

## Section I: Instructions to Bidders

<b>A. General</b>	
<b>1. Scope of Bid</b>	1.1 Kadhdhoo Airport Company Limited requests quotations for 315KVA generator set in accordance with <b>Section III, Technical Specifications</b>
	1.2 It is in Kadhdhoo Airport Company Limited's discretion to cancel the bid invitation mentioned in 1.1 at any time.
<b>2. Eligible Participants</b>	2.1 Local companies registered in Maldives are eligible to participate in the tender
<b>B. Preparation of the Bid</b>	
<b>3. Bid Prices</b>	3.1 The unit price of each item and the total price shall clearly be indicated in the quotation
	3.2 All items shall be quoted in the bid (refer to <b>Section III, Technical Specifications</b> for the details of required items)
<b>4. Currency</b>	4.1 The bidder shall quote entirely in Maldivian Rufiyaa
<b>5. Validity of Bids</b>	5.1 Quotation shall remain valid for minimum sixty (60) days from the date of bid opening.
<b>6. Technical Compliance</b>	6.1 If the goods do not comply with the requirements mentioned in <b>Section III, Technical Specifications</b> , the bid will be rejected during evaluation.
<b>7. Documents Comprising the Bid</b>	7.1 Quotation (inclusive of the delivery period and payment terms)
	7.2 Specifications of the offered product
	7.3 Certificate of Authenticity specifying that manufacturer / assembler is an OEM of a genuine reputed international engine brand
	7.4 Details of the company <ul style="list-style-type: none"> <li>▪ Company profile/background</li> <li>▪ Company registration certificate</li> <li>▪ GST registration certificate (for local bidders only)</li> <li>▪ TAX clearance report (6 months validity)</li> <li>▪ Contact details (name, designation, mobile number and e-mail address)</li> </ul>
	7.5 Experience letters, <ul style="list-style-type: none"> <li>▪ Letters within past five (5) years</li> <li>▪ Relevant experience letters</li> <li>▪ Letters with project name and value</li> </ul>
	7.6 Bids lacking the documents above are subjected to be rejected during the bid opening

<b>8. Format of Bid</b>	<p>8.1 The Bidder shall submit two (2) sets of the bid document (1 original and 1 copy), enclosed separately in two envelopes and sealed with company stamp</p> <p>8.2 All pages of the bid document shall be stamped and bound properly</p>
<b>C. Bid Submission</b>	
<b>9. Sealing and Marking Bid Document</b>	9.1 The bid document shall be sealed properly in an envelope clearly marked 'ORIGINAL' or 'COPY', with the name of the company and the tender reference number ((IUL)KACL-KDO/2022/03)
<b>10. Bid Opening</b>	<p>10.1 The bids will be opened on 27 January 2022, 10:00am in the presence of bidders</p> <p>10.2 Bids will be opened at:</p> <ul style="list-style-type: none"> <li>• Male Office Kadhdhoo Airport Company Limited Ameer Ahmed Magu, K. Male', Republic of Maldives</li> <li>• Kadhdhoo Airport Office Kadhdhoo Airport Company Limited Kadhdhoo Airport , L.Kadhdhoo</li> </ul> <p>10.3 Bids received electronically will not be accepted</p>
<b>11. Bid Rejection</b>	<p>11.1 Bidders that arrive after bid submission deadline shall not be able to participate in the bid</p> <p>11.2 Bids lacking the documents mentioned in "7. Documents Comprising the Bid" except (7.5 Experience letters) and those that do not comply with "8. Format of Bid" are subjected to be rejected.</p>
<b>D. Awarding of Contract</b>	
<b>12. Payment Terms</b>	12.1 An advance will not be released for this project
<b>13. Factory Acceptance Testing</b>	13.1 Refer to <b>Section III, Technical Specifications (8.0)</b>

## Section II: Evaluation Criteria

### A. Proposal Cost: 70 points for the lowest price

- $(\text{Lowest price} / \text{proposed price}) \times 70$

### B. Delivery: 20 points for the lowest delivery period

- $(\text{Intended completion period} / \text{proposed delivery period}) \times 20$

The intended completion period of the project is 30 days. Bidders may propose a completion period for the project. Full marks for the completion period will only be awarded to bidders who propose to complete the project within the intended completion period proposed by KACL. The intended completion period is the baseline for the completion of the project. If the completion period is longer than the proposed completion period by KACL, marks will be awarded to the ratio intended completion period to longest credit period.

**C. Credit Period: 10 points for the maximum credit period**

- $(\text{Proposed credit period} / \text{longest credit period}) \times 10$

**Note:** Any discrepancy in technical details specified in quotation with technical specification document, the specification shall prevail.

## Section III: Technical Specifications

### PART I - GENERAL TECHNICAL REQUIREMENTS

#### 1.0 Composition

The Diesel Generator Units (DG Unit) shall consist of the following;

- Diesel Prime Power Generator Set
- Primary stage Silencer
- Secondary stage Silencer
- Silencer connections with flexible (bellow) pipe
- Battery Set
- Earth Stud
- Spring Anti Vibration Mounts
- Service Manual
- Parts catalog
- Operators Manual

The DG Unit shall be supplied as a complete pre-integrated and pre-assembled unit.

#### 2.0 Manufacture

The DG Unit shall be internationally reputed make and shall be supplied from the original manufacturer. Favourable advantages are considered for the brands whose aftersales services and consumables are locally available in Maldives.

#### 3.0 System Conditions

The DG set shall be designed to be operated under following system parameters;

Nominal System Voltage	400 V / 230 V
Highest System Voltage	440 V / 253 V
Number of Phases	3 Phase, 4 wire
Frequency	50Hz
Neutral Point	Solidly Earthed
Control	DSE control module

## **PART II - PARTICULAR TECHNICAL REQUIREMENTS**

### **1.0 Standards**

The DG Units shall be designed, manufactured and tested in compliance with the latest versions of the following standards;

- Rotating Electrical Machines (IEC 60034)
- Thermal Evaluation and Classification of Electrical Insulation (IEC 60085)
- Degrees of Protection provided by Enclosures (IP Code) (IEC 60529)
- Specification for Mechanical Performance: Vibration (ISO 10816)
- Specification for Reciprocating Internal Combustion Engines (ISO 3046)
- European Commission (dangerous substances) (SI 426)
- Congress International des Machines a Combustion Recommendations for Diesel Engine Acceptance Tests (CIMAC)
- Quality assurance (ISO 9000)

### **2.0 Ratings:**

The DG Units shall be rated for: Prime Power, 400 V AC, 3 Phase, 50 Hz, and P.F 0.8.

Required rated Prime Power Capacity (KVA) is given below.

- 1) 315 KVA

### **3.0 Diesel Engine**

The diesel engine shall comply with the specified International IEC Standards or an equivalent international standard and shall be of the four-stroke, multi-cylinder, water-cooled, cold start, direct fuel injection, compression ignition, and preferably turbo-charged type. The crankshaft speed shall not exceed 1500 RPM.

#### **Speed Governor:**

The governor is to be fitted with speed control facilities to enable the **engine speed to be adjusted from the hand trimmer fitted in the local control panel.**

#### **Cooling System:**

The cooling system shall be filled with chemically treated water mixture by the equipment supplier. Rotating parts shall be guarded against accidental contact in accordance with standard requirements.

A vertical fan cooled sectional radiator, rated for the tropical site (Maldives Islands) conditions shall be mounted at the end of the combined under base and driven from the diesel engine. The radiator shall be arranged to cool the engine jacket water and lubricating oil. The radiator must be generously sized to permit operation at full load and overload in the specified ambient conditions. The radiator shall be integral with the generating set. The radiator shall be provided complete with fan claw and guards.

#### **Pumps:**

Cooling water, lubricating oil and Fuel pressurizing pumps shall be provided and mounted on the engine and shall be gear driven from the crankshaft.

**Lubrication:**

Lubrication shall be pressurized by means of an engine-driven gear pump. The system shall include oil filters with replaceable elements.

**Fuel:**

The engine shall be designed for operation on **diesel fuel**.

**Starting System:**

The DG set shall be supplied with a completely self-contained starting system consisting of an engine driven dynamo, a lead acid battery and battery charger.

The starting system shall be designed such that at engine speeds in excess of the minimum firing speed it shall be impossible to complete the starting circuit. The starting system shall preclude excessive consecutive starting attempts.

**Exhaust System:**

The engine shall be efficiently silenced and be completed with a **primary** and an additional **secondary** silencer arrangement.

## 4.0 Alternator

The alternator shall be synchronous, four pole and brushless excitation type and shall comply with the relevant requirements of Specification IEC 60034 or an equivalent international standard.

The alternator shall be designed for operation of 10% engine overload at any power factor between unity and rated power factor for a maximum period of one hour in any 12-hour period as permitted by ISO 3046/II.

The alternator shall be rated for IP-23 protection. The insulation of the winding shall be class H. All winding shall be tropicalized and suitably impregnated to withstand the site (Maldives) ambient conditions. 23°Celsius to 36.8°Celsius

The alternator shall be complete with all necessary cooling fans, excitation, droop kit (CT fitted) and SX440 / AS440 AVR. The alternator shall be capable of maintaining its continuous maximum rated output when operating within +/- 5% of rated voltage and at rated power factor 0.8.

The following protection shall be provided for the alternator:

- a. Over Current Protection.
- b. Earth Fault Protection.
- c. Loss of excitation.

## 5.0 Mounting

Complete unit to be mounted on robust skid frame. Vibration mountings to be used where required.

Skid frame (*Tank less, welded steel channel section*) to be dimensioned to accommodate generator/ radiator and alternator assembly, all accessories.

Skid frame to be of rigid construction, suitable for locating on level ground surfaces ranging from compacted earth, crushed rock or a concrete pad.

## 6.0 Other requirements

(a) The control panel shall have the following provisions for the control of DG Unit:

- Control Module.
- Emergency Stop
- Engine run hour meter.
- Voltage and Speed Trimmer

(b) The diesel generator shall automatically shut down under following conditions.

- Low Oil Pressure
- High Engine Temperature
- Over/Under Speed
- Battery Charge Fail
- Over Current

(c) Earthing studs need to be provided.

## 7.0 Warranty

Warranty period shall be one year from the date of official commissioning or 3000 hours of operation whichever occurs first.

## 8.0 Installation and Commissioning

- **Scope of Supplier:**

1. Supplying DG Unit as per the given specifications.
2. Terminations of main cables and control cables from both engine connection box and local panel with relevant lugs and indication sleeves.
3. Installation of Engine Terminal Box for Control Cables.
4. Agreement / Consent Form regarding warranty period and warranty void issues.
5. Before the delivery of the DG Unit, supplier should facilitate the KACL nominated representative to carry out inspections.
6. DG Unit interface with local panel and testing of standalone and synchronized mode.
7. Provision of a Short Orientation session for KACL Staff regarding the operations of the DG unit.
8. Final Tests and commissioning the DG unit.