representatives, agents, contractors, and subcontractors.

HOLD HARMLESS

The Other Party agrees to hold the Organization and the members of its governing board and its other officers and employees harmless against all claims for bodily injury, sickness, disease, death, personal injury, or damage to property or loss of use resulting therefrom, arising out of or related to the Contract, to the extent such claims are caused by the negligence, recklessness, or intentional wrongful misconduct of the Other Party and persons or entities employed or utilized by the Other Party in the performance of the Contract.

PAYMENT ON BEHALF OF ORGANIZATION

The Other Party agrees to pay on behalf of the Organization all claims described in the above "Hold Harmless" paragraph, and to pay the reasonable costs and fees of the attorneys selected by the Organization, at trial and on appeal, to defend the Organization and its officers and employees against such claims. Provided, however, that the total liability of the Other Party to the Organization under the above "Hold Harmless" paragraph and this "Payment on Behalf of Organization" paragraph shall not exceed the sum of One Million Dollars ($1,000,000) per claim or occurrence.

Such payment on behalf of the Organization shall be in addition to any and all other legal remedies available to the Organization and shall not be considered to the exclusive remedy of the Organization.

LOSS CONTROLS/SAFETY

Precaution shall be exercised at all times by the Other Party for the protection of all persons, including employees, and property. The Other Party shall comply with all laws, regulations, or ordinances relating to safety and health, and shall make special effort to detect hazardous conditions and shall take prompt action where loss control/safety measures should reasonably be expected.

The Organization may order work to be stopped if conditions exist that present immediate danger to persons or property. The Other party acknowledges that such stoppage will not shift responsibility for any loss or damages from the Other Party to the Organization.

SEVERABILITY

The provisions of these Risk Management Provisions are severable. In the event a court of competent jurisdiction should declare any provision of these Risk Management Provisions to be void or contrary to public policy such provision shall be stricken from these Risk Management Provisions, and the remaining provisions shall be enforced as though the provision determined to be void or contrary to public policy had not been included herein.

INSURANCE - BASIC COVERAGES REQUIRED

The Other Party shall procure and maintain the following described insurance, except for coverages specifically waived by the Organization, on policies and with insurers acceptable to the Organization. These insurers shall have A.M. Best (or equivalent) rating of no less than A: VII unless otherwise agreed to by the Organization.

These insurance requirements shall not limit the liability of the Other Party. The Organization does not represent these types or amounts of insurance to be sufficient or adequate to protect the Other Party's interests or liabilities, but are merely minimums.

Except for workers compensation, the Other Party waives its right of recovery against the Organization, to the extent permitted by its insurance policies.

The Other Party's deductibles/self-insured retentions shall be disclosed to the Organization and may be disapproved by the Organization. They shall be reduced or eliminated at the option of the Organization. The Other Party is responsible for the amount of any deductible or self-insured retention.

Insurance required of the Other Party or any other insurance of the Other Party shall be considered primary, and insurance of the Organization, if any, shall be considered excess, as may be applicable to claims which arise out of the Hold Harmless, Payment on Behalf of Organization, Insurance, Certificates of Insurance and any Additional Insurance provisions of this agreement, contract or lease.

Additional Insured

Except for workers compensation and professional liability, the Other Party's insurance policies shall be endorsed to name the Organization as an additional insured for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by the Other Party's acts or omissions; or the acts or omissions of those acting on the Other Party's behalf; in the performance of the Other Party's ongoing operations for the Organization. The preferred Commercial General Liability coverage endorsement is ISO Form CG 20 10.

Workers Compensation Coverage

The Other Party shall purchase and maintain workers compensation insurance for all workers compensation obligations imposed by state law and employer's liability limits of at least $100,000 each accident and $100,000 each employee/$500,000 policy limit for disease.

The Other Party shall also purchase any other coverages required by law for the benefit of employees.

General, Automobile and Excess or Umbrella Liability Coverage

The Other Party shall purchase and maintain coverage on forms no more restrictive than the latest editions of the Commercial General Liability and Business Auto policies of the Insurance Services Office.

Minimum limits of $1,000,000 per occurrence for all liability must be provided, with excess or umbrella insurance making up the difference, if any, between the policy limits of underlying policies (including employers liability required in the Workers Compensation Coverage section) and the total amount of coverage required.

Commercial General Liability Coverage - Occurrence Form Required

Coverage A shall include bodily injury and property damage liability for premises, operations, products and completed operations, independent contractors, contractual liability covering this agreement, contract or lease, broad form property damage, and property damage resulting from explosion, collapse or underground (x,c,u) exposures.

Coverage B shall include personal injury.

Coverage C, medical payments, is not required.

The Other Party is required to continue to purchase products and completed operations coverage, at least to satisfy this agreement, contract or lease, for a minimum of three years beyond the Organization's acceptance of renovation or construction projects.

Business Auto Liability Coverage

Business Auto Liability coverage is to include bodily injury and property damage arising out of ownership, maintenance or use of any auto, including owned, nonowned and hired automobiles and employee nonownership use.

Excess or Umbrella Liability Coverage

Umbrella Liability insurance is preferred, but an Excess Liability equivalent may be allowed. Whichever type of coverage is provided, it should be at least "following form" and shall not be more restrictive than the underlying insurance policy coverages.

EVIDENCE/CERTIFICATES OF INSURANCE

Required insurance shall be documented in Certificates of Insurance, including indication that the policy(s) is endorsed to provide the Organization at least 30 days in advance notice of cancellation, nonrenewal or adverse change.

New Certificates of Insurance are to be provided to the Organization at least 19 days prior to coverage renewals.

If requested by the Organization, the Other Party shall furnish complete copies of the Other Party's insurance policies, forms and endorsements.

For Commercial General Liability coverage the Other Party shall, at the option of the Organization, provide an indication of the amount of claims payments or reserves chargeable to the aggregate amount of liability coverage.

Receipt of certificates or other documentation of insurance or policies or copies of policies by the Organization, or by any of its representatives, which indicate less coverage than required does not constitute a waiver of the Other Party's obligation to fulfill the insurance requirements herein.

ADDITIONAL INSURANCE

If checked below, the Organization requires the following additional types of insurance.

☐ **Property Coverage for Leases**

The Other Party shall procure and maintain for the life of the lease, all risk/special perils (including sinkhole) property insurance (or its equivalent) to cover loss resulting from damage to or destruction of the building, improvements and personal property/contents. The policy shall cover 100% replacement cost, and shall include an agreed value endorsement to waive coinsurance.

Coverage shall also include continued full payment of rents to the Organization for up to one year after damage or destruction of the property.

☐ **Commercial General Liability Coverage Project Aggregate**

Because the Commercial General Liability form of coverage includes an annual aggregate limitation on the amount of insurance provided, a separate project aggregate limit of $_____ is required by the Organization for this agreement or contract.

☐ **Liquor Liability Coverage**

In anticipation of alcohol being served, the Other Party shall provide evidence of coverage for liquor liability in an amount equal to the general/umbrella/excess liability coverage. If the general liability insurance covers liquor liability (e.g. host or other coverage), the Other Party's agent or insurer should provide written documentation to confirm that coverage already applies to this agreement, contract or lease. If needed coverage is not included in the general/umbrella/excess liability policy(ies), the policy(ies) must be endorsed to extend coverage for liquor liability, or a separate policy must be purchased to provide liquor liability coverage in the amount required.

☐ **Owners Protective Liability Coverage**

For renovation or construction contracts the Other Party shall provide for the Organization an owners protective liability insurance policy (preferably through the Other Party’s insurer) in the name of the Organization.

This is redundant coverage if the Organization is named as an additional insured in the Other Party’s Commercial General Liability insurance policy. However, this separate policy may be the only source of coverage if the Other Party’s liability coverage limit is used up by other claims.

☐ **Builders Risk Coverage**

Builders Risk insurance is to be purchased to cover subject property for special perils (all risks or equivalent) of loss (including theft and sinkhole), subject to a waiver of coinsurance, and covering on-site and off-site storage, transit and installation risks as indicated in the Installation Floater and Motor Truck Cargo insurance described hereafter, if such coverages are not separately provided.

If flood and/or earthquake risks exist, flood and/or earthquake insurance are to be purchased.

If there is loss of income, extra expense and/or expediting expense exposure, such coverage is to be purchased.

If boiler and machinery risks are involved, boiler and machinery insurance, including coverage for testing, is to be purchased.

The Builders Risk insurance is to be endorsed to cover the interests of all parties, including the Organization and all contractors and subcontractors. The insurance is to be endorsed to cover testing and to grant permission to occupy.

☐ **Installation Floater Coverage**

Installation Floater insurance is to be purchased when Builder's Risk insurance is inappropriate, or when Builder's Risk insurance will not respond, to cover damage or destruction to renovations, repairs or equipment being installed or otherwise being handled or stored by the Other Party, including off-site storage, transit and installation. The amount of coverage should be adequate to provide full replacement value of the property, repairs, additions or equipment being installed, otherwise being handled or stored on or off premises. All risks coverage is preferred.

☐ **Motor Truck Cargo Coverage**

If the Installation Floater insurance does not provide transportation coverage, separate Motor Truck Cargo or Transportation insurance is to be provided for materials or equipment transported in the Other Party's or other vehicles from place of receipt to building sites or other storage sites. All risks coverage is preferred.

☐ **Contractor's Equipment Coverage**

Contractor's Equipment insurance is to be purchased to cover loss of equipment and machinery utilized in the performance of work by the Other Party. All risks coverage is preferred.

☐ **Fidelity/Dishonesty Coverage - for Employer**

Fidelity/Dishonesty insurance is to be purchased to cover dishonest acts of the Other Party's employees, including but not limited to theft of vehicles, materials, supplies, equipment, tools, etc., especially property necessary to work performed.

☐ **Fidelity/Dishonesty/Liability Coverage - for Organization**

Fidelity/Dishonesty/Liability insurance is to be purchased or extended to cover dishonest acts of the Other Party's employees resulting in loss to the Organization.

☐ **Garage Liability Coverage**

Garage Liability insurance is to be purchased to cover the Other Party and its employees for its garage and related operations while in the care, custody and control of the Organization's vehicles.

☐ **Garagekeepers Coverage (Legal Liability Form)**

Garagekeepers Liability insurance is to be purchased to cover the Other Party's liability for damage or other loss, including comprehensive and collision risks, to the Organization's vehicles while in the care, custody and control of the Other Party. This form of coverage responds only when the Other Party is legally liable for the loss.

☐ **Garagekeepers Coverage (Direct-Excess Form)**

Garagekeepers Liability insurance is to be purchased to cover damage or other loss, including comprehensive and collision risks, to the Organization's vehicles while in the care, custody and control of the Other Party. This form of coverage responds on a legal liability basis, and also without regard to legal liability on an excess basis over any other collectible insurance.

☐ **Watercraft Liability Coverage**

Because the Other Party's provision of services involves utilization of watercraft, watercraft liability coverage must be provided to include bodily injury and property damage arising out of ownership, maintenance or use of any watercraft, including owned, nonowned and hired.

Coverage may be provided in the form of an endorsement to the general liability policy, or in the form of a separate policy covering Watercraft Liability or Protection and Indemnity for bodily injury and property damage.

☐ **United States Longshoremen and Harborworkers Act Coverage**

The Workers Compensation policy is to be endorsed to include United States Longshoremen and Harborworkers Act Coverage for exposures which may arise from this agreement or contract.

☐ **Jones Act Coverage**

The Workers Compensation policy is to be endorsed to include Jones Act Coverage for applicable exposures (for work on, over or in navigable waters) which may arise from this agreement or contract.

☐ **Aircraft Liability Coverage**

Because the Other Party's provision of services involves utilization of aircraft, aircraft liability coverage must be provided to include bodily injury and property damage arising out of ownership, maintenance or use of any aircraft, including owned, nonowned and hired.

The minimum limits of coverage shall be $__,000,000 per occurrence, Combined Single Limit for Bodily Injury (including passenger liability) and Property Damage.

☒ **Pollution/Environmental Impairment Liability Coverage**

Pollution/environmental impairment liability insurance is to be purchased to cover pollution and/or environmental impairment which may arise from this agreement or contract. The recommended minimum coverage is $1,000,000. The coverage period shall be extended beyond the date of the completed project, until the expiration date of the performance bond.

☐ **Limited Pollution Liability – Commercial General Liability (CGL) with Endorsement**

Covers third-party damages caused by the accidental release of pollutants at a work site. Covers pollution incidents that commence during the policy period. The minimum limits of coverage shall be $1,000,000. Defense costs outside the limit of liability. Coverage is provided for gradual releases. Includes clean-up costs if part of otherwise covered property damage.

PROFESSIONAL LIABILITY, MALPRACTICE AND/OR ERRORS OR OMISSIONS

If checked below, the Organization requires the following terms and types of insurance for professional, malpractice, and errors or omissions liability.

☐ **Hold Harmless**

The following replaces the previous Hold Harmless wording.

The Organization shall be held harmless against all claims for bodily injury, sickness, disease, death or personal injury or damage to property or loss of use resulting therefrom arising out of performance of the agreement or contract, unless such claims are a result of the Organization's sole negligence.

The Organization shall also be held harmless against all claims for financial loss with respect to the provision of or failure to provide professional or other services resulting in professional, malpractice, or errors or omissions liability arising out of performance of the agreement or contract, unless such claims are a result of the Organization's sole negligence.

☐ **Professional Liability/Malpractice/Errors or Omissions Insurance**

The Other Party shall purchase and maintain professional liability or malpractice or errors or omissions insurance with minimum limits of $__,000,000 per occurrence.

If a claims made form of coverage is provided, the retroactive date of coverage shall be no later than the inception date of claims made coverage, unless the prior policy was extended indefinitely to cover prior acts.

Coverage shall be extended beyond the policy year either by a supplemental extended reporting period (ERP) of as great duration as available, and with no less coverage and with reinstated aggregate limits, or by requiring that any new policy provide a retroactive date no later than the inception date of claims made coverage.

The Other Party shall procure and maintain the following described insurance, except for coverages specifically waived by the Organization, on policies and with insurers acceptable to the Organization.

These insurance requirements shall not limit the liability of the Other Party. The Organization does not represent these types or amounts of insurance to be sufficient or adequate to protect the Other Party's interests or liabilities, but are merely minimums.

Except for workers compensation, the Other Party waives its right of recovery against the Organization, to the extent permitted by its insurance policies.

The Other Party's deductibles/self-insured retentions shall be disclosed to the Organization and may be disapproved by the Organization. They shall be reduced or eliminated at the option of the Organization. The Other Party is responsible for the amount of any deductible or self-insured retention.

Insurance required of the Other Party or any other insurance of the Other Party shall be considered primary, and insurance of the Organization shall be considered excess, as may be applicable to claims which arise out of the Hold Harmless, Payment on Behalf of Organization, Insurance, Certificates of Insurance and any Additional Insurance provisions of this agreement, contract or lease.

EMERALD COAST UTILITIES AUTHORITY

GENERAL PROVISIONS

PURCHASE ORDER/CONTRACT

1. Supplies are of domestic origin unless indicated by quoter.

1.a. If you are unable to quote, please advise. This request does not commit Emerald Coast Utilities Authority to pay any cost incurred in the preparation or submission of this quotation or to procure or contract for supplies or services.

2. DELIVERY, INSPECTION AND ACCEPTANCE – Delivery, inspection and acceptance will be at destination unless otherwise provided. Until delivery and acceptance and after any rejections, risk of loss will be on the Contractor unless loss results from negligence of ECUA. Notwithstanding the requirements for any ECUA inspection and test contained in specifications applicable to this contract, except where specialized inspections or tests are specified for performance solely by ECUA, the contractor shall perform or have performed the inspections and tests required to substantiate that the supplies and services provided under the contract conform to the drawings, specifications, and contract requirements listed herein, including if applicable, the technical requirements for the manufacturer's part numbers specified herein.

3. ENTIRE AGREEMENT – The terms, specifications and drawings included in this order when duly executed constitute the entire agreement between the parties unless otherwise stated on the face of the order. No modification or waiver of terms of this agreement shall be binding unless in writing signed by a duly authorized representative of ECUA and confirmed by such a representative of the Vendor. This agreement shall be interpreted in accordance with the laws of the State of Florida.

4. DELIVERY OF EXCESS QUANTITIES OF $100 OR LESS – The Contractor is responsible for the delivery of each item quantity; within allowable variations, if any. If the Contractor delivers and ECUA receives quantities of any item in excess of the quantity called for (after considering any allowable variation in quantity) such excess quantities will be treated as being delivered for the convenience of the Contractor. ECUA may retain such excess quantities up to $100 in value without compensating the interests therein. Quantities in excess of $100 will, at the option of ECUA, either be returned at the Contractor's expense or retained and paid for by ECUA at the contract unit price.

4.a. DELIVERIES – In the event of failure to deliver material of the quality or within the time specified, ECUA may cancel order and buy elsewhere. Failure of ECUA to exercise this option with respect to any installment shall not be deemed a waiver with respect to future installments, if any.

5. DELIVERY TICKETS – All shipments under this agreement shall be accompanied with delivery tickets, or sales slips, in triplicate, which shall contain the following minimum information.

    a. Name of supplier;
    b. Blanket Purchase Order number;
    c. Date of Call;
    d. Call number;
    e. Itemized list of supplies or services furnished;
    f. Quantity, unit price and extension of each item, less applicable discounts (unit price and extensions need not be shown when incompatible with the use of automated systems, provided that the invoice is itemized to show this information); and
    g. Date of delivery or shipment.

    Upon delivery, the receiving office will retain one copy of the related delivery ticket and will sign the other two copies and return them to the supplier or his agent. One of these copies may subsequently be required to support the invoice.

6. PAYMENTS –Invoices shall be submitted in triplicate (one copy shall be marked "Original") unless otherwise specified, and shall contain the following information: Contract or Order number, item number, contract description of supplies or services, sizes, quantities, unit prices and extended totals. Bill of Lading number and weight of shipment will be shown for shipments of Bills of Lading. Unless otherwise specified, payment will be made on partial deliveries accepted by ECUA when the amount due on such deliveries so warrants.

7. DISCOUNTS – In connection with any discount offered, time will be computed from date of delivery suppliers to carrier when acceptance is at the point of origin or from date of delivery at destination when delivery and acceptance are at these points or from the date the correct invoice or voucher is received in the office specified by ECUA, if the latter is later than date of delivery. Payment is deemed to be made for the purpose of earning the discount on the date of mailing of the ECUA check.

8. CONVICT LABOR – In connection with the performance of work under this contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment except as provided by Public Law 89.176, September 10, 1965 (18 U.S.C. 40821ch21) Executive Order 17755, December 29, 1973.

9. COVENANT AGAINST CONTINGENT FEES – The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this contract upon agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty ECUA shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration or otherwise recover the full amount of such commission, percentage, brokerage, or contingent fee.

10. CONTINGENCIES – Neither party shall be liable for delays or defaults due to acts of God, government authority or public enemy, war, fires, floods, epidemics, strikes, labor troubles, freight embargoes, or contingencies reasonably beyond its control. The party so affected upon prompt written notice to the other party shall be excused from making or taking deliveries hereunder to the extent of such prevention or restriction. At ECUA's option, deliveries so omitted shall be made on notice thereof to the Vendor, upon cessation of such contingency even though such might have been operative at the date of this order.

10.a. GRATUITIES – (a) ECUA may, by written notice to the Contractor, terminate the right of the Contractor to proceed under this contract if it is found after notice and hearing by the Executive Director or his duly authorized representative, that gratuities (in the form of entertainment, gifts or otherwise) were offered or given by the Contractor, or any agent or representative of the Contractor, to any officer or employee of ECUA with a view toward securing a contract or securing favorable treatment with respect to the awarding or amending, or the making of any determinations with respect to the performing of such contract, provided, that the existence of the facts upon which the Executive Director or his duly authorized representative make such findings shall be in issue and may be reviewed in any competent court, (b) in the event this contract is terminated as provided in paragraph (a) hereof, ECUA shall be entitled (1) to pursue the same remedies against the Contractor as it could pursue in the event of a breach of the contract by the Contractor and (2) as a penalty and in addition to any other damages to which it may be entitled by law to exemplary damages in an amount (as determined by the Executive Director or his duly authorized representative) which shall be not less than three nor more than ten times the costs incurred by the Contractor in providing any such gratuities to any such officer or employee, (c) The rights and remedies of ECUA provided in this clause shall not be exclusive or in addition to any other rights and remedies provided by law or under the contract.

17. CONDITION FOR ASSIGNMENT – This (contract or purchase order) shall not be assigned in full or in part without the consent of ECUA. Such consent shall not relieve the Contractor from its obligations and liabilities.

12. GOVERNMENT REGULATIONS – Vendor warrants that all applicable laws and regulations of governmental authority, covering the production, sale and delivery of the materials specified herein, have complied with and shall indemnify and save ECUA harmless from and against any liability or loss resulting from Vendor's failure to do so.

13. TAXES – ECUA is exempt from Federal Taxes on transportation charges and any Federal Excise Tax. If you prepay transportation, do not pay tax as ECUA will not reimburse you for the taxes paid. ECUA is exempt from State Sales Tax.

14. CHANGES – The Purchasing and Stores Manager may at any time, by written order, and without notice to the sureties, make changes, within the general scope of this contract, in (i) drawings, designs, or specifications, where the supplies to be furnished are to be specially manufactured for ECUA in accordance therewith; (ii) method of shipment or packing and (iii) place of delivery. If any such change causes an increase or decrease in the cost of, or the time required for the performance of this contract, whether changed or not changed by any such order, an equitable adjustment shall be made by written modification of this contract.

    Any claim by the Contractor for adjustment under this clause must be asserted within 30 days from the date of receipt by the Contractor of the notification of change provided that the Purchasing and Stores Manager, if he decides that the facts justify such action, may receive and act upon any such claim asserted prior to final payment, under the contract. Failure to agree to any adjustment shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." However, nothing in this clause shall excuse the Contractor from proceeding with this contract as changed.

15. TERMINATION FOR DEFAULT – The Purchasing and Stores Manager, by written notice, may terminate this contract, in whole or in part, for failure of the Contractor to perform any of the provisions hereof, in such event, the Contractor shall be liable for damages; including the excess cost of reprocuring similar supplies or services; provided that if (i) it is determined for any reason that the Contractor was not in default or (ii) the Contractor's failure to perform is without his and his subcontractors control, fault or negligence, the termination shall be deemed to be a termination for convenience under paragraph 17. As used in this provision the term "subcontractor" and "subcontractors" means subcontractors at any tier.

16. TERMINATION FOR CONVENIENCE – The Purchasing and Stores Manager, by written notice, may terminate this contract, in whole or in part, when it is in the best interest of ECUA. If this contract is for supplies and is so terminated, the Contractor shall be compensated for goods delivered and accepted up to the date of termination at the discretion of the Executive Director. To the extent that this contract is for services and is so terminated, ECUA shall be liable only for payment in accordance with the payment provisions of this contract for services rendered prior to the effective date of termination.

17. ASSIGNMENT OF CLAIMS – Claims for monies due or to become due under this Contract shall be assigned only pursuant to the Assignment of Claims Act of 1940, as amended (31 U.S.C 203, 41 U.S.C. 19). However, payments to an assignee of monies under this contract shall not, to the extent provided in said Act, as amended be subject to reduction or set-off (see Clause 12).

18. EXTENT OF OBLIGATION – ECUA is obligated under a call-type Purchase Order only to the extent of authorized calls actually placed against this agreement.

19. PRICING – The prices to ECUA for all purchases made under this Agreement shall be as low as or lower than those charged the suppliers most favored customer, in addition to any discounts for prompt payment.

20. WARRANTIES – In addition to all warranties, established by statute or common law or set forth elsewhere in this order. The Vendor expressly warrants that all material or services covered herein shall conform to all specifications, drawings, samples, and descriptions furnished or adopted by ECUA and shall be of the best quality and fit and sufficient for the purpose for which purchased, if specified hereon, merchantable of good material and workmanship and free from all patent and patent defects. ECUA's failure to give notice to Vendor of any breach of warranty shall not discharge Vendor's liability therefore. Without limiting the generality of the foregoing, Vendor agrees to be responsible for all defects in design, workmanship and materials, which may become apparent within twelve months of receipt by ECUA.

21. PATENTS – Vendor shall protect and indemnify ECUA against all claims, judgments and expenses arising from infringement or any patent by any of the goods delivered hereunder. Vendor shall defend or settle at its own expense any proceeding brought against ECUA for such infringement provided Vendor is notified promptly of the commencement of such proceeding and is given authority, information and assistance by ECUA for the defense or settlement thereof.

22. INSTALLATION – If this order required the services of ECUA experts or employees of ECUA safety rules and fire regulations, Vendor assumes full responsibility for their acts and omissions and agrees to save ECUA harmless from any claims arising therefrom and to accept exclusive liability for payroll and other taxes imposed upon the employer by law. Vendor will undertake to keep the materials and premises involved free from any lien whatever for materials and labor incident to the performance of Vendor's obligations hereunder. If Vendor furnishes materials and services for construction and improvement of realty and the installation of personalty for a lump sum amount, Vendor agrees to furnish an analysis thereof as ECUA may reasonably require for accounting purposes. Vendor shall be solely responsible for materials furnished by ECUA on other than a charge basis in connection with this order.

23. NON-DISCLOSURE – Without prior written consent of ECUA in each instance, Vendor shall not reveal to a third party the details, characteristics or any information on materials made to the special order for ECUA or use reproductions thereof and any promotional media or reveal that, ECUA is purchasing the materials hereunder.

24. COMMERCIAL WARRANTY – The Contractor agrees that the supplies or services furnished under this contract shall be covered by the most favorable commercial warranties the Contractor gives to any customer for such supplies or services and that the rights and remedies provided herein are in addition to and do not limit any rights to the Emerald Coast Utilities Authority by any other clause of this contract.

25. DEVIATION FROM SPECIFICATIONS – Emerald Coast Utilities Authority has the sole authority to determine if any deviation from the specifications cited is acceptable.

EQUAL OPPORTUNITY CLAUSE

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers which he has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or workers' representative of the contractor's commitments under Section 202 of Executive Order 17246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the contractor may be declared ineligible for further contracts with the Emerald Coast Utilities Authority. Provided, however, that no such action shall be taken without prior notice to the contractor and an opportunity for a hearing before the governing Board of the Emerald Coast Utilities Authority or its designee.

(5) The contractor will include the provisions of paragraphs (1) through (4) in every subcontract or purchase order for an amount exceeding ten thousand dollars ($10,000) in any twelve (12) month period, so that such provisions will be binding upon each subcontractor or vendor.

_____ _____

Signature Date

_____

Name & Title of Signer

CERTIFICATION OF NONSEGREGATED FACILITIES

By the submission of this bid, the bidder, offeror, applicant, or subcontractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees to perform their services at any location under his control, where segregated facilities are maintained. He certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The bidder, offeror, applicant, or subcontractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, color, religion or national origin, because of habit, local custom, or otherwise. He further agrees that (except where he has obtained identical certifications from proposed subcontractors for specific time periods) he will obtain identical certifications from proposed subcontractors prior to the award of subcontracts or purchase orders exceeding $10,000; that he will retain such certifications in his files and make them available to the Emerald Coast Utilities Authority upon request.

Provided, however, that such certifications shall not be required in the case of purchase orders or contracts which, in case of a Federal Government contract or subcontract, would be exempt from compliance with the Equal Opportunity Clause by 41 CFR S60-1.5. This section provides for the exemption of transactions not exceeding $10,000, contracts and subcontracts for indefinite quantities established not to exceed $10,000 in any contract year, contracts with certain educational institutions, work on or near Indian reservations, facilities (including, but not limited to, agencies, instrumentalities or subdivision of state or local government) which are separate and distinct from activities of the prime contractor or subcontractor related to the performance of the contract or subcontract, and emergencies involving national security.

_____ _____

Signature Date

_____

Name & Title of Signer

DRUG-FREE WORKPLACE FORM

The undersigned vendor in accordance with Florida Statute 287.087 hereby certifies that _____ does:
(Name of Business)

1. Publish a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the workplace and specifying the actions that will be taken against employees for violations of such prohibition.

2. Inform employees about the dangers of drug abuse in the workplace, the business's policy of maintaining a drug-free workplace, any available drug counseling, rehabilitation, and employee assistance programs, and the penalties that may be imposed upon employees for drug abuse violations.

3. Give each employee engaged in providing the commodities or contractual services that are under bid a copy of the statement specified in subsection (1).

4. In the statement specified in subsection (1), notify the employees that, as a condition of working on the commodities or contractual services that are under bid, the employee will abide by the terms of the statement and will notify the employer of any conviction of, or plea of guilty or nolo contendere to, any violation of Chapter 1893 or of any controlled substance law of the United States or any state, for a violation occurring in the workplace no later than five (5) days after such conviction.

5. Impose a sanction on, or require the satisfactory participation in a drug abuse assistance or rehabilitation program if such is available in the employee's community, by any employee who is so convicted.

6. Make a good faith effort to continue to maintain a drug-free workplace through implementation of this section.

As the person authorized to sign the statement, I certify that this firm complies fully with the above requirements.

_____ _____
Bidder's Signature Date

Company: _____ Bid/RFP/PO: 2019-17

EMERALD COAST UTILITIES AUTHORITY
BID NUMBER: 2013-17
PERMANENT DIESEL EMERGENCY/STANDBY POWER SYSTEM
PROPOSAL FORM

TO: EMERALD COAST UTILITIES AUTHORITY DATE: _____
PENSACOLA, FLORIDA

GENTLEMEN:

IN ACCORDANCE WITH YOUR REQUREST FOR BIDS, INSTRUCTIONS AND SPECIFICATIONS, ATTACHED HERETO, AND SUBJECT TO ALL CONDITIONS THEREOF, I (WE), THE UNDERSIGNED, HEREBY PROPOSE AND AGREE IF THIS PROPOSAL IS ACCEPTED, TO CONTRACT WITH THE EMERALD COAST UTILITIES AUTHORITY TO FURNISH ANY ITEMS OR SERVICE RE1UESTED HEREIN AND DELIVER SAME WITHOUT ADDITIONAL COST TO THE EMERALD COAST UTILITIES AUTHORITY AT THE SPECIFIED LOCATION FOR THE BID(S) LISTED BELOW.

THE UNDERSIGNED FURTHER DECLARES THAT HE HAS CAREFULLY EXAMINED THE SPECIFICATIONS AND IS THOROUGHLY FAMILIAR WITH THEM AND THEIR PROVISION. HE FURTHER DECLARES THAT NO OTHER PERSON OTHER THAN THE BIDDER HEREIN NAMED HAS ANY INTEREST IN THIS PROPOSAL OR IN THE CONNECTION WITH ANY OTHER PERSON(S) MAKING PROPOSAL FOR THE SAME ARTICLES, AND IT IS IN ALL RESPECTES FAIR AND WITHOUT COLLUSION AND FRAUD.

FAILURE TO PROVIDE ALL OF THE FOLLOWING INFORMATION MAY RESULT IN AUTOMATIC REJECTION OF BID.

EXCEPTIONS: ____ YES ____ NO

(EXCEPTIONS INCLUDE THE WHOLE BID DOCUMENT, OUR SPECIFICATIONS, INSTRUCTIONS TO BIDDERS AND GENERAL PROVISIONS).

PERMANENT DIESEL EMERGENCY/STANDBY POWER SYSTEM

GENERATOR	DIESEL COST	NATURAL GAS COST
LIFT STATION 12 200KW/ 205KW	$ _____	$ _____
ELLYSON CNG 250KW/ 250KW	$ _____	$ _____
GODWIN LANE CNG 350KW/ 450KW	$ _____	$ _____
WARRINGTON 500KW/ 550KW	$ _____	$ _____
ATS LS 12	$ _____	$ _____
TOTAL BID:	$ _____	$ _____

DELIVERY SCHEDULE:

_____
(FOB PENSACOLA)

PAYMENT TERMS:

_____
(NET 30 UNLESS DISCOUNT OFFERED)

BIDDER: _____

BY: _____
(PRINT OR TYPE)

SIGNATURE: _____

TITLE: _____

ADDRESS: _____

_____

_____

TELEPHONE: (___) _____

FAX NUMBER: (___) _____

EMAIL: _____

FEID NUMBER: _____

IT IS ESSENTIAL THAT THE SUBMISSION INCLUDE SIGNED AFFIDAVITS ON THE BELOW LISTED FORMS.

EXECUTED ATTACHED FORMS:

____ PROPOSAL FORM

____ DRUG-FREE WORKPLACE FORM

____ EQUAL OPPORTUNITY FORM

____ CERTIFICATION OF NON-SEGREGATED FACILITIES FORM

ITEMS ENCLOSED:

___LITERATURE AND PRODUCT BULLETIN

___PRODUCT DATA FOR EACH TYPE OF PACKAGED ENGINE GENERATOR INDICATED

___SEVEN (7) SPEC & DATA SHEETS INCLUDING RATED CAPACITIES & OPERATING CHARACTERISTICS

___SHOP DRAWINGS

___SCHEMATICS & WIRING DIAGRAMS FOR ENGINE/ALTERNATOR SETS, TRANSFER SWITCHES AND SWITCHGEAR EQUIPMENT

___COPIES OF TEST REPORTS SUBMITTED TO ENGINEER

___DOCUMENTATION – CERTIFICATION REQUIREMENTS

___DOCUMENTATION – TECHNICAL EXPERIENCE

___DOCUMENTATION – DEALER LOCATION/SERVICE CENTERS

___DOCUMENTATION – WARRANTIES

___DOCUMENTATION – ATS COMPLIANCE CERTIFICATION

___DOCUMENTATION – ATS TECHNICAL EXPERIENCE

___ DOCUMENTATION – ATS DEALER LOCATION/SERVICE CENTERS

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(ATTACHMENT A BID 2013 17)

PERMANENT DIESEL EMERGENCY STANDBY POWER

AUTOMATIC TRANSFER SWITCH FOR LS 12
STANDBY POWER GENERATOR SYSTEMS

PART 1 GENERAL

1.01 SCOPE

A. PROVIDE AND INSTALL AUTOMATIC TRANSFER SWITCH(ES) (ATS) WITH POLES, AMPERE RATING, VOLTAGE RATING, AND WITHSTAND AND CLOSE RATINGS (WCR) AS SHOWN ON THE CONTRACT DRAWINGS. TRANSFER SWITCHES SHALL BE MECHANICALLY INTERLOCKED, DOUBLE THROW CONSTRUCTION AND INCLUDE A MICROPROCESSOR-BASED CONTROLLER FOR AUTOMATIC OPERATION. ALL TRANSFER SWITCHES AND CONTROLLERS SHALL BE PRODUCTS OF THE SAME MANUFACTURER.

B. THE TRANSFER SWITCHES SHALL HAVE 600 VOLT INSULATION ON ALL PARTS IN ACCORDANCE WITH UL, IEC, AND NEMA STANDARDS. THE CURRENT RATING SHALL BE A CONTINUOUS RATING WHEN THE SWITCH IS INSTALLED IN AN ENCLOSURE, AND SHALL CONFORM TO UL, IEC, AND NEMA TEMPERATURE RISE STANDARDS.

1.02 CODES AND STANDARDS

THE AUTOMATIC TRANSFER SWITCHES AND CONTROLS SHALL CONFORM TO THE REQUIREMENTS OF:

A. UL 1008/cUL: UNDERWRITERS LABORATORIES STANDARD FOR ATS/CANADA UL
B. IEC 60947-6-1: LOW-VOLTAGE SWITCHGEAR AND CONTROL GEAR MULTIPLE FUNCTION EQUIPMENT – TRANSFER SWITCHING EQUIPMENT*
C. NFPA 70: NATIONAL ELECTRICAL CODE INCLUDING ARTICLES 517, 700, 701, 702
D. NFPA 99: ESSENTIAL ELECTRICAL SYSTEMS FOR HEALTH CARE FACILITIES
E. NFPA 110: STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS
F. ANSI/IEEE 446: RECOMMENDED PRACTICE FOR EMERGENCY AND STANDBY POWER SYSTEMS FOR INDUSTRIAL AND COMMERCIAL APPLICATIONS (IEEE ORANGE BOOK)
G. NEMA ICS 10 P1: INDUSTRIAL CONTROL AND SYSTEMS PART 1: ELECTROMECHANICAL AC TRANSFER SWITCH

EQUIPMENT (SUPERSEDES ICS2-447)

H. UL 50: ENCLOSURES FOR ELECTRICAL EQUIPMENT, NON-ENVIRONMENTAL CONSIDERATIONS
I. UL 508: STANDARD FOR INDUSTRIAL CONTROL EQUIPMENT
J. CSA 282: EMERGENCY ELECTRICAL POWER SUPPLY FOR BUILDINGS
K. IBC-2006: INTERNATIONAL BUILDING CODE - SEISMIC CERTIFIED
L. IEEE-693-2005: IEEE RECOMMENDED PRACTICES FOR SEISMIC DESIGN OF SUBSTATION BUILDINGS, STRUCTURES, AND EQUIPMENT
M. NFPA 101: LIFE SAFETY CODE
N. IEEE 241: IEEE RECOMMENDED PRACTICE FOR POWER SYSTEMS IN COMMERCIAL BUILDINGS
O. ICS 6: ENCLOSURES
P. ANSI C33.76: ENCLOSURES
Q. NEMA 250: ENCLOSURES
R. IBC 2006: SEISMIC CERTIFIED TO Ip=1.5 FOR z/h LESS THAN OR EQUAL TO 1
S. IEEE-693-2005: SEISMIC CERTIFIED AT HIGH LEVEL WITH 2.5 AMPLIFICATION FACTOR
T. IEC 947-6-1: CERTIFIED AT 480 VAC*

* ZTECT MODELS RATED 100-400 AMP ARE EXCLUDED

1.03 ACCEPTABLE MANUFACTURERS

AUTOMATIC TRANSFER SWITCH(ES) SHALL BE GE ZENITH SERIES ZTS TYPE. THE SUPPLIER MUST SUBMIT TO THE ECUA FOR APPROVAL ALTERNATE MANUFACTURERS FOR ANY OTHER PRODUCT 20 DAYS PRIOR TO THE BID DATE. ALTERNATE BIDS MUST INCLUDE A LINE-BY-LINE CLARIFICATION OF THE SPECIFICATION MARKED WITH “D” FOR DEVIATION; “E” FOR EXCEPTION AND “C” FOR COMPLY.

PART 2 PRODUCTS

2.01 MECHANICALLY HELD TRANSFER SWITCH

A. TRANSFER SWITCH IS FOR LIFT STATION 12. SWITCH SHALL BE 480Y/277V, 3 PHASE, 4 POLE WITH A SWITCHABLE NEUTRAL AND CAPABLE OF A MINIMUM OF 400A SHORT CIRCUIT RATING OF 14kAIC.

B. TRANSFER SWITCHES SHALL BE ELECTRICALLY OPERATED AND MECHANICALLY HELD WITH DOUBLE THROW CONSTRUCTION, AND OPERATED BY A MOMENTARILY ENERGIZED SOLENOID-DRIVEN MECHANISM. MAIN OPERATORS THAT INCLUDE OVERCURRENT

DISCONNECT DEVICES; LINEAR MOTORS OR GEARS SHALL NOT BE ACCEPTABLE.

ALL OPEN AND DELAYED TRANSITION-TYPE ATS SHALL INCLUDE MECHANICAL INTERLOCKS TO ENSURE ONLY TWO POSSIBLE POSITIONS: CONNECTED-TO-NORMAL OR CONNECTED-TO-EMERGENCY.

CLOSED TRANSITION-TYPE ATS IS NOT ALLOWED.

C. ATS SHALL INCLUDE A MANUAL HANDLE AND PROVISIONS FOR MANUAL OPERATION FOR MAINTENANCE PURPOSES. MANUAL OPERATION SHALL BE WITH THE SWITCH DE-ENERGIZED.

D. SWITCH SHALL BE MECHANICALLY LATCHED AND UNAFFECTED BY MOMENTARY SOURCE POWER OUTAGES, SWELLS, AND SURGES SUCH THAT CONTACT PRESSURE IS MAINTAINED AT A CONSTANT VALUE AND CONTACT TEMPERATURE RISE IS MINIMIZED. SWITCH SHALL DERIVE POWER TO TRANSFER FROM THE SOURCE INTO WHICH IT WILL TRANSFER TO.

E. THE CONTACT STRUCTURE SHALL CONSIST OF MAIN CURRENT CARRYING CONTACTS AND ARCING CONTACTS. ALL MAIN CONTACTS SHALL BE OF SILVER TUNGSTEN ALLOY COMPOSITION. SEPARATE ARCING CONTACTS SHALL BE PROVIDED TO PROTECT THE MAIN CONTACTS FROM EXCESSIVE WEAR DURING TRANSFERS. THE ARCING CONTACTS SHALL ALSO BE OF SILVER TUNGSTEN COMPOSITION ON ALL SIZES RATED 600A AND ABOVE. CONTACTS RATED 600A AND HIGHER SHALL HAVE SEGMENTED CONSTRUCTION FOR HIGH WITHSTAND AND CLOSING (WCR) RATINGS.

F. MAIN AND ARCING CONTACTS ON SWITCHES RATED 600A AND ABOVE SHALL BE VISIBLE WITHOUT MAJOR DISASSEMBLY TO FACILITATE INSPECTION AND MAINTENANCE.

G. SWITCHES CONSTRUCTED OF CIRCUIT BREAKERS OR ELECTRICAL CONTACTORS NOT CERTIFIED AND TESTED AS A COMPLETE AUTOMATIC TRANSFER SWITCH ASSEMBLY UNDER EITHER UL1008 OR IEC 60947-6-1 ARE NOT ACCEPTABLE.

H. WHERE NEUTRAL CONDUCTORS MUST BE SWITCHED AS SHOWN ON THE PLANS, THE ATS SHALL BE SUPPLIED WITH A FULL AMPERE/VOLTAGE RATED 4TH/NEUTRAL POLE. THE NEUTRAL POLE SHALL HAVE THE SAME WITHSTAND AND CLOSING AND OPERATIONAL RATINGS AS THE PHASE POLES, AND SHALL BE ARRANGED FOR BREAK-LAST AND MAKE-FIRST TO MINIMIZE NEUTRAL SWITCHING TRANSIENTS. TO ENSURE THAT THE NEUTRAL POLE OPERATES RELIABLY WITH THE PHASE POLES, THE NEUTRAL POLE SHALL BE OPERATED DIRECTLY FROM THE SAME MECHANISM AND SHAFT AS THE PHASE POLES. THIS CONSTRUCTION SHALL PROVIDE COMPLETE DISCONNECT OF THE EMERGENCY AND NORMAL SOURCE NEUTRALS IN THE MID POSITION, AFTER THE PHASE CONTACTS ARE DISCONNECTED. OVERLAPPING NEUTRAL AND OTHER NEUTRAL POLES THAT DO NOT HAVE IDENTICAL CONSTRUCTION TO THE PHASE POLES AND/OR DO NOT OPERATE DIRECTLY FROM THE MAIN ATS TRANSFER MECHANISM AND SHAFT ARE NOT ACCEPTABLE.

I. WHERE NEUTRAL CONDUCTORS ARE TO BE SOLIDLY CONNECTED AS SHOWN ON THE PLANS, A 100% FULLY RATED NEUTRAL CONDUCTOR PLATE AND 100% FULLY RATED AL-CU CONNECTORS SHALL BE PROVIDED.

J. THE AUTOMATIC TRANSFER SWITCH MUST BE EQUIPPED WITH SELF-DIAGNOSTIC PROGRAMMABLE SOLENOID PROTECTION. THIS PROTECTION SHALL REMOVE POWER FROM THE SOLENOID AFTER A MAXIMUM OF TWO (2) UNSUCCESSFUL TRANSFER ATTEMPTS TO PREVENT THE SOLENOID FROM OVER HEATING. THIS CONDITION SHALL BE LATCHED AND ANNUNCIATED ON THE MICROPROCESSOR CONTROLLER SCREEN, AND CAPABLE OF ANNUNCIATION VIA A COMMUNICATION PORT, AND CONFIGURABLE AS AN ALARM STATUS OUTPUT SIGNAL. RESET SHALL REQUIRE MANUAL INTERVENTION BY AN OPERATOR.

2.02 MICROPROCESSOR CONTROLLER

A. FOR EASE OF MAINTENANCE AND FUTURE UPGRADES, THE CONTROLLER SHALL BE OF A MODULAR CONSTRUCTION, WITH STANDARD POWER SUPPLY, CPU, AND I/O MODULES ACROSS ALL VOLTAGE AND AMPERE RANGES OF PRODUCT. MODULES SHALL BE CONSTRUCTED FOR QUICK REMOVAL AND REPLACEMENT INTO A RUGGED BACKPLANE ASSEMBLY. CONTROLLER SHALL BE CAPABLE OF BOTH SERIAL AND ETHERNET COMMUNICATIONS.

B. FOR HIGHEST RELIABILITY, THE ATS SHALL CONTAIN SOURCE SENSING MODULES CAPABLE OF BEING CALIBRATED FOR DIRECT 3-PHASE SENSING OF EACH SOURCE FROM 120 VAC TO 690 VAC WITHOUT THE

NEED FOR ADDITIONAL STEP-DOWN TRANSFORMERS. IN ADDITION, THE ATS SHALL CONTAIN A UNIVERSAL TRANSFORMER ASSEMBLY (UTA) MODULE TO PROVIDE RELIABLE POWER TO THE CONTROLLER FROM EITHER SOURCE. ADDITIONALLY, UTA SHALL ACCEPT BOTH A 120VAC AND 24VDC EXTERNAL AUXILIARY CONTROL POWER SOURCE ALLOWING CONTROLLER COMMUNICATION, SENSING, AND I/O MODULE ACTIVITY IN THE EVENT OF A POWER OUTAGE, SWELL, OR SURGE CONDITION.

FOR EASE OF MAINTENANCE AND SPARE PARTS, THE SOURCE SENSING MODULES AND UTA MODULES SHALL BE STANDARD (SINGLE) PART NUMBERS FOR ALL ATS SIZES, VOLTAGE RATINGS, AND CONFIGURATIONS. VOLTAGE SENSING SHALL BE TRUE RMS TYPE AND SHALL BE ACCURATE TO ± 1% OF NOMINAL VOLTAGE. FREQUENCY SENSING SHALL BE ACCURATE TO ± 0.05Hz. CURRENT SENSING SHALL BE ACCURATE TO ± 0.5% AT FULL SCALE WITH 5 A SECONDARY CURRENT TRANSFORMER (CT). THE CONTROLLER SHALL BE CAPABLE OF OPERATING OVER A TEMPERATURE RANGE OF -20 TO +50 DEGREES C AND STORAGE FROM -40 TO +90 DEGREES C.

C. THE CONTROLLER SHALL CONNECT TO THE TRANSFER SWITCH THRU AN INTERCONNECTING WIRING HARNESS. FOR SAFETY, THE ATS SHALL BE SUPPLIED WITH A DISCONNECT SWITCH THAT ALLOWS THE OPERATOR TO DISABLE THE AUTOMATIC OPERATION DURING MAINTENANCE, INSPECTION OR MAINTENANCE WITHOUT THE NEED TO DISCONNECT THE WIRING HARNESS. INTERFACING RELAYS SHALL BE PROVIDED TO ISOLATE AND PROTECT THE CONTROLLER FROM ABNORMAL VOLTAGES APPLIED TO ANY/ALL INPUT OR OUTPUT CUSTOMER WIRING TERMINALS. CONTROLLER SHALL INCLUDE PROTECTIVE COVERS AND GUARDS FOR SAFETY AND EASE OF MAINTENANCE.

D. ALL CUSTOMER CONNECTIONS SHALL BE WIRED TO A COMMON TERMINAL BLOCK TO SIMPLIFY FIELD-WIRING CONNECTIONS. FOR EASE OF UPGRADE, ADDITIONAL CUSTOMER CONNECTIONS TO CONTROLLER SHALL BE POSSIBLE THROUGH THE USE OF QUICK-CONNECT, MODULAR TERMINAL BLOCK AND HARNESS ASSEMBLIES. DIN RAIL PROVISIONS FOR CUSTOMER CONNECTIONS SHALL BE IN SUFFICIENT LENGTH TO ALLOW FUTURE MODIFICATIONS AND UPGRADED WITHOUT NEED FOR DOOR PUNCHING, DRILLING, TAPPING OR MAJOR FIELD MODIFICATION.

E. THE CONTROLLER SHALL MEET OR EXCEED THE REQUIREMENTS FOR ELECTROMAGNETIC COMPATIBILITY (EMC) AS FOLLOWS:

1. EN55022: (CISPR11): CONDUCTED AND RADIATED EMISSIONS, CLASS B: (EXCEEDS EN55011:1991 & MILSTD 461 CLASS 3)
2. EN61000-4-2: (LEVEL 4): ESD IMMUNITY TEST
   EN61000-4-3: (ENV50140): RADIATED RF, ELECTROMAGNETIC FIELD IMMUNITY TEST

EN61000-4-4: ELECTRICAL FAST TRANSIENT/BURST IMMUNITY TEST
EN61000-4-5: IEEE C62.41: SURGE IMMUNITY TEST (1.2 X 50µS, 5 & 8 kV)
EN61000-4-6: (ENV50141): CONDUCTED IMMUNITY TEST
EN61000-4-11: VOLTAGE DIPS AND INTERRUPTION IMMUNITY

3. IEEE 472: (ANSI C37.90A): RINGING WAVE IMMUNITY

F. CONTROLLER SHALL HAVE THE CAPABILITY OF DIRECT POWER QUALITY METERING OF EACH SOURCE AND THE CONNECTED LOAD THROUGH THE ADDITION OF A MODULAR, CURRENT TRANSFORMER (CT) SENSING CARD AND ACCEPT CT'S WITH BOTH 1A OR 5A SECONDARY RATINGS. ATS SHALL BE CONSTRUCTED TO PERMIT THE UPGRADE/ADDITION OF METERING IN THE FIELD WITHOUT THE NEED FOR DOOR PUNCHING, DRILLING, TAPPING OR MAJOR FIELD MODIFICATION.

G. CONTROLLER AND ALL CUSTOMER TERMINAL BLOCK CONNECTIONS SHALL BE DIN RAIL MOUNTABLE FOR EASE OF UPGRADE AND INSTALLATION.

2.03 ENCLOSURE

A. THE SWITCH SHALL BE MOUNTED IN A NEMA 4X ENCLOSURE UNLESS OTHERWISE INDICATED ON THE PLANS.
B. ALL DOOR-MOUNTED LED'S SHALL BE HIGH-INTENSITY TYPE FOR EASE OF VISIBILITY AT A DISTANCE. ALL DOOR HARDWARE SHALL BE CONSTRUCTED FOR EASE OF REPLACEMENT. ENCLOSURE SHALL BE PRE-ENGINEERED AND CONSTRUCTED FOR SIMPLE ADDITION OF THE FOLLOWING STANDARD CONTROL SWITCHES IN THE FIELD, WITHOUT THE NEED FOR FIELD PUNCHING AND DRILLING: ALARM RESET, PRIME SOURCE SELECT, COMMIT/NO-COMMIT, AND TRANSITION MODE SELECT.
C. ALL ENCLOSURES SHALL BE CERTIFIED FOR SEISMIC INSTALLATIONS. ALL ATS SUPPLIED SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS: [IEEE STD 693-2000 FOR HIGH SEISMIC LOCATIONS AND IBC-2006 @ 3.2g, WITH Ip = 1.5]. SEISMIC CERTIFICATION SHALL BE VIA SHAKE TABLE TESTING, WITH SWITCHES TESTED AND CERTIFIED TO TRANSFER DURING THE SEISMIC EVENT. ALL ATS(S) PROVIDED MUST HAVE HAD A REPRESENTATIVE SAMPLE TESTED AND CERTIFIED TO THESE LEVELS. PROVIDE COPY OF INDEPENDENT ANALYSIS AND CERTIFICATION WITH SUBMITTALS.
D. INSTALLATION DRAWINGS MUST CLEARLY STATE MOUNTING PROVISIONS AND REQUIREMENTS FOR INSTALLATION BY INSTALLING CONTRACTOR TO MAINTAIN THIS CERTIFICATION.

2.04 CONTROLLER DISPLAY AND KEYPAD

A. A COLOR, ¼ VGA MINIMUM, GRAPHICAL DISPLAY SHALL BE PROVIDED FOR VIEWING ALL AVAILABLE DATA AND SETTING DESIRED OPERATIONAL PARAMETERS. OPERATIONAL PARAMETERS SHALL ALSO BE AVAILABLE FOR VIEWING AND LIMITED CONTROL THROUGH

A STANDARD FRONT ACCESSIBLE COMMUNICATIONS PORT. TO PERMIT REMOTE ADJUSTABILITY, ALL PARAMETERS SHALL BE ACCESSIBLE VIA CONFIGURATION SOFTWARE WITHOUT THE NEED TO MANUALLY ADJUST DIP SWITCHES ON THE CONTROLLER. THE GRAPHICAL DISPLAY SHALL BE CAPABLE OF OPERATING OVER A TEMPERATURE RANGE OF -20 TO +50 DEGREES C AND STORAGE FROM -40 TO +90 DEGREES C.

B. CONTROLLER SHALL BE PROVIDED WITH EASY-TO-SEE, HIGH INTENSITY LED'S FOR THE FOLLOWING:

1. SOURCE AVAILABILITY – INDICATES THAT SOURCE VOLTAGE AND FREQUENCY ARE WITHIN ACCEPTABLE RANGES.
2. SOURCE CONNECTED - INDICATES THAT THE SOURCE CONTACTS ARE CLOSED AND LOAD IS BEING FED FROM THE SOURCE.
3. XFER (TRANSFER) INHIBIT – INDICATES THAT ATS IS BEING INHIBITED FROM AUTOMATICALLY TRANSFERRING TO THE UNCONNECTED SOURCE.
4. ALARM – INDICATES THAT AN ALARM CONDITION IS ACTIVE.
5. TD (TIME DELAY) ACTIVE – INDICATES THAT THE TRANSFER SWITCH TIME DELAY IS ACTIVELY TIMING AS PART OF AN AUTOMATIC SEQUENCE.

C. FOR EASE OF NAVIGATION AND INTUITIVE OPERATION, THE DISPLAY SHALL INCLUDE THE FOLLOWING:

1. SOFT KEYS: THAT CHANGE FUNCTION BASED ON USER LOCATION IN THE MENU STRUCTURE
2. DEDICATED NAVIGATIONAL KEYS: FOR HOME, SCROLL UP, SCROLL DOWN, END, ESC (ESCAPE), AND ENTER.
3. DEDICATED CONTROL PUSHBUTTONS: FOR ALARM RESET, TEST, CONTROL, AND INFO
    a) ALARM RESET – RESETS ALL ALARM CONDITIONS.
    b) TEST – PERMITS SELECTION OF TEST WITH LOAD, TEST WITHOUT LOAD, OR FAST TRANSFER TEST MODES OF OPERATION.
    c) CONTROL – IMMEDIATELY INITIATES A CONTROL MENU, WHERE OPERATOR-INITIATED CONTROL FUNCTIONS MAY BE ACTIVATED.
    d) INFO – INITIATES A REPORT SCREEN THAT PROVIDES THE FOLLOWING INFORMATION:
        i. SEQUENCE OF EVENTS RECORDER, INCLUDING: TIME GENSET START SIGNAL SENT, DATE GENSET START SIGNAL SENT GENSET STARTUP TIME, TIME TRANSFERRED TO GENSET, TIME UTILITY SUPPLY

RETURNED OR TEST RESET, TIME RE-TRANSFERRED TO UTILITY SUPPLY, TIME START SIGNAL REMOVED.

ii. GENSET LOADING PERFORMANCE RECORDER, INCLUDING: MAXIMUM GENSET VOLTAGE & FREQUENCY TRANSIENTS ON CONNECTION OF LOAD.

iii. GENSET ON LOAD PERFORMANCE RECORDER, INCLUDING: MAXIMUM CURRENT, kW, AVG PF, AND AVG THD% DURING THE TEST OR OUTAGE EVENT.

VALUES SHALL BE STORED IN NON-VOLATILE MEMORY AND AUTOMATICALLY UPDATED AFTER EACH TEST WITH LOAD OR OUTAGE EVENT.

4) FOR EASE OF PROGRAMMING AND SAFETY, THE ATS SHALL INCLUDE A FRONT DOOR MOUNTED USB PROGRAMMING PORT.

a) THE PORT SHALL PROVIDE A CONNECTION POINT FOR FREE CONFIGURATION SOFTWARE.

b) THE PORT SHALL PROVIDE THE CAPABILITY FOR CLOSED-DOOR CONFIGURATION AND PROGRAMMING CHANGES, WITHOUT RISK OF CONTACT WITH ELECTRICAL CONDUCTORS AND SWITCHING MECHANISMS INSIDE THE ATS ENCLOSURE.

c) FOR SIMPLICITY AND ABILITY TO ADJUST PARAMETERS FROM A REMOTE PC, ALL SWITCH PARAMETERS SHALL BE FULLY ACCESSIBLE VIA FREE CONFIGURATION SOFTWARE, WITHOUT THE NEED TO MANUALLY ADJUST DIP-SWITCHES OR POTENTIOMETERS ON THE CONTROLLER.

PART 3 OPERATION

3.01 VOLTAGE, FREQUENCY AND PHASE ROTATION SENSING

A. CONTROLLER SHALL MONITOR THE VOLTAGE AND FREQUENCY OF EACH SOURCE AND DETECT SINGLE OR 3-PHASE LOSSES OF EITHER SOURCE. THE CONTROLLER SHALL HAVE ADJUSTABLE PICKUP AND DROPOUT SETTING FOR EACH SOURCE AS INDICATED BELOW. VALUES SHOWN ARE % OF NOMINAL:

PARAMETER	SOURCES	DROPOUT / TRIP	PICKUP / RESET
UNDERVOLTAGE	N&E,3-PHASE	75 TO 98%	85 TO 100%
OVERVOLTAGE	N&E,3-PHASE	105 TO 110%	103 TO 108%
UNDERFREQUENCY	N&E	45.0 TO 59.9Hz	45.1 TO 60Hz
OVERFREQUENCY	N&E	50.1 TO 63Hz	50.0 TO 62.0Hz
VOLTAGE UNBALANCE	N&E	5 TO 20%	4 TO 19%

B. SETTING SHALL BE FIELD ADJUSTABLE IN 1% INCREMENTS EITHER LOCALLY VIA THE FRONT PANEL KEYPAD, LOCALLY VIA THE FRONT

DOOR USB PORT, OR REMOTELY VIA SERIAL AND ETHERNET COMMUNICATIONS WITHOUT UNLATCHING OF ENCLOSURE DOOR.

C. THE CONTROLLER SHALL CONTINUOUSLY MONITOR THE PHASE ROTATION OF BOTH SOURCES AND INHIBIT TRANSFERS IF BOTH SOURCES ARE NOT OF THE SAME PHASE ROTATION (ABC OR CBA).

D. A SINGLE SOURCE STATUS SCREEN SHALL BE PROVIDED FOR QUICK VIEWING OF THE STATUS OF BOTH SOURCES, INCLUDING 3 PHASE VOLTAGES, POWER AND FREQUENCIES.

3.02 TIME DELAYS

A. CONTROLLER SHALL INCLUDE AN ADJUSTABLE TIME DELAY OF 0 TO 10 SECONDS TO MOMENTARILY OVERRIDE A NORMAL SOURCE FAILURE AND DELAY THE OPERATION OF THE TRANSFER SWITCH FOR A USER-SPECIFIED TIME PERIOD. CONTROLLER SHALL BE CAPABLE OF BEING PROGRAMMED FOR AN EXTENDED TIME DELAY UP TO 259 MINUTES IF AN EXTERNAL POWER SUPPLY IS PROVIDED TO THE ATS CONTROL. ALL ATS SUPPLIED SHALL HAVE WIRING AND PROVISIONS FOR THE CONNECTION OF A CUSTOMER SUPPLIED EXTERNAL 120VAC POWER SUPPLY SOURCE FOR EXTENDED TIME DELAY.

B. CONTROLLER SHALL INCLUDE AN ADJUSTABLE TIME DELAY ON TRANSFER TO EMERGENCY, ADJUSTABLE FROM 0 TO 259 MINUTES, FOR CONTROLLED TIMING OF TRANSFER OF LOADS TO EMERGENCY ALLOWING EMERGENCY SOURCE TO STABILIZE PRIOR TO TRANSFER.

C. CONTROLLER SHALL INCLUDE TWO INDEPENDENT TIME DELAYS ON RETRANSFER TO NORMAL – ONE ADJUSTABLE 0 TO 259 MINUTES FOR RE-TRANSFER FROM AN OUTAGE OF THE NORMAL SOURCE AND ONE FOR RE-TRANSFER AFTER A FAST TEST OPERATION. TIME DELAYS AFTER A FAST TEST OPERATION SHALL CORRESPOND TO MINIMUM VALUES TO REDUCE TESTING TIME. THE TIME DELAY ON TRANSFER TO NORMAL SHALL BE AUTOMATICALLY BYPASSED IF THE NORMAL SOURCE IS AVAILABLE AND THE EMERGENCY SOURCE FAILS DURING THE TIME DELAY PERIOD.

D. CONTROLLER SHALL INCLUDE A TIME DELAY TO OVERRIDE MOMENTARY EMERGENCY SOURCE OUTAGES OR SWELLS AND DELAY ALL RETRANSFER SIGNALS ALLOWING INITIAL LOADING OF ENGINE GENERATOR SET. TIME SHALL BE ADJUSTABLE FROM 0 TO 30 SECONDS.

E. CONTROLLER SHALL INCLUDE A TIME DELAY FOR COOL DOWN OF THE ENGINE AHEAD OF ENGINE SHUTDOWN. TIME SHALL BE ADJUSTABLE FROM 0 TO 60 MINUTES.

F. CONTROLLER SHALL INCLUDE FULLY USER-CONFIGURABLE LOAD CONTROL RELAYS AND CONTACTS FOR CONTROL AND SIGNALING OF LOADS BEFORE AND AFTER SWITCH TRANSFERS. THESE CAPABILITIES SHALL INCLUDE:

1. THE CONFIGURATION OF UP TO (6), PROGRAMMABLE LOAD CONTROL RELAYS - EACH WITH A FORM-C CONTACT OUTPUT PAIR

WIRED TO A TERMINAL BLOCK FOR CUSTOMER USE, RATED AT 10A, 24VDC/120VAC.

2. EACH LOAD CONTROL RELAY SHALL BE INDEPENDENTLY PROGRAMMABLE AS EITHER AN ELEVATOR PRE-SIGNAL, OR LOAD CONTROL (CONNECT/DISCONNECT) SIGNAL.

3. EACH RELAY SHALL HAVE A CUSTOMER-PROGRAMMABLE TIME DELAY PERIOD, FROM 0 TO 60 MINUTES.

4. CONTROLLER SHALL PERMIT FIELD ADJUSTABILITY OF THE TYPE AND TIME DELAY SETTINGS, WITHOUT THE NEED FOR FIELD WIRING OR HARDWARE CHANGES.

G. DELAYED (PROGRAMMED) TRANSITION-TYPE ATS SHALL INCLUDE A TIME DELAY FOR THE CENTER-OFF/NEUTRAL POSITION WHEN TRANSFERRING FROM SOURCE-TO-SOURCE. TIME SHALL BE ADJUSTABLE FROM 0 TO 10 MINUTES.

H. ALL TIME DELAYS SHALL BE ADJUSTABLE IN ONE (1) SECOND INCREMENTS. ALL TIME DELAYS SHALL BE ADJUSTABLE BY USING THE GRAPHICAL DISPLAY, THE FRONT USB PORT, OR MANUFACTURER SUPPLIED FREE CONFIGURATION SOFTWARE CONNECTED TO THE LOCAL USB, SERIAL, OR ETHERNET COMMUNICATION PORTS.

3.03 POWER QUALITY METERING

A. THE ATS SHALL BE ABLE TO PROVIDE METERING FOR CURRENT, VOLTAGE, REAL POWER, REACTIVE POWER, ENERGY USE, POWER FACTOR, AND FREQUENCY. METERING SHALL BE TRUE RMS TYPE, 1% ACCURACY FOR VOLTAGE AND 0.5% FOR CURRENTS WITH 5A SECONDARY CURRENT TRANSFORMER (CT).

B. THE FOLLOWING PARAMETERS SHALL BE PROVIDED:
   1. PHASE AND NEUTRAL CURRENT: Ia, Ib, Ic, In, AND average CURRENT (Iavg)
   2. VOLTAGE: Va, Vb, Vc, Vab, Vbc, Vca
   3. VOLTAGE AND CURRENT UNBALANCE
   4. Hz, PF, W, Var, VA
   5. Wh, VARh
   6. VOLTAGE AND CURRENT HARMONICS (%THD UP TO 8TH ORDER)

3.04 DATA LOGGER

A. IN ADDITION TO LOGGING SYSTEM EVENTS, THE ATS SHALL BE CAPABLE OF LOGGING DIGITAL AND ANALOG MEASURED PARAMETERS AND STORING THE DATA IN NON-VOLATILE MEMORY.

   1. CONTROLLER SHALL CONTAIN A 20-CHANNEL DATA LOGGER. EACH CHANNEL SHALL BE CAPABLE OF BEING CONFIGURED TO

MONITOR A DIGITAL (ON/OFF) OR ANALOG MEASURED PARAMETER.

2. THE SAMPLING RATE OF EACH CHANNEL SHALL BE CONFIGURABLE FROM 1 CYCLE TO 60 MINUTES PER SAMPLE.
3. DATA SHALL BE STORED IN NONVOLATILE MEMORY, IN A FIFO (FIRST IN, FIRST OUT) SEQUENCE.

3.05 WAVEFORM CAPTURE/OSCILLOGRAPHY

A. THE ATS SHALL BE CAPABLE OF MONITORING AND CAPTURING WAVEFORM DATA IN THE EVENT OF UTILITY POWER OUTAGES OR OTHER USER-SPECIFIED EVENTS.
   1. UP TO 10 ACTIVE CHANNELS OF WAVEFORM CAPTURE MAY BE USER-CONFIGURED.
   2. EACH CHANNEL SHALL BE CAPABLE OF CAPTURING UP TO 256 CYCLES OF WAVEFORM INFORMATION.
   3. ANALOG CHANNELS MAY BE CONFIGURED FOR 4, 8, 16, OR 32 SAMPLES/CYCLE.
   4. DIGITAL CHANNELS SHALL BE CONFIGURED FOR 1 SAMPLE/CYCLE.
   5. WAVEFORM TRIGGERS SHALL BE USER CONFIGURABLE.
   6. WAVEFORM DATA SHALL BE STORED IN INDUSTRY-STANDARD COMTRADE FORMAT (IEEE C37.111) FOR BROADEST COMPATIBILITY AND EASE OF DOWNLOADING TO A PC.

3.06 CUSTOMER-CONFIGURABLE ALARMS

THE ATS SHALL BE CAPABLE OF BEING CONFIGURED TO DISPLAY CUSTOMER-CONFIGURED ALARM EVENTS.

A. CONTROLLER SHALL BE CAPABLE OF BEING USER-CONFIGURED FOR UP TO TEN (10) DIGITAL AND ELEVEN (11) ANALOG ALARMS.
B. EACH DIGITAL ALARM SHALL BE USER-ASSIGNABLE TO AN AVAILABLE DIGITAL INPUT (DRY CONTACT INPUT), AND SHALL INCLUDE A USER-CONFIGURABLE ALARM NAME AND TIME DELAY.
C. THE FOLLOWING MEASURED PARAMETERS SHALL BE AVAILABLE FOR CONFIGURATION AS ANALOG ALARMS, WITH USER-SPECIFIED PICKUP VALUES AND TIME DELAYS:
   1.LOW (LOAD) PF ALARM
   2.SOURCE 1 (OR 2) VOLTAGE HARMONICS ALARM (%THD)
   3.LOAD CURRENT HARMONICS ALARM (%THD)
   4.KW OVERLOAD ALARM
   5.OVERCURRENT ALARMS (A, B, C, OR N)
   6.SOURCE 1 (OR 2) VOLTAGE UNBALANCE ALARM

7. LOAD CURRENT UNBALANCE ALARM

D. ALL ALARMS SHALL ALSO BE CAPABLE OF BEING RESET VIA A REMOTE DRY CONTACT INPUT TO THE CONTROLLER OR A NETWORK-ACTIVATED RESET SIGNAL.

3.07 FLEXIBLE FEATURE RE-ASSIGNMENT

A. THE ATS SHALL BE FACTORY PRE-CONFIGURED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

B. THE ATS SHALL UTILIZE FLEXIBLE CONTROLLER INPUTS AND OUTPUTS TO PERMIT RE-CONFIGURATION AFTER INSTALLATION, WITHOUT THE NEED FOR RE-WIRING, SOFTWARE UPGRADES, OR FACTORY SERVICE SUPPORT.

C. EACH ATS SHALL BE CONFIGURED WITH 8 FIELD-RECONFIGURABLE DIGITAL INPUTS AND 8 FIELD-RECONFIGURABLE DIGITAL OUTPUTS. FOR LS 12 ATS THE FOLLOWING SHALL BE USED:
   1. NORMAL AVAILABLE
   2. EMERGENCY AVAILABLE
   3. NORMAL POSITION
   4. EMERGENCY POSITION

D. CONFIGURABLE DIGITAL OUTPUTS: EACH DIGITAL OUTPUT MAY BE ASSIGNED TO ONE OF THE FOLLOWING FEATURES:
   1. COMMON/ANY ALARM ACTIVE
   2. SELF DIAGNOSTICS ALARM
   3. SWITCH EXERCISING
   4. CONTROL DISCONNECT SWITCH IN INHIBIT POSITION
   5. ATS NOT IN AUTO MODE
   6. FAIL TO TRANSFER TO SOURCE 1
   7. FAIL TO TRANSFER TO SOURCE 2
   8. ENGINE START ACTIVE
   9. SOURCE 1 FAILURE
   10. SOURCE 2 FAILURE
   11. LOAD CONNECTED TO SOURCE 1
   12. LOAD CONNECTED TO SOURCE 2
   13. ATS IN CENTER/NEUTRAL POSITION (DELAY TYPE ATS ONLY)
   14. BYPASS SWITCH CONNECTED TO SOURCE 1 (BYPASS TYPE ATS ONLY)
   15. BYPASS SWITCH CONNECTED TO SOURCE 2 (BYPASS TYPE ATS ONLY)
   16. AUTO TRANSFER OCCURRED – SOURCE 1 TO SOURCE 2
   17. AUTO TRANSFER OCCURRED – SOURCE 2 TO SOURCE 1
   18. PROGRAMMABLE LOAD CONTROL (UP TO 6 STAGES) – EACH INDIVIDUALLY CONFIGURABLE FOR EITHER ELEVATOR PRE-SIGNAL OR LOAD DISCONNECT/CONNECT SIGNAL. EACH WITH INDEPENDENT TIMER ADJUSTMENT.

E. CONFIGURABLE DIGITAL INPUTS: EACH DIGITAL INPUT MAY BE ASSIGNED TO ONE OF THE FOLLOWING FEATURES:
    1. BYPASS TIME DELAY ON TRANSFER TO SOURCE 2
    2. BYPASS TIME DELAY ON RE-TRANSFER TO SOURCE 1
    3. ENGINE START
    4. TEST WITH OR WITHOUT LOAD
    5. AVAILABLE UTILITY POWER
    6. AVAILABLE EMERGENCY POWER
    7. INHIBIT TRANSFER TO SOURCE 1
    8. INHIBIT TRANSFER TO SOURCE 2
    9. SELECTION OF PREFERRED SOURCE
    10. AUTO/MANUAL RE-TRANSFER TO SOURCE 1
    11. AUTO/MANUAL RE-TRANSFER TO SOURCE 1 AND SOURCE 2
    12. COMMIT/NO-COMMIT TO TRANSFER TO SOURCE 2

3.08 FLEXIBLE LOGIC EDITOR

A. THE ATS SHALL BE CAPABLE OF BEING CONFIGURED TO EXECUTE CUSTOMIZED PROTECTION AND CONTROL SCHEMES.
B. THE FOLLOWING LOGICAL OPERATIONS SHALL BE SUPPORTED:
    1. GATES: AND, NAND, OR, NOR, NOT, XOR, LATCH
    2. POSITIVE/NEGATIVE EDGE TRIGGERED ONE-SHOT
    3. DUAL EDGE TRIGGERED ONE-SHOT
C. CONTROL LOGIC SHALL BE CONSTRUCTED USING ANY OF THE MEASURED PARAMETERS (ANALOG) IN THE CONTROLLER, THE CUSTOMER-CONFIGURED ALARMS, PLUS ANY OF THE CONTROLLER'S HARDWIRED INPUTS OR OUTPUTS (DIGITAL).

3.09 ADDITIONAL FEATURES

A. SURGE SUPPRESSION: ALL I/O AND COMMUNICATIONS INTERFACES SHALL BE PROVIDED WITH SURGE SUPPRESSION OR OPTICAL ISOLATION.

B. TEST SWITCH – CONTROLLER SHALL BE PROVIDED WITH A 2 POSITION, PASSWORD-PROTECTED, TEST SWITCH. THE TEST SWITCH WILL SIMULATE A NORMAL SOURCE FAILURE. THE TEST MODE MAY BE USER-CONFIGURABLE FOR TEST WITH LOAD, OR TEST WITHOUT LOAD FUNCTIONALITY. A RESET FUNCTION SHALL BE PROVIDED TO CANCEL THE TEST AND BYPASS ANY TIME DELAYS ON EITHER TRANSFER TO EMERGENCY OR RETRANSFER TO NORMAL. THE CONTROLLER SHALL SUPPORT LOCAL ACTIVATION OF THE TEST FUNCTION VIA PUSHBUTTONS ON THE OPERATOR DISPLAY, OR REMOTE ACTIVATION VIA DRY CONTACT CLOSURE OR NETWORK SIGNAL.

C. ENGINE START SIGNAL - A SPDT CONTACT, RATED 10 AMPS AT 28 VDC, SHALL BE PROVIDED TO START AN ENGINE GENERATOR IN THE EVENT OF AN OUTAGE OF THE NORMAL SUPPLY.

D. SOURCE CONNECTED AUX. CONTACTS - AUXILIARY CONTACTS, RATED 15 AMPS, 250 VAC SHALL BE PROVIDED TO SIGNAL WHEN THE ATS IS CONNECTED TO EACH SOURCE.

E. SOURCE CONNECTED STATUS LED'S – CONTROLLER DISPLAY SHALL INCLUDE DEDICATED LED'S TO INDICATE WHEN THE ATS IS CONNECTED TO EACH SOURCE. LED'S SHALL BE OF HIGH-INTENSITY TYPE FOR VIEWING AT A DISTANCE.

F. SOURCE AVAILABILITY STATUS LED'S – CONTROLLER DISPLAY SHALL INCLUDE DEDICATED LED'S TO INDICATE THE AVAILABILITY OF EACH SOURCE. LED'S SHALL BE OF HIGH-INTENSITY TYPE FOR VIEWING AT A DISTANCE.

G. COMMIT/NO-COMMIT TO TRANSFER CONTROL SELECTOR – CONTROLLER SHALL INCLUDE A "COMMIT/NO COMMIT TO TRANSFER" CONTROL SWITCH. THE PROGRAMMABLE SELECTOR SHALL BE USED TO CONFIGURE THE CONTROLLER TO COMMIT TO TRANSFERRING THE LOAD TO THE EMERGENCY SUPPLY (OR NOT) IN THE EVENT THAT THE NORMAL SOURCE IS RESTORED PRIOR TO THE GENERATOR BEING READY TO ACCEPT THE LOAD. THE CONTROLLER SHALL SUPPORT LOCAL ACTIVATION OF THIS CONTROL FUNCTION VIA PUSHBUTTONS ON THE MICROPROCESSOR DISPLAY, OR REMOTE ACTIVATION VIA CUSTOMER DRY CONTACT CLOSURE OR NETWORK SIGNAL.

H. INHIBIT TRANSFER SIGNALS – CONTROLLER SHALL ACCEPT INHIBIT TRANSFER CONTROL INPUTS THAT INHIBIT TRANSFER OF THE ATS TO EITHER SOURCE. IF ACTIVATED, A RED LED "TRANSFER INHIBIT" LED SHALL BE ILLUMINATED ON THE FRONT OF THE OPERATOR DISPLAY. THE CONTROLLER SHALL SUPPORT LOCAL ACTIVATION OF THIS CONTROL FUNCTION VIA PUSHBUTTONS ON THE OPERATOR DISPLAY, REMOTE ACTIVATION VIA CUSTOMER DRY CONTACT CLOSURE OR NETWORK COMMUNICATION SIGNAL.

I. IN-PHASE MONITOR – CONTROLLER SHALL INCLUDE AN IN-PHASE MONITOR FUNCTION. THE IN-PHASE MONITOR SHALL INHIBIT AUTOMATIC TRANSFERS FROM SOURCE-TO-SOURCE UNTIL THE PHASE DIFFERENCE BETWEEN THE SOURCES IS BELOW A PRE-SET VALUE. THE IN-PHASE MONITOR SHALL OPERATE TO REDUCE INRUSH CURRENTS DURING THE TRANSFER OF LOADS WITH RE-GENERATIVE CAPABILITIES (TRANSFORMERS, MOTORS). CONTROLLER SHALL INDICATE THE NUMBER OF DEGREES LAG/LEAD BETWEEN BOTH SOURCES IN REAL TIME.

J. AUTO/MANUAL SELECTOR - THE CONTROLLER SHALL INCLUDE AN AUTO/MANUAL SELECTOR TO PERMIT OPERATOR INTERVENTION IN THE TRANSFER OPERATION. CONTROLLER SHALL BE PROGRAMMABLE TO WAIT FOR AN OPERATOR PERMISSIVE SIGNAL TO TRANSFER TO ONE, OR BOTH SOURCES. CONTROLLER SHALL SUPPORT ON/OFF SETTING AND TYPE CONFIGURATION OF THE AUTO/MANUAL SWITCH VIA THE FRONT DISPLAY.

K. ENGINE EXERCISER - THE CONTROLLER SHALL INCLUDE A FULLY USER-CONFIGURABLE ENGINE EXERCISER.

1. EXERCISER SHALL BE CONFIGURABLE FOR DAILY, 7-DAY, 14-DAY, 21-DAY, OR 28-DAY EXERCISER TYPE, EACH WITH (7) INDEPENDENTLY -PROGRAMMABLE EVENTS.
2. EXERCISER SHALL BE CONFIGURABLE FOR AS A FULL, 365-DAY EXERCISER.

    a. UP TO 24 INDEPENDENT EXERCISER EVENTS SHALL BE USER-PROGRAMMABLE.
    b. EACH EVENT SHALL BE CONFIGURABLE FOR TEST WITH LOAD (INCLUDES TRANSFER OF LOAD TO NON-PRIORITY SOURCE)) OR TEST WITH WITHOUT LOAD (STARTING OF GENSET ONLY).
    c. EACH EVENT SHALL INCLUDE USER-ADJUSTABLE START TIME, DATE, AND TEST DURATION.

AT THE END OF THE SPECIFIED DURATION THE SWITCH SHALL TRANSFER THE LOAD BACK TO NORMAL AND RUN THE GENERATOR FOR THE SPECIFIED COOL DOWN PERIOD. ALL TIME AND DATE SETTINGS SHALL BE STORED IN NON-VOLATILE EEPROM MEMORY, WITHOUT THE REQUIREMENT OF A BATTERY. CONTROLLER SHALL INCLUDE FULL PROGRAMMABILITY FOR DAYLIGHT SAVINGS TIME, AND PERMIT FUTURE ADJUSTMENT OF THE DST STARTING AND ENDING DATES WITHOUT THE NEED FOR SOFTWARE OR FIRMWARE UPDATES.

L. DIAGNOSTICS - THE CONTROLLER SHALL CONTAIN SELF AND SYSTEM DIAGNOSTIC SCREENS FOR THE PURPOSE OF DETECTING AND TROUBLESHOOTING ABNORMAL SYSTEM EVENTS. DIAGNOSTICS SHALL INCLUDE THE FOLLOWING:

    a. SELF DIAGNOSTICS: CONTROLLER HEALTH AND CONDITION OF COMMUNICATIONS PORTS
    b. SWITCH DIAGNOSTICS: LIMIT SWITCH FAILURES, PHASE ROTATION MISMATCH, FAIL TO TRANSFERS
    c. CLOSED TRANSITION OPERATION DIAGNOSTICS: SOURCE DIFFERENTIAL > ALLOWED.

M. COMMUNICATIONS INTERFACE – THE CONTROLLER SHALL BE CAPABLE OF INTERFACING VIA OPTIONAL SERIAL/RS485 OR ETHERNET TCP/IP COMMUNICATIONS PORTS INTEGRAL TO THE CONTROLLER. ALL COMMUNICATION PARAMETERS (BAUD RATE, PARITY, IP ADDRESS, ETC) SHALL BE FULLY ACCESSIBLE AND PROGRAMMABLE VIA THE FRONT KEYPAD WITHOUT THE NEED FOR ADDITIONAL PROGRAMMING TOOLS. SWITCH SHALL BE CAPABLE OF CONNECTING TO PLUG-&-PLAY MONITORING SOFTWARE AVAILABLE BY THE TRANSFER SWITCH MANUFACTURER. THIS SOFTWARE SHALL ALLOW FOR THE MONITORING, CONTROL AND SETUP OF ATS PARAMETERS. EXTERNALLY MOUNTED COMMUNICATION INTERFACE MODULES SHALL NOT BE ACCEPTABLE.

N. EVENT LOGGER – THE CONTROLLER SHALL HAVE THE ABILITY TO LOG DATA AND TO MAINTAIN THE LAST 256 EVENTS, EVEN IN THE EVENT OF TOTAL POWER LOSS. TIME AND DATA STAMPING OF EVENTS SHALL BE ACCURATE TO WITHIN 1MS. CONTROLLER SHALL BE CAPABLE OF SYNCHRONIZING IT'S DATE/TIME SETTING WITH A MAIN PC VIA NETWORK TIME PROTOCOL (NTP) OVER AN ETHERNET TCP/IP NETWORK CONNECTION.

THE FOLLOWING EVENTS SHALL BE TIME AND DATE STAMPED AND MAINTAINED IN A NON-VOLATILE MEMORY:

STATISTICAL DATA

1. LAST PRIMARY SOURCE FAILURE – DATE & TIME
2. LAST REASON FOR TRANSFER (SOURCE FAIL, TEST)
3. LAST TRANSFER TO ALTERNATE SOURCE - DATE & TIME
4. LAST RE-TRANSFER TO PRIMARY SOURCE - DATE & TIME
5. TIME LOAD WITHOUT POWER (LAST EVENT) – SECONDS
6. TIME ATS POWERED UP - DAYS
7. TOTAL (ACCUMULATED) TIME ON SOURCE 1 – HOURS
8. TOTAL (ACCUMULATED) TIME ON SOURCE 2 – HOURS
9. TOTAL # OF PRIMARY SOURCE FAILURES
10. TOTAL # TRANSFERS [PRIMARY→ALTERNATE→PRIMARY]

O. COMMUNICATIONS MODULES

1. SERIAL COMMUNICATIONS: CONTROLLER SHALL SUPPORT RS485 COMMUNICATIONS PORT TO ENABLE SERIAL COMMUNICATIONS. CONTROLLER SHALL SUPPORT COMMUNICATION BAUD RATES UP TO AN INCLUDING 115.2KBPS. THE BAUD RATE SHALL BE USER CONFIGURABLE. THE SERIAL COMMUNICATIONS SHALL BE CAPABLE OF A DIRECT CONNECT OR MULTI-DROP CONFIGURED NETWORK. ALL SERIAL COMMUNICATIONS PARAMETERS SHALL BE ACCESSIBLE FROM THE FRONT DISPLAY WITHOUT THE USE OF ADDITIONAL PROGRAMMING TOOLS. CONTROLLER SHALL SUPPORT THE ADDITION OF COMMUNICATIONS IN THE FIELD WITHOUT FIELD WIRING MODIFICATIONS.
2. ETHERNET COMMUNICATIONS: CONTROLLER SHALL SUPPORT ETHERNET TCP/IP COMMUNICATIONS VIA AN INTERNALLY MOUNTED AND SELF-POWERED COMMUNICATIONS CARD. ETHERNET SHALL BE 10/100 MBIT, AUTO-SENSING AND SHALL INCLUDE AN RJ45 NETWORK CONNECTOR. ALL ETHERNET COMMUNICATIONS PARAMETERS SHALL BE ACCESSIBLE FROM THE FRONT DISPLAY WITHOUT THE USE OF ADDITIONAL PROGRAMMING TOOLS. CONTROLLER SHALL SUPPORT THE ADDITION OF COMMUNICATIONS IN THE FIELD WITHOUT FIELD WIRING MODIFICATIONS. ETHERNET COMMUNICATION MODULES/CARDS REQUIRING AN EXTERNAL POWER SUPPLY SOURCE ARE NOT ACCEPTABLE.
3. OPEN PROTOCOL: BOTH SERIAL AND ETHERNET COMMUNICATIONS SHALL BE MODBUS PROTOCOL. NON-OPEN/PROPRIETARY COMMUNICATION PROTOCOLS SHALL NOT BE ACCEPTABLE.

P. EXTERNAL POWER SUPPLIES

1. CONTROLLER POWER SUPPLY - THE CONTROLLER SHALL BE CAPABLE OF BEING CONNECTED TO AN EXTERNAL 120VAC POWER SUPPLY TO PERMIT FULL OPERATION OF THE CONTROLLER WHEN BOTH SOURCES (S1 AND S2) ARE DE-ENERGIZED. TRANSFERS SHALL BE INHIBITED UNTIL THE SOURCE(S) RETURN, BUT FULL OPERATION OF THE CONTROLLER AND DISPLAY SHALL BE AVAILABLE. IN ADDITION, CONTROLLER SHALL SUPPORT AN EXTERNAL CUSTOMER SUPPLIED 120VAC SUPPLY INPUT FROM A UPS SYSTEM SUPPLY (OR OTHER AC SOURCE) TO PERMIT CONTINUED MICROPROCESSOR CONTROLS AND COMMUNICATION (ETHERNET AND/OR SERIAL) IN EVENT OF A FAILURE OF BOTH NORMAL AND EMERGENCY SOURCES.
2. POWER SUPPLY FOR CUSTOMER CONTROL INPUTS – CONTROL SYSTEM SHALL PROVIDE 24VDC CONTROL POWER FOR ALL INTERCONNECT CONTROL SIGNAL INPUTS (TEST, INHIBIT TRANSFERS, ETC) TO PERMIT USE OF DRY-TYPE CONTACT SIGNALS WHEN EITHER SOURCE IS AVAILABLE. IN ADDITION, CONTROLLER SHALL SUPPORT AN EXTERNAL CUSTOMER SUPPLIED 24VDC SUPPLY INPUT FROM GENSET STARTING BATTERIES (OR OTHER DC SOURCE) TO PERMIT CONTINUED MONITORING OF CONTROL INPUTS IN EVENT OF A FAILURE OF BOTH SOURCES.

Q. AUTO LOAD SHED
1. THE CONTROLLER SHALL BE CAPABLE OF BEING PROGRAMMED TO AUTOMATICALLY SHED THE CONNECTED LOAD IN THE EVENT OF AN OVERLOAD OF THE GENERATOR SUPPLY.
2. CONTROLLER SHALL HAVE SEPARATE TRIGGERS FOR UNDERVOLTAGE AND OVERLOAD (kW). EACH TRIGGER SHALL HAVE INDIVIDUALLY CONFIGURABLE TIME DELAYS.
3. SWITCH SHALL BE CONFIGURABLE TO EITHER COMMAND THE SWITCH TO A CENTER/OFF POSITION, A DEAD NORMAL POSITION, OR STAY IN THE CONNECTED POSITION UPON ACTIVATION OF THE AUTO LOAD SHED.
4. SWITCH SHALL BE CONFIGURABLE TO PICKUP AN OUTPUT STATUS RELAY UPON ACTIVATION OF THE AUTO LOAD SHED FEATURE. OUTPUT SHALL BE USABLE TO TRIP/ISOLATE DOWNSTREAM LOADS IN THE EVENT OF AN OVERLOAD.
5. RESET OF THE AUTO LOAD SHED FUNCTION SHALL BE VIA OPERATOR RESET ON DISPLAY, REMOTE RESET CONTACT INPUT, OR VIA NETWORK SIGNAL.

PART 4 ADDITIONAL REQUIREMENTS

4.01 WITHSTAND AND CLOSING RATINGS (WCR)

A. THE ATS SHALL BE UL (OR cUL) LISTED IN ACCORDANCE WITH UL 1008 AND IEC CERTIFIED TO 60947-6-1 IN ACCORDANCE WITH EACH STANDARD'S 1½ AND 3 CYCLE. ATSS THAT ARE NOT TESTED AND

LABELED WITH 1½ AND 3 CYCLE (ANY BREAKER) RATINGS ARE NOT ACCEPTABLE.

B. MINIMUM UL & IEC LISTED WITHSTAND AND CLOSE INTO FAULT RATINGS @ 480VAC SHALL BE AS FOLLOWS:

BREAKER* SIZE (AMPS)	ANY 3 CYCLE MOLDED CASE (RMS SYMMETRICAL AMPS)
UP TO 150	10,000
225 - 400	35,000
600 - 1200	50,000
1600 - 4000	100,000

SIZE (AMPS)	CURRENT LIMITING FUSE (RMS SYMMETRICAL AMPS)
UP TO 4000	200,000

*ALL VALUES ARE AT 480 VOLT (UL), 415 VOLT (IEC), RMS SYMMETRICAL, LESS THAN 20% POWER FACTOR.

4.02 TESTS AND CERTIFICATION

A. THE COMPLETE ATS SHALL BE FACTORY TESTED TO ENSURE PROPER OPERATION AND ENSURE THAT THE OPERATING TRANSFER TIME, VOLTAGE, FREQUENCY AND TIME DELAY SETTINGS ARE IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS. PROVIDE COPY OF TEST DOCUMENTS IN THE O&M MANUAL WITH EACH ATS

B. THE MANUFACTURER SHALL PROVIDE A LINE-BY-LINE COMPLIANCE REVIEW DOCUMENT SHOWING THE COMPLIANCE OF THE PROPOSED EQUIPMENT TO THIS SPECIFICATION. ALL EXCEPTIONS AND DEVIATIONS TO THE SPECIFICATIONS SHALL NOT BE PERMITTED WITHOUT APPROVAL BY THE CONSULTING ENGINEER.

C. THE ATS MANUFACTURER SHALL BE CERTIFIED TO ISO 9001 INTERNATIONAL QUALITY STANDARD AND THE MANUFACTURER SHALL HAVE THIRD PARTY CERTIFICATION VERIFYING QUALITY ASSURANCE IN DESIGN/DEVELOPMENT, PRODUCTION, INSTALLATION AND SERVICING IN ACCORDANCE WITH ISO 9001.

D. UL 1008 LISTED AND LABELED.

E. THE ATS MANUFACTURER SHALL PROVIDE CERTIFICATION TO IBC-2006 FOR SEISMIC COMPLIANCE.

4.03 SERVICE REPRESENTATION

A. THE ATS MANUFACTURER SHALL ENSURE LOCAL AND GLOBAL SERVICE CAPABILITY FOR ALL TRANSFER SWITCH PRODUCTS. MANUFACTURER SHALL PROVIDE ACCESS TO QUALIFIED SERVICE TECHNICIANS ON 24 HOURS A DAY, 365 DAYS PER YEAR BASIS. RESPONSE TIME SHALL BE 4 HOURS AFTER RECEIPT OF CONTACT.

B. THE MANUFACTURER SHALL MAINTAIN RECORDS ON THE CONSTRUCTION AND CONFIGURATION AT TIME OF SHIPMENT FOR A MINIMUM PERIOD OF 20 YEARS. IF UPGRADES ARE MADE BY THE MANUFACTURE DURING THE LIFE OF THE PRODUCT, THESE CHANGES SHALL ALSO BE MAINTAINED THROUGH THE LIFE OF THE RECORDS RETENTION TIME PERIOD.

END