



ADDENDUM 2

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ނަންބަރު No:	TES/2022/ G-010	
ޕްރޮޖެކްޓް Project:	Design, Supply, Installation and Commissioning of Battery Energy Storage Systems (BESS) on Selected Islands in Maldives	
ޕްރޮޖެކްޓް Issued Date	7 th November 2022	
ޕޭޖް ސަންޖުމްތާ ނުވަތަ ފަންނުމުގެ ޕްލޭން No. of Pages: -11	މިވަނަ އިތުރުމެ ޕްލޭން BoQ: -00	ޖެނިއަރިންގް Drawings: -00

Please include this amendment when submitting the bid. ޖެނިއަރިންގް ޕްލޭން ފޯމުލާހުމުގެ ޕްރޮގްރާމް ގައި މިއަދި ޕްރޮޖެކްޓް ގައި ބަނޑުބާވާ ޕްލޭން ހިމަނަވަންޖެހުންޖެއެވެ.

- Changes brought to the Section 2 – Data Sheet are attached with this Addendum



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Republic of Maldives

Addendum 02

Request for Bids

DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF BATTERY ENERGY STORAGE SYSTEMS (BESS) IN SELECTED ISLANDS IN MALDIVES

LOT ONE: 23-MW/23-MWh Battery Energy Storage Systems (BESS) on locations at Addu City mainland and Hulhudhoo-Meedhoo, Fuvahmulah City, GDh. Thinadhoo, Kulhudhuffushi City, B. Eydhafushi and Lh. Hinnavaru

LOT TWO: 13.5-MW/17-MWh Battery Energy Storage Systems (BESS) on locations at L. Atoll Islands (Fonadhoo, Gan, Dhanbidhoo, Isdhoo-Kalaidhoo, Maabaidhoo, Maamendhoo, Kunahandhoo-Hithadhoo and Maavah), Lh. Naifaru, Dh. Kudahuvadhoo, GA. Villingili and Sh. Funadhoo

RFB No: MV-MEE-283164-GO-RFB

Accelerating Renewable Energy Integration and Sustainable Energy (ARISE)

**Ministry of Environment, Climate Change and Technology
Republic of Maldives**

Issued on: November 07, 2022

Issued by: National Tender

Ministry of Finance

Republic of Maldives





Ministry of Finance
Male' Republic of Maldives

Accelerating Renewable Energy Integration and Sustainable Energy (ARISE) Project

DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF BATTERY ENERGY STORAGE SYSTEMS (BESS) IN SELECTED ISLANDS IN MALDIVES

RFB No: MV-MEE-283164-GO-RFB

ADDENDUM 02

A. Section II - Bid Data Sheet (BDS)

C. Preparation of Bids	
<i>Clause ITB 19.1 is deleted and replaced as follows:</i>	
ITB 19.1	The Bid shall be valid until: February 16, 2023
<i>Clause ITB 20.3 is deleted and replaced as follows:</i>	
ITB 20.3	The Bid Security shall be valid until: March 16, 2023 The Bid Security shall be unconditional guarantee issued by a reputable bank acceptable to the Employer, valid for twenty-eight (28) days beyond the original date of expiry of the Bid validity, or beyond any extended date if requested under ITB 19.2.

D. Submission and Opening of Bids	
<i>Clause ITB 23.1 is deleted and replaced as follows:</i>	
ITB 23.1	For <u>Bid submission purposes</u> only, the Employer's address is: National Tender Ministry of Finance Ameenee Magu, Maafannu, Male', 20379 Republic of Maldives The deadline for Bid submission is: Date: November 17, 2022 Time: 01:00 PM Male' Time Bidders shall not have the option of submitting their Bids electronically.



Clause ITB 26.1 is deleted and replaced as follows:

ITB 26.1

The Bid opening shall take place at:

**National Tender
Ministry of Finance
Ameenee Magu, Maafannu,
Male', 20379
Republic of Maldives**

Date: **November 17, 2022**

Time: **01:00 PM Male' Time**

E. Evaluation, and Comparison of Bids

Clause ITB 33.1 is deleted and replaced as follows:

ITB 33.1

The currency that shall be used for Bid evaluation and comparison purposes to convert (at the selling exchange rate) all Bid prices expressed in various currencies into a single currency is: **United States Dollars**

The source of exchange rate shall be: **Maldives Monetary Authority**
www.mma.gov.mv

The date for the exchange rate shall be: **November 03, 2022**



B. Section III - Evaluation and Qualification Criteria

Requirement (c) under 1.2 Economic Evaluation is deleted and replaced as follows:

(c) Functional Guarantees of the Facilities

The minimum (or maximum) requirements stated in the Specification for functional guarantees required in the Specification are:

Functional Guarantee	Norm	Minimum (or Maximum, as appropriate) Requirement
1. Service Life	10 Years	2 Years
2. Continuous Power	-	As per Employer Requirements, Section 1.13, BESS AC Continuous Power (MW)
3.Round Trip Efficiency	88%	85% 82%
4.System availability	98%	97%

For the purposes of evaluation, functional guarantees will be assessed in aggregate across all islands within a Lot.

For the purposes of evaluation, for each percentage point that the functional guarantee of the proposed Plant and Installation Services is **below the norm specified** in the Specification and in the above table, but above the minimum acceptable levels also specified therein, an adjustment of \$240,000 (Lot 1) and \$160,000 (Lot 2) will be added to the Bid price. If the drop below the norm or the excess above the minimum acceptable levels is less than one percent, the adjustment will be prorated accordingly.

For the purposes of evaluation, for each percentage point that the functional guarantee of the proposed Plant and Installation Services is **above the norm specified** in the Specification and in the above table, an adjustment of \$40,000 (Lot 1) and \$30,000 (Lot 2) will be subtracted from the Bid price, to a maximum of \$400,000 (Lot 1) and \$300,000 (Lot 2). If the excess above the norm is less than one percent, the adjustment will be prorated accordingly.



Section III - Evaluation and Qualification Criteria 4.2(a) Specific Experience is deleted and replaced as follows:

Factor	4 Experience					
Sub-Factor	Criteria					Documents Required
	Requirement	Single Entity	Bidder			
			All members combined	Each member	At least one member	
4.2(a) Specific Experience	<p>(i) Participation as contractor, joint venture member⁶, management contractor, or subcontractor in Designing, Engineering, Procurement, Construction, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage Systems (BESS) with contract value as follows within the last Five (5) Years, that has been successfully and substantially⁷ completed and that are similar to the employer's requirement:</p> <p>Lot One: at least Five USD 18 Million Lot Two: at least USD 13 Million</p> <p><i>Bids for combined lots will be evaluated based on aggregate requirement for both lots.</i></p>	Must meet requirement	Must meet requirements ⁸	N / A	<p>Must meet the following requirements for the key activities listed below:</p> <p><i>Participation as contractor, joint venture member, management contractor, or subcontractor in Designing, Engineering, Procurement, Construction, Installation, Testing and Commissioning of Grid Connected Battery Energy Storage Systems (BESS) with contract value as follows within the last Five (5) Years, that has been successfully and substantially completed and that are similar to the employer's requirement.</i></p> <p><i>Lot One: at least Five USD 18 Million</i> <i>Lot Two: at least USD 13 Million</i></p>	Form EXP 4.2(a)

⁶ For contracts under which the Bidder participated as a joint venture member or sub-contractor, only the Bidder's share, by value, shall be considered to meet this requirement.

⁷ Substantial completion shall be based on 80% or more Plant and installation completed under the contract.

⁸ In the case of JV, the value of contracts completed by its members shall not be aggregated to determine whether the requirement of the minimum value of a single contract has been met. Instead, each contract performed by each member shall satisfy the minimum value of a single contract as required for single entity. In determining whether the JV meets the requirement of total number of contracts, only the number of contracts completed by all members each of value equal or more than the minimum value required shall be aggregated



C. Section VII - Employer's Requirements

1 Description of the Works

1.2 General requirements and description of works

Requirement 1.2.2 Scope of Project is deleted and replaced as follows:

1.2.2 Scope of Project

Scope of Project and requirements included in this section is to provide a general understanding of the nature of work to be delivered under the contract. Detailed specifications are included in Section 1.3 Specifications.

1. Design and supply of BESS along with EMS. Carry out comprehensive factory acceptance tests (FAT) on all equipment.
2. Logistics and delivery of all equipment to the installation site.
3. Construction site management including site supervision, site monitoring and security, connection of amenities such as power, water etc. required for construction purposes (if necessary).
4. Preparatory and permanent civil works for BESS and EMS installation on site where needed. This includes but is not limited to setting up construction site fencing, site levelling and foundation for batteries and transformers, making cable trenches and pathways for safely routing the power cables from battery to grid connection points, permanent fencing and locking of the installation sites if the BESS site is in an area publicly accessible.
5. System assembly and electrical installation works including earthing and other electrical safety measures as needed for batteries, power converting units (inverting units, transformers), safety devices and any BOS and grid integration of the BESS. This includes comprehensive design, modelling and test to be conducted by the Contractor.
6. Installation of communication devices and setup of communication architecture for interfacing of BMS, PV communication devices, generator controllers, feeder load shedding devices etc. to the EMS and its integration to a central SCADA, and in coordination with operators of other generators where required.

The Central SCADA is installed in the office of NCIT on Male' with a dedicated link to FENAKA offices. The existing EMS's in the island power houses are connected to central SCADA via a dedicated link from power house to the local Council building on each island. Data is then forwarded to Central SCADA in Male' through secure VPN connection.

For the EMS established under this bid, other contractors will establish a connection point at the power station either via a single mode optic fiber or as a connection setup through a 4G provider. Contractor (for the BESS) must provide a gateway for the EMS suitable for either connection type.

The BMS and EMS shall be programmed to maintain safe operation of batteries and provide various operational strategies specified. The BMS and EMS are to be programmed to achieve efficient operation of existing diesel generators, allow maximal feed in of renewable power while maintaining grid stability and to achieve grid forming batteries in instances needed. EMS functional requirements, including equipment to interface with,



command instructions available for lower level controllers, operating configurations of generation equipment that it must manage, performance requirements for maximizing instantaneous use of VRE and application of the BESS for spinning reserve. Furthermore, a Human-Machine Interface (HMI) shall be installed for operators to communicate with the control system and monitor the power system and its components.

- a. Some networks (currently 4 of 20) have existing or proposed solar generators incorporating local energy storage and a micro-grid controller. In such situations, the EMS will form the master controller for the network and must be capable of interfacing with and issuing dispatch instructions to other micro-grid controllers. Contractor will be required to complete interfacing to other micro-grid controllers in cooperation with the suppliers of these systems. Alternatively, Contractor may elect to make redundant the existing micro-grid controller and interface the EMS directly to existing solar and energy storage.
7. Design, installation, programming and commissioning of HVAC systems, fire mitigation and safety etc. in compliance to the safety standards specified by the Employer
8. Conduct testing at component level and system level upon installation and ensure that all performance parameters are met to the satisfaction of the Employer. Also, as part of assuring quality control and functional compliance of the equipment selected for the product, the contractor shall conduct all factory and site tests as per the specifications and produce documents of proof as required.
9. Commissioning of the systems with testing at integrated level and ensure successful operation of the system as per the operational configuration required for the hybrid system. All tests and final checks along with the documents to be submitted for acceptance of the system shall be met for system commissioning to be declared.
10. Perform O&M activities for a specified 2-year period, along with providing and maintaining spares and consumables.
11. Providing training and ensure plant operators are equipped with the knowledge and skill necessary for effectively operating systems and to conduct maintenance of the system and components.
12. Provide options for recycling of the batteries at the end life through an approach such as entering into a recycling program from the manufacturer.



Appendix A – General and Electrical requirements

9 Equipment requirements

9.3 Switchgear

Requirement 9.3.2 RMU Configuration is deleted and replaced as follows:

9.3.2 RMU Configuration

Any RMU shall have the following general configuration, unless otherwise specified:

- Ring switches: 2
- Circuit breakers: 1

Enclosure

- IP Rating: ~~IP65~~ IP23
- Rain shield: Yes. [This applies for outdoor installations. For indoors, rain shield is not required.](#)
- Lifting rings: minimum 2, OEM to confirm suitability
- Colour: to be specified
- Paint: ISO C5 Marine Grade Paint coated enclosures
- Height above ground: Base must be mounted a minimum of 500 mm above the local ground surface to reduce potential for inundation.

Circuit Breakers

- Type: Vacuum
- Rated current: 200A
- Closing (Motor driven charging): Yes
- Spring recharge after closing: Yes

Ring Switches

- Remote operation capability: Yes
Safe operating procedures for closure to be established between Contractor and Grid Operator. Grid Operator shall have authority for remote disconnect if required for system safety or stability (dispatch control to be used preferentially).

Earth Switches

- Type: Fault making
- Making capacity: 40 kA peak
- Circuit earth switch interlock: Yes, with associated circuit breaker
- Remote operation capability: Yes

Feeder CTs & VTs

- Contractor to specify

Feeder Protection Relay

- Required
- Functions – as detailed in section **Error! Reference source not found.** below.



Communications interfaces: Modbus TCP/IP

SCADA interface: Modbus TCP/IP

Capacitive Voltage Indication

- Required: Yes
- Electrical interlock: Contractor to specify

Surge Arrestor

- Required: Contractor to specify

Auxiliary Power

- Required: Yes
- Auxiliary equipment AC voltage: 400/230 V AC
- Tripping and closing supply voltage: 110 V DC
- Indication supply voltage: 110 V DC
- Spring charge motor voltage: 110 V DC
- Alarm supply voltage: 110 V DC
- Redundant trip coils: Yes
- Redundant trip supplies: Yes
- Load: To be calculated by Contractor
- UPS power: Yes, to comprise of rectifier and battery bank
- Backup duration: Minimum 12 hours without AC supply
- Redundant DC supplies: required

Metering

- Required: Yes as per section **Error! Reference source not found.** below



8 Physical and installation requirements

Requirement 8.3 Equipment is deleted and replaced as follows:

8.3 Equipment

1.1.1 Local server

The EMS must include an industrial PC within the EMS cabinet to provide local data logging and remote access to help support detailed investigation of system events and adjustment of configuration parameters if required.

Remote access to the industrial PC via internet connection is required.

1.1.2 Communications

All communications must be Modbus TCP compliant.

All IO modules shall include minimum 50% spare capacity.

1.1.3 Internet connection

A local internet connection shall be provided by the ~~Contractor~~ Employer for remote access. Employer's security requirements shall be followed.

1.1.4 Ingress protection

The EMS cabinet shall be rated for ingress protection (IP) class ~~65~~ 23 to IEC 60529.

1.1.5 Access

EMS cabinet shall be accessible to operations and maintenance personnel without need for PPE or other special equipment (EMS shall not be co-located in DC, LV or MV panel or other location with personnel risk).

All weather access must be available, including any required lighting, platforms, stairs, awnings etc.

Location shall not interfere with access to other equipment or buildings.

EMS cabinet shall be lockable using a common key (no padlock).

1.1.6 Emergency stop

The EMS cabinet must include a hard wired and fail-safe emergency stop, unless in proximity to BESS or power station emergency stop.

End of Document

