



Procurement of Electricity Meter

Fenaka Corporation Limited requests quotation from interested companies for Procurement of Electricity meter single phase and three phase according to the information below.

Specification

#	DESCRIPTION	QTY	UNIT
01	House meter single phase	1000	NOS
02	House meter three phase	300	NOS

Single Phase Smart Meter's Technical Specification	
1	General Specification
1.1	Max. Nominal current: 5A max. current (I max): 100A Phase nominal voltage: 230V
1.2	Starting current : less than 0.004 nominal current
1.3	Accuracy class 1 (class B) for active energy Accuracy class 2 for reactive energy
1.4	Max. Internal power consumption: - Less than 10VA (2W) for voltage circuit each phase - Less than 4VA for phase current circuit Note: above value for power consumption is for meter without communication modem.
1.5	Capability of neutral current measurement
2	Metrology
2.1	Meter should be 4 Quadrants and it should have the ability of measuring and recording import/export active & reactive Energy separately (the values to be recorded for import and export are actual values).
2.2	Record cumulative active and reactive energy
2.3	It should be possible to locally and remotely select or configure exported energy whether to be registered or not.(according to standard, when the energy flows from network to the consumer it is registered as IMPORT and when the energy flows from consumer to the network it is registered as EXPORT.)
2.4	Meter should measure Import and export Energy as well as Absolute value of active energy and it should be possible to activate this capability.
2.5	Meter should measure phase current (True RMS)
2.6	Meter should measure phase voltage (True RMS)
2.7	Meter should measure Power Factor
2.8	Measuring and recording maximum demand of active and reactive power (optional) should be based on configurable time intervals and subintervals (sliding mode). - It should be possible to reset maximum demand remotely - It should be possible automatically Maximum demand to be reset at specific billing period. All parameter should be adjustable remotely and locally.
2.9	Meter should have pulse output (LED) for meter accuracy class test of active (fixed impulse/kwh) and reactive (fixed impulse/kvarh) energy
3	Meter's Body
3.1	Meter's case material should be polycarbonate and it should be fire, heat and ultra violet radiation resistant
3.2	All parts of the meter should be resisted against mechanical stroke and shake during the transportation
3.3	Meter should be sealed in such way to prevent unauthorized access, theft or tamper. Any attempt for Opening the meter's main cover should not be possible unless by breaking the meter's case.
3.4	Meter enclosure protection should be at least IP54(without suction)

4	Meter's Communication
4.1	Meter display should have minimum seven digits that are easily visible. Meter should have ability to display all measured quantities or desired quantity automatically or scrolling through the button on the meter as follows
4.2	Meter should have optical port with baud rate of 1200 - 9600 bps for local read and configuration, according to IEC62056-21, mode E.
4.3	Meter should have two wired active RS485 port for remote communication to fulfill AMI system requirements (this port should be physically accessible for authorized person and located on meter base).
4.4	Meter should have or be able to support different communication modems (such as: PLC, RF, GSM/GPRS...) and all this modems should be addible to meter.
5	Anti-Tampering
5.1	Meter should detect and record physical tamper attempts (fraud and violation) and inform the central system through communication port. some of these tamper attempts are as follows: - Big Magnetic field(lower than 0.5mT meter accuracy class should not effected and bigger than 0.5mT should be recorded as tamper, Meters should not be failed to magnetic fields up to 200mT)
6.1	- Terminal and Meter cover removal - Partial earthing - Inverse current - changing of input phase & Neutral and not utilization of network neutral
5.2	Meter should have software serial number which is located in internal memory of meter and should be completely protected by meter
5.3	Terminal cover and main cover of meter should sealed in such way to avoid any type of tamper and illegal use
5.4	Stored programs and registers should have Full tamper and fraud protection.
5.5	Meter should detect terminal cover removal in power cut situation (this capability should have no effect on RTC battery life time)
6	Local or Remote Meter Reading
6.1	Below parameters should be collectable locally and remotely: - Meter status - Meter reading parameters(schedules and on demand parameter) - Meter configuration - Time & Date - Log information - Events and alarms
7	Type Test
7.1	The meter should have type test certificate that include details of test results according to IEC 62053-23, IEC62052-11, IEC62053-21, IEC62054-21 from international accredited laboratory and approved laboratory by TAVANIR. the type test should include all test that mentioned in the standards Some important tests are : - Environment test include Cool, Heat, Dryness, Wet heat, Random vibration and stroke - EMC tests consisting of electrical discharging and electromagnetic waves - Surge, fast transient/ Burst - High voltage, Insulation and Error changes tests

7.3	Meter should have certificate for IEC62056 DLMS/COSEM from an international accredited laboratory
8	Other Features
8.1	Insulation protection class should be 2
8.2	<ul style="list-style-type: none"> - Specified Operating Range ranges from -25 to +60°C and tolerable humidity is 95% - Limit Range of Operation ranges from -40 to +80°C. - Limit Range for Storage and Transport ranges that meter work by maintaining its accuracy class without any failure from -40 to +80°C.
8.3	Meter's failure rate should be less than 0.5% per year
8.4	Meter should be protected against Electromagnetic Compatibility (EMC).
8.5	In case of power cut off, basic data like consumed energy, tariffs, customer ref. no and meter serial No, calendar, settings and tariff time intervals should be saved in none volatile memory.
8.6	Meter should be self check and Diagnostic. So if an error appears in internal components (such as RAM, EEPROM, RTC ...Etc) meter should record and report it to central system through communication port.
8.7	Meter should record at least one User ID With 16 characters
8.8	Meter calibration should be kept during its life time and there should be no need for re-calibration.
8.9	Meter's internal relay/switch shall be connected/disconnected locally and remotely to connect/disconnect electricity supply of consumer

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1.4	Max. Internal power consumption: - Less than 10VA (2W) for voltage circuit each phase - Less than 4VA for phase current circuit Note: above value for power consumption is for meter without communication modem.
1.4	Three-wired and 4-wired connections
2	Metrology
2.1	Meter should be 4 Quadrants and it should have the ability of measuring and recording import/export active & reactive Energy separately (the values to be recorded for import and export are actual values).
2.2	Record cumulative active and reactive energy
2.3	It should be possible to locally and remotely select or configure exported energy whether to be registered or not.(according to standard, when the energy flows from network to the consumer it is registered as IMPORT and when the energy flows from consumer to the network it is registered as EXPORT.)
2.4	Meter should measure Import and export Energy as well as Absolute value of active energy and it should be possible to activate this capability.
2.5	Meter should measure three phase current I1, I2, I3 (True RMS)
2.6	Meter should measure three phase voltage V1, V2,V3 (True RMS)
2.7	Meter should measure Power Factor for three phase separately and cumulatively
2.8	Measuring and recording maximum demand of active and reactive power (optional) should be based on configurable time intervals and subintervals (sliding mode). - It should be possible to reset maximum demand remotely - It should be possible automatically Maximum demand to be reset at specific billing period. All parameter should be adjustable remotely and locally.
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5.2	Meter should have software serial number which is located in internal memory of meter and should be completely protected by meter
5.3	Terminal cover and main cover of meter should sealed in such way to avoid any type of tamper and illegal use
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Bid Information

Quotation shall indicate the following;

a) **Price**

- o The bidder shall quote for door-step delivery to Fenaka Corporation head office.



- All items shall be quoted in the bid.
- Quotation shall indicate the unit price, total price for each item and total price of the quotation. The quotation shall separately indicate additional charges such as freight charges, insurance, taxes, custom duty etc.

b) Delivery Period

- The delivery period shall be stated in ‘calendar days’.
- If the delivery period indicates ‘ex-stock’, or if the duration is not specified, the delivery period shall be taken same as the party offering the longest delivery period.

c) Payment Terms

- The payment terms shall be stated in ‘days or months’, and the payments will be released in equal monthly instalments.
- A maximum of 15% of the entire project can be provided as an advance if requested in the bid, however, it cannot be tied to the project starting date.
- For 15% Advance payment supplier have to submit bank guarantee letter

d) Quotation validity should be a minimum of 60 days from the date of quotation opening.

Note: It is in FENAKA Corporation Limited’s discretion to reject/cancel any quotation which does not fulfil or comply the above terms.

Please make sure the items are properly packaged and labelled separately as specifications given above.

Required Documents

- Quotation (inclusive of the delivery period and the payment terms)
- 1 compact disc (CD), along with 2 sets of the bid documents (One Original and 1 copy set) separately packed and sealed with company stamp. All the pages in bid documents should be stamped and Bind properly.
- Specification of the offered product



- Single line diagram of engine panel system
- Bid Security Original
 - Please refer announcement
- Related Completion Letter of past 5 years (If available)
- Details of the company
 - Company profile
 - Company registration certificate
 - GST registration certificate (For local suppliers only)
 - Tax Clearance Report (last 6 months)
 - Contact details (Name, Designation, Mobile number and Email)

Important Note:

- Bids lacking the documents above are subjected to be rejected during bid opening, Except “Related Completion Letter of past 5 years”. Also it is in FENAKA’s discretion to cancel this invitation to bid at any time.
- Bidders can submit maximum of 2 options.

Evaluation Criteria

- **Proposal Cost:** 40 points
 - (Lowest proposed price / proposed price) x 40 points
- **Delivery:** 30 Point
 - (Shortest Delivery Period) / (Quoted Delivery Period) x 30
- **Payment Terms:** 20 points for the maximum days given for payment
 - (Proposed credit period / longest credit period) x 20
- **Experience:** 10 points (Point will be given by analyzing Related completion letters of past 5 years depending on the value of the project)

Please submit your bids addressed to;

Managing Director
Fenaka Corporation Ltd
Port Complex Building, 7th Floor
Hilaalee Magu, Maafannu

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The proposal and the envelope must bear the reference number of the tender. All envelopes must be duly sealed and stamped. Fenaka Corporation will not be liable for the misplacement or premature opening of unlabeled sealed proposals. The bids will be opened in the presence of the bidders. The bids received after the stated time, and the bids received via email will not be accepted.

For more information and clarifications, please email us at tender@fenaka.com.mv until

15th September 2019