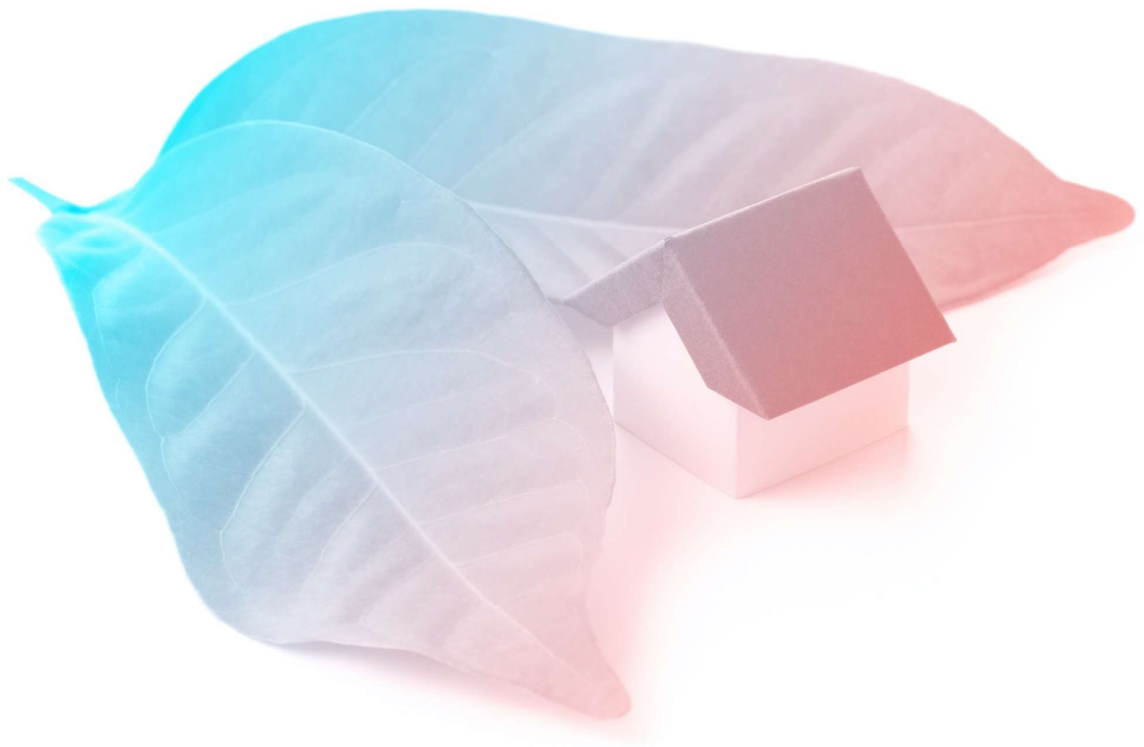




## Monitoring Sensor Tender Demo Site SOPRON



WOODSPRING Ltd.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No 869821

## CALL FOR OFFER

Project name: Minimal Size Thermal and Electrical Energy Storage System for In-Situ Residential Installation

Proposal number: 869821

Proposal acronym: MiniStor

Contracting: WOODSPRING Ltd. (Faforrás Kft. 108. Gerinc, Budapest 1221 Hungary)

Date: 15 of May 2020

Location: Sopron, 9400 Hungary

Subject of the purchase: Purchasing the monitoring sensors for the Hungarian Demo Site

Submission deadline: 08 of June 2020

Submission method of the tender: e-mail: [pasztory.zoltan@faforras.hu](mailto:pasztory.zoltan@faforras.hu)

Additional information: Part offer is not accepted, the offer is valid only if the applicant can provide all types and numbers of the sensors subject of this call.

Offer is valid only if the specifications of the offered sensors fit the required specification given below.

Offer is valid only if it was sent by e-mail to the address written this call within the deadline.

In case of questions or demand for further information the applicant can send question or ask for clarification.

Evaluation of offers: The next day of all three offer arrived, but the latest date 9 of June 2020.

Specification and amount of the sensor to be purchased:

Nr.	Function	Specification/accuracy	Amount (pcs)
1	Metering Gateway, M-Bus	DIN rail mount. Integrated M-Bus master, support for connecting at least 32 slave devices. M-Bus slave port: 2-wire screw terminal. Capability to store measurement data offline. RJ45 Ethernet connectivity, web interface, ability to access data through REST API.	1
2	Temperature/humidity sensor, M-Bus	Indoor, wall mount construction. LCD display of momentary values. M-Bus slave interface, 2-wire screw terminal.  Minimal requirements of measurement: Temp. range: 0-50°C Temp. accuracy (in range 10-30°C): $\pm 0.2^{\circ}\text{C}$ Humid. range: 0-100%RH Humid. accuracy (in range 10-90%RH): $\pm 2\%RH$	12
3	Single-phase energy meter, M-Bus	DIN rail mount, LCD display. M-Bus slave device, screw terminal. Nominal voltage: 230V <sub>LN</sub> AC Nominal current range: 5(45) A  Accuracy: I <sub>min</sub> =0.25A; I <sub>b</sub> =5A; I <sub>max</sub> =45A; U <sub>n</sub> =230V <sub>LN</sub> -30% +20% Active energy: Class 1 according to EN62053-21 Class B (Class B (kWh) according to EN50470-3) Reactive energy: Class 2 according to EN62053-23  Resolution (serial communication): Current: 0.001 A Voltage: 0.1 V Power: 0.1 W or var Frequency: 0.1Hz PF: 0.001 Energies: 0.1 kWh or kvarh	7
4	Three-phase energy meter, M-Bus	DIN rail mount, LCD display. M-Bus slave device, screw terminal. Nominal voltage: 208 to 400 V <sub>LL</sub> AC Nominal current range: 5(65) A  Accuracy:	3

		<p><math>I_{min}=0.25A</math>; <math>I_b=5A</math>; <math>I_{max}=65A</math>;  <math>U_n</math>: 113 to 265VLN (196 to 460VLL) Current: <math>\pm(0.5\%RDG+1DGT)</math>  Phase-neutral voltage: <math>\pm(0.5\% RDG)</math>  Phase-phase voltage: <math>\pm(1\% RDG)</math>  Frequency Range: 45 to 65Hz  Active power: <math>\pm(1\% RDG)</math>  Power factor: <math>\pm[0.001+1\%(1.000 - "PF RDG")]</math>  Reactive power: <math>\pm(2\% RDG)</math>  Active energy: Class 1 according to EN62053-21 and MID Annex MI-003 Class B (Class B (kWh) according to EN50470-3)  Reactive energy: Class 2 according to EN62053-23</p> <p>Resolution (serial communication):  Current: 0.001 A  Voltage: 0.1 V  Power: 0.1 W or var  Frequency: 0.1Hz  PF: 0.001  Energies: 0.1 kWh or kvarh</p>	
5	Ultrasonic heat meter, M-Bus	<p>Temperature range °C 0-90  Environmental classification EN1434 – C / 2004/22/EC class E1, M1  Ingress protection IP 54  Environmental temperature °C 5...55°C (operation) / -10...60°C (transport)  Interface M-Bus  Temperature sensors Type Pt500  Nominal flow <math>q_p</math> [m<sup>3</sup>/h] 1,5  Minimum flow <math>q_i</math> [l/h] 6  Accuracy class EN1434 – cl. 2  Available sizes 3/4"-110</p>	2
6	Airflow and energy meter	<p>Air flow measurement accuracy 3%  Temperature measurement accuracy 1°C  Calculating temperature difference according to the inlet and outlet airflow.  Build in to the air-conditioning unit  Connection mode M-Bus  Local display on the unit</p>	1
7	Weather Station	<p>Integrated device, RS-485 serial output with Modbus-RTU protocol.</p> <p>Wind Speed:  Sensor: Ultrasound  Measuring range: 0...60 m/s  Resolution: 0.01 m/s  Accuracy: <math>\pm 0.2</math> m/s or <math>\pm 2\%</math> (0...35 m/s), <math>\pm 3\%</math> (&gt; 35 m/s)</p>	1

	<p>Wind Direction:          Sensor: Ultrasound          Measuring range: 0...359.9°          Resolution: 0.1°          Accuracy: <math>\pm 2^\circ</math> RMSE from 1.0 m/s</p> <p>Air Temperature:          Sensor: Pt100          Measuring range: -40...+70°C          Resolution: 0.1°C          Accuracy: <math>\pm 0.15^\circ\text{C}</math>, <math>\pm 0.1\%</math> of measurement</p> <p>Relative Humidity:          Sensor: Capacitive          Measuring range: 0...100%RH          Resolution: 0.1%          Accuracy (@ T = 15...35°C): <math>\pm 1.5\%</math>RH (0...90%RH), <math>\pm 2\%</math>RH (remaining range)          Accuracy (@ T = -40...+70°C): <math>\pm (1.5 + 1.5\%</math> of measurement) RH</p> <p>Solar Radiation:          Sensor: Thermopile          Measuring range: 0...2000 W/m<sup>2</sup>          Resolution: 1 W/m<sup>2</sup>          Accuracy: 2nd Class Pyranometer</p>	
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For having a formal and technical comparability please send us the price offer by filling the attached offer template.

Sopron 29th of May 2020