



# **INFORMATION SHEET FOR PROCUREMENT OF Generator Set Local Control Panel**

**Reference No.: FNK-I/IUL/2022/543**

Issued on 18<sup>th</sup> October 2022

Issued by:

Fenaka Corporation Limited

Male', Republic of Maldives

## Section I: Instruction to Bidders

A. General	
<b>1. Scope of Bid</b>	<p>1.1 Fenaka Corporation Limited requests quotations for generator set local control panel in accordance with <i>Section III, Technical Specifications</i></p> <p>1.2 It is in Fenaka Corporation Limited's discretion to cancel the bid invitation mentioned in 1.1 at any time.</p>
<b>2. Eligible Participants</b>	<p>2.1 Local companies registered in Maldives are eligible to participate in the tender</p> <p>2.2 Foreign companies are eligible to participate in the tender only if the total bid value is above 2,500,000 Maldivian Rufiyaa.</p>
B. Preparation of the Bid	
<b>3. Bid Prices</b>	<p>3.1 The unit price of each item and the total price shall be clearly indicated in the quotation</p> <p>3.2 All items shall be quoted in the bid (please refer to <i>Section III, Technical Specifications</i> for the details of required items)</p> <p>3.3 Quotation shall separately indicate the additional charges such as freight charges and Insurance.</p> <p>3.4 The bidder shall submit quotation on CIF basis to Male' port</p>
<b>4. Currency</b>	4.1 The bidder shall quote entirely in Maldivian Rufiyaa
<b>5. Alternative Bids</b>	5.1 Bidders can submit a maximum of two (2) options
<b>6. Validity of Bids</b>	6.1 Quotation shall remain valid for minimum sixty (60) days from the date of bid opening
<b>7. Bid Security</b>	<p>7.1 All bids should be accompanied with a bid security of USD 2,000 (Two Thousand US Dollars) or its equivalent in Maldivian Rufiyaa</p> <p>7.2 The bid security should be:</p> <ul style="list-style-type: none"> <li>- Original bank guarantee letter (or)</li> <li>- Bank guaranteed and stamped check (or)</li> <li>- An insurance policy from Maldives Monetary Authority (MMA) registered insurance company</li> </ul> <p>7.3 Any bid not accompanied by a Bid Security shall be rejected during bid opening</p>

	7.4	The bid security must be valid for a minimum of twenty (20) additional days beyond the validity of quotation
<b>8. Technical Compliance</b>	8.1	All relevant information including the brand shall be given to enable technical evaluation of quoted items
	8.2	The documents required for technical evaluation are: <ul style="list-style-type: none"> <li>- Technical data sheets of engine and the alternator</li> <li>- Datasheets specifying cooling system rated at ambient temperature 50°C</li> <li>- Certificate of Authenticity specifying manufacturer/assembler is an OEM or a genuine reputed international engine brand</li> </ul>
	8.3	If the manufacturer or assembler is not the same as the bidder, a document indicating that manufacturer or assembler is willing to sell the generator set to the bidder is required
	8.4	Technical compliance letter will be required to enable technical evaluation
	8.5	If the goods do not comply with the requirements mentioned in <i>Section III, Technical Specifications</i> , the bid will be rejected during evaluation.
	8.6	Generator set should comply with our requirements, if not the bid will be rejected
<b>9. Documents Comprising the Bid</b>	9.1	Quotation (inclusive of the delivery period and payment terms)
	9.2	Specifications of the offered product
	9.3	Certificate of Authenticity specifying that manufacturer / assembler is an OEM of a genuine reputed international engine brand
	9.4	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>
	9.5	Experience letters, if available <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>

	9.6 One (1) compact disc with original bid document scanned and written
	9.7 Bids lacking the documents above are subjected to be rejected during the bid opening
<b>10. Format of Bid</b>	10.1 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 10.2 All pages of the bid document shall be stamped and bound properly (excluding the bid security)
<b>C. Bid Submission</b>	
<b>11. Sealing and Marking Bid Document</b>	11.1 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 (FNK-I/IUL/2022/543)
<b>12. Bid Opening</b>	12.1 The bids will be opened 31 <sup>st</sup> October 2022 10:30 am in the presence of bidders 12.2 Bids will be opened at: Fenaka Corporation Limited Hilaalee Magu, K. Male', Republic of Maldives 12.3 Bids received electronically will not be accepted
<b>13. Bid Rejection</b>	13.1 Bidders that arrive after bid submission deadline shall not be able to participate in the bid 13.2 Bidders that do not register for the tender are unable to participate in the bid opening 13.3 Bids lacking the documents mentioned in 9. <i>Documents Comprising the Bid</i> (except 9.5 <i>Experience letters</i> ) and that do not comply with 10. <i>Format of Bid</i> are subjected to be rejected
<b>D. Awarding of Contract</b>	
<b>14. Payment Terms</b>	14.1 An advance will not be released for this project 14.2 Proposed payment terms should not be tied with submission of Bill of Lading.
<b>15. Factory Acceptance Testing</b>	15.1 The generator(s) shall be fully tested at the manufacturer workshop in the presence of Client's appointees via video conferencing. 15.2 The testing shall be conducted at internationally accepted testing standards 15.3 The generator(s) shall be checked for dimension, the supplier shall provide dimension of the generator(s) during the virtual factory acceptance testing.

- 15.4 Generator(s) should be tested to run at 25%, 50%, 75%, 100%, and 110% of rated load and power factor until the engine temperature stabilized for 30 minutes, and should check the protections below:
- Lub oil low level (alarm testing)
  - Lub oil low pressure (alarm testing)
  - Earth fault (alarm testing)
  - Over current (alarm testing)
  - High temperature (alarm testing)
  - Cooling system (alarm testing)
  - High voltage pressure (alarm testing)
  - All the functioning tests and routine tests should be done
- 15.5 All the protections should work properly, it should be examined for oil and coolant leaks, and it should be visually tested and secured
- 15.6 The generator set local control panel should operate continuously 100% in a 50-degree ambient temperature
- It should be designed with vertical air discharge remote radiator with motor and fan
  - It should include all the generator connection pipes, accessories, joints and diagrams
  - The radiator should be developed remotely from the engine providing an added flexibility cooling system, and to be installed at the desired location
  - It should be designed with lower power consumption, and high efficiency aero foil designed fans are used
  - It must be designed with lower noise levels
  - The radiator core should be formed using high efficiency fin profile
  - The thickness of connection pipes must be in a range of 2mm to 4mm
- 15.7 Recorded video clips while operating the units will not be accepted as virtual factory acceptance testing.

## Section II: Evaluation Criteria

**Proposal Cost:** 70 points for the lowest price

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

**Delivery:** 20 points for the lowest delivery period

- $(\text{Lowest delivery period} / \text{proposed delivery period}) \times 20$
- If the delivery period indicates 'ex-stock', it shall be taken same as the party offering the longest delivery period.

**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

Description	Quantity
Generator set local control panel	01

\*Please note that the below specifications are for one unit only.

### 1 Genset Local Control Panel

#### 1.1 General

The scope of work includes the engineering, design, supply, installation, testing and commissioning of metal enclosed local control panels for of the generating set. The control panels shall be installed in the engine room.

The control equipment for the generator shall be designed to accommodate plug-in technique. The panels shall be complete with all necessary control, supervisory, monitoring and alarm equipment for the operation of the gen-sets and their excitation and voltage regulation systems. The control systems shall be designed to allow manual / automatic excitation and load control as well as local / remote control of the generators and excitation systems.

#### 1.2 Excitation Control

The local control panel of the alternator shall be equipped with, but not limited to, the following:

- One set of automatic voltage regulators consisting of one main and one slave AVR, the characteristics of which must match the particulars of the alternators, complete with matching units and power factor control units for back-synchronization.
- one (1) delta (AVR / MVR) indication
- one (1) set point indicator (should be able to see power factor, kW and kVAR in individual meters)
- one (1) ammeter and one (1) voltmeter to measure the DC output of the rectifier assembly (the system should show maximum kW, kVAR and kV)
- three (3) ammeters and one (1) voltmeter with change-over switch to measure the AC input of the rectifier assembly
- one (1) voltmeter with change-over switch for generator voltage
- one (1) rotor protection relay for rotor earth fault and rotating diode failure protection
- one (1) luminous panel for detailed fault indication (e.g. blowing of fuses, failure of individual diodes, failure of the ventilation system, over voltage protection, etc.). For group remote alarm indication and event recording, every alarm circuit shall have separate potential free contacts wired to a terminal board.
- control devices (on and off luminous pushbuttons, selector switches, etc.) for:
  - set point adjuster to raise / lower AVR / MVR
  - change-over between AVR and MVR
  - key locked Local / Remote control selection
- 4 – 20 mA signals and potential free contacts shall be available at the terminals for remote indication; terminals shall also be available to receive remote control commands. Transducers for KW, KVA and kVAR to give signals in the negative range so that operators and troubleshooting engineers can see when reverse real power or reactive reverse power from the generator set.

### 1.3 Gen-set Control

The local control panels of the gen-set shall be equipped with, but not limited to, the following:

(a) For the generator:

- three (3) x ammeters
- one (1) x voltmeter with change-over switch
- one (1) x frequency meter
- one (1) x cos $\phi$  meter
- one (1) x kW meter
- one (1) x kWh meter
- one (1) x kVA<sub>r</sub> meter
- one (1) x winding and bearing temperature indicator with selector switch

(b) For the diesel engine

- one (1) x running hour counter
- one (1) x engine speed indicator
- one (1) x turbocharger speed indicator
- one (1) x exhaust gas temperature indicator including selector switch for each cylinder

(c) Each panel shall have a set of controls consisting of at least the following:

- AMF controller
- Load sharing unit
- Gen-set Start – Stop
- Gen-set control Manual – Off – Auto
- Speed setting Lower – Raise
- Voltage setting Lower - Raise
- Emergency Stop

### 1.4 Synchronization System

The generator shall be provided with its own full automatic synchronizing system. Initiation as well as interruption of the automatic synchronising / paralleling procedure shall be possible at any time at both the local and the main control room.

The synchronizing device shall be microprocessor based with plug-in type modules, shall be of a reputed international brand such as Woodward or Deepsea and shall have the following features without any need for additional options or software:

Easy programmable parameters such as:

- Paralleling time
- Response of the engine regulators
- Response of the generator voltage regulator
- Circuit breaker reaction time
- Full double channel hardware and software system enabling the following functions:
- Single channel operation in the event of any internal fault



- Self-supervision / monitoring
- Connecting to zero voltage busbars
- Auto shut off function after successful paralleling
- Local operation, maintenance and diagnostics
- Full remote operation and supervision
- Auxiliary supply from the voltage transformers, otherwise double in-feed from different independent sources
- Automatic bus-bar voltage transformer selection, depending on the position of the 11 kV generator bus-bar isolator
- Programmable for easy use of the voltage transformer at bus 1 and / or bus 2 of the 11 kV SWG, otherwise interposing transformers shall be included
- Test mode

For each synchronising system, a synchro-check shall be provided as back-up.