



عطاء توريد وتركيب وتشغيل مولدات كهرباء (40 – 50 KVA)

عدد (٢)

Civil Aviation Regulatory commission (CARC) wants to purchase, Install, operate and Commission **two 40-50 KVA standby diesel generators with two ATS panels**

GENERAL:

1. CARC wants to purchase, install, operate and commission two standby generators with the following capacities:

Type	Capacity required	Station	Location
Standby diesel generator	40-50 KVA	AMN DVOR	Ruseifeh
	40-50 KVA	Abu Alanda VHF	Abu Alanda

2. The company should provide CARC with a design drawing for electrical, mechanical, and safety work before the work starts for the CARC's approval and an as-built drawing after implementation of the works.
3. Site survey is required: The supplier shall visit the locations to identify and evaluate the work prior to submitting his offer. Work will be according to the operations affording hours, which shall be into consideration by the contractor.
4. All related documents should be submitted to CARC such as material data sheets, priced spare parts list, maintenance manuals, operations manuals, and project's Action plan.
5. The company shall provide CARC with **action plan before implementation the project** defining precise and detailed tasks to be performed with specified milestones as this document will be part of CARC assessment.
6. The project includes all electrical, mechanical and safety work and all needed actions to implement the project.
7. The supplier shall design and install new earthing system for the generator set (all metal parts shall be connected to the new earthing system). The earthing system shall achieve a maximum earth resistance of $\leq 5 \Omega$ measured at site. All earthing conductors shall be copper, sized according to IEC requirements, and connected to a new earth pit.
8. Generator shall be equipped with Earth Fault Protection (IEC 60255).
9. The contractor shall uninstall the existing old Genset in **Ruseifeh** and install the new Genset instead of.
10. The Contractor shall install a new generator at **Abu Alanda** to operate as a standby generator. The Contractor shall ensure proper synchronization between the new and existing generator through a new ATS, in which the new generator shall operate as the master and the existing generator as the slave. **A new external door opening shall be created in the generator room wall and install a fire-rated door with louvered ventilation openings**, the scope of work shall include all required civil, electrical, and mechanical works.
11. Supply and install additional fuel tank (1000 liters) with automatic transfer for Abu Alanda site.
12. Financial offer should include two generators with all required cables and ATS (motorized changeover) with all required installations for an optimum operation of the generators
13. The financial offer should include buyback price for the existing old generator in Ruseifeh and deducted from the total price
14. Well-known brand of Engine and Alternator with at least five references for installation in Jordan shall be provided.
15. Technical offer should explain each item required in the form below in detail (comply, provided, included, refer to... etc.)

16. Technical offer will be studied according to the answers and comments, which must be filled in our specification form below.
17. The company shall submit as-built drawings from at least one previous project involving the same type of diesel generator as required in this tender, for CARC's review and reference.
18. The company shall assign a dedicated project team leader who will be responsible for supervising and coordinating all electrical and installation works throughout the project duration (certification and qualifications of project team leader shall be provided).
19. The company shall provide documented qualifications and proven experience of the assigned project team. The assigned staffs shall not be changed or replaced during the project unless formally requested or approved by CARC.
20. All installation works shall be executed in full compliance with applicable international standards (e.g., IEC, ISO, NFPA as relevant) and subject to CARC approval.

Specification Compliance Table

Item no.	Required specifications	Comply (Yes/ No)	Notes
(1)	Manufacturer: to be mentioned		
(2)	Brand name: to be mentioned		West-European preferred
(3)	Origin (Engine & Alternator): to be mentioned		
(4)	Model No.: to be mentioned		
(5)	Brand new, manufacturing date: to be mentioned		
(6)	A- Generator		
	1. Rating: (40-50) kVA standby rated.		
	2. Voltage: 400 volts.		
	3. Frequency: 50 Hz.		
	4. Power factor: not less than 0.8		
	5. Type of generator: 3 phase synchronous generator, 4 poles.		
	6. Generator current: to be mentioned		
	7. Winding insulation: class H.		
	8. Electronic Automatic Voltage Regulator (AVR): Max. Voltage regulation: $\pm 3\%$ (at full load).		
	9. Anti-vibration system: to be specified.		
	10. The electric generator should be driven via a diesel engine.		
	B- Control box		
	1. PLC to operate and control the generation unit with GSM SCADA system.		
	2. The following switches should be included: - Stop/rest - Manual operation - Auto operation -Test - Start (main start switch) - Emergency stop button.		
	3. Provided with Molded Case Circuit Breaker (MCCB) 3-poles, type-tested.		
	4. Should consist the following parameters: A) A voltmeter for each line. B) An ammeter for each line. C) A frequency meter. D) A working hour meter. E) An oil pressure reader. F) Fuel level indicator. G) Battery voltage H) Generator speed I) Audible alarm for faults J) Fault history K) An engine temperature reader. L) An illumination for night operation. M) Battery conditions indicator.		

5. All necessary safety devices, and switches should be specified in details including these parameters: A) Low oil pressure B) High/low water temp. C) Low fuel level. D) Over/low speed. E) Over temperature. F) High/low voltage. G) Over current. H) Water low level.		
6. Power and control circuit diagram should be provided inside the control box.		
C- Charging system		
1. Charging system should be: A) (240 V AC - 12/24V DC) for the battery provided with an automatic cut out device to stop charging when the battery is fully charged. B) Automatic (12/24V) battery charger		
D- Diesel engine		
1. Brand : to be mentioned.		West-European preferred
2. Diesel engine should be: - Brand new, manufacturing date: to be mentioned.		
3. Engine: (4-stroke, No. of cylinders): to be mentioned. - Engine Capacity: to be mentioned.		
4. Power output: capable to give the required KVA (to be mentioned) - Performance chart: to be submitted.		
5. Engine is direct coupled to the alternator		
6. Engine speed: 1500 rpm.		
7. Electronic speed governor.		
8. Injection system should be described in details.		
9. Fuel system shall be provided with a primary fuel water separator filter in addition to standard fuel filters.		
10. Provided with: - Water Jacket Heater.		
11. Oil drain pump to be provided.		
12. Internal fuel tank capacity: to be mentioned. - Tank location should be beneath the engine.		
13. Jordanian diesel standard compatibility.		
14. Fuel consumption at 100% (full load): (to be mentioned).		
15. Cooling system (water, air or oil) should be mentioned.		
E- Automatic Transfer Switch/ATS		
Electric Motorized changeover - 4 poles (ATS Panel) suitable with generator current and operated with electrical and mechanical interlocking for operation.		QTY = 2

(7)	General		
	A) The generator should be able to work continuous for minimum of 8 hours at full load without refilling the integrated diesel tank & the supplier should provide external diesel tank (1000 L) with automated fuel supply unit (Abu Alanda site)		
	B) The supplier should guarantee supplying of spare parts (Min. of 10 years from time of delivery).		
	C) Supplier should hold a high-quality maintenance and operation technical training course internally (locally, a must), and externally (optional), (at the country of the origin of generator).		
	D) Supplier should ensure install and fixed all generator components.		
	E) Operation, spare parts, workshop and maintenance manuals should be provided. (E-Catalogues).		
	F) Providing a list of recommended spare parts for the Engine, Alternator, ATS, etc. with fixed prices.		
	G) Preventive maintenance shall be provided and mentioned in details		
	H) Changing engine oil and filters services for free for 3 years: to be specified in details		
	I) The preventive and corrective maintenance shall be done by the specialized expert engineer / Technicians.		
(8)	Warranty		
	Three years warranty shall be provided		
	During the warranty, at least two visits per year for preventive/ Corrective maintenance shall be done		
(9)	Standards and certifications		
	Generator set performance (ISO 8528)		
	Alternator class H insulation (IEC 60034)		
	Switchgear /ATS Type-tested IEC 61439		
	Protection devices (IEC 60255)		
	CE Marking (EU)		
	Alternator and engine type test certificates shall be provided.		