



# **INFORMATION SHEET FOR PROCUREMENT OF 1500kW GENERATOR SET**

**Reference No.: FNK-I/IUL/2023/220**

Issued on 08<sup>th</sup> June 2023

Issued by:

Fenaka Corporation Limited

Male', Republic of Maldives

## Section I: Instruction to Bidders

A. General	
<b>1. Scope of Bid</b>	1.1 Fenaka Corporation Limited requests quotations for 1500kW generator set(s) in accordance with <i>Section III, Technical Specifications</i>
	1.2 It is in Fenaka Corporation 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
	2.2 Foreign companies are eligible to participate in the tender only if the total bid value is above 2,500,000 Maldivian Rufiyaa.
B. Preparation of the Bid	
<b>3. Bid Prices</b>	3.1 The unit price of each item and the total price shall be clearly indicated in the quotation
	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)
	3.3 Quotation shall separately indicate the additional charges such as freight charges and Insurance.
	3.4 The bidder shall submit quotation on CIF basis to Male' port
<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>	7.1 All bids should be accompanied with a bid security of USD 1,000 (One Thousand US Dollars) or its equivalent in Maldivian Rufiyaa
	7.2 The bid security should be: <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>
	7.3 Any bid not accompanied by a Bid Security shall be rejected during bid opening

	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>	<p>8.1 All relevant information including the brand shall be given to enable technical evaluation of quoted items</p> <p>8.2 The documents required for technical evaluation are:</p> <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> <p>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</p> <p>8.4 Technical compliance letter will be required to enable technical evaluation</p> <p>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.</p> <p>8.6 Generator set should comply with our requirements, if not the bid will be rejected</p>
<b>9. Documents Comprising the Bid</b>	<p>9.1 Quotation (inclusive of the delivery period and payment terms)</p> <p>9.2 Specifications of the offered product</p> <p>9.3 Certificate of Authenticity specifying that manufacturer / assembler is an OEM of a genuine reputed international engine brand</p> <p>9.4 Details of the company</p> <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> <p>9.5 Experience letters, if available</p> <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> <p>9.6 One (1) compact disc with original bid document scanned and written</p>

	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/2023/220)
<b>12. Bid Opening</b>	12.1 The bids will be opened on 14 <sup>th</sup> June 2023, 1100hrs 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. 15.2 The testing shall be conducted at internationally accepted testing standards 15.3 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

15.4 All the protections should work properly, it should be examined for oil and coolant leaks, and it should be visually tested and secured

15.5 The remote radiator 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

15.6 Two (2) engineers from Fenaka Corporation Limited shall carry out necessary inspection and testing of equipment prior to shipment in supplier's warehouse to validate the items

15.7 The bidder shall arrange airfare, transportation, stipend (as per the Client's policy), accommodation and lodging for two of Client's engineers for the testing (minimum two days for 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

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

### SPECIFICATION FOR 1500kw Generator Set

S/N:	Description	Unit	Qty
1	<p>1500 kW prime rated diesel generator set with parameters 0.8 P.F, 11kV, 3 Phase, 4 wires, 50 Hz at 1500 r.p.m. Powered by MTU/MANN/CATERPILLAR or equivalent (internationally reknowned Brand of) engine coupled with reknowned brand Alternator with rated output power 1500kW at voltage 11kV .</p> <p>The Generator set shall be powered by a MTU/MANN/CATERPILLAR or equivalent engine and assembled/manufactured by an Original Licenced OEM manufacturer/assembler.</p> <p>The engine must produce a mechanical power output (kW<sub>m</sub>) which should meet the required electric power ( kW<sub>e</sub>) of 1500kW and must be coupled with a 1500kW Alternator with pre-installed Droop CT and remote mounted control panel.</p> <p>The engine should meet the Emmission standard (g/hp-hr) as follows                      HC a,d :0.30                      VHC b : 0.2997                      NOx a,d : 4.5                      NMHC+NOxa : 4.80                      CO a :2.60 - 8.50                      PM a : 0.15 - 0.40</p> <p><b>Engine to be complete with following auxiliary items :</b></p> <ul style="list-style-type: none"> <li>• Heavy electrical flywheel</li> <li>• SAE flywheel housing</li> <li>• Air filters, Lubricating Oil Filters, Fuel Filters and all other such filter required for operation of the engine</li> <li>• Low lubricating oil pressure switch</li> <li>• High engine temperature switch</li> <li>• lub oil sender</li> <li>• Water Temperature Sender</li> <li>• All necessary items to run and to protect the engine</li> <li>• Starting equipment fitted to engine, consisting of :                             <ul style="list-style-type: none"> <li>• 24 Volt charging alternator (Brushless)</li> <li>• 24 Volt starting motor</li> <li>• Fuel Shut-off solenoid</li> <li>• Heavy duty lead acid batteries, supplied in a dry charged condition</li> </ul> </li> <li>• <b>Governing System</b>                              The engine to be fitted with a close tolerance Cummins Electronic Governing system, which should include etc, actuators, magnetic pickups, etc, including wiring</li> <li>• <b>Cooling System</b>                              Cooling system comprising a heavy-duty tropical remote radiator, with fans driven by Electric Motors (ABB or equivalent) .</li> </ul> <p>Remote Radiator must be vertical air flow type designed and sized to adequately cool the generator at an ambient temperature of 50°C, with heat load and flow rate necessary to achieve this. Please refer to attached specification of remote radiator for additional details.</p>	1	No

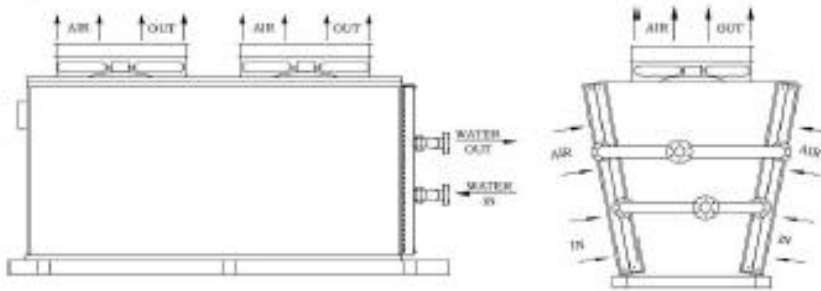
	<ul style="list-style-type: none"> <li>• <b>Exhaust system</b> 450 mm of stainless steel below type flexible exhaust, together with suitable flanges and fittings shall be supplied for each silencer.</li> <li>• <b>Alternator</b> The alternator shall be of a reputable reknown Brand. The alternator shall be brushless revolving type alternator, having class H insulation on both the stator and field windings. It shall be built and rated to BS 5000, tropically impregnated with voltage regulation being in the order of +/- 1.5% from no load to full load under the steady state conditions assuming a speed variation not exceeding 4% on the engine. Anti-Condensation Coil to be fitted in the Alternator.</li> <li>• <b>Generator arrangement and drive</b> The simplex type base plate is of heavy duty rolled steel constructed, bolted and electrically welded, drilled on the underside to allow the fitting of foundation bolts. The engine and the alternator are to be mounted on a base plate and vibration mounts to be mounted underside of the base plate. The vibration mounts are to be supplied as loose item.</li> <li>• <b>Finishing</b> After assembling the genset zinc coated self-etching primer should be applied to the complete set.</li> </ul>		
1.2	<b>Fuel system</b>  A fuel day tank of 12 hours capacity complete with level indicator, drain plug, filler, fuel return with fuel outlet connections and a fuel filter fitted with outlet connection is to be mounted. These mounts are to be supplied as loose item. All necessary fittings to be supplied in conformity with fuel flow diagram.	1	No
1.3	<b>Accessories</b> Bidder shall supply following accessories required for installation of the above mentioned generator set. The Components shall meet the British Standard and ISO standards.		
1.3.1	Primary and secondary silencer barrels, exhaust pipe , elbows and flanges to match the engine exhaust	1	Lot
1.3.2	Bolts, nuts and washers for the flanges	1	Lot
1.3.3	Split type rockwool insulation lagging suitable for Exhaust pipes. The lagging shall be covered with High Quality Aluminium foil.	1	Lot
1.4	<b>Consumables</b>  Consumable required for first six months of operation. The consumables should include air filters, fuel filters, lub oil filters, coolant additives and engine lubricating oil	1	Lot
1.5	<b>Special Tools</b>  Special tools required for maintenance of the generator set	1	Lot
1.6	<b>Factory Testing</b>  The generator should be fully tested at the manufacturer workshop in the presence of client's appointees to check the ratings, overload, functional tests on a dummy load prior to dispatch. The testing shall be conducted to internationally accepted testing standards. The bidder shall arrange airfare, transportation, accommodation and lodging for two of client's technicians for the testing (minimum of two day for testing)	1	Lot



1.7	<b>Literature and drawings consisting of :</b> <ul style="list-style-type: none"> <li>• 1 Nos x Electrical wiring diagram</li> <li>• 1 No x Engine operation and maintenance manual</li> <li>• 1 No x Engine parts catalogue</li> <li>• 1 No x Generator parts catalogue</li> <li>• 1 No x Generator operation and maintenance manual</li> <li>• 1 No x Generator AVR manual</li> <li>• 1 No x Governor control unit manual</li> <li>• 1 No x Engine shop manual</li> </ul>	1	Lot
1.8	<b>Warranty</b> Generator set should carry a warranty against any defect or malfunction for one year from the date of commissioning	1	Lot

**Remote Radiator Specification**

- 1) The Remote Radiator must air-cooled fluid cooler vertical air flow type with an arrangement as shown in drawing below or similar.



- 2) Heat Load (kW) and Flow rate (L/min) of must be properly determined to cool the engine with mechanical load capacity (kW/m) the radiator intends to cool.
- 3) Remote radiator shall consist of heat transfer coils made of seamless copper tubes and high efficiency aluminium fins, complete with water headers and connections.
- 4) The unit shall have propeller fans with adequate capacity (speed 1200 - 1500 RPM) driven by electrical induction motors
- 5) Fan motor shall be axial type fan of brand ABB or an equivalent reputable brand operating on three phase, 415V, 4P 50Hz alternating current and meant for outdoor use with atleast ingress protection of grade IP55.
- 6) Radiator casing shall be made of GI sheet metal work and it shall be mounted on heavy duty base frame made of MS sections for floor mounting
- 7) Paint grade of radiator casing and frame shall be ISO CA/CS, marine grade (paint thickness 120 micron or higher)
- 8) Expansion tanks must be provided if required
- 9) All required valves and gauges must be provided with the remote radiator



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