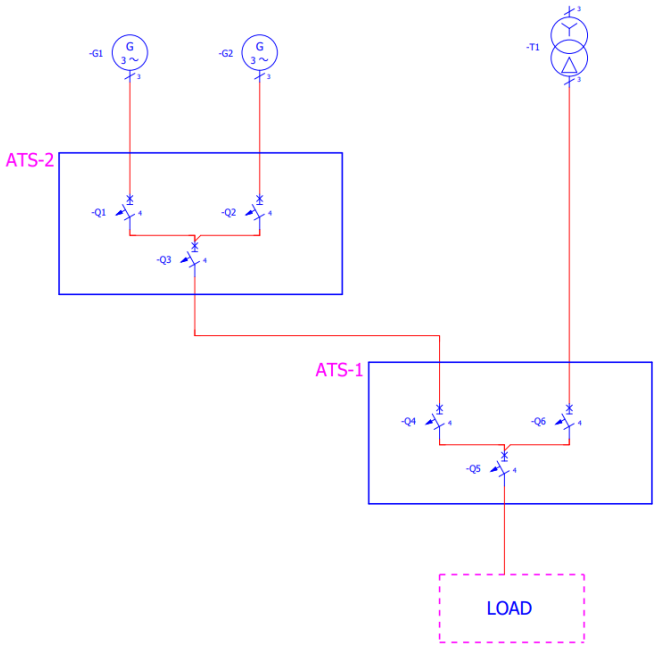
توريد وتركيب وتشغيل مولد كهربائي (44 – 50 KVA) في موقع الرادار / مطار الملكة علياء الدولي

Directorate of Communication, Navigation, Surveillance
Maintenance & Support Services for CNS Systems

Civil Aviation Regulatory commission (CARC) wants to purchase, Install, operate and Commissioning 44-50 KVA standby diesel generator

GENERAL:

- The company should provide CARC with a design drawing for civil, electrical, mechanical, and safety work before the work starts for the CARC's approval and an as-built drawing after implementation of the works.
- Site survey is required: The supplier shall visit the location 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.
- 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.
- The project includes all civil, electrical, mechanical and safety work and all needed actions to implement the project.
- The contractor shall uninstall the existing old generator and install the new one instead of.
- The offered generator shall synchronize work with the existing generator where installed in the site.
- The supplier shall provide two ATS panels with PLC to automate the operation of the standby generators as shown in the figure:



- All on-site electrical loads must be connected to the ATS (1), In case of main power failure, ATS (1) automatically switches the power supply from the main source to a backup generator operated by ATS (2)
- ATS (2) shall operate the standby generator based on PLC as follows:
  a. If one of the generators fails, ATS (2) must start the other generator
  b. In case of a long-term power outage, each generator must be operated alternately for 6 hours.

- Supply and install additional fuel tank (1000 liters) and connecting it to the generator with diesel sensor that used to measure the diesel level in storage tanks.
- financial offer should include generator, two ATS panels, required cables that connect the generators with ATS and all required installations for an optimum operation of the generators
- The financial offer should include buyback price for the existing old generator and deducted from the total price
- Well-known brand of Engine and Alternator with at least three references for installation shall be provided.
- Technical offer should explain each item required in the form below in detail (comply, provided, included, refer to... etc.)
- Technical offer will be studied according to the answers and comments, which must be filled in our specification form below.
- The company should provide a full package generator.

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Specification Compliance Table

Item no.	Required specifications	Comply (Yes/ No)	Points	Notes
1	Manufacturer: to be mentioned			
2	Brand name: to be mentioned		/20	20 for European brand.
3	Origin (Engine & Alternator): to be mentioned		/10	10 for European brand.
4	Model No.: to be mentioned			
5	Brand new, manufacturing date: to be mentioned			
6	**A- Generator**			
	1. Rating: (44-50) 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: ±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 Breakerr (MCCB) 3-poles			

	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.		/20	20 for European brand.
	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. Mechanical speed governor.			
	8. Injection system should be described in details.			

	9. Provided with: - Water Jacket Heater.			
	10. Oil drain pump to be provided.			
	11. Internal fuel tank capacity: to be mentioned. - Tank location should be beneath the engine.			
	12. Jordanian diesel standard compatibility.			
	13. Fuel consumption at 100% (full load): (to be mentioned).			
	14. Cooling system (water, air or oil) should be mentioned.			
	E- Automatic Transfer Switch/ATS			
	1- Electric Motorized changeover - 4 poles (Two ATS Panels) suitable with generator current and operated with electrical and mechanical interlocking for operation. **PLC should be provided with each ATS.**			
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 and the supplier should provide external diesel tank (1000 L) with automated fuel supply unit.			
	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.			
	F) Operation, spare parts, workshop and maintenance manuals should be provided. (E-Catalogues).			
	G) Providing a list of recommended spare parts for the Engine, Alternator, ATS, etc. with fixed prices.			
	H) Preventive maintenance shall be provided and mentioned in details			
	I) Changing engine oil and filters services for free for 3 years: to be specified in details			
	J) 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	Total		/100	