



RICHMOND METROPOLITAN TRANSPORTATION AUTHORITY

GENERATOR REPLACEMENTS – 2022 INVITATION FOR BID

ADDENDUM No. 1

May 26, 2022

Each Proposer shall acknowledge receipt of this addendum when submitting their Bid, as indicated below.

CHANGES TO THE AUTHORITY’S INVITATION FOR BID:

1. The Title of this Invitation for Bid, “300 kW Emergency Standby Generators (GEN – 2022)”, including all references within the GEN – 2022 Bid Documents shall be replaced in its entirety with the revised IFB Title shown herein.
 - a. ***“GENERATOR REPLACEMENTS – 2022”***
2. Under Section I, “Purpose”, the first bullet shall be replaced in its entirety with the text shown herein.
 - a. ***Provide three (3) replacement diesel generators without base tanks of the same size located at each of the Authority’s three main toll plazas – Downtown Expressway, Powhite Parkway North and Powhite Parkway South.***
 - i. ***With reuse of the fuel lines to the existing Convault tanks at each location***
 - ii. ***With reuse of the Automatic Transfer Switches (ATS) at each location***
3. Under Section I, “Purpose”, the second bullet shall be amended as shown herein.
 - a. ***“Remove and dispose of, off Authority property, existing generators and existing base fuel tanks.”***
4. Under Section II, “Scope of Work”, shall be amended as shown herein.
 - a. ***“The specifications provided describe the performance requirements and features for the replacement of three (3) existing toll plaza emergency generators. The primary objective of the specifications provided in Attachment***

D is to obtain new generators of equal or more capacity meeting or exceeding all performance specifications and in accordance with all NEC codes. Bidder may propose alternative manufacturer equal to or exceeding generator specifications as stated in Section V, items 8 and 9 on page 7 of these bid documents.

The generators shall be of proven design (no prototypes) from a reputable manufacturer with a proven 5 – year minimum track record of constructing generators of the type desired for a minimum of 5 years. The workmanship must be of the highest quality in its respective field.

Contractor is expected to reuse the fuel lines from the existing Convault tanks and the Automatic Transfer Switches at all locations. The Contractor shall remove and dispose of off Authority property existing generators and base tanks from all locations.

The order of generator installation shall be as follows:

1st – Powhite Parkway North – 125 kW diesel generator

2nd – Downtown Expressway – 125 kW diesel generator

3rd – Powhite Parkway South – 300 kW diesel generator

Contractor is encouraged to work with generator manufacturers to obtain a phased delivery approach of generators in order to mitigate supply chain issues and delivery delays.”

5. Under Attachment D shall be amended and revised as shown herein.
 - a. Revised Title: “300 kW **and 125 kW** Emergency Generator Performance Specifications”
 - b. Amended specifications shall include the performance specifications for a 125 kW diesel generator shown herein attached to Addendum No. 1
6. Under Attachment B, “Bid Tab”, shall be replaced in its entirety with the **revised Bid Tab and revised Contract Time** shown herein attached to Addendum No. 1.

Proposers shall evidence receipt of this Addendum No. 1 by signing below and submitting this notice with their Bid.

Signature

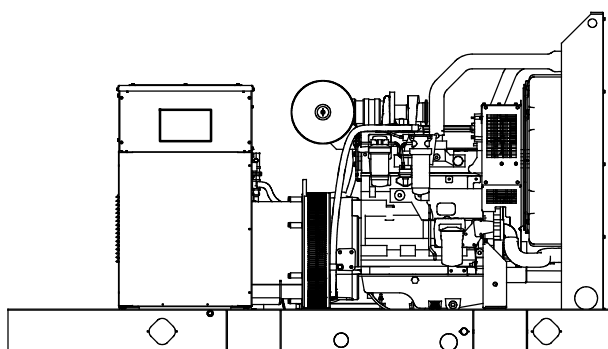
Date



**Tier 3 EPA-Certified for
Stationary Emergency
Applications**

Ratings Range

		60 Hz
Standby:	kW	91-128
	kVA	91-160
Prime:	kW	84-116
	kVA	84-145



Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
 - The unique Fast-Response® X excitation system delivers excellent voltage response and short-circuit capability using a rare-earth, permanent magnet (PM)-excited alternator.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - Kohler designed controllers for one-source system integration and remote communication. See Controllers on page 3.
 - The low coolant level shutdown prevents overheating.
 - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
 - Mount up to three circuit breakers to allow circuit protection of selected priority loads.

Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4R12X	120/208	3	60	124/155	430	114/143	396
	127/220	3	60	125/156	410	114/143	374
	120/240	3	60	124/155	373	114/143	343
	120/240	1	60	91/91	379	84/84	350
	139/240	3	60	125/156	376	114/143	343
	220/380	3	60	112/140	213	104/138	198
	277/480	3	60	125/156	188	114/143	171
	347/600	3	60	125/156	150	114/143	137
4R13X	120/208	3	60	128/160	444	116/145	402
	127/220	3	60	128/160	420	116/145	381
	120/240	3	60	128/160	385	116/145	349
	120/240	1	60	107/107	446	99/99	413
	139/240	3	60	128/160	385	116/145	349
	220/380	3	60	124/155	235	116/145	220
	277/480	3	60	128/160	192	116/145	174
	347/600	3	60	127/158	153	114/142	137
4T13X	120/240	1	60	125/125	521	114/114	475

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. **Standby Ratings:** The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. **Prime Power Ratings:** At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Rare-Earth Permanent-Magnet
Leads: quantity, type	
4RX	12, Reconnectable
4TX	4, 120/240 V
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V 4R12X (12 lead)	448
480 V 4R13X (12 lead)	540
240 V 4T13X (4 lead)	440

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Application Data

Engine

Engine Specifications	
Manufacturer	John Deere
Engine model	4045HF285K
Engine type	4-Cycle, Turbocharged, Charge Air-Cooled
Cylinder arrangement	4 Inline
Displacement, L (cu. in.)	4.5 (276)
Bore and stroke, mm (in.)	106 x 127 (4.19 x 5.00)
Compression ratio	19.0:1
Piston speed, m/min. (ft./min.)	457 (1500)
Main bearings: quantity, type	5, Replaceable Insert
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	147 (197)
Cylinder head material	Cast Iron
Crankshaft material	Forged Steel
Valve material:	
Intake	Chromium-Silicon Steel
Exhaust	Stainless Steel
Governor: type, make/model	JDEC Electronic L16 Denso HP3
Frequency regulation, no-load to full-load	Isochronous
Frequency regulation, steady state	±0.25%
Frequency	Fixed
Air cleaner type, all models	Dry

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m ³ /min. (cfm)	27.0 (953)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	580 (1076)
Maximum allowable back pressure, kPa (in. Hg)	7.5 (2.2)
Exhaust outlet size at engine hookup, mm (in.)	98 (3.86)

Engine Electrical

Engine Electrical System	
Battery charging alternator:	12 Volt
Ground (negative/positive)	Negative
Volts (DC)	12
Ampere rating	65
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating each	One, 800
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	11.0 (0.44)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, fuel pump: type, m (ft.)	Mechanical, 1.8 (6.0)
Max. fuel flow, Lph (gph)	90.0 (23.8)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel prime pump	Manual
Fuel filter	
Primary	30 Microns
Secondary	2 Microns @ 98% Efficiency
Water Separator	Yes
Recommended fuel	#2 Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.) §	13.0 (13.7)
Oil pan capacity with filter, L (qt.) §	13.9 (14.7)
Oil filter: quantity, type §	1, Cartridge
Oil cooler	Water-Cooled
§ Kohler recommends the use of Kohler Genuine oil and filters.	

Application Data

Cooling

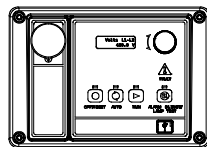
Radiator System	
Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	8.5 (2.25)
Radiator system capacity, including engine, L (gal.)	19.2 (5.1)
Engine jacket water flow, Lpm (gpm)	180 (48)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	72 (4098)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	26.5 (1508)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	660 (26)
Fan, kWm (HP)	7.7 (10.3)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)
* Enclosure with enclosed silencer reduces ambient temperature capability by 5°C (9°F). Snow package enclosure with enclosed silencer reduces ambient temperature capability by 10°C (18°F).	

Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m ³ /min. (scfm)‡	226.5 (8000)
Combustion air, m ³ /min. (cfm)	9.65 (341)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	30.4 (1730)
Alternator, kW (Btu/min.)	13.5 (770)
‡ Air density = 1.20 kg/m ³ (0.075 lbm/ft ³)	

Fuel Consumption		
Diesel, Lph (gph) at % load	Standby Rating	
100%	37.4	(9.9)
75%	29.0	(7.6)
50%	21.1	(5.6)
25%	11.4	(3.0)
Diesel, Lph (gph) at % load	Prime Rating	
100%	34.8	(9.2)
75%	26.9	(7.1)
50%	19.5	(5.1)
25%	10.6	(2.8)

Controllers

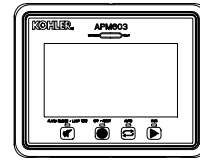


APM402 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-161 for additional controller features and accessories.

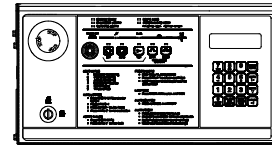


APM603 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- 7-inch graphic display with touch screen and menu control provides easy local data access
- Measurements are selectable in metric or English units
- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Note: Parallel with other APM603 controllers only
- Generator management to turn paralleled generators off and on as required by load demand
- Load management to connect and disconnect loads as required
- Controller supports Modbus® RTU, Modbus® TCP, SNMP and BACnet®
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- UL-listed overcurrent protective device
- NFPA 110 Level 1 capability

Refer to G6-162 for additional controller features and accessories.



Decision-Maker® 6000 Paralleling Controller

Provides advanced control, system monitoring, and system diagnostics with remote monitoring capabilities for paralleling multiple generator sets.

- Paralleling capability to control up to 8 generators on an isolated bus with first-on logic, synchronizer, kW and kVAR load sharing, and protective relays
- Note: Parallel with other Decision-Maker® 6000 controllers only
- Digital display and keypad provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or modem configuration
- Controller supports Modbus® protocol
- Integrated voltage regulator with ±0.25% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-107 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

BACnet® is a registered trademark of ASHRAE.

Standard Features

- Alternator Protection
- Battery Rack and Cables
- Customer Connection
(standard with Decision-Maker® 6000 controller only)
- Local Emergency Stop Switch
- Oil Drain Extension
- Operation and Installation Literature

Available Options

Circuit Breakers

- | Type | Rating |
|---|--|
| <input type="checkbox"/> Magnetic Trip | <input type="checkbox"/> 80% |
| <input type="checkbox"/> Thermal Magnetic Trip | <input type="checkbox"/> 100% |
| <input type="checkbox"/> Electronic Trip (LI) | Operation |
| <input type="checkbox"/> Electronic Trip with Short Time (LSI) | <input type="checkbox"/> Manual |
| <input type="checkbox"/> Electronic Trip with Ground Fault (LSIG) | <input type="checkbox"/> Electrically Operated (for paralleling) |

Circuit Breaker Mounting

- ☐ Generator Mounted
- ☐ Remote Mounted
- ☐ Bus Bar (for remote mounted breakers)

Enclosures for Remote Mounted Circuit Breakers

- ☐ NEMA 1
- ☐ NEMA 3R

Approvals and Listings

- ☐ California OSHPD Approval
- ☐ CSA Certified
- ☐ IBC Seismic Certification
- ☐ UL 2200 Listing
- ☐ Hurricane Rated Enclosure

Enclosed Unit

- ☐ Snow Enclosure (sound enclosure with enclosed critical silencer, intake hood, and electrical package)
- ☐ Sound Enclosure (with enclosed critical silencer)
- ☐ Weather Enclosure (with enclosed critical silencer)

Open Unit

- ☐ Exhaust Silencer, Critical (kit: PA-354809)
- ☐ Flexible Exhaust Connector, Stainless Steel

Fuel System

- ☐ Flexible Fuel Lines
- ☐ Fuel Pressure Gauge
- ☐ Subbase Fuel Tanks

Controller

- ☐ Common Failure Relay
(Decision-Maker® 6000 and APM603 controllers only)
- ☐ Decision-Maker® Paralleling System (DPS)
(Decision-Maker® 6000 controller only)
- ☐ Dry Contact (isolated alarm)
(Decision-Maker® 6000 controller only)
- ☐ Two Input/Five Output Module (APM402 controller only)
- ☐ Four Input/Fifteen Output Module (APM603 controller only)
- ☐ Lockable Emergency Stop Switch
- ☐ Remote Emergency Stop Switch
- ☐ Remote Serial Annunciator Panel
- ☐ Run Relay (standard with APM603, optional with others)
- ☐ Manual Key Switch (APM603 controller only)
- ☐ Manual Speed Adjust (APM402 controller only)

Cooling System

- ☐ Block Heater, 1500 W, 90- 120 V, 1 Ph
Required for ambient temperature below 0°C (32°F)
- ☐ Radiator Duct Flange

Electrical System

- ☐ Generator Heater
- ☐ Battery
- ☐ Battery Charger, Equalize/Float Type
- ☐ Battery Heater

Miscellaneous

- ☐ Air Cleaner, Heavy Duty
- ☐ Air Cleaner Restriction Indicator
- ☐ Certified Test Report
- ☐ Crankcase Emissions Canister
- ☐ Engine Fluids Added
- ☐ Rated Power Factor Testing
- ☐ Rodent Guards

Literature

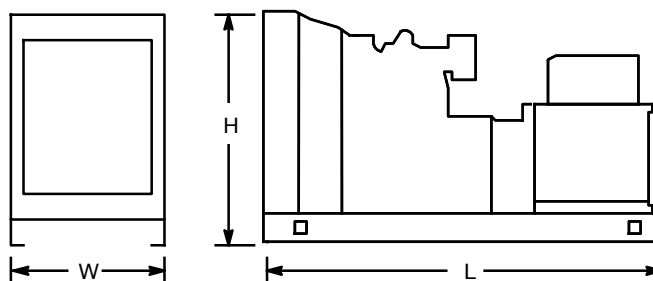
- ☐ General Maintenance
- ☐ NFPA 110
- ☐ Overhaul
- ☐ Production

Warranty

- ☐ 2-Year Basic Limited Warranty
- ☐ 5-Year Basic Limited Warranty
- ☐ 5-Year Comprehensive Limited Warranty

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 2700 x 1120 x 1527
 (106.3 x 44.1 x 60.1)
 Weight (radiator model), wet, kg (lb.): 1270 (2800)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

DISTRIBUTED BY:

BID FORM - REVISED

Date: _____

ITEM NO.	APPROX. QUANTITY	ITEM WITH UNIT PRICE WRITTEN IN WORDS	LOCATION	EXTENDED BID PRICE
1	1	REMOVE AND REPLACE EXISTING 300 kW DIESEL GENERATOR	POWHITE SOUTH	
2	1	REMOVE AND REPLACE EXISTING 125 kW DIESEL GENERATOR – POWHITE NORTH	POWHITE NORTH	
3	1	REMOVE AND REPLACE EXISTING 125 kW DIESEL GENERATOR	DOWNTOWN EXPWY	
4	1	INSTALL TANK MANAGEMENT SYSTEM AND HIGH VOLTAGE MONITORING SYSTEM CONNECT TO EXISTING SIEMENS AUTOMATION SYSTEM TO HAVE THE ABILITY TO BE REMOTELY MONITORED.	POWHITE SOUTH	
5	1	INSTALL TANK MANAGEMENT SYSTEM AND HIGH VOLTAGE MONITORING SYSTEM CONNECT TO EXISTING SIEMENS AUTOMATION SYSTEM TO HAVE THE ABILITY TO BE REMOTELY MONITORED.	POWHITE NORTH	
6	1	INSTALL TANK MANAGEMENT SYSTEM AND HIGH VOLTAGE MONITORING SYSTEM CONNECT TO EXISTING SIEMENS AUTOMATION SYSTEM TO HAVE THE ABILITY TO BE REMOTELY MONITORED.	DOWNTOWN EXPWY	
7	3	3 YEAR EXTENEDED WARRANTY	ALL LOCATIONS	
BID PRICE TOTAL				\$

CONTRACT TIME: 90 DAYS FROM RECIEPT OF GENERATORS AND CONTRACT COMPLETION SHALL NOT EXCEED 365 CALENDAR DAYS.

LIQUIDATED DAMAGES: \$200/CALENDAR DAY

By signing the attached, the bidder certifies that a copy of the Contract Documents is in the Bidder's possession, and that all work called for in the Contract Documents will be done in accordance with these Contract Documents. The Bidder also certifies that they will perform at least 51% of the work by value, and must submit, as part of the bid, a list of any sub-contractor doing work, the extent of work that will be performed and the dollar value of the work.

NOTE: If Bidder is a corporation, write state of incorporation under signature.

The undersigned hereby initialing, and dating acknowledges the receipt of the following Addenda to the Contract Documents.

Addendum No. 1: _____ (initial and

date) Addendum No. 2: _____ (initial and

date)

Addendum No. 3: _____ (initial and date)

BIDDER'S REGISTRATION AND SIGNATURE

Contractor: _____

Address: _____

Telephone _____

Name of Officer _____

Signature of Officer _____