



**Kenya Power**

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Our ref: - KP1/9A.3/OT/05/23-24/Add2/JN/bkk

28<sup>th</sup> December, 2023

**Your ref:**

**TO: ALL PROSPECTIVE BIDDERS**

**RE: ADDENDUM NO. 2 TO TENDER NO. KP1/9A.3/OT/05/23-24 FOR SUPPLY OF METERING UNITS (LOCAL BIDDERS)**

Following clarifications arising from prospective bidders, it has been found necessary to make amendments to the Principal Tender Document (hereinafter abbreviated as the PTD) in Tender for Supply of Metering Units (Local bidders) dated November, 2023.

The tender is already uploaded on the KPLC Portal.

**1. RELATIONSHIP WITH THE PRINCIPAL TENDER DOCUMENT**

Save where expressly amended by the terms of this Addendum, the Principle tender Document shall continue to be in full force and effect. The provisions of this addendum shall be deemed to have been incorporated in and shall be read and construed as part of the Principle tender Document.

**2. RESPONSE TO CLARIFICATIONS AS SOUGHT BY VARIOUS BIDDERS**

Clarifications made are as detailed in table (1) one (Attached).

**3. TENDER CLOSING DATE.**

The tender closing date remains **15<sup>th</sup> January 2024 at 10.00am**

All other terms and condition remains as per the Principal Tender Document (PTD).

Yours faithfully,

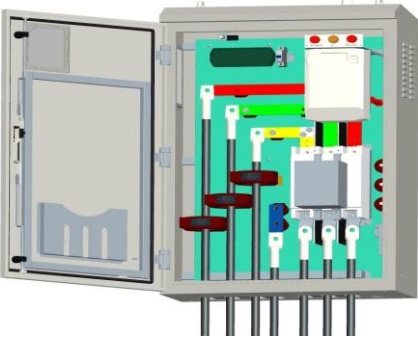
**FOR: THE KENYA POWER & LIGHTING COMPANY PLC**

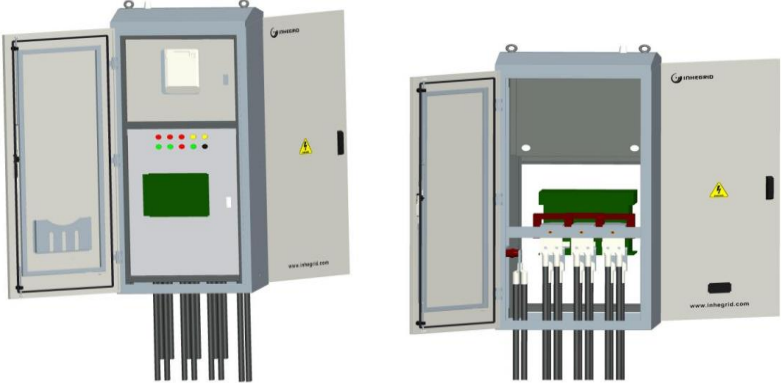
**HAROUN OTIENO**

**AG. GENERAL MANAGER, SUPPLY CHAIN & LOGISTICS**

TABLE (1) ONE

No	Ref	Description	Clarifications sought by bidders	KPLC response
1	<b>KP1/10.A2B/3/4-02 SPECIFICATION FOR: LOW VOLTAGE RING TYPE MEASURING CURRENT TRANSFORMER</b> Page 2 of 19	<b>4.2.1 Dimensions</b> 4.2.1.1 Measuring current transformers shall be of bar primary type , having a hollow diameter of not less than 55mm with an external diameter of not more than 110mm for Current Transformer of 100 / 5A . 200 / 5A . 300 / 5A and 500 / 5A ratios 4.2.1.2 For Current ratios of above 500 / 5A and up to 2000 / 5A shall have hollow diameters of not less than 120mm with external diameter of not more than 170mm	The whole Metering Unit is provided by manufacturers, we will reserve the connection position of the incoming and outgoing copper bar. The user cable does not need to pass through the transformer, and it can be directly connected to the copper bar. So our dimensions are as follows: 200/5A hollow diameter : $\leq 45\text{mm}$ , external diameter : $\leq 110\text{mm}$ ; 300/5A hollow diameter : $\leq 45\text{mm}$ , external diameter : $\leq 110\text{mm}$ ; 500/5A hollow diameter : $\leq 55\text{mm}$ ,external diameter : $\leq 110\text{mm}$ ; 1000/5A hollow diameter : $\leq 80\text{mm}$ ,external diameter : $\leq 130\text{mm}$ ; 1500/5A hollow diameter : $\leq 80\text{mm}$ ,external diameter : $\leq 130\text{mm}$ ; Kindly confirm whether the above dimensions are acceptable to you?	Comply with Specifications. However, rectangular Current Transformers are acceptable
2	<b>KP1/10.A2B/3/4-02 SPECIFICATION FOR: LOW VOLTAGE RING TYPE MEASURING CURRENT TRANSFORMER</b> Page 3 of 18	<b>4.3.5 Rated output power</b> The value of rated output shall be $\geq 10\text{VA}$ .	We advise the value of the rated output power for the Current from 200A to 500A can adopt 5VA, the current from 1000A to 2000A can adopt 10VA. Our reasons are as follows: 1. The application in this project does not need such a large capacity. The purpose of this project is for metering and the metering coil is directly connected with the energy meter, no other equipment connected. The single phase consumption of current circuit of energy meter is less than 1VA. The capacity of the small current specification ( $\leq 500\text{A}$ ) produced by the supplier is at most 5VA, which is 5 times of the required capacity, much exceeding the requirements.  2. When the capacity of metering CT ( $\leq 500\text{A}$ ) is over than 5VA, the supplier needs to re-design the structure. As a manufacturer, we do not recommend design changes for this product ( $\leq 500\text{A}$ ) when the application meets and over the requirements. Instead, mature general produced specifications can ensure the stability of the product.  Hence, we advise for the capacity of metering CT with current less than and equal to 500A can adopt 5VA, please kindly confirm whether is it applicable for you?	Comply with Specification

3	<b>KP1/6C/4/1/TSP14/00 6-2 SPECIFICATION FOR ENCLOSURE FOR METERING EQUIPMENT (Page 7 of 18)</b>	4.2.2.2 The meter Enclosure shall be made from stainless steel plate of designation 1.4404 (ASTM A240 s 3 1 6L) as per EN 10088-2 or its equivalent and have adequate mechanical strength to withstand rough handling as may be expected in normal use.	Now most of manufacturers prefer to use the stainless steel material of 201 which can better achieve anti-rust effect during use. The cost is more economical and it is convenient to process. Hence, we recommend that the cabinet material can adopt 201 stainless steel and be sprayed with anti-rust paint on the surface. Kindly confirm whether is it acceptable for you?	Comply with Specification
4	<b>KP1/6C/4/1/TSP14/00 6-2 SPECIFICATION FOR ENCLOSURE FOR METERING EQUIPMENT (Page 7 of 18)</b>	4.2.2.5 The Enclosure shall be constructed to IP65 degree of protection as per IEC 60529 and IEC 62208:201 1 standards.  4.2.2.6 The Enclosure shall be constructed to allow adequate dissipation of heat.	Usually the protection level of the metering box is IP54, and the cabinet is designed with louvers for heat dissipation to meet the 4.2.2.6 clause for outdoor use. Most of the manufacturers in the market also follow this design. According to our implementation experience, most users also require this protection level; if the design is IP65, the cabinet cannot be designed with heat dissipation shutters, and the cost will increase significantly. Hence, considering the cost the application used at site, we advise that the enclosure can be designed according to IP54 and meet the heat dissipation requirements Kindly confirm whether is it is acceptable for you?	clause 4.2.2.5 amended to IP54 degree instead of IP65 degree for TSP – KP1/6C/4/1/TSP14/006-2
5	<b>KP1/6C/4/1/TSP14/00 6-2 SPECIFICATION FOR ENCLOSURE FOR METERING EQUIPMENT (Page 8 of 18)</b>	4.2.2.18 The enclosure shall have up-down structure and left-right structure and shall be of independent design for up-down/left-right door lock.	Q1: Does this mean the enclosure has to meet both up-down structure and left-right structure? Or the enclosure has the up-down structure <b>OR</b> left right structure? Kindly clarify.  Q2: According to our implementation experience, usually for the small size ammeter enclosure is designed with only one door, from right to left or from left to right. Because the size and volume of the box are relatively small, designing ONE door is sufficient to meet the use requirements, including: high-voltage metering enclosure (only install meter + junction box), direct connected meter box, low-voltage meter box with current less than 1000A, all designed as one door, please refer to Figure 1.    For the low-voltage meter enclosure with current is larger than 1000A, the size and volume of the box body will be large due to the larger specifications of circuit breakers, transformers, and copper bars. It can be designed with a side door at the front and rear of the box. Refer to Figure 2.	1. Comply with specification 2. For rating 1000A and above enclosures – front & rear doors acceptable

			 <p>Kindly confirm whether this is acceptable for you, that is:</p> <ol style="list-style-type: none"> <li>1. Low-voltage meter box with current less than 1000A is designed as one door, please refer to Figure 1.</li> <li>2. For the low-voltage meter box with current is larger than 1000 A is designed with a side door at the front and rear of the box. Refer to Figure 2.</li> </ol>	
6	<b>KP1/6C/4/1/TSP14/00 6-2 SPECIFICATION FOR ENCLOSURE FOR METERING EQUIPMENT (Page 8 of 18)</b>	4.2.2.23 The Enclosure shall have accessories to meet different installation scenarios such as hang, embed, ground and pole.	<p>Our enclosure supports installation scenarios such as hang, embed, ground and pole.</p> <p>For the pole installation, the anchor ear we provided is applicable for the pole with diameter 190~210mm</p> <p>Kindly confirm whether it can meet your requirement at site?</p>	<p>Our Poles maximum diameter = 200 mm- Thus acceptable</p>
7	<b>KP1/6C/4/1/TSP14/00 6-2 SPECIFICATION FOR ENCLOSURE FOR METERING EQUIPMENT (Page 9 of 18)</b>	4.3.2 The rated current of circuit breaker shall be configured to be 1.5-2 times of rated capacity.	<p>Kindly clarify what does the rated capacity mean? Is it for the capacity of transformers? If not, kindly clarify.</p>	<p>Comply with Specifications</p>
8	<b>KP1-13D-4-1-TSP-14-018-12kV Table 2: Technical Parameters of the 12kV Circuit Breaker from P11</b>	6. Symmetrical Short-Circuit Rating: 31.5kA 7. Short-circuit current withstand, not less than 3 second: 31.5kA 12. Rated making capacity: 40kA	<p>We note from the ABB document regarding power transformer impedance that typically the impedance of large power transformers is approximately 10%, The transmission system impedance must also be considered and typically this will be around 2% or 2.5%. If we assume a total transformer and source impedance of 12.5%, and if the outdoor protection and metering breaker units are to be connected directly at the substation bus bars then would need to be at least 75MVA at 11kV to generate this fault level.</p> <p>Our suggested values for interruption duty are 16kA at 11kV, This would necessitate transformer connected capacities of 30MVA at 11kV if the fault was to occur directly on the transformer LV tails.</p> <p>Please kindly clarify.</p>	<p>Comply with Specifications</p>

9	<b>KP1-13D-4-1-TSP-14-018-12kV</b> <b>Table 3: Technical Parameters of the 12kV Voltage Transformers from P14</b>	Rated Output(min): 300VA	<p>About the rated output 300VA, is it the limit output capacity ? According to IEC 62053-21 Clause 7, the maximum permissible power consumption for the voltage circuits is 10 VA and 2 W ( including the power supply ) and for the current circuits 4 VA .</p> <p>We advise the Rate Output can adopt 30VA.</p> <p>Our reasons are as follows:</p> <p>1. The application in this project does not need such a large capacity. The purpose of this project is for metering and the metering coil is directly connected with the energy meter, no other equipment connected. The single phase consumption of voltage circuit of energy meter is less than 10VA (2W) . Capacity of general produced by supplier is 30VA, which is 3 times over the required capacity and exceed the requirement.</p> <p>2. If the capacity of metering VT is over than 30VA, the supplier needs to re-design the structure. As a manufacturer, we do not recommend design changes for this high-voltage product when the application already meets this requirement. Instead, mature general produced specifications will ensure the stability of the product.</p>	Comply with Specifications
10	<b>KP1-13D-4-1-TSP-14-018-12kV</b> <b>Table 4: Technical Parameters of the 12kV Current Transformers from P14</b>	Rated short time current: 31.5kA/3s.	According to 5.204.1 of IEC 61869-2, the short-term resistance of a current transformer to heat-stabilized current is 1s, not 3s.	Comply with Specifications
11	<b>KP1-13D-4-1-TSP-14-018-12kV</b> <b>Table 4: Technical Parameters of the 12kV Current Transformers from P15</b>	Transformation Ratio of CTs:400-200-100/1A.	LOT3 requires “OUTDOOR METERING UNIT 11 kV 300/1”. Kindly clarify the ratio of CT should follow the 300/1 or the technical specifications--400-200-100/1A.?	1. Refer to addendum 1 on item amendment from code 535376 (Outdoor Metering Unit 11 kV 300/1) to code 535377 (Outdoor Metering Unit 11 kV 400/1)
12	<b>KP1-13D-KP1-13D-4-1-TSP-11-001 11KV</b> <b>Table 3:Medium Voltage Switchgear Panel Ratings from P18</b>	Bus clearances : Phase to earth 300mm ; phase to phase 250mm ;	According to the stipulation of 6.2.8 on page 13 of the tender document, the width of the measuring panel does not exceed 900mm. We have designed the layout	Comply with Specifications

			<p>effect of the circuit breaker.</p>	
13	<b>KP1-13D-KP1-13D-4-1-TSP-11-001 11KV</b> <b>Table 6:Voltage Transformer Rating from P18</b>	Table 6:Voltage Transformer Rating from P18 Load requirements up to 50VA	Load requirements up to 50VA, we recommend accepting 30VA for the same reason as Question 9	Comply with Specifications
14	<b>KP1-13D-KP1-13D-4-1-TSP-11-001 11KV</b> <b>7.6 Earth Switch from P</b>	It is preferred that earth switch be provided both on the incoming and outgoing cable circuits	This cabinet type can only be grounded on the outgoing side. Is it acceptable?	Comply with Specifications
15	<b>KP1/9A.3/OT/05/23-24</b> <b>P33</b>	ITT 18.1 NB. Bidders who choose to bid for the three lots can submit one Tender Security for Ksh. 4,900,000.00 (Kenya Shillings Three Million five hundred thousand only ).	Please clarify the bid for the five lots can submit one Tender Security for Ksh. 4,900,000.00 ( Kenya Shillings Four Million Nine Hundred Thousand).	Refer to addendum 1 dated 19 <sup>th</sup> December 2023
16	<b>KP1/13D/4/1/TSP/14/020</b> <b>P10</b>	4.2 METER COVER, BASE AND TERMINALS 4.2.7 The terminal cover shall be of transparent material.The external communication modem/module shall be equipped under the terminal cover.	<p>The communication module of meter is plug-in and equipped under the meter top cover,which is better for sealing and more convenient. Kindly confirm is this acceptable?</p>	Acceptable

17	<b>KP1/13D/4/1/TSP/14/020 P10</b>	4.2 METER COVER, BASE AND TERMINALS 4.2.8 The meters shall be ultrasonically sealed for life and there should be no screws on the body except for the termination of cables.	Considering the module position of the CT meter, ultrasonic sealing is inconvenient for maintenance, so the CT meter is sealed with sealing screws. Kindly confirm whether sealing by screws is acceptable to you?	Comply with Specifications
18	<b>KP1/13D/4/1/TSP/14/020 P12</b>	4.4 METER DISPLAY 4.4.1 The meters shall have a backlight seven-segment Liquid Crystal Display (LCD) for displaying parameters and measured values. 4.4.2 The meters shall have a backlight-LCD with at least ten (10) numerical characters comprising of selectable integers and No decimal points for energy measurement. Individual digit size shall be minimum 4 mm wide x 8 mm high.	If using the LCD with a seven-segment display, the meter supports 8-digit display. However, if using the dot-matrix LCD display, the meter can support 10 or more digital display. Kindly confirm whether a dot-matrix LCD is acceptable to you?	Comply with Specifications
19	<b>KP1/13D/4/1/TSP/14/020 P15</b>	4.8 ENERGY MEASUREMENTS 4.8.5 The energy registers shall be capable of displaying these measured parameters in either kilo- Mega-or Giga-.	Our meter is capable of displaying the parameters in MWh/MW. When the LCD display is 10 or more, it is enough to support normal use. Kindly confirm is this acceptable?	Comply with Specifications
20	<b>KP1/13D/4/1/TSP/14/020 P17</b>	4.12 POWER QUALITY ANALYSIS 4.12.4 The meter shall be able to provide voltage sag and swell detection.	Our meter support detecte over-voltage and under-voltage events within 1s. Kindly confirm is this acceptable?	Comply with Specifications

