



MINISTRY OF ENVIRONMENT, CLIMATE CHANGE AND TECHNOLOGY

MALE' REPUBLIC OF MALDIVES

Announcement Reference No: (IUL) (IUL)438-CCD/438/2021/270

Purchase of equipment to monitor energy consumption of appliances

[06th October 2021]

Prepared by:

Project Management Unit

Strengthening Low Carbon Energy
Island Strategies (LCEI) Project



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1. Introduction

Ministry of Environment, Climate Change and Technology seeks to engage a competent party to supply the equipment stated in section 2 of this TOR, as per the provided specifications to monitor the energy consumptions of appliances.

2. Scope of work

Supply of;

#		Quantity
1)	15A Smart Switch with Energy Monitoring	10
2)	Smart Relay Switch - Wi-Fi Open Source	10
3)	Home energy monitoring kit	10
4)	Sub-metering kit with Current Transformer sensors	5
5)	Portable Power Data Logger	2
6)	50 A Hinged Current Transformer sensor	4
7)	20 A Hinged Current Transformer sensor	4
8)	Rogowski Coil Current Transformer sensor	4

3. Technical Specifications

1) 15A Smart Switch with Energy Monitoring

Basic Information	
Voltage	100-240V AC 50/60 Hz
Max. Load	15A/3500 W
Certification	CE/FCC/ROHS
Features	
Functions	Remote control, single/countdown timing, voice control, share control, power-on state, Power Monitoring, LAN control
Operating systems	Android & iOS
Wireless standard	
Wi-Fi	IEEE 802.11 b/g/n 2.4GHz (2400M – 2483.5M)
Antenna	PCB board with Antenna
Security mode	WPA/WPA 2
Encryption type	WEP/TKIP/AES

2) Smart Relay Switch - Wi-Fi Open Source

POWER	
Power supply AC:	110-230V ±10%, 50/60Hz
Power supply DC:	24 – 60V
SPECIAL FUNCTIONS	
Dry contacts:	No
Roller shutter mode:	No
Device temperature protection:	Yes
Overload protection:	Yes
Power measurement:	Yes
Working without a neutral line:	No
SPECIAL FUNCTIONS	
Dry contacts:	No
Roller shutter mode:	No
Device temperature protection:	Yes

Overload protection:	Yes
Power measurement:	Yes
Working without a neutral line:	No
FEATURES	
Channels:	1 Channel
Maximum load:	16A
Operational temperature:	-40 to + 40 °C
Device power consumption:	< 1 W
Intelligent On/Off:	Yes
Local and remote control:	Yes
Sunrise/Sunset:	Yes
Weekly schedule:	Yes
CONNECTIVITY	
Wireless/Wi-Fi protocol:	802.11 b/g/n
Frequency:	2400 – 2500 MHz
Radio signal power:	1mW
Range:	· Up to 50m outdoors · Up to 30m indoors (Depending on the building materials)
DIMENSIONS	
Size:	41mm x 36mm x 17mm

3) Home Energy Monitoring Kit

Description	Qty
Hub (Gateway)	1
Transmitter Frequency: 433.5 MHz Power supply: Battery (AAA Size) Range: 70 m in an open environment Number of sensors supported: 3	1
Current Transformer sensor Rated Current: 120 A Internal Diameter: 12mm	3
Ethernet Cable	1
Power Supply	1

4) Sub-metering kit with Current Transformer sensors

Description	Qty
Transmitter Frequency: 433.5 MHz Power supply: Battery (AAA Size) Range: 70 m in an open environment Number of sensors supported: 3	1
Current Transformer sensor Rated Current: 200 A Internal Diameter: 19 mm	3
Compatibility	Should be compatible with Item #3 Home energy monitoring kit

5) Portable Power Data Logger

General Specifications	
Service Type	Single Phase (2 or 3 wire), Three Phase-Four Wire (WYE), Three Phase-Three Wire (Delta), DC Systems (Solar/Battery)
Voltage Channels	3 Channels, Cat III 0 to 600 VAC (Line to Line) or 600VDC
Current Channels	4 Channels, 0.67 VAC Max
Maximum Current Input	External transducer dependant 200% of current transducer rating Up to 6000A with Rogowski Coil Current Transformer sensors
Measurement Type	True RMS using high-speed DSP
Line Frequency	50/60 Hz
Channel Sampling Rate	0.125 Seconds
Integration Period	Seconds: 1, 3, 15, 30

	Minutes: 1, 2, 5, 10, 15, 20, 30 Hours: 1, 12 Day: 1
Energy Measurements	Volts, Amps, Amp-Hrs, kW, kWh, kVAR, kVARh, kVA, kVAh, Displacement Power Factor,
Communications	
Wi-Fi	Yes, Internal Antenna
USB	Type B
Ethernet	Standard RJ-45 connector
Accessories	Carrying Case

6) 20 A Hinged Current Transformer sensor

General Specifications	
Window Size	10 mm
Current Range	0.25 – 40A AC
Output	333 mV @ 20 A
Frequency range	50 – 400 Hz
Maximum working voltage	600 VAC
Lead length	7 m
Compatibility	Should be compatible with Item #5 Portable Power Data Logger

7) 50 A Hinged Current Transformer sensor

General Specifications	
Window Size	10 mm
Current Range	0.25 – 80A AC
Output	333 mV @ 50 A

Frequency range	50 – 400 Hz
Maximum working voltage	600 VAC
Lead length	7 m
Compatibility	Should be compatible with Item #5 Portable Power Data Logger

8) Rogowski Coil Current Transformer sensor

General Specifications	
Window Size	11.5 cm
Sensor Length	40 cm
Current Range	5 – 5000A AC
Output	109.2 mV/1000A @ 50 Hz
Frequency range	20 – 5000 Hz
Maximum working voltage	1000 Vrms
Lead length	7 m
Compatibility	Should be compatible with Item #5 Portable Power Data Logger

4. Evaluation Criteria

4.1 Pre-Evaluation

- a) Pre-Evaluation is a preliminary evaluation done based on the documentation requirement before moving on to the Technical Evaluation. Pre-Evaluation determines if bidder is substantially responsive to the terms of this ToR as specified below;
- Bidder meets all requirements identified under Section 5. Applications.
 - Bidder has the financial capacity to undertake the works required in the TOR. Refer to Annex 1 for details.
- b) Substantially non-responsive bids at this pre-evaluation stage will be rejected from further stages of evaluation.
- c) Substantially responsive bids at this pre-evaluation stage shall be qualified for technical evaluation.

4.2 Technical evaluation

Technical evaluation is to confirm if the proposed product does comply with all the requirements listed under the technical specifications. The Ministry holds the authority to qualify any proposal technically based on their proposed features, only if the evaluation committee finds it acceptable and would achieve the objective fully. Technically non-responsive bids from this stage would not be qualified to the final evaluation.

4.3 Final Evaluation

The proposal would be qualified to this stage after being assessed in pre-evaluation and technical evaluation. In this evaluation, the proposals would be compared to their proposed price, duration and experience to complete the project. Point system set for the final evaluation is:

#	Description	Points (percentage)
1	Price $\frac{\textit{Lowest price proposed}}{\textit{Proposed price}} \times 75$	75%
2	Duration $\frac{\textit{Shortest duration proposed}}{\textit{Proposed duration}} \times 20$	20%
3	Experience Experience would be considered to all submitted letters which is addressed to relevant works (value higher than MVR 35,000) completed within the past 5 years. Each valid reference letter would carry 1 point (maximum 5 mark).	5%

5. Application

Proponent should submit their proposals containing the following:

- a) Business profile
- b) Copy SME registration certificate
- c) Copy of business registration certificate
- d) Tax registration certificate
- e) Financial Breakdown Form, provided in Annex 1
- f) Technical specifications of proposed product
- g) Form FIN -1: Financial situation, provided in Annex 2
- h) Form FIN – 2: Average annual turnover, provided in Annex 2
- i) Financial documents stated in Annex 2

6. Queries

For any queries please email to procurement@environment.gov.mv and CC to low.carbon@environment.gov.mv before **0000hrs on 11th October 2021**. Answers will be provided to all the queries received before the deadline and will be made available via the Ministry website (www.environment.gov.mv) on **13th October 2021**.

7. Submission

Bid submission	On or before 25th October 2021 at 1100 hours local time
Bid opening	25th October 2021 at 1100 hours' local time. Proposals will be opened in the presence of the proponents' representatives who choose to be present at the address below at the time of proposal opening.
Submission instruction	Proposals must be delivered in sealed envelopes titled <i>“Do not Open Before 25th October 2021 at 1100 hours - Purchase of equipment to monitor energy consumption of appliances” and the submitting party’s name and address</i> Electronic submission is not permitted. Late proposals will be rejected.
Submission address	Procurement Section Ministry of Environment, Climate Change and Technology Green Building, Handhuvaree Hingun, Maafannu Male', 20392, Republic of Maldives Email: procurement@environment.gov.mv Website: www.environment.gov.mv Project name: Strengthening Low Carbon Energy Island Strategies (LCEI) Announcement number: (IUL)438-CCD/438/2021/270

Annex - 1

Financial Breakdown Form

Reference No: (generated by the proponent)

Quotation validity: 60 days

No.	Quantity	Description	Price/Unit (MVR)	Total
1	10	15A Smart Switch with Energy Monitoring		
2	10	Smart Relay Switch - Wi-Fi Open Source		
3	10	Home energy monitoring kit		
4	5	Sub-metering kit with Current Transformer sensors		
5	2	Portable Power Data Logger		
6	4	50 A Hinged Current Transformer sensor		
7	4	20 A Hinged Current Transformer sensor		
8	4	Rogowski Coil Current Transformer sensor		
		Total:		
		GST		
		Total with GST		

Indicate the total cost with detail cost to be paid in Maldivian Rufiyaa (MVR).

Note: The total contract price should be quoted inclusive of Goods and Services Tax (GST) or any applicable axes as per the Tax Legislation and must be shown in the breakdown.

Authorized Signature and stamp

Annex - 2

Historical financial performance

Criteria	Compliance Requirements	Submission Requirements
Historical Financial Performance		
<p>Submission of balance sheets and income statements or, for the last 3 (Three) years ending 31st December, 2020 to demonstrate the current soundness of the Bidders financial position and its prospective long-term profitability. As a minimum, an Applicant’s net worth calculated as the difference between total assets and total liabilities should be positive.</p>	<p>must meet requirement</p>	<p>Form FIN - 1 with attachments</p>
Average Annual Turnover		
<p>Minimum average annual turnover of MVR 200,000 only calculated as total certified payments received for contracts in progress or completed, within the last 3 (Three) years ending 31st December, 2020.</p>	<p>must meet requirement</p>	<p>Form FIN – 2</p>

Form FIN - 1: Financial Situation

Each Bidder must fill in this form

Financial Data for Previous 3 Years [MVR Equivalent]			
	Year 2020:	Year 2019:	Year 2018:

Information from Balance Sheet

Total Assets			
Total Liabilities			
Net Worth			
Current Assets			
Current Liabilities			
Working Capital			

Information from Income Statement

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last three years, as indicated above, complying with the following conditions.

- All such documents reflect the financial situation of the Bidder.
- Historic financial statements must be complete, including all notes to the financial statements.
- Historic financial statements must correspond to accounting periods

Form FIN - 2: Average Annual Turnover

Each Bidder must fill in this form

Annual Turnover Data for the Last 3 Years		
Year	Amount Currency	MVR Equivalent
2020		
2019		
2018		
Average Annual Turnover		

The information supplied should be the Annual Turnover of the Bidder in terms of the amounts billed to clients for each year for contracts in progress or completed at the end of the period reported.