

## ANNEX 1: SCHEDULE OF REQUIREMENTS

Table 1: List of buildings

**The installation of smart meters will be under entire responsibility of the bidder**

Nr.	Institution	Cold Water	Hot Water	Thermal	Electricity
1	Statia de Tracțiune Nr2 (RTEC) Str. Mitropolit Dosoftei 138	1 (50 mm)			4 three-phase Electric meters (5A / 100V), Active Energy Consumption Indicator kWh and Passive Energy Consumption kWh
2	1 Bloc Rezidențial Str. Mihail Sadoveanu 28	1 (50 mm)	1 (50 mm)	1 (50 mm)	2 Three-phase Electric Meters e (3x230 / 400v) 5 (120) A 1 Single Phase Electric Meter 230V 5 (40) A
3	Blocul Administrativ al PMC (Primaria) Blvd. Stefan cel Mare si Sfant 83	3 (15 mm)		1 (50 mm)	
4	Gimnaziul teatral Ion Luca Caragiale Str. Miron Costin 19/7	1 (25 mm)		1 (40 mm)	
5	Gradinita nr.160 Str. Gh. Madan 85/1	1 (25 mm)	1 (25 mm)	1 (40 mm)	
6	Liceul George Calinescu str. Ceucari 7	1 (40 mm)		1 (50 mm)	
7	Liceul Mihail Sadoveanu str. Aerodromului 5	2 (25 mm) 1 (15 mm)		2 (25 mm) 1 (40 mm)	1 Three-phase Electric Meter (3x230 / 400v) 5 (120) A
8	Scoala sportiva nr.8 str. Nicolae H. Costin 61/6	1 (50 mm)		1 (40 mm)	1 Three-phase Electric Meter (3x230 / 400v) 5 (120) A
9	Instituție de educație timpurie 216 bd. Decebal 82/3	1 (25 mm)		1 (40 mm)	
10	Instituție de educație timpurie 8 Str. Gh.Asachi, 64/2	1 (40 mm)	1 (25 mm)	1 (40 mm)	
11	Instituție de educație timpurie 20 Str. V. Lupu 21	1 (30 mm)	1 (20 mm)	1 (40 mm)	
12	Teatrul Guguță Str. Maria Dragan 1	1 (20 mm)		1 (40 mm)	2 Three Phase Electric Meters (3x230 / 400v) 5 (120) A
13	Scoala sportiva specializata de polo pe apa nr. 4 "Gheorghe Osipov" Str. Miron Costin 24/1	1 (80 mm)		1 (80 mm)	
14	Scoala sportiva specializata la Taekwondo WTF nr.6	1 (50 mm)	1 (20 mm)	1 (50 mm)	

	Str. Ion Pelivan 30/2				
15	Scoala sportiva pentru copii si juniori nr. 11 Str. Alecu Russo 57	1 (40 mm)		1 (40 mm)	2 Three Phase Electric Meters (3x230 / 400v) 5 (120) A
16	Liceul Ion Creangă Str. Studenților 10/3			1 (50 mm)	
17	Casa ONU în Moldova Str. 31 August 1989 131	1 (25 mm)		1 (25 mm)	
	<b>Total</b>	<b>20</b>	<b>5</b>	<b>18</b>	<b>13</b>

**Table 2: Technical Specifications for Goods:**

Item No	Minimum technical requirements	Unit	Quantity
<b>LOT 1</b>			
<b>1</b>	<b>Electricity smart-meters:</b> <ul style="list-style-type: none"> <li>– Active energy, accuracy class B, export and import</li> <li>– Reactive energy, accuracy class 2, 4 quadrants</li> <li>– Non-volatile memory</li> <li>– Up to 6 tariff registers, up to 24 changeovers per day</li> <li>– Built-in basic relays (80/100A)</li> <li>– Up to 2 built-in extra relays (2 or 5A) for load control</li> <li>– Energy quality control &amp; monitoring</li> <li>– Terminal box and meter case opening sensors</li> <li>– Strong external magnetic field sensor</li> <li>– Standard data model, open protocols</li> <li>– Universal Hardware Platform supporting OFDM based technologies: PRIME 1.3.6, PRIME 1.4, G3-PLC</li> <li>– USB, wM-BUS, RS-485 interfaces</li> <li>– Calculation of total harmonic distortion factor</li> <li>– High-level security</li> <li>– 2G/3G/4G support</li> <li>– Prepayment &amp; credit operational modes</li> <li>– Backup power supply</li> <li>– IP 54 protection against water and dust</li> <li>– Communication <ul style="list-style-type: none"> <li>○ Wireless LoRa 868, M-Bus or DLMS</li> </ul> </li> <li>– Certification <ul style="list-style-type: none"> <li>○ Product marking CE</li> <li>○ Products labelled accordingly meet the requirements of the listed Directives and Standards. They correspond to the tested type samples.</li> </ul> </li> <li>– Technical Passport</li> </ul>	<b>pcs</b>	<b>13</b>  (specific information for exact type of meter in Annex 1)
<b>LOT 2</b>			
<b>1</b>	<b>Thermal smart-meters</b> <ul style="list-style-type: none"> <li>– Degree of protection: min IP 54</li> <li>– Temperature conditions <ul style="list-style-type: none"> <li>○ Ambient operating temperature +5 ... +55 C</li> <li>○ Ambient storage temperature -25 ... +60 (&gt;35C max. 4 weeks)</li> </ul> </li> </ul>	<b>pcs</b>	<b>18</b>  (specific information for exact type of

	<ul style="list-style-type: none"> <li>○ Temperature range heating +5 ... +130/+150 C (depending on size)</li> <li>○ Temperature range cooling +5 ... +90</li> <li>○ Absolute temperature range calculator +1...+180 C</li> </ul> <ul style="list-style-type: none"> <li>– Mains supply <ul style="list-style-type: none"> <li>○ 24 VAC; 230 VAC</li> </ul> </li> <li>– Temperature sensor type <ul style="list-style-type: none"> <li>○ Pt 500 with 2-wires ; Ø 5.2 mm or direct sensor</li> </ul> </li> <li>– Test possibilities <ul style="list-style-type: none"> <li>○ Via display, optical test pulses, test output or via NOWA software</li> </ul> </li> <li>– Communication <ul style="list-style-type: none"> <li>○ Wireless LoRa 868, M-Bus or DLMS</li> </ul> </li> <li>– Certification <ul style="list-style-type: none"> <li>○ Product marking CE</li> <li>○ Products labelled accordingly meet the requirements of the listed Directives and Standards. They correspond to the tested type samples.</li> </ul> </li> <li>– Technical Passport</li> </ul>		meter in Annex 1)
<b>LOT 3</b>			
<b>1</b>	<p><b>Water smart-meters (including hot water)</b></p> <ul style="list-style-type: none"> <li>– Degree of protection: min IP 68</li> <li>– Temperature conditions <ul style="list-style-type: none"> <li>○ Ambient operating temperature -10 ... +55 C</li> <li>○ Ambient storage temperature -10 ... +70 (&gt;35C max. 4 weeks)</li> <li>○ Medium temperature range +0.1 ... +50 C</li> </ul> </li> <li>– Nominal supply <ul style="list-style-type: none"> <li>○ 16 bar</li> </ul> </li> <li>– Communication <ul style="list-style-type: none"> <li>○ Wireless LoRa 868, M-Bus or DLMS</li> </ul> </li> <li>– Certification <ul style="list-style-type: none"> <li>○ Product marking CE</li> <li>○ Products labelled accordingly meet the requirements of the listed Directives and Standards. They correspond to the tested type samples.</li> </ul> </li> <li>– Technical Passport</li> </ul>	pcs	<b>25</b>  (specific information for exact type of meter in Annex 1)
<b>LOT 4</b>			
<b>1</b>	<p><b>Concentrator and communication system</b></p> <p><b><u>N.B. Installation and connection of the concentrator and communication systems to smart meters and EMIS will be under entire responsibility of the bidder</u></b></p> <p><b>General information</b></p> <p>The concentrator (collection and data transmission device) must collect all data from smart meters installed at the facilities (administrative buildings) and then transmit them in the required format (JSON) to the EMIS system. Data format requirements are available at <a href="https://www.emis.md/help/">https://www.emis.md/help/</a></p> <p>The proposed solution for the Concentrator should ensure the safety of the collected data, ensuring the possibility of avoiding data loss in case of any communication failure with the EMIS system. <i>E.g. in case of interruption or lack of communication with the EMIS system, data from smart meters should be temporarily stored in the Concentrator's database until the connection is restored)</i></p> <p><u>Preference should be given to solutions using modern information technologies and standards:</u></p>	pcs	<b>17</b>  (one for each building)

	<ul style="list-style-type: none"> <li>– Multitasking operating systems such as Linux or Windows</li> <li>– Full stack of TCP / IP protocols with the ability to encrypt transmitted data</li> <li>– Database Management Systems with SQL support.</li> </ul> <p><b><u>Concentrator connections and communication protocols:</u></b></p> <ul style="list-style-type: none"> <li>– support open communication protocols Modbus, M-Bus and DLMS / COSEM,</li> <li>– provide for the possibility of wired connection via Ethernet, RS-485 and / or USB standards,</li> <li>– provide for the possibility of connecting a specialized communication gateway for wireless data transmission based on the LoRa 868 MHz and / or RF 868 MHz standards.</li> </ul> <p><b><u>Concentrator installation and degree of protection:</u></b></p> <ul style="list-style-type: none"> <li>– protected electrical enclosure,</li> <li>– uninterruptible power supply with battery,</li> <li>– autonomous alarm system with the ability to alert in case of unauthorized opening and / or access to the Concentrator.</li> </ul> <p><b><u>Communication system - gateway must allow:</u></b></p> <ul style="list-style-type: none"> <li>– data collection from smart meters using the LoRa 868 MHz and / or RF 868 MHz wireless data transmission standard.</li> <li>– transfer of collected data from smart meters to the Concentrator via a wired connection such as Ethernet and / or RS-485.</li> </ul>		
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#### Delivery Requirements

Delivery Requirements	
<b>Delivery date and time</b>	Bidder shall deliver the goods <b>up to 30 days</b> after Contract signature.
<b>Delivery Terms (INCOTERMS 2020)</b>	DAP
<b>Customs clearance (must be linked to INCOTERM)</b>	<input type="checkbox"/> Not applicable Shall be done by: <input type="checkbox"/> Name of organisation (where applicable) <input checked="" type="checkbox"/> Supplier/bidder <input type="checkbox"/> Freight Forwarder
<b>Exact Address(es) of Delivery Location(s)</b>	Chisinau, Republic of Moldova with installation on addressed indicated in Annex 1
<b>Distribution of shipping documents (if using freight forwarder)</b>	N/A
<b>Packing Requirements</b>	N/A
<b>Training on Operations and Maintenance</b>	Yes
<b>Warranty Period</b>	24 months
<b>After-sales service and local service support requirements</b>	Statement of availability of provision of technical support within 72 hours after notification from the Beneficiary institution