

**ATTACHMENT 2 TO
KYMEA RFP No. 2023-1
DIVISION OF RESPONSIBILITY**

Instructions to Proposer:						
Please provide quantities where applicable						
Note any exceptions to delineated scope						
All engines to be identical size and model						
Category	Description		Single Fuel Option QTY	Dual Fuel Option QTY	Responsibility of Proposer	Responsibility of KYMEA
PRIME MOVER AND GENERATOR ACCESSORIES						
	ENGINE GENERATOR					
		-Engine			•	
		-Generator: 60 Hz			•	
		-Flexible shaft coupling and OSHA guard			•	
	BASE FRAME FOR ENGINE AND GENERATOR					
		-Common base frame engine part			•	
		-Common base frame generator part			•	
		-Steel springs (set)			•	
		-Fastening equipment (set)			•	
		-Seismic restraints (set)			•	
	FLEXIBLE CONNECTIONS - ENGINE TO AUXILIARIES					

**ATTACHMENT 2 TO
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		-Lubricating oil (set)			•	
		-Fuel connections			•	
		-Cooling water expansion joints (set)			•	
		-Exhaust gas expansion joints - engine to exhaust duct			•	
		-Combustion air expansion joints (set)			•	
		-Instrument air (set)			•	
		-Starting air (set)			•	
	ENGINE GENERATOR PLATFORMS AND STAIRS					
		-Engine maintenance platforms, (permanently fixed type)			•	
		-Engine generator access walkway			•	
		-Stair sets located on ends of engine groups			•	
MECHANICAL AUXILIARY SYSTEMS						
	AUXILIARY MODULES					
	Engine piping module				•	
		- Lubricating oil automatic filter			•	
		- Lubricating oil cooler			•	
		- Pre lubricating oil pump			•	
		- Pre heating unit			•	

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		- Thermostatic valve lubricating oil back-pressure			•	
		- Thermostatic valve high temperature			•	
		- Thermostatic valve low temperature			•	
		- Piping and insulation			•	
		- Valves and gauges			•	
		- Module control panel			•	
	Exhaust module				•	
		- Low temperature cooling water loop expansion tank			•	
		- High temperature cooling water loop expansion tank			•	
		- Charge air silencer			•	
		- Exhaust gas branch pipe			•	
		- Exhaust module supports			•	
	Exhaust duct purge fan				•	
		- Isolation damper			•	
		- Instrumentation and controls			•	
		- Piping			•	
		- Insulation				•
	Auxiliary module platform					•
	FUEL GAS SYSTEM					

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		-Main safety shut off valve				•
		-Station gas coalescing filter				
		-Station gas revenue meter				•
		-Station gas filter				•
		-Station gas heater				•
		-Station gas pressure regulation				•
		-Station gas over-pressure protection				•
		-Engine flow meter				•
		-Fuel gas regulating module - each engine			•	
		- Regulating valves			•	
		- Filter			•	
		- Safety Shut-off valves			•	
		- Safety vent valves			•	
		- Manual shut-off valves			•	
		- Steel rack / frame fabrication for fuel gas			•	
	FUEL OIL SYSTEM (Dual Fuel Option Only)					
		-Main safety shutoff valve			•	
		-Supply flow meter			•	
		-Supply pumps			•	

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		-Circulating pumps			•	
		-Fuel oil preheater			•	
		-Filter			•	
		-Viscosity controller			•	
		- Steel rack / frame fabrication for fuel gas			•	
		-Fuel oil storage tank				•
		-Fuel oil storage tank transfer piping				•
	LUBRICATING OIL SYSTEM					
		-Lubricating oil unloading pump and driver skids				•
		-Lubricating oil filter (truck unloading)				•
		-Lubricating fresh oil storage tank				•
		-Lubricating oil service storage tank				•
		-Lubricating waste oil storage tank				•
		-Lubricating oil loading pump and driver skids				•
		-Lubricating oil transfer pump unit (mobile)			•	
		-Lubricating oil transfer pump unit (stationary)			•	
		-Crankcase oil demister			•	
	COMPRESSED AIR SYSTEMS					

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		Starting air receivers				•
		Starting air compressor unit				•
		Instrument & process air compressor unit				•
		Instrument & process air dryers				•
		Instrument & process air wet receiver				•
		Instrument & process air dry receivers				•
	COOLING SYSTEM					
		-Engine cooling water radiators with electric fan drives			•	
		-Cooling radiator access ladders and perimeter railings			•	
		-Cooling radiator supports to foundation				•
		-Water mixing tank unit (fresh water)				•
		-Motor control center enclosure-radiator starters and fan drives				•
	COMBUSTION (CHARGE) AIR SYSTEM					
		-Charge air filter			•	
		-Charge air ducts between air filters and engines (set)				•
	EXHAUST SYSTEM					
		-Exhaust gas silencer, 35 dBA peak attenuation			•	

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		-Expansion joint (upstream of exhaust gas silencer)			•	
		-Expansion joint (downstream of exhaust gas silencer)			•	
		-Engine outlet ducts to mixing duct inlet			•	
		-Flue gas ducts (outlet SCR to stack)			•	
		-Expansion joint (upstream of SCR)			•	
		-Expansion joint (downstream of SCR)			•	
		-Safety vent counter flanges including rupture disks for all exhaust ducts			•	
		-Rupture disk weather cover			•	
		-Insulation exhaust gas ducting (set)			•	
		-Stack section			•	
		-Exhaust system supports				•
	SELECTIVE CATALYTIC REDUCTION SYSTEM AND CO CATALYST SYSTEM					
		SCR system with Oxidation catalyst				
		- Mixing duct and mixers			•	
		- Reactor housing			•	
		- Catalyst elements			•	
		- Oxidation catalyst elements			•	
		- Reducing agent injection system			•	
		- Reducing agent dosing system			•	

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		- Control and automation system			•	
		- Reducing agent pump station			•	
		Insulation and cladding SCR module				•
		Reducing agent storage tank and accessories				•
GENERATOR ELECTRICAL AUXILIARIES						
	Generator Main Terminal Box				•	
		- CT's for generator protection, set			•	
		- CT's for generator differential protection, set			•	
		- CTs and VTs for Voltage regulator			•	
		- Roxtec cable glands			•	
	Generator Surge Protection				•	
		- Surge arrestors			•	
		- Surge capacitors			•	
	Voltage regulator				•	
CONTROL SYSTEM						
	WORKSTATIONS					
		-PLC operator's workstation			•	

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		-Control system operator's workstation			•	
		-Control system engineer's workstation			•	
		-Historian workstation				•
		-Uninterrupted power supply (UPS)			•	
	CONTROL PANELS					
		-Station Programmable Logic Controller (Plant Control System)			•	
		- Data logger			•	
		- Automatic Generation Control			•	
		- Modbus connections to Owner's DCS			•	
		-Central common control panel			•	
		-Central generating set control panel			•	
		-Generator protection relay				•
	CABLES					
		-All intra-system communication cabling			•	
ELECTRICAL SYSTEMS						
	MEDIUM VOLTAGE SYSTEM					
		13.8 kV Switchgear Line-ups				•
		- Generator breaker cubicles				•

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		- Bus tie breaker cubicle				•
		- GSU feeder breaker cubicles				•
		- Station auxiliary transformer feeder breaker cubicle				•
		- CT's for Generator Differential protection, set				•
		- CT's for GSU protection, set				•
		- CT's for bus differential, set				•
		- PT's for bus and line side voltage				•
		- PT's for GSU revenue metering, set				•
		- Metering class CT's for breakers, set				•
		- Bus differential relay				•
		- Bus lockout relay for bus differential (5 Deck LOR)				•
	STATION SERVICE SYSTEM (LV SYSTEM)					
		-Station auxiliary transformers				•
		-Low Voltage metal-enclosed switchgear line-ups with draw-out power circuit breakers				•
		-Black start genset(S)				•
		-Motor Control Centers				•
		-Radiator motor starter panels			•	
		-VFD drives (for cooling radiator motors)			•	

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	DC SYSTEM					
		-DC system for Supplier's engine and auxiliary controls			•	
		- DC Battery			•	
		- Battery chargers (n+1 modules of rectifiers each)			•	
		-DC system for MV and LV switchgear control				•
		-DC system for switchyard control				•
	NEUTRAL GROUNDING SYSTEM					
		-Neutral grounding resistor			•	
		-Neutral CTs			•	
	HIGH VOLTAGE SYSTEM					
		-Generator Step-up Transformers				•
		-High Voltage Switchyard				•
TOOLS						
		-Engine maintenance specialty tools			•	
		-Engine hand tools			•	
		-Specialty tools for turbocharger			•	
CIVIL AND STRUCTURAL						

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	ENGINE BUILDING					
		-Foundations engine building				•
		-Superstructures engine building , furnish and install				•
		-HVAC furnish and install				•
		-Maintenance cranes engine building, furnish and install				•
		-Engine access/maintenance platforms, furnish			•	
		-Seismic limiters/shock absorbers, furnish (if required)			•	
	SUPPORTING STRUCTURES					
		-Exhaust module support structure			•	
		-SCR support structure				•
		-Silencer/stack support structure				•
		-Radiator support structure				•
		-Ventilating fans support structure				•
		-Handrail around radiator equipment			•	
	ENGINEERING AND DOCUMENTATION					
	SURVEYS AND INVESTIGATIONS					
		-Geotech investigation				•

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	ENGINEERING MANAGEMENT					
		-Engineering management of engineering activities supplied by Proposer			•	
		-Constructability review / design review for Proposer scope			•	
		-Prepare and maintain Proposer engineering, procurement, site services schedule			•	
	PROPOSER ENGINEERING					
		-Process engineering of items supplied by Proposer			•	
		-Mechanical engineering of items supplied by Proposer			•	
		-Electrical engineering of items supplied by Proposer			•	
		-Civil / structural engineering of items supplied by Proposer			•	
	DOCUMENTATION					
		Conceptual Design Documents				
		-Site layout drawing, Proposer proposed			•	
		-Power house plan and section drawings, Proposer proposed			•	
		-Process main flow diagrams			•	
		-Main single line diagram			•	
		-Generator Electrical Data			•	

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		-Control System I/O Listing			•	
		Certified Design Documents				
		-Process main flow diagrams and device lists			•	
		-Main single line diagram			•	
		-Front layout and schematic/wiring of all electrical panels and cabinets			•	
		-Dimensional drawings of major equipment			•	
		-Generating set drawing				
		-Dimensional drawing of engine generator set foundations				
		-Control System I/O Listing			•	
		-Generator protection relay settings			•	
		-Generator protection relay settings program files			•	
		-Off-site inspection and test plan (quality plan)			•	
	CONSTRUCTION AND COMMISSIONING DOCUMENTS					
		-Site quality plan for Proposers scope			•	
		-Site safety plan for Proposers scope			•	
	COMMERCIAL OPERATION DOCUMENTS					
		-Station manuals in English (set)				

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		-Two hard copy sets in binders			•	
		-On digital media (DVD)			•	
		-Installed into Proposer Information System			•	
TRANSPORTATION OF ITEMS SUPPLIED BY PROPOSER						
	MATERIAL AND SERVICES FOR LOGISTICS					
		-Packing and marking of equipment			•	
		-Arranging of export license or other export authorization (if reqd)			•	
		-Notification to Owner of time and place of delivery of equipment			•	
	COLLECTION TRANSPORT					
		-Loading of equipment at place of manufacturing (mfg)			•	
		-Transportation of equipment from place of mfg to place of shipment			•	
		-Transport insurance from place of mfg to place of shipment				
		-Unloading equipment at place of shipment			•	
		-Containerizing of loose cargo at place of shipment			•	
		-Pre shipment inspection			•	
		-Pre shipment inspection assistance			•	
		-Loading of equipment on Ship at port / place of shipment			•	

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		-Fixing cargo on Ship			•	
	MAIN TRANSPORT					
		-Engaging and instructing freight forwarder			•	
		-Arranging of bill of lading			•	
		-Preparation of origin country documents req'd for destination customs clearance			•	
		-Transportation of equipment from port / place of shipment to place of destination			•	
		-Main transport / freight insurance			•	
		-Unloading of equipment at port / place of destination			•	
		-Arrange import license or import permit			•	
		-Import duty			•	
	SITE TRANSPORT including Rail and Over the road as required					
		-Transport route preparation (if required)			•	
		-Bridge and road reinforcements			•	
		-Removal of obstacles - generators only			•	
		-Loading of equipment on truck at port			•	
		-Transportation of equipment from port to project site			•	
		-Transport insurance from warehouse to project site			•	

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		-Unloading of generator sets at final destination			•	
		-Unloading of other equipment at final destination			•	
		-Placing of generator sets on foundation			•	
		-Destination inspection (if required)			•	
		-Destination inspection assistance				•
PROJECT MANAGEMENT						
		-Proposer project mgmt team (on/off site)			•	
CONSTRUCTION MANAGEMENT						
	TECHNICAL ASSISTANCE DURING INSTALLATION					
		-Mechanical field service representative			•	
		-Electrical field service representative			•	
		-Civil field service representative			•	
COMMISSIONING AND START-UP						
	INITIAL FILLINGS					
		-Initial fillings of lubricating oil				•
		-Initial fillings fresh engine water				•

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	TECHNICAL ASSISTANCE DURING INSTALLATION, TESTING AND COMMISSIONING				•	
		-Commissioning manager			•	
		-Mechanical technical advisor			•	
		-Electrical technical advisor			•	
		-PLC programmer			•	
		-NOx technical advisor			•	
		-Engine automation and instrumentation tuning			•	
WARRANTY PERIOD						
	TECHNICAL ASSISTANCE DURING TESTING AND COMMISSIONING					
		-Control System Technician during Warranty Period			•	
TESTING PROCEDURES						
	FACTORY TESTING					
		-Engine test according to standard program			•	
		-Third party inspectors (if required)				•
	CUSTOMER WITNESS FACTORY TESTING					
		-Allowance for KYPEA personnel				•

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		-Travel for KYPEA personnel				•
		-Board and lodging for KYPEA personnel				•
		-Local transportation for KYPEA personnel				•
	TESTS AND COMPLETION AT SITE					
		-Third party inspectors (if required)				•
		-Lubricating oil during start-up and commissioning				•
		-Fresh engine water during start-up and commissioning				•
TRAINING						
	TRAINING AT PROPOSER FACILITY					
		-Advanced engine training course, 10 persons, 5 days			•	
	TRAINING AT SITE					
		-Operation and maintenance training, 10 persons, 5 days			•	
		-Electrical training, 10 persons, 5 days			•	
SPARE PARTS						
		-Spare parts warranty to start when parts are installed			•	
		-Complete set of recommended spare parts			•	

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OPERATIONS AND MAINTENANCE CONTRACT SERVICES						
		-Provide O&M services for a 3 year period w/two one year extension options			•	
LONG TERM SERVICE AGREEMENT						
		-Provide pricing and term for a long term service agreement for all engines			•	