

Our Ref: KETRACO/ PT/027/2025

22<sup>nd</sup> August 2025

Notice to all Bidders.

**TENDER ADDENDUM AND CLARIFICATION No. 2 (TAC2)**

**RE: EPC Tender for Extension of Existing Kabarnet and Rumuruti 132/33kV Substations**

**IFB OCBI No: KETRACO/PT/027/2025**

The following amendments are made to the specified provisions for the bidding documents for EPC Construction for the Design, Supply, and Installation Services for Extension of Existing 132/33 kV Kabarnet & Rumuruti substations (IFB OCBI No: KETRACO/PT/027/2025).

Save where expressly amended by the terms of this clarification, the Principal Tender Document shall continue to be in full force and effect.

Find herein the ADDENDUM and CLARIFICATION No. 2, consisting of Sixty-One (61) pages into the Principal Tender Documents as attached. This document should be returned along with dully filled Form of Tender.

All other terms and conditions of the Request for Proposal document remains the same.



**JANE VULIGWA**

**SENIOR MANAGER, SUPPLY CHAIN**

Tender Addendum and Clarification No. 2 of IFB OCBI No: KETRACO/PT/027/2025 has been received and incorporated in the Tender Documents.

<b>Name of Tenderer (<i>in block letters</i>):</b>	
<b>Signature:</b>	
<b>Date:</b>	
<b>Signed for the Tenderer by (<i>Name in block letters</i>):</b>	
<b>In the office bearer capacity of:</b>	

## A. Addendum No.2

1. **Section III - Evaluation and Qualification Criteria, 2.2 Economic Evaluation, ( c ) Functional Guarantees of the Facilities** has been amended as follows:-

( c ) Functional Guarantees of the Facilities

The evaluation will be based on the losses indicated by the Contractor in the Guaranteed Technical Schedules.

The total capitalized cost of the losses will be added to the cost of transformers for comparing bids.

The cost of guaranteed power transformer no-load and load losses will be added to the transformer price, and the evaluated transformer cost will be calculated as per the following formula:

$$C_{Tev} = C_T + (L_n \times C_{Ln}) + (L_L \times C_{LL})$$

Where:

- $C_{Tev}$  = The evaluated cost of the transformer;
- $C_T$  = The cost of the transformer as indicated in the Schedule of Rates and Prices;
- $L_n$  = The no-load losses in kW, as indicated in the Schedule of Guaranteed Technical Characteristics;
- $L_L$  = The load losses in kW, at continuous maximum rating, as indicated in the Schedule of Guaranteed Technical Characteristics;
- $C_{Ln}$  = The cost per kW of no-load losses, that is USD 9,000 /kW;
- $C_{LL}$  = The cost per kW of load losses, that is, USD 4,000 /kW.

**Specific additional criteria**

The evaluation method, shall be as follows:

- (i) Evaluating transformer rating.

Description	Required	For the purposes of evaluation an adjustment as calculated below will be added to the tender price.
1. 132/33kV Power Transformer - Rated power at site conditions (ONAN/ONAF)	23 MVA	Transformers with a rated power less than 2.5% of the required power rating will be rejected.  KSh 40,000/KVA for one percent (1%) or pro-rata for less than one percent drop in the above figure.
2 Transformer losses	132/32 kV Power Transformer a) Maximum no load losses: 12 KW b) Maximum load losses at 75°C and rated frequency: - ONAF rated power (23MVA) and principal tapping- to be proved by test and calculation: 100 (Max) at 23MVA Base  Auxiliary Transformer a) Max. No Load Losses :0.65 kW b) Max. Load Losses: 3.0 kW	Transformers with losses 2.5% above the required losses will be rejected  After factory acceptance tests of transformers, in case of the tested load loss and no-load loss values differ from the guaranteed ones, the below penalties will be applied as liquidated damages:  - No Load: USD 9,000 / kW  - Load Loss: USD 4,000 / kW

2. **Part 2, Employers Requirements 3.2.1 Circuit Breakers** is revised as below,  
The 132kV Circuit breakers shall be SF6 Circuit breakers of outdoor type, while the 33kV Circuit breakers shall be Vacuum Circuit breakers of outdoor type.  
Find revised 33kV VCB\_TDS\_REV.01 enclosed with this Addendum.
3. **Part 2, Employer Requirements ,10.2 Scope of works , 415/240 LVAC Switchgear.**  
Bidders shall refer to and follow the revised LVAC drawings for Kabarnet & Rumuruti stations enclosed with this Addendum viz KABARNET-LVAC-SLD-001 REV.01 & RUMURUTI-LVAC-SLD-001 REV.01.
4. **Part 2, Employer Requirements , 8. Telecommunication System:-**  
The Communication drawings for Rumuruti & Kabarnet stations are revised and enclosed with this Addendum viz RUMURUTI-TELECOM-001 REV.01 & KABARNET-TELECOM-001 REV.01. Also note that STM-4 communication link shall be required.
5. **Section VI. Employer's Requirements- E – Schedules of Technical Information  
132 kV OPEN TERMINAL SWITCHGEAR-132KV ISOLATOR**  
Find revised 132kV DS\_TDS\_REV.01 enclosed with this Addendum.
6. **Section VI. Employer's Requirements- E – Schedules of Technical Information  
17.LOW VOLTAGE CABLES**  
Find revised Low Voltage Cables\_TDS\_REV.01 enclosed with this Addendum.
7. **KABARNET-SLD-132kV- -002**  
The 132kV Single line diagram for Kabarnet is revised to KABARNET-SLD-132kV- -002 REV.01 , where the +2T7 Disconnecter between the External Neutral CT and Power transformers Star point was removed.
8. **1.2.2 Existing Rumuruti 132/33kV Substation**  
The coordinates of existing Rumuruti substation land is revised and enclosed with this Addendum.




**Tender Addendum Clarification No:1**

Sr.N o.	Reference	Subject	Bidder's Specific Query	KETRACO Response
1.	ITB 21.1	Technical Data Sheets shall be provided mandatory as editable MS WORD files	We request client to provide Technical data sheet in editable MS word format.	Editable word format of technical data sheet is already provided. Please refer Employer's Requirement Section-E
2	E. Evaluation, and Comparison of Bids ITB 35.4 (f) & Section III - Evaluation and Qualification Criteria	<p>(c) Functional Guarantees of the Facilities No</p> <p>(c) Functional Guarantees of the Facilities Not Applicable</p> <p>(b) Life Cycle Costs Not Applicable</p> <p><b>Technical Bid-Base Bid</b></p> <p>Bidding document may stipulate a Table, Form, or Template to present Technical designs, specification, characteristics, functional or other guaranteed parameters, the Bidder shall invariably use the same without any changes and ensure that all requested details and supporting documents are provided. Lack or omission or non-confirmation of substantial details, information, and documentation for major or essential technical requirements/features may result in</p>	<p>In Section III - Evaluation and Qualification Criteria and in BDS Clause no. ITB 35.4, END client written that Functional Guarantee criteria is NA for Evaluation. However, as per ITB 16.1 and Technical Bid based BID mentioned that if functional guarantee criteria do not follow then it is reason for rejection of BID. Kindly confirm whether functional guarantee is a part of evaluation or not. If yes, then kindly share parameters for evaluation and confirm for which equipment client need functional guarantee</p>	<p>Yes, Functional Guarantee shall be applicable for Power Transformers &amp; Auxiliary Transformers.</p> <p>Please refer to the addendum 2, Item No 1.</p>

		<p>rejection of the Bid.</p> <p>All required information on Functional Guarantees and those required for determination of life-cycle-cost or cost of operation or maintenance, for the purpose of evaluation and/or award of contract as requested by the Bidding document should be furnished complete in all respect and without any inconsistencies or ambiguities failing which the Bid may not be considered for evaluation and rejected without seeking clarifications especially if such details are major or may lead to change in the substance or price of the bid.</p> <p><b>ITB 16.1</b></p> <p>The Bidder shall furnish details of the technical specifications proposed in the Technical part of the Bid including all relevant technical information requested by the Employer, functional guarantees, standards, codes, etc. as applicable, and details of any deviations, reservations, omissions or exceptions in the Technical Bid form included in Section IV</p>		
3	3.2 Contractor's Representative and other Key Personnel	<p>Safety, Health and Environment specialist :</p> <p><b>Minimum Educational Degree:</b> Bachelor's degree in environmental science, occupational health and safety, environmental engineering, or relevant field</p> <p><b>Special Experience :</b> HSE experience in at least 3 (three) 132 kV (and above) transmission line projects, among which at least 1 (one) shall be in Africa. Demonstrated experience in implementation or supervision of large-scale infrastructure projects funded by AfDB or an equivalent financial intermediary (e.g. the World Bank, IFC etc.). Must be a Lead NEMA registered expert with a valid practicing license.</p>	<p>If the proposed Safety, Health and Environment specialist officer has NEBOSH Certificate instead of NEMA valid practicing license. Kindly confirm it is valid.</p>	<p>Not Confirmed. Bidders shall refer and follow requirements as mentioned in Section III: Evaluation and Qualification Criteria.</p>

4	2.4 Service Conditions	<p>h) Altitude The height above sea level shall be considered 2000-2500 m (as per each substation technical data sheet). Here for 132/33kV Rumuruti and 132/33kV Kabarnet substation, the Altitude considered is 2000m (as per substation technical data sheet). The insulation levels of external insulation shall be determined in accordance with IEC 62271-1, Clause 2.2.1. Important Note: All main and spare equipment shall be provided for proper operation in four altitude categories (to optimize main equipment/ spare parts and achieve interchangeability at country level), including 1000, 1500, 2000 and 2500 meter above sea level. In case of other range may has been mentioned in the schedules of technical information (Part 2-E), the higher altitude category shall be considered.</p> <p><b>2.32 Altitude above sea level</b>        m      Acc. to section 1</p>	<p>As mentioned in Technical data sheet we didn't found section 1 in Tender Documents.</p> <p>Currently we design all the switchgear documents as per 2000 meter Altitude level as per mentioned in Service condition 2.4. Please confirm</p> <p>Confirmed.</p>	
5	Part 02 Employer Requirement 16.10.5.2 Demolition of Structures	<p>Buildings or other structures or foundations to be removed shall be demolished by approved methods, which shall ensure that no damage is caused to any structures which are to remain.</p>	<p>Do bidder need to follow client approved method for Demolition of Structures? If yes, then please share with us Approved method of for Demolition of Structures.</p>	<p>Bidder shall submit its method for demolition of structures and get an approval from the Employer/ Employer's Representative prior to commencement of works.</p>

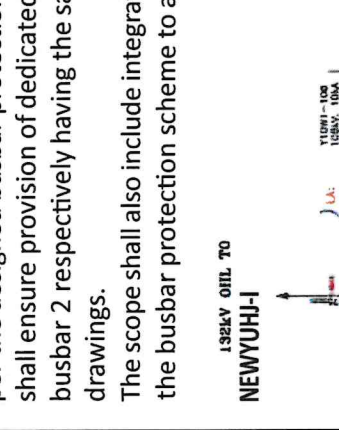
6	Part 02 Employer Requirement	The drawings indicate that the vertical structure elements are steel members. Should we proceed with designing the vertical elements (columns) using steel sections, or would you prefer us to consider an RCC frame structure instead for building?	Kindly confirm Vertical Structure elements Material for below mentioned buildings. 1. Storage-Warehouse-Architectural Technical-Staff- Housing-Architectural 3.Security-Staff-Housing- Architectural	Residential Buildings should preferably be RC framed structures.  Warehouse can be steel portal frame type or otherwise. Detail designs shall be done in execution phase & subject to Employer/Employer's representative approval.
7	Section IV-Price Schedules-Kabarnet 132-33kV SS & Section IV-Price Schedules-Rumuruti 132-33kV SS		As mentioned in Scheduled 4 Installation And Other Services Sr. No. 17.2.3 Site Supply we need to take from Local power network. Kindly confirm that location of	Bidder shall carry out their own due diligence



Section IV-Price Schedules- Kabarnet 132-33kV SS & Section IV-Price Schedules- Rumuruti 132-33kV SS	<table><tr><td>19.1</td><td>Off Shore Training</td><td></td><td></td></tr><tr><td>19.1.1</td><td>Substation Equipment Design Training (2 Design Engineers and 1 TSP Engineers for 3 weeks )</td><td>Lot</td><td>1</td></tr><tr><td>19.1.2</td><td>Protection and Control for Electrical Power Systems (4 Engineers for 3 weeks)</td><td>Lot</td><td>1</td></tr><tr><td>19.1.3</td><td>Power System Analysis (2 TSP Engineers for 2 weeks )</td><td>Lot</td><td>1</td></tr><tr><td>19.1.4</td><td>Communication &amp; Substation Control System— Application &amp; Design (2 Design Engineers for 2 weeks)</td><td>Lot</td><td>1</td></tr><tr><td>19.1.5</td><td>Civil/ Structural Design Training (for 2 Design Engineers and 1 TSP Engineers for 3 weeks)</td><td>Lot</td><td>1</td></tr></table>	19.1	Off Shore Training			19.1.1	Substation Equipment Design Training (2 Design Engineers and 1 TSP Engineers for 3 weeks )	Lot	1	19.1.2	Protection and Control for Electrical Power Systems (4 Engineers for 3 weeks)	Lot	1	19.1.3	Power System Analysis (2 TSP Engineers for 2 weeks )	Lot	1	19.1.4	Communication & Substation Control System— Application & Design (2 Design Engineers for 2 weeks)	Lot	1	19.1.5	Civil/ Structural Design Training (for 2 Design Engineers and 1 TSP Engineers for 3 weeks)	Lot	1	As mentioned in BOM Clause 19.1 categorized under off shore training but as per our understanding the project is categorized under on shore. Please confirm.	Please follow Employer's Requirement clause 28.3. For trainings items I to V, these shall be conducted at the Contractor's home Country or a reputable training centre preferably run by manufacturer or power transmission electricity utility while item VI shall be on site
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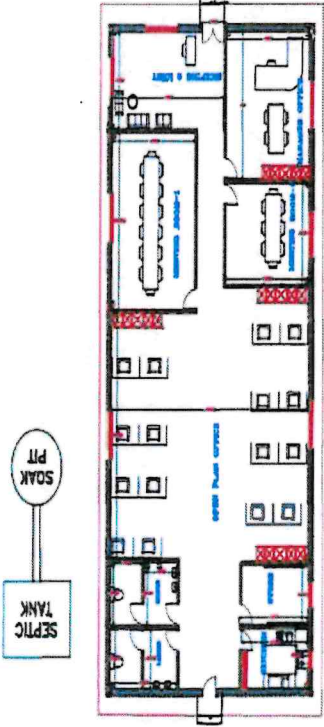
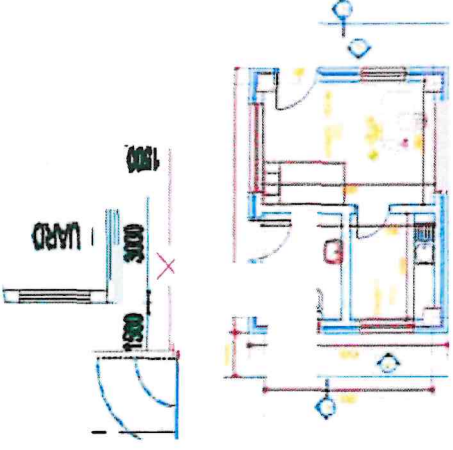
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9	Part 02 Employer Requirement & Section IV-Price Schedules-Rumuruti 132-33kV SS	<p>The water supply for the control building and guard house is via an overhead tank. It is to be noted that water pumps to be solar pumped.</p> <table><tr><td>13.9.1</td><td>Underground Polyethylene Septic Tank for control building and Guard house, 6m<sup>3</sup></td><td>No.</td><td>1</td></tr><tr><td>13.10.2</td><td>Water Pump for Control building and Guard house, 6 m<sup>3</sup>/hr</td><td>No.</td><td>1</td></tr><tr><td>13.10.1</td><td>Water borehole equipped with solar powered DumdS</td><td>Lot</td><td>1</td></tr></table>	13.9.1	Underground Polyethylene Septic Tank for control building and Guard house, 6m <sup>3</sup>	No.	1	13.10.2	Water Pump for Control building and Guard house, 6 m <sup>3</sup> /hr	No.	1	13.10.1	Water borehole equipped with solar powered DumdS	Lot	1	<p>1. Kindly confirm in control building and Guard House water supplied from overhead tank or we need to consider underground polyethylene Septic tank as mentioned in BOM.</p> <p>2. as mentioned in BOM sr.no. 13.10.2 The pump shows is not solar powered. Please confirm. Please confirm the capacity of Solar powered water pump you required for water borehole as shown in Sr.No. 13.10.1.</p>	<p>1. Please refer to Employer's requirement 1.1 Scope of work and Layout Drawings of Rumuruti SS.</p> <p>2. The capacity of solar power pump for the borehole shall be as per the bidder's design which shall be subject to Employer/Employer's representative</p>
13.9.1	Underground Polyethylene Septic Tank for control building and Guard house, 6m <sup>3</sup>	No.	1													
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10	Part 02 Employer Requirement & Section IV-Price Schedules-Kabarnet 132-33kV SS	For Kabarnet substation additional 10,000 liters water tank shall be provided and interconnected with the existing water supply system.	Kindly share existing water supply system. (i.e. Water tank Capacity, Location)	Bidder to carry out their own due diligence												
11	Part 02 Employer Requirement &	Integration of the existing drainage system with the new drainage system for the extension scope.	Kindly share existing drainage details and also confirm location from which new drainage line will integrate with existing drainage.	This shall be provided to the successful bidder.												

<p>Section IV-Price Schedules- Rumuruti 132-33kV SS &amp; Part 02 Employer Requirement</p> <p>1.3.1 Extension Works at Rumuruti 132/33 kV Substation</p>	<p>Bus bars modification from single bus to double buses configuration with all required connections, demolition, modification, relocation and replacement works for the existing area Replacement of CT of existing 132kV bays (one line and one transformer feeder) to comply with the BUSBAR protection.</p> <p>Busbar modification from single bus to 132kV double busbar configuration with bus coupler. This shall include the replacement of existing current transformers to provide sufficient dedicated cores as per the designed busbar protection scheme. Bay current transformers shall ensure provision of dedicated two (2) cores for busbar 1 and busbar 2 respectively having the same class as per the client design drawings.</p> <p>The scope shall also include integration, testing, and commissioning of the busbar protection scheme to achieve full functionality.</p> <div style="text-align: center;">  <p>132KV OHTL TO NEWYUHI-I</p> <p>LEGEND AND RELOCATION SCOPE OF WORK</p> </div>	<p>1. At present we understand that whole single bus station scheme remove and new double bus scheme will be install. If not then kindly confirm relocation details of existing Bus.</p> <p>2. As mentioned in Scope of work replacement of existing CT and Bay current transformer existing details we need.</p> <ul style="list-style-type: none"> <li>Core details</li> <li>Ratio</li> <li>No. of Cores for measuring and protection</li> </ul> <p>Kindly confirm existing CT for Line and Transformer feeder. At present we understand that as per SLD only 132KV Nanyuki -1 Line is in demolition Scope. Please confirm</p>
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13	Part 02 Employer Requirement	<table><tr><th>Point No.</th><th colspan="2">SS coordinates (ARC 1960 UTM ZONE 36 N)</th></tr><tr><th></th><th>Easting (m)</th><th>Northing (m)</th></tr><tr><td>1</td><td>1107999</td><td>53083</td></tr><tr><td>2</td><td>808060</td><td>52964</td></tr><tr><td>3</td><td>808030</td><td>52965</td></tr><tr><td>4</td><td>808023</td><td>52935</td></tr></table>	Point No.	SS coordinates (ARC 1960 UTM ZONE 36 N)			Easting (m)	Northing (m)	1	1107999	53083	2	808060	52964	3	808030	52965	4	808023	52935	In Kabarnet Layout Sections Co-ordinated not mentioned. Please confirm.	Please refer & follow PART 2 – Employer's Requirements Page 2-17 & 2-18. Section 1.2- Site location																		
Point No.	SS coordinates (ARC 1960 UTM ZONE 36 N)																																							
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4	808023	52935																																						
14	Rumuruti Layout and Sections & Part 02 Employer Requirement	<p>1.2.2 Existing Rumuruti 132/33kV Substation</p> <p>The coordinates of existing Rumuruti substation land are mentioned in the below table.</p> <table><tr><th>Point No.</th><th colspan="2">SS coordinates (ARC 1960 UTM ZONE 36 N)</th></tr><tr><th></th><th>Easting (m)</th><th>Northing (m)</th></tr><tr><td>1</td><td>222067</td><td>27460</td></tr><tr><td>2</td><td>222362</td><td>27570</td></tr><tr><td>3</td><td>222427</td><td>27446</td></tr><tr><td>4</td><td>222122</td><td>27310</td></tr><tr><td>5</td><td>222067</td><td>27460</td></tr></table> <p>Tifu ito\initoric; ol Rumuruti hthshln1 yiv land hntls been sltrwKay IT&gt; the beluw figure.</p> <p><b>RUBURUTI COORDINATES</b></p> <table><tr><th>STATION</th><th>X</th><th>Y (NORTHING)</th></tr><tr><td>R1</td><td>222166</td><td>27160</td></tr><tr><td>R2</td><td>222458</td><td>27270</td></tr><tr><td>R3</td><td>222521</td><td>27146</td></tr><tr><td>R4</td><td>222216</td><td>27010</td></tr></table>	Point No.	SS coordinates (ARC 1960 UTM ZONE 36 N)			Easting (m)	Northing (m)	1	222067	27460	2	222362	27570	3	222427	27446	4	222122	27310	5	222067	27460	STATION	X	Y (NORTHING)	R1	222166	27160	R2	222458	27270	R3	222521	27146	R4	222216	27010	In Part 2 Employer requirement and Layout Section Co-ordinated not matched. Kindly confirm which co-ordinated need to be consider for design Purpose	Please refer to the addendum 2, Item No 8.
Point No.	SS coordinates (ARC 1960 UTM ZONE 36 N)																																							
	Easting (m)	Northing (m)																																						
1	222067	27460																																						
2	222362	27570																																						
3	222427	27446																																						
4	222122	27310																																						
5	222067	27460																																						
STATION	X	Y (NORTHING)																																						
R1	222166	27160																																						
R2	222458	27270																																						
R3	222521	27146																																						
R4	222216	27010																																						

15	Rumuruti Layout and Sections		Kindly confirm this building as it is not mentioned in BOM and Technical	This is the regional office, Kindly refer to the price Schedule-4 item 17.3.5
16	Rumuruti Layout and Sections & Guard House Architectural		The dimension of Guard House Shown in Layout and dimension of TYPICAL GUARD HOUSE ARCHITECTURAL DRAWING not matched. Which will be consider?	Bidders shall refer and follow the Page 3 of the Drawing No. TGHAD-PLAN S&E-001, PLAN SECTION & ELEVATIONS

17	1.3.2 Extension Works at Kabarnet 132/33 kV Substation	<ul style="list-style-type: none"> <li>132kV busbar modification from single bus to double busbar configuration. This shall include replacement of existing current transformers to provide sufficient dedicated cores as Per the designed busbar protection scheme. Bay current transformers shall ensure provision of dedicated two (2) cores for busbar 1 and busbar 2 respectively having the same class as per the client design drawings. The scope shall also include integration, testing, and commissioning of the busbar protection scheme to achieve full functionality.</li> <li>Replacement of CT of existing 132kV bays to comply with the busbar protection</li> <li>2 No. 132kV OHL bay to Rumuruti</li> <li>Demolishing of existing Lessos line bay.</li> <li>1 No. Reconstruction of demolished 132kV Lessos Line bay</li> <li>Considering free space for the 2nd bay of Lessos 132kV OHL</li> </ul>	1. Kindly confirm Existing Modification/Replacement Scope for Bus Bar Protection Scheme. We need CT Details of Line and Transformer Feeder. After dismantling Existing Current Transformer. It is relocate or need to submit to client.	1. Bidders shall refer to & follow the Employers Requirements 1.3.2.  For the CT details for Line & Transformer Feeders ,Please refer DWG No KABARNET-SLD-132kV—002 REV 01.  The existing CT's shall be replaced with the new one and shall be Handed over to KETRACO Stores whose details shall be given during execution phase.
			2. As per Scope of work Reconstruction of demolished Scope for Lessos Bay. However, in SLD Client	2. The Existing line is the 132kV Lessos line. Once the existing Lessos bay is demolished and

			<p>Shows Demolished work for Rumuruti Feeder. Kindly confirm demolition Scope and relocation of Existing Switchgear Equipments.</p> <p>3. At present we understand that all the switchgear we consider for current scope of work. However, we only need to consider future space. No need to consider future switchgear equipment in current scope of work.</p>	<p>reinstalled, this bay shall be connected to the new Rumuruti line. Lessos line shall be relocated to another new bay (swapping to avoid line crossings).</p> <p>3. Switchgear and equipment is not required for future scope however the space for the future scope shall be developed by the bidder.</p>				
18	1.3.2 Extension Works at Kabarnet 132/33 kV Substation & Part 02 Employer Requirement	<p>Extension of existing earth mat to cover the entire switchyard. (For new and existing equipment).</p> <table><tr><td>11.3</td><td>Installation of earth mat for the existing DS(E) and ES</td><td>Lot</td><td>1</td></tr></table>	11.3	Installation of earth mat for the existing DS(E) and ES	Lot	1	<p>Kindly provide existing earth Mat details and also provide existing location and DS details for which we need to consider Earth Mat.</p>	<p>The details of existing Earth Mat and location of disconnectors shall be provided during detailed design.</p>
11.3	Installation of earth mat for the existing DS(E) and ES	Lot	1					



<p>19</p> <p>1.3.2 Extension Works at Kabarnet 132/33 kV Substation &amp; Part 02 Employer Requirement</p>	<p>Extension/modification of control room building and SCADA</p> <p>The LVAC/LVDC systems shall be modified/extended to ensure adequate capacity for the loads associated with the extension works.</p> <p>Modification of the 132kV and 33kV busbar protection scheme from HIGH impedance to centralized LOW impedance type considering the number of 132kV and 33kV bays including the new and existing 132kV and 33kV bays.</p> <p>Decommissioning of existing 132kV and 33kV high impedance busbar protection scheme and handing over the protection panels with its accessories and delivering to KETRACO central stores or Employer's designated place.</p> <p>Modification of the existing protection and control systems including commissioning and testing to achieve protection coordination and grading.</p> <p>The extension/modification scope for protection and control, SCADA and Telecoms shall match the existing systems.</p> <p>Modification/extension of the remote end station protection, control and telecommunication and SCADA systems including commissioning and testing to achieve full system functionality.</p> <p>Validation of existing protection settings to achieve the necessary grading with existing systems.</p> <p>Development of new protection settings for extension scope.</p> <p>Upgrade/replacement of the entire SCADA SAS system to include the existing bays and new (extension) bays.</p> <p>The existing SCADA installed in the NCC shall be modified accordingly if needed, within the scope of this project.</p> <p>Old and new Scopes to be integrated to the same redundant HMIs. The servers shall be industrial computers. The testing and commissioning of the HMIs to be done.</p>	<p>1. Kindly provide details of existing SCADA.</p> <p>2. Kindly provide existing Low Impedance and High Impedance protection Scheme PSD.</p> <p>3. At present we understand that there LVAC/LVDC we just need to modify existing Board for extent of work. Can you provide existing details of LVAC/LVDC? if possible please share SLD. Confirm the Scope for Modification in Existing LVAC/LVDC.in current SLD we don't have UPS, Battery, Battery</p>	<p>1. The bidder shall design, supply and install a new SCADA system for both substations</p> <p>2. There is no existing low impedance protection scheme. The existing High Impedance protection scheme shall be provided during the detailed design.</p> <p>3. In addition to modification, LVAC/LVDC upgrading is also required. Please refer 1.3.1 and 1.3.2 of Employer's Requirement and Price schedule-1 Item13. Refer also to tender drawings (LVDC) KABARNET-110VDC-SLD-001</p>
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	<p>Supply and Installation of a pure sine wave Inverter to supply the HMI's. The new network communication protocols to match the existing.</p> <p>Upgrade existing Telecommunications Equipment in both substations to achieve the following: Upgrade the link to STM-4/ 2.5 G MPLS-TP with associated functionalities, eg WAN etc</p>	<p>Charger, Equipments List that is connected to UPS and inverter rating details. Kindly share with us.</p> <p>4. Through LVAC/LVAC not clear Breaker rating, Fuse Box rating. The feeder shows that includes existing feeder or we need to add in Scope. If we need to add then please provide existing LVAC/LVAC details.</p> <p>5. Kindly share existing SCADA Details at NCC and modification scope also.</p> <p>6. Kindly share rating of pure sine wave inverter. It is not mentioned in BOM.</p>	<p>,For LVAC drawing find revised in Addendum 2, Item no.3 considering two(2) Auxiliary transformer and One (1) DG Incomer.</p> <p>4. Question not clear</p> <p>5. The bidder shall design, supply and install a new SCADA system for both substations. NCC is ABB type.</p> <p>6. Please refer Employer's requirement 10.2</p>
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20	1.3.2 Extension Works at Kabarnet 132/33 kV Substation	Substation CCTV System as specified in this Specification with dedicated battery bank and UPS for the entire Substation and fully integrated with the existing centralized CCTV system at KETRACO Headquarters (National Control Centre).	There is separate UPS and battery bank need to be consider for CCTV System and if yes then please confirm its rating. We also need existing centralized CCTV System details at KETRACO Headquarters (NCC).	Separate UPS and Battery bank is required. The rating shall be as per the bidders' design subject to client approval. KETRACO CCTV existing design shall be provided during detailed design.
21		The location of the different cameras shall be defined during detailed design stage. The CCTV system shall be installed both at the switchyard and within the main Control building. The CCTV system shall have the possibility for remote access at KETRACO Headquarters and at the National and Regional Control Centers. Two (2) 24" LED monitor shall be mounted in the central control room for viewing live and recording footages of the CCTV cameras. One (1) PC with a 22" LED Display shall be mounted in the guardhouse for viewing live of both CCTV cameras.	As in Kabarnet Substation we only need to consider CCTV for Switchyard area and in Generator House. As for Layout we understand that there is no construction/modification of Building work in Kabarnet Substation. Please confirm. In Rumuruti substation we need to consider CCTV as mentioned in each Location However, in Control room only extension scope need to be consider during design stage. Two 24" LED monitor required in control room Building as mentioned by client in TS. In both substation control room	For the locations please refer the Part 2 Employer's requirement, Page 2-299, 9.6.10 CCTV. This applies to both substations. There are two Guard House buildings, one without collocation room and the other with collocation room. Please refer the drawing TGHAD-PLAN S&E-001 for <b>Guard House Architectural</b> for

			<p>building present. Shall I still need to consider this new Monitor screen in Rumuruti substation for extension Scope? This is not clearly mentioned in BOM. Please confirm.</p> <p>22" LED Display client need in Guard House. Is still need for both substation? Guard House already present in Rumuruti substation we need to consider this screen in Guard House, as per BOM it is shown in extension work. For this is Guard House I understand that we need to consider dimension of "Guard House cum telecom room." There are two drawing we received from client for Guard house. Please confirm.</p>	<p>guard house without collocation and drawing GH&amp;TCRAD-GFP-001 "GROUND FLOOR PLAN ARCHITECTURAL DRAWING for guard house &amp; telecom Collocation for guard house with collocation. One (1) No 22" LED display shall be placed in the guard house &amp; telecom Collocation.</p>
22	1.3.2 Extension Works at Kabarnet 132/33 kV Substation	Demolition and recovery of existing 132kV busbar. Recovery of existing 132kV line bay CT and Transformer Bay CT	<p>Kindly confirm existing CT rating, No. of core and ratio details. After Demolition of existing CT it is need to relocate in Substation. Please confirm.</p>	<p>The Existing CT details is not required at this stage. The Existing CT shall be decommissioned and handed over to the Employer.</p>


23	1.3.2 Extension Works at Kabarnet 132/33 kV Substation	Modification of existing lightning protection and lighting system to cover the entire switchyard	We need Existing Lightning protection and Lightning system details we need. During modification of existing we need to replace.	The Existing Lightning protection and Lightning system shall be provided during detailed design.
24	1.3.1 Extension Works at Rumuruti 132/33 kV Substation	Supply, installation, test and commissioning of one (1) No. 132/33kV, 18/23MVA ONAN/ONAF Power Transformer, Dyn1, with OLTC in steps of 1.67%, 17 Steps are required and shall feed into the 33kV switchyard. The new power transformer shall be capable of operating in parallel with the existing power transformer.	Kindly confirm vector Group of Existing Transformer. If Existing and New One Power transformer Vector Group is same then its parallel working operation is possible. Please provide confirmation.	Confirmed, Bidders shall strictly follow the requirement as in 1.3.1 of part 2 Employers Requirements.
25	1.3.1 Extension Works at Rumuruti 132/33kV Substation & 2.33KV Open Terminal Switchgear	<p>Extension and modification works at 33kV AIS switchyard:</p> <ul style="list-style-type: none"> <li>1 No. 33kV transformer bay</li> <li>1 No. 33kV bus section with bus VT</li> <li>2 No. 33kV line feeders</li> </ul> <p>1.10.1 For Transformer feeder Acc. to SLD</p> <p>1.10.2 For Bus Section Acc. to SLD</p> <p>1.10.3 For Diameter N.A.</p> <p>1.10.4 For Bus Coupler feeder N.A.</p> <p>1.10.5 For Bus Section Acc. to SLD</p> <p>For reactor feeder N.A.</p>	<p>As mentioned in technical data sheet switchgear considered for Transformer Feeder, Bus Section. However, there is no line feeder mentioned in Technical data sheet but shown in SLD. Please confirm.</p>	Refer to the SLD for 33kV Feeders under scope. The 33kV circuit breaker type revised to vacuum type. Please refer to Addendum 2. Item No. 02 regarding change in the type of 33kV Circuit breaker & inclusion of line feeders.

<p>26</p>	<p>Rumuruti Layout and Sections</p>	<p>DISCONNECTING SWITCH MOTOR OPERATED WITH TWO EARTH SWITCH MOTOR OPERATED</p>  <p>DISCONNECTING SWITCH MOTOR OPERATED WITH TWO EARTH SWITCH MOTOR OPERATED</p>  <p>DISCONNECTING SWITCH MOTOR OPERATED WITH TWO EARTH SWITCH MOTOR OPERATED</p>  <p>DISCONNECTING SWITCH MOTOR OPERATED WITH TWO EARTH SWITCH MOTOR OPERATED</p>  <p>DISCONNECTING SWITCH MOTOR OPERATED</p> <p>2.5 Type of Isolator</p> <p>This specification covers, without limitation, the following equipment:</p> <ul style="list-style-type: none"> <li>132kV Disconnecter, center-break / break type, with one (1) earthing switches.</li> <li>33kV Disconnecter, center break/ <b>double</b> break type, with one (1) earthing switch</li> </ul> <p>1 horizontal Double</p>	<p>Confirmed</p>
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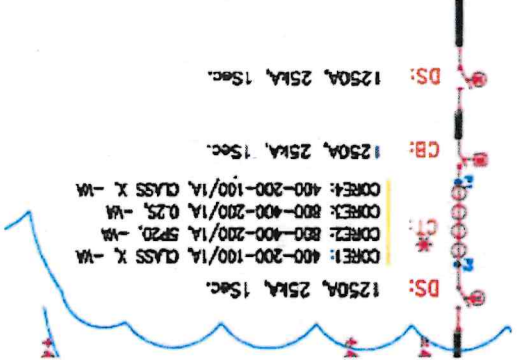


27	1. 132KV OPEN TERMINAL SWITCHGEAR	<table><tr><td>2.67</td><td>Type of main contacts</td><td></td><td></td><td></td><td></td></tr><tr><td>2.67.1</td><td>For Isolator</td><td></td><td></td><td></td><td></td></tr><tr><td>2.67.2</td><td>For grounding switch</td><td></td><td></td><td></td><td></td></tr><tr><td>2.68</td><td>Material of main contacts</td><td></td><td></td><td></td><td></td></tr><tr><td>2.68.1</td><td>For Isolator</td><td></td><td></td><td></td><td>Copper</td></tr><tr><td>2.68.2</td><td>For grounding switch</td><td></td><td></td><td></td><td>Copper</td></tr><tr><td>2.69</td><td>Material of blades</td><td></td><td></td><td></td><td></td></tr><tr><td>2.69.1</td><td>For Isolator</td><td></td><td></td><td></td><td></td></tr><tr><td>2.69.2</td><td>For grounding switch</td><td></td><td></td><td></td><td></td></tr><tr><td>2.70</td><td>Whether main contacts are silver plated</td><td></td><td></td><td></td><td></td></tr><tr><td>2.70.1</td><td>For Isolators</td><td></td><td></td><td></td><td>Yes</td></tr><tr><td>2.70.2</td><td>For grounding switches</td><td></td><td></td><td></td><td>Yes</td></tr></table>	2.67	Type of main contacts					2.67.1	For Isolator					2.67.2	For grounding switch					2.68	Material of main contacts					2.68.1	For Isolator				Copper	2.68.2	For grounding switch				Copper	2.69	Material of blades					2.69.1	For Isolator					2.69.2	For grounding switch					2.70	Whether main contacts are silver plated					2.70.1	For Isolators				Yes	2.70.2	For grounding switches				Yes	Kindly confirm Material of Main Contacts and Blades material. In technical data sheet material of main contacts shows two types (i.e. Copper and silver Plated). This confirmation we need for both 132KV and 33KV isolator.	Strictly follow the Section E -TECHNICAL DATA SCHEDULES of Part 2 Employers Requirements. (Copper & silver plated)
2.67	Type of main contacts																																																																											
2.67.1	For Isolator																																																																											
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28	1. 132KV OPEN TERMINAL SWITCHGEAR	<table><tr><td>8.24</td><td>Type of housing in the case of utilizing porcelain and its classification acc to Std. 60672</td><td></td><td></td><td>Brown glazed Aluminum porcelain class C130</td></tr><tr><td>8.25</td><td>Type of housing in the case of utilizing composite polymer and its resistance classification acc to IEC 60587</td><td></td><td></td><td>Silicon rubber (LSR,HCR or RTV type) class</td></tr></table>	8.24	Type of housing in the case of utilizing porcelain and its classification acc to Std. 60672			Brown glazed Aluminum porcelain class C130	8.25	Type of housing in the case of utilizing composite polymer and its resistance classification acc to IEC 60587			Silicon rubber (LSR,HCR or RTV type) class	Kindly Confirm Housing material.	Either of the housing types are acceptable and follow the Section E -TECHNICAL DATA SCHEDULES Part 2 Employers Requirements.																																																														
8.24	Type of housing in the case of utilizing porcelain and its classification acc to Std. 60672			Brown glazed Aluminum porcelain class C130																																																																								
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29	Surge Arresters & 2.33kV Open Terminal Switchgear	<table><tr><td>8.27</td><td>Place of installation</td><td>Line/Transformer /GIS Feeders</td></tr></table>	8.27	Place of installation	Line/Transformer /GIS Feeders	SLD shows 33kV Surge Arrester will be installed in Line/Transformer and ATX-2 Feeder. Currently we consider as per SLD. Please confirm.	Confirmed.						
8.27	Place of installation	Line/Transformer /GIS Feeders											
30	6.2 Technical Requirements & 1. 132kV OPEN TERMINAL SWITCHGEAR	<p>Each 400kV surge arresters shall be designed for a nominal discharge current of 20kA and line discharge class 4 on two consecutive operations. Each 132kV and 33kV surge arresters shall be designed for a nominal discharge current of 10kA and line discharge class 3 on two consecutive operations.</p> <table><tr><td>8.19</td><td>Long duration discharge class as per IEC 99-1</td><td>Class 3</td></tr><tr><td>8.22</td><td>Nominal discharge current with 8/20 us wave</td><td>kA peak 10</td></tr><tr><td>8.29</td><td>Thermal energy rating (Wth)</td><td>(kJ / of) &gt; 10 kV</td></tr></table>	8.19	Long duration discharge class as per IEC 99-1	Class 3	8.22	Nominal discharge current with 8/20 us wave	kA peak 10	8.29	Thermal energy rating (Wth)	(kJ / of) > 10 kV	<p>1. For 132kV surge Arrester as per SLD and technical data sheet we understand that 132kV Line Discharge Class 3 and Nominal Discharge Current is 10kA. However, the Minimum energy is 7kJ/kV required as per IEC 60099-4 of 2014 Instead of 10kV/kV.</p> <p>2. As there is no Scope of Supply of 400kV Surge Arrester hence, we can't Complied with 400kV Surge Arrester Requirement shown in technical specification.</p>	<p>1. 10kV/kV is the requirement and follow the bid requirement. 400 kV is not part of the scope of works. However the specifications in the clause are applicable for 132 kV and 33 kV surge arrestors.</p>
8.19	Long duration discharge class as per IEC 99-1	Class 3											
8.22	Nominal discharge current with 8/20 us wave	kA peak 10											
8.29	Thermal energy rating (Wth)	(kJ / of) > 10 kV											

31	6.2 Technical Requirements & 2. 33KV OPEN TERMINAL SWITCHGEAR	<p>Each 132kV and 33kV surge arresters shall be designed for a nominal discharge current of 10kA and line discharge class 3 on two consecutive operations</p> <table><tr><td>8.19</td><td colspan="2">Long duration discharge class as per IEC 99-1</td><td>Class</td><td>2</td></tr><tr><td>8.22</td><td>Nominal discharge current with 8/20 us wave</td><td>kA peak</td><td>10</td><td></td></tr></table> <p>8.29 Thermal energy rating (Wth) kV of &gt; 10</p> <p>U rnted</p>	8.19	Long duration discharge class as per IEC 99-1		Class	2	8.22	Nominal discharge current with 8/20 us wave	kA peak	10		<p>1. As mentioned in Technical Specification and SLD 33KV Surge Arrester Line Discharge Class and Nominal Discharge Current 10 KA. However, Technical Data Sheet Shows Line Discharge Class 2 and Nominal discharge Current 10KA for 33KV Surge Arrester. Kindly confirm Line Discharge Class.</p> <p>2. The Minimum energy is 7kJ/KV required as per IEC 60099-4 of 2014 Instead of 10KJ/KV</p>	<p>1. The requirement in technical data schedule shall apply for 33kV surge arresters (Class 2)</p> <p>2. 10KJ/KV is the requirement and follow the bid requirement.</p>
8.19	Long duration discharge class as per IEC 99-1		Class	2										
8.22	Nominal discharge current with 8/20 us wave	kA peak	10											
32	6.10 Accessories	<p>The internal and external leakage current shall be measured and indicated on a display. The scale of the display shall be 0 to 50mA<sub>p</sub>/√2.</p>	<p>The standard scale range of Oblum make surge monitor is 0-5mA [0-2mA - Green band, 2- 5mA - red band]</p>	<p>Follow the bid requirement.</p>										
33	1. 132KV OPEN TERMINAL SWITCHGEAR	<div></div>	<p>Kindly confirm each feeder CT VA rating for both 132 and 33KV.</p>	<p>Bidders shall refer to the * marked note of the below drawings.</p> <p>KABARNET-SLD-33- - 002 KABARNET-SLD-132kV- -002 REV 01</p>										



	 <p>DS: 1250A, 25kA, 1Sec.</p> <p>CB: 1250A, 25kA, 1Sec.</p> <p>CORE4: 400-200-100/1A CLASS X -WA</p> <p>CORE3: 800-400-200/1A 0.2S, -WA</p> <p>CORE2: 800-400-200/1A SP20, -WA</p> <p>CORE1: 400-200-100/1A CLASS X -WA</p> <p>DS: 1250A, 25kA, 1Sec.</p>		<p>RUMURUTI-SLD-33kv-002</p> <p>RUMURUTI-SLD-132-001</p>
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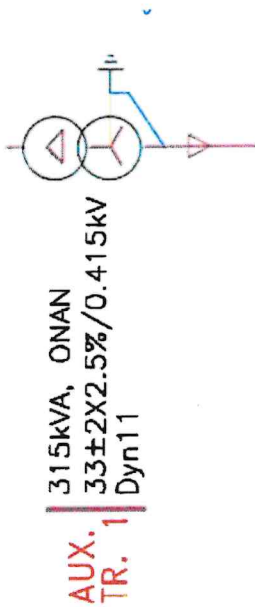
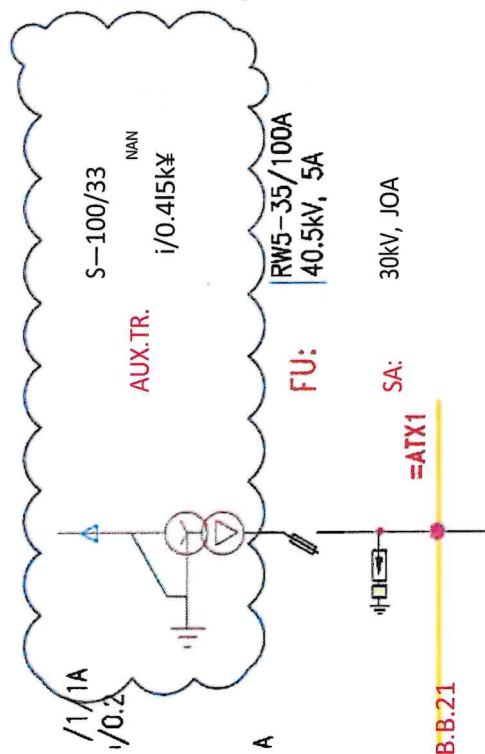


35.	RUMURUTI SLD_	<table><tr><td>1.12</td><td>132 kV Post type current transformer, for protection and metering, six cores (1-phase)</td><td>No.</td><td>12</td></tr></table>	1.12	132 kV Post type current transformer, for protection and metering, six cores (1-phase)	No.	12	BOM Shows Qty. of 132KV Six Core CT 12 Nos. However, as shown in SLD its Qty. is 24 Nos. if we add 132KV OHL to NANYUKI 1.	Please follow the Rumuruti price schedule 1.12 and the RUMURUTI-SLD-132-001. The SLD shows 12 No's of six core CT's.
1.12	132 kV Post type current transformer, for protection and metering, six cores (1-phase)	No.	12					
36.	RUMURUTI SLD	<table><tr><td>7.13</td><td>132 kV Post type current transformer, for protection and metering, five cores (1-phase)</td><td>No.</td><td>3</td></tr></table>	7.13	132 kV Post type current transformer, for protection and metering, five cores (1-phase)	No.	3	As shown in SLD 5 Core CT is 1 No. Kindly confirm.	Please follow the Rumuruti price schedule 1.13 and the RUMURUTI-SLD-132-001. The SLD shows three No CT's of five cores.
7.13	132 kV Post type current transformer, for protection and metering, five cores (1-phase)	No.	3					
37.	RUMURUTI SLD_	<table><tr><td>1.14</td><td>132 kV Post type current transformer, for protection and metering, three cores (1-phase)</td><td>No.</td><td>3</td></tr></table>	1.14	132 kV Post type current transformer, for protection and metering, three cores (1-phase)	No.	3	As Shown in SLD there is only one no. 3 Core CT Shown for Bus coupler. Kindly confirm.	Please follow the Rumuruti price schedule 1.14 and the RUMURUTI-SLD-132-001. The SLD shows three No CT's of 3 cores.
1.14	132 kV Post type current transformer, for protection and metering, three cores (1-phase)	No.	3					

38	RUMURUTI SLD_	<table><tr><td>1.15</td><td>132 kV Post type current transformer, for protection, two cores (1-phase)</td><td>No.</td><td>3</td></tr></table>	1.15	132 kV Post type current transformer, for protection, two cores (1-phase)	No.	3	As Shown in SLD there is only one no. 2 Core CT Shown for Bus coupler and other 3 Nos. for Power Transformer. So, its total qty. is 4 Nos. Kindly confirm.	Please follow the Rumuruti price schedule 1.15 and the RUMURUTI-SLD-132-001. The SLD shows three No CT's of 2 cores.
1.15	132 kV Post type current transformer, for protection, two cores (1-phase)	No.	3					
39.	RUMURUTI SLD 33KV	<table><tr><td>2.7</td><td>Post type current transformer protection and metering four cores (1-phase)</td><td>No.</td><td>12</td></tr></table>	2.7	Post type current transformer protection and metering four cores (1-phase)	No.	12	As Shown in SLD there is total 16 Nos. Four Core CT. Kindly confirm.	Please follow the Rumuruti price schedule 2.7 and the RUMURUTI-SLD-33kV-002. The SLD shows 12 No CT's of 4 cores.
2.7	Post type current transformer protection and metering four cores (1-phase)	No.	12					
40	Section IV-Price Schedules-Kabarnet 132-33kV SS	<p>Surge/Lightning arrester design calculations and drawings (including protection zone, protection margin, rated voltage, continuous voltage, discharge class, etc. as required)</p> <p>132kV and 33kV primary equipment sizing/rating calculations and drawings (CB, DS, ES, CT, CVT, power transformer, Aux. transformer, suspension/strain Insulators, etc.)</p> <p>Short circuit design analysis (including grid short circuit level at the substation and interconnection lines, etc. as required)</p> <p>LVAC/LVDC/UPS auxiliary supply systems, EAT and DG sizing, chargers, batteries design calculations and detail drawings</p> <p>External and internal lighting design calculations and detail drawings</p>	Calculation will be submitted by us during detail design stage. At present the rating we consider as shown in SLD.	Confirmed , the final rating of all equipment shall be concluded during detailed design stage.				

41.	Section IV-Price Schedules-Kabarnet 132-33kV SS	Insulation coordination studies	In this at present we understand that client need confirmation from bidder that each switchyard equipments follows Insulation Co- ordination standards. For that which documents client need from bidder?	Please note that insulation coordination studies shall be done during the execution.
42.	14. Earthing / Auxiliary Transformers & General & 4. 33-0.415kV AUXILIARY TRANSFORMER	Earthing/auxiliary transformers shall be in accordance with IEC 60076 and generally to the requirements of the Power Transformer section of this technical specification, as applied to transformers with a Um of 12kV and with a rating up to 10MVA Earthing/auxiliary transformers shall be capable of withstanding for a period of 30 seconds the application of normal 3-phase line voltage to the line terminals of the interconnected star winding with one-line terminal and the neutral terminal connected solidly to earth. The earthing/auxiliary transformers shall have zero sequence	Kindly confirm there is requirement of Earthing cum Auxiliary Transformer Requirement. It is only Auxiliary Transformer Requirement. There is discrepancy between Technical data Sheet, BOM and Technical Specification.	The requirement is only 33/0.415kV Auxiliary Transformer. Please refer & follow Part 2, Employers Requirements, Page 2-629, 33/0.415kV AUXILIARY TRANSFORMER and the item 4 of the price schedule AUXILIARY TRANSFORMER



		impedance equal to the positive sequence impedance.	<table><tr><td>1.4</td><td>System earthing</td><td></td><td>Solid</td></tr><tr><td>1.8.5</td><td>Neutral earthing</td><td></td><td>Solid</td></tr></table> 	1.4	System earthing		Solid	1.8.5	Neutral earthing		Solid		
1.4	System earthing		Solid										
1.8.5	Neutral earthing		Solid										
43.	KABARNET SLD PDF & Section IV-Price Schedules-Kabarnet 132-33kV SS		In BOM Client shows Cut off Fuse 6 Nos. However, in SLD for ATX1 Feeder Fuse not include in Scope of work. Kindly confirm it need to be add or its qty. is 3.	The quantity shall be six(6) . Please follow the price schedule.									

44		We are internationally renowned manufacturer of Overhead Conductor, OPGW cable, all associated fittings and accessories and composite insulators etc.. In the meantime, we are also an EPC contractors in high voltage power transmission lines. We are much interested in the above-mentioned project.	We kindly request an extension of one month so as to allow us sufficient time in order to offer a most comprehensive and competitive offer in this project.	Refer to Addendum 1 Item no. 1
45			Please provide the SCADA brands and type for NCC, RCC, and NSCC.	The bidder shall design, supply and install a new SCADA system for both substations. The existing NCC & RCC is ABB make.
46			Please provide the communication brands and type for NCC, RCC, and NSCC.	The existing NCC & RCC is ABB brand
47			Please provide the existing network management system (NMS) brands and type for NCC, RCC, and NSCC.	The existing NCC & RCC is ABB brand
48			Please provide the existing PABX brands and type for NCC, RCC, and NSCC.	The existing NCC & RCC is ABB brand
49			Please provide the line length of the 110kV KABARNET–RUMURUTI transmission line.	Approx 94kms 132kV double circuit transmission line between Kabarnet & Rumuruti substation



50	Part 2-Employer's Requirements	Substation CCTV System as specified in this Specification with dedicated battery bank and UPS for the entire Substation and fully integrated with the existing centralized CCTV system at KETRACO Headquarters (National Control Centre).	Please provide the CCTV brands and type for NCC. Please confirm the specific data requirements for the CCTV integration of NCC.	It will be provided during the detailed design
51	Section IV-Price Schedules-Rumuruti 132-33kV SS	BOQ 7.1, 7.2 Substation automation system including:All software and license, Modifications in HMI; Part 2-Employer's Requirements, 1.3.1Extension Works at Rumuruti 132/33 kV Substation f)Extension/modification of control room building and SCADA as per tender drawings, including required building services (e.g. Lighting, Small Power System, HVAC.) s) Upgrade/replacement of the entire SCADA SAS system to include the existing bays and new (extension) bays. Design, supply, test, commission two new redundant Gateways for Integrating the new scope to the existing. The new Gateways to have a spare 40% signal capacity after the commissioning. The supplied Gateways to have 110VDC supply. The existing gateway needs to be recovered and handed over to KETRACO.	Rumuruti 132/33 kV Substation Based on the on-site survey, there is no complete SCADA system in the substation, with only gateway, GPS, and switches available. There are no servers, workstations, SCADA HMI, or RTU. Please confirm the detailed scope of SCADA work required.	The bidder shall design, supply and install a new SCADA system for Rumuruti substation.
52	Section IV-Price Schedules-Kabarnet 132-33kV SS	BOQ 7.1, 7.2 Substation automation system including:All software and license, Modifications in HMI; Part 2-Employer's Requirements, 1.3.2Extension Works at Kabarnet 132/33 kV Substation h)Extension/modification of control room building and SCADA q)The extension/modification scope for protection and control, SCADA and Telecoms shall match the existing systems. r)Modification/extension of the remote end station protection, control and telecommunication and SCADA systems including	Kabarnet 132/33 kV Substation Based on the on-site survey, there is no complete SCADA system in the substation, with only gateway, GPS, and switches available. There are no servers, workstations, SCADA HMI, or RTU. Please confirm the detailed scope of SCADA work required.	The bidder shall design, supply and install a new SCADA system for Kabarnet substation.

		<p>commissioning and testing to achieve full system functionality.</p> <p>s) Validation of existing protection settings to achieve the necessary grading with existing systems.</p> <p>t) Development of new protection settings for extension scope.</p> <p>Upgrade/replacement of the entire SCADA SAS system to include the existing bays and new (extension) bays.</p>		
53		<p>Drawing: PSLD</p> <p>3. THE EXISTING HIGH IMPEDANCE BUSBAR PROTECTION RELAYS SHALL BE USED IN EXTENSION SCOPE WITH RETESTING AND RECOMMISSIONING.</p> <p>Part 2-Employer's Requirements</p> <p>1.3.1 Extension Works at Rumuruti 132/33 kV Substation</p> <p>n) Modification of the 132kV and 33kV busbar protection scheme from HIGH impedance to centralized LOW impedance type considering the number of 132kV and 33kV bays including the new and existing 132kV and 33kV bays.</p> <p>o) Decommissioning of existing 132kV and 33kV high impedance busbar protection scheme and handing over the protection panels with its accessories and delivering to KETRACO's Warehouse.</p> <p>1.3.2 Extension Works at Kabarnet 132/33 kV Substation</p> <p>n) Modification of the 132kV and 33kV busbar protection scheme from HIGH impedance to centralized LOW impedance type considering the number of 132kV and 33kV bays including the new and existing 132kV and 33kV bays.</p> <p>o) Decommissioning of existing 132kV and 33kV high impedance busbar protection scheme and handing over the protection panels with its accessories and delivering to KETRACO central stores or Employer's designated place.</p>	<p>Please confirm that the existing busbar protection relays need to be decommissioned and no longer be used.</p>	<p>Yes, to be decommissioned and handover to Ketraco Stores.</p>

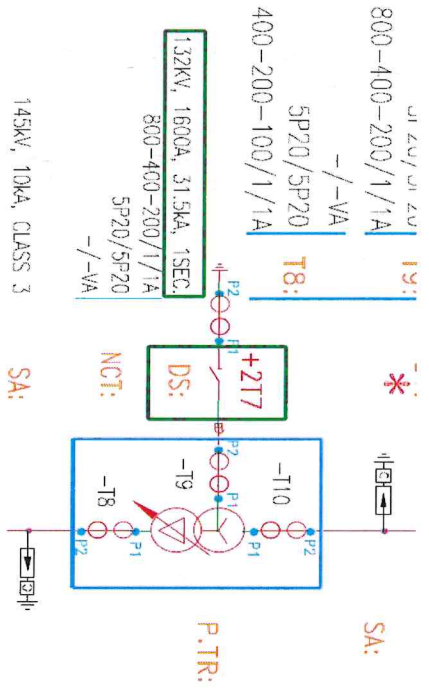
54	<p>Part 2-Employer's Requirements, 19.Low Voltage Power and Control Cables (LV Cables)</p> <p>19.3.1 General</p> <p>·Halogen free according to IEC 60754-1 and EN 50267-2-1</p> <p>E -TECHNICAL DATA SCHEDULES</p> <p>17.LOW VOLTAGE CABLES/Control Cable</p> <p>1.8 Type and thickness of inner sheath material extruded P.V.C</p> <p>1.11 Type and thickness of outer sheath material extruded P.V.C</p> <p>2.7 Insulation material P.V.C or X.L.P.E</p> <p>2.8 Material and thickness of inner sheath mm extruded P.V.C</p> <p>2.12 Material and thickness of outer sheath mm extruded P.V.C</p>	<p>Please confirm whether the low-voltage cables will be supplied in compliance with the TDS requirements, given that PVC materials contain halogens.</p>	<p>Follow Employer requirement 19.3.1 i.e. halogen free cables. Please refer to the revised TDS of halogen free cable enclosed with Addendum 2 Item No 6</p>
54	<p>BOQ, Section IV-Price Schedules-Rumuruti 132-33kV SS</p> <p>13.2.2 Modification, wiring and integration of 48Vdc distribution panel, fuse boxes, with all required accessories (including CBs, Contactors, Metering and Protection, Fuses, Aux. Relays and etc.) 1 lot</p> <p>BOQ, Section IV-Price Schedules-Kabarnet 132-33kV SS</p> <p>13.3 Modification, wiring and integration of 48Vdc distribution panel, fuse boxes, with all required accessories (including CBs, Contactors, Metering and Protection, Fuses, Aux. Relays and etc.) 1 lot</p> <p>E -TECHNICAL DATA SCHEDULES</p> <p>9. LOW VOLTAGE DC SYSTEM</p> <p>Complete parameters of the DC48V system need to be provided.</p>	<p>Rumuruti &amp; Kabarnet 132/33 kV Substation: The description of the DC 48V system's working scope appears contradictory . Please confirm the supply scope for the DC 48V system. Specifically, clarify whether it requires: A complete DC 48V system Two sets of thyristor-based rectifier chargers Two sets of nickel-cadmium (Ni-Cd) batteries.</p>	<p>No additional supply of 48V DC charger and battery bank requested in bid document. Only modification is required for additional 48V Dc feeders.</p>
55	<p>BOQ Section IV-Price Schedules-Kabarnet 132-33kV SS</p> <p>13.1.1 Completion &amp; Modification, wiring and integration of LVAC system including AC distribution outdoor cubicles, AC Main and</p>	<p>Kabarnet 132-33kV SS Please confirm the LVAC distribution panel in control</p>	<p>Extension of LVAC distribution panel in control building is</p>



		distribution panels in Control building, LVAC distributed panel/fuse box for oil treatment socket 1 lot	building needed to be provided according to KABARNET LVAC SLD	needed. Please follow Employer's Requirement 10.2 Scope of works and SLD. The design of LVAC shall be finalized during detailed design subject to client approval. Meanwhile for tender purpose revised LVAC SLD enclosed with Addendum 2 Item no 3.
56		BOQ, Section IV-Price Schedules-Rumuruti 132-33kV SS 13.1.1 AC Main and distribution panels, AC distribution outdoor cubicles, fuse box for oil treatment socket with all required equipment and accessories (including CBs, Contactors, Metering and Protection, Fuses, Aux. Relays and etc.)	Please confirm only the LVAC distribution panel in control building LVAC distribution panel in control building is needed. Please follow requirement needed to be provided according to KABARNET LVAC SLD, no AC main panel need to be provided.	Extension of LVAC distribution panel in control building is needed. Please follow Employer's Requirement 10.2 Scope of works and revised SLD in Addendum 2 item 3. The design of LVAC shall be finalized during detail design subject to client approval



57	Part 2-Employer's Requirements	<p>3.2.3 Gas Monitoring and Handling</p> <p>For refilling purposes, the manufacturer shall provide and handover to the Employer one set of mobile gas handling plant for sampling, filling, evacuating and processing SF6 gas including; two sets of SF6 gas leakage detectors, cylinders for temporary storage of evacuated SF6 gas for one 400kV complete three-phase circuit breaker, all accessories, hose pipes, and fittings necessary to connect the plant to the 400kV circuit breakers for each substation.</p>	<p>Please confirm whether both Kabarnet substation and Rumuruti substation need to be provided with one set of mobile gas handling plant or this requirement only applies to the 400kV substations, and is not applicable to Kabarnet substation and Rumuruti substation.</p>	<p>Yes, this is required for both Rumuruti and Kabarnet Substations. This is applicable for 132kV SF6 circuit breakers and please refer to the price schedule item 15.7 for both Rumuruti and Kabarnet substations.</p>
58	Part 2-Employer's Requirements	<p>132 kV OPEN TERMINAL SWITCHGEAR-132KV ISOLATOR</p> <p>2.7.Quantity of poles: Single pole op.</p>	<p>Please explain what "Single pole op." means.</p> <p>For the 132kV disconnect, our understanding is that it should be three pole operated ,Please confirm.</p>	<p>Three pole operation is required. Please refer Addendum 2 item 5</p>
59	Section IV-Price Schedules-Kabarnet 132-33kV SS	<p>Section IV-Price Schedules-Kabarnet 132-33kV SS</p> <p>2.9 Voltage transformer Protection and metering Two Cores (1-phase)</p>	<p>According to the single-line diagram, this 33kV voltage transformer should be of the electromagnetic type. Please confirm.</p>	<p>Please follow the bid requirement</p>

60	Kabarnet Drawings	<p>KABARNET SLD</p> 	<p>In the single-line diagram, it is required that the 132/33 kV 18/23MVA transformer neutral point be connected to the outdoor single-phase disconnect. However, in document "Section IV-Price Schedules-Kabarnet 132-33kV SS", this item is not included.</p> <p>Please confirm whether the single-phase disconnect has been configured, And please confirm that the disconnect should be a 33kV disconnect switch.</p>	<p>For the new transformer, neutral earthing disconnect is not required, Please refer to the revised SLD KABARNET-SLD-132KV--002 REV.01 in Addendum 2 item 7</p>
61			<p>Based on the on-site inspection, for Rumuruti 132-33kV SS there is already a 33kV single-pole disconnect connected to the neutral point of an existing power transformer. Please confirm whether a 33kV single-pole disconnect is required to be connected to the neutral point of the new 132/33 kV 18/23MVA transformer to be installed for Rumuruti 132-33kV SS in this project.</p>	<p>Not required</p>
62			<p>1) Based on the on-site inspection, Rumuruti 132-33kV SS is currently not in a state of</p>	<p>1. This cannot be confirmed at this moment.</p>

			<p>power transmission and operation. Please clarify the time when Rumuruti 132-33kV SS will be put into power transmission and operation.</p> <p>2) If during the construction phase of this project, Rumuruti 132-33kV SS is put into power transmission and operation, please clarify whether it is carried out under a power-off construction mode or a non-power-off construction mode.</p>	<p>2. Bidders shall consider working under live/energized condition.</p>
63			<p>1) Based on the on-site inspection, Kabarnet 132/33 kV Substation is currently not in a state of power transmission and operation. Please clarify the time when Rumuruti 132-33kV SS will be put into power transmission and operation.</p> <p>2) If during the construction phase of this project, Kabarnet 132/33 kV Substation is put into power transmission and operation, please clarify whether it is carried out under a power-off construction mode or a non-power-off construction mode.</p>	<p>1. This cannot be confirmed at this moment.</p> <p>2. Bidders shall consider working under live/energized condition.</p>

64	Part 2-Employer's Requirements	A-1.3.1 Extension Works at Rumuruti 132/33 kV Substation	For Rumuruti 132/33 kV Substation work scope, it is described 'Construction of technical staff housing (4 units) and security housing (3 units) as per tender drawings', however, in tender drawing, there is only two units of SECURITY STAFF HOUSING. Please clarify.	Four (4) units of technical staff housing, and four (4) units of security housing are required. Please refer to the price Schedule_4_SS, 17.3.1 & 17.3.2 and the drawing RUMURUTI-GP-SCOPE-003, GENERAL PLAN (CURRENT SCOPE OF WORK)
65			<p>We appreciate the opportunity to participate in the above-referenced tender for the <b>Design, Supply, and Installation of Kabarnet and Rumuruti 132/33kV Substations</b> Extension under the Kenya Transmission Network Improvement Project.</p> <p>We are a <b>construction company with extensive experience in infrastructure, building, and power projects</b>, including transmission lines and substations. We have delivered</p>	1. Confirmed.



		<p>similar works across multiple regions to the highest standards of quality and compliance.</p> <p>We kindly seek <b>clarification and approval</b> regarding the <b>financial turnover requirement</b> in the bidding documents. Our <b>audited financial statements reflect the company's overall annual turnover</b> and do not categorize turnover by specific project sectors (e.g., substations, transmission, or buildings). We respectfully request that <b>our general audited turnover be accepted</b> as proof of financial capacity, as it accurately represents our full operational capability, including works in the power sector.</p> <p>Additionally, due to the need for coordination across teams, preparation of supporting documentation, and internal approval processes, we respectfully <b>request an extension of the bid submission deadline by four (4) weeks</b>. This additional</p>
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			<p>time will allow us to submit a fully responsive, compliant, and competitive offer that meets all requirements.</p> <p>We trust that our requests will be positively considered. We remain available to provide any further information or documentation you may require to support this clarification or extension request.</p>	<p>2. Please refer to Addendum 1 Item number 1 for bid extension</p>
66			<p>We would like to express our appreciation for the opportunity to participate in the above-mentioned tender.</p> <p>Due to the complexity of the technical requirements and the time required to obtain certain essential information and clarifications from the Employer, our Partners and Manufacturers, we respectfully request an extension of the bid submission deadline. We kindly propose a four-week extension, moving the current submission deadline from <b>19th August 2025 to 16th September 2025</b>, to allow us to</p>	<p>Please refer to Addendum 1 item 1 regarding bid extension</p>

			<p>prepare a more accurate and competitive proposal that fully complies with the tender requirements.</p> <p>We would be grateful for your kind consideration of this request and look forward to your favourable response. Should you require any further information, please do not hesitate to contact us.</p>	
67	ITB 20.1	<p>A Bid Security amount shall be required.</p> <p>A Bid-Securing Declaration shall not be required.</p> <p>The amount and currency of the Bid Security shall be 300,000.00 (Three hundred thousand) US Dollars</p>	<p>Please confirm whether bid security will be accepted in the form of a bid bond or an insurance surety bond from any financial institution in Kenya, or if it must strictly be provided as a bank guarantee?</p>	<p>Please refer to ITB 20.3</p>
68			<p>After getting these valuable clarifications from your end, we would require some more time to carry out the required Pre-bid engineering studies, receive &amp; evaluate the Techno-commercial offers from various Suppliers and to compile comprehensive proposals of the above-mentioned subject tenders after reviewing received clarifications.</p>	<p>Please refer to Addendum 1 item 1 regarding bid extension</p>

			<p>Therefore, we feel that the available balance time seems very tight to prepare competitive &amp; comprehensive offer. Hence, we request you to please extend the tender submission date at least by 3 weeks from 05th August 2025 for the competitive techno-commercial proposal. We look forward for your valuable early response. We assure you of our best attention and services at all time.</p>	
69	Current transformer- BOQ Rumuruti Substation	<p>As per Rumuruti Substation SLD, 132kV core details as follow:  Core 1: 800-400-200/1A, 5P20, 30VA  Core 2: 800-400-200/1A, 5P20, 30VA  Core 3: 800-400-200/1A, 0.25, 10VA  Core 4: 800-400-200/1A, 0.25, 05VA  Core 5: 2000-1600-800/1A, PX  Core 6: 2000-1600-800/1A, PX</p>	<p>Kindly confirm CT ratio and core details as per SLD.</p>	<p>Bidder shall refer and follow the Drawing RUMURUTI-SLD-132-001</p>
70	Current transformer- BOQ Rumuruti Substation	<p>As per Rumuruti Substation SLD, 132kV core details as follow:  Core 1: 400-200-100/1A, 5P20, Core 2: 400-200-100/1A, 5P20, Core 3: 400-200-100/1A, 0.25, Core 4: 2000-1600-800/1A, PX  Core 5: 2000-1600-800/1A, PX</p>	<p>VA burden is missing in both SLD &amp; GTP. Please check and confirm the same.</p>	<p>Bidders shall refer to the * marked note of the drawing RUMURUTI-SLD-132-001</p>
71	Current transformer- BOQ Rumuruti Substation	<p>As per Rumuruti Substation SLD, 132kV core details as follow:  Core 1: 2000-1600-800/1A, PX  Core 2: 2000-1600-800/1A, 0.2  Core 3: 2000-1600-800/1A, 5P20</p>	<p>VA burden is missing in both SLD &amp; GTP. Please check and confirm the same.</p>	<p>Bidders shall refer to the * marked note of the drawing RUMURUTI-SLD-132-001</p>



72	Current transformer- BOQ Rumuruti Substation	As per Rumuruti Substation SLD, 33kV core details as follow: Core 1: 800-400-200/1A, 5P20 Core 2: 800-400-200/1A, 5P20 Core 3: 800-400-200/1A, 0.2S Core 4: 400-200-100/1A. PX	VA burden is missing in both SLD & GTP. Please check and confirm the same.	Bidders shall refer to the * marked note of the drawing RUMURUTI-SLD-33kV-002
73	Current transformer- BOQ Rumuruti Substation		33kV, 3 core current transformer core details missing in GTP, SLD & BOQ. Please check and share the same.	There is no requirement for 3 Core 33kV CT's.
74	Current transformer- BOQ Rumuruti Substation	As per Rumuruti Substation SLD, 33kV core details as follow: Core 1: 400-200-100/1A. PX Core 2: 800-400-200/1A, 5P20 Core 3: 800-400-200/1A, 0.2S Core 4: 400-200-100/1A. PX	VA burden is missing in both SLD & GTP. Please check and confirm the same.	Bidders shall refer to the * marked note of the drawing RUMURUTI-SLD-33kV-002
75	Voltage transformer- BOQ Rumuruti Substation	As per Rumuruti Substation SLD, 132kV CVT core details as follow: Core 1: 110/√3, 0.2, Core 2: 110/√3, 3P(0.5), Core 3: 110/√3, 3P(0.5),	VA burden is missing in both SLD & GTP. Please check and confirm the same.	Bidders shall refer to the * marked note of the drawing RUMURUTI-SLD-132-001.
76	Voltage transformer- BOQ Rumuruti Substation	As per Rumuruti Substation SLD, 132kV CVT core details as follow: Core 1: 110/√3, 0.2, 100VA Core 2: 110/√3, 3P(0.5), 100VA	Kindly confirm CVT ratio and core details as per SLD also 100VA burden is technically not feasible, We can offered 30VA for 0.2 class and 50VA for 3P class. Please confirm.	Follow the requirement as indicated in the drawing RUMURUTI-SLD-132-001, 132kV SINGLE LINE DIAGRAM

77	Voltage transformer- BOQ Rumuruti Substation	As per Rumuruti Substation SLD, 33kV IVT core details as follow: Core 1: 110/V/3, 0.2, 50VA Core 2: 110/V/3, 3P(0.5), 50VA	Kindly confirm above IVT ratio and core details as per SLD.	Follow the requirement as indicated in the drawing RUMURUTI-SLD-33kV-002
78	Current transformer- BOQ KABARNET Substation	As per KABARNET Substation SLD, 132kV core details as follow: Core 1: 800-400-200/1A, 5P20, 30VA Core 2: 800-400-200/1A, 5P20, 30VA Core 3: 800-400-200/1A, 0.2S, 10VA Core 4: 800-400-200/1A, 0.2S, 05VA Core 5: 1200-800-400/1A, PX Core 6: 1200-800-400/1A, PX	Kindly confirm CT ratio and core details as per SLD.	Follow the requirement as indicated in the Drawing KABARNET-SLD-132kV-002-REV01
79	Current transformer- BOQ KABARNET Substation		132kV, 3 core current transformer core details missing in GTP, SLD & BOQ. Please check and share the same.	Bidders shall refer to the drawing KABARNET-SLD-132kV-002-REV01
80	Current transformer- BOQ KABARNET Substation		132kV, 2 core current transformer core details missing in GTP, SLD & BOQ. Please check and share the same.	Bidders shall refer to the drawing KABARNET-SLD-132kV-002-REV01.

81	Current transformer- BOQ KABARNET Substation	As per KABARNET Substation SLD, 33kV core details as follow: Core 1: 400-200-100/1A. PX Core 2: 800-400-200/1A, 5P20 Core 3: 800-400-200/1A, 0.2S Core 4: 400-200-100/1A. PX	VA burden is missing in both SLD & GTP. Please check and confirm the same.	Bidders shall refer to the * marked note of the drawing KABARNET-SLD-33kV-002
82	Current transformer- BOQ KABARNET Substation		33kV, 2 core current transformer core details missing in GTP, SLD & BOQ. Please check and share the same.	Bidders shall refer to the drawing KABARNET-SLD-33kV-002
83	Voltage transformer- BOQ KABARNET Substation	As per KABARNET Substation SLD, 132kV CVT core details as follow: Core 1: 110/√3, 0.2, Core 2: 110/√3, 3P(0.5), Core 3:110/√3, 3P(0.5),	VA burden is missing in both SLD & GTP. Please check and confirm the same.	Bidders shall refer to the * marked note of the drawing KABARNET-SLD-132kV-002- REV01 of Addendum No.2 Item 7
84	Voltage transformer- BOQ KABARNET Substation	As per KABARNET Substation SLD, 132kV CVT core details as follow: Core 1: 110/√3, 0.2, 100VA Core 2: 110/√3, 3P(0.5), 100VA	Kindly confirm above CVT ratio and core details as per SLD also 100VA burden is technically not feasible, We can offered 30VA for 0.2 class and 50VA for 3P class. Please confirm.	Bidders shall follow the requirement as indicated in the drawing KABARNET-SLD-132kV-002- REV01 of Addendum No.2 Item 7

85	Voltage transformer- BOQ KABARNET Substation	As per Rumuruti Substation SLD, 33kV IVT core details as follow: Core 1: 110/V3, 0.2, 50VA Core 2: 110/V3, 3P(0.5), 50VA	Kindly confirm above IVT ratio and core details as per SLD.	Bidders shall follow the requirement as indicated in the drawing KABARNET-SLD-132kV- -002- REV.01 of Addendum No.2 Item 7
86	General		Altitude 2000m asl for both KABARNET and Rumuruti substation. Kindly reconfirm the same.	Confirmed
87	Current transformer- BOQ KABARNET Substation	As per KABARNET Substation SLD, 132kV core details as follow: Core 1: 400-200-100/1A, 5P20, Core 2: 400-200-100/1A, 5P20, Core 3: 400-200-100/1A, 0.2S, Core 4: 1200-800-400/1A, PX Core 5: 1200-800-400/1A, PX	VA burden is missing in both SLD & GTP. Please check and confirm the same.	Bidders shall refer to the * marked note of the drawing KABARNET-SLD-132kV- -002- REV01 of Addendum No.2 Item 7
88		Specific Procurement Notice	We noticed there are 2 documents for Specific Procurement Notice: - First one named "FINAL SPN - Procurement for Kabarnet-Rumuruti SUBSTATION Extensions 027" with IFB OCBI No: KETRACO/PT/027/2025. - Second named "Part 1 and 3 Bid Document" with IFB OCBI No: KETRACO/PT/001/2024-Lot 5	The Correct IFB OCBI No. is KETRACO/PT/027/2025.



			Please confirm which IFB OCBI number is the correct one.	
89		Telecommunication System Layout Rumuruti 132/33kV Substation Dwg no. RUMURUTI -TELECOM-001	Distance to Rumuruti Solar is not provided, distance is required for considering SFP towards rumuruti solar. Is it required to consider the "ODF 48Core FC/PC (Future)" in the offer?	This is not part of the current scope of work.
90		Telecommunication System Layout Rumuruti 132/33kV Substation Dwg no. RUMURUTI -TELECOM-001	Please share the detailed of Existing FOX615 in Rumuruti SS (HE Number), since we do not have the current status in our database. Please provide configuration, number of ports used in the SDH module and remaining slots available for the upgrade.	This shall be provided during the detailed design.
91		Telecommunication System Layout Rumuruti 132/33kV Substation Dwg no. RUMURUTI -TELECOM-001	Is it require to offer modules for 6x distance protection (future) relays & 6x differential protection (future) relays?	Supply for future is not under the current scope.

92		Telecommunication System Layout Kabernet 132/33kV Substation Dwg no. KABERNET-TELECOM-001	Is it require to offer modules for 2x distance protection (future) relays & 2x differential protection (future) relays?	Supply for future is not under the current scope.
93		Telecommunication System Layout Rumuruti 132/33kV Substation & Kabernet 132/33kV Substation	We noticed distance protection relay on Rumuruti has 4 wire interface to existing relay & IEC 61850 interfaces to new relays and in Kabernet has C37.94 interface. The distance protection is command based as per Kenya standard, please clarify whether we can offer command based distance protection as standard in Kenya Network.	Find revised drawings in Addendum 2, Item 4. RUMURUTI-TELECOM-001-REV.01 & KABARNET-TELECOM-001-REV.01
94		Telecommunication System Layout Rumuruti 132/33kV Substation & Kabernet 132/33kV Substation	STM-1 link is given in the Telecom System layouts for Rumuruti 132/33kV Substation & Kabernet 132/33kV Substation, as per Kenya's standard STM-4 is minimum required, please clarify.	STM-4 is required and refer to the revised drawing in Addendum 2 Item no. 4
95		Telecommunication System Layout Rumuruti 132/33kV Substation Dwg no. RUMURUTI-TELECOM-001	We can see there is requirement for New SDH equipment in OLKALAU & MARALAL, but the in the BoQ those MUXs are not mentioned. Are those new MUXs to be included in this project? Please clarify.	MUXs are not required for Olkalanu & Maralal since these lines are not under current scope

96		<p>All necessary licences, hardware, software and configuration needed for the existing network management system (NMS) to create the STM-1 link that forms part of the Optic network from Kabarnet 132/33kV Substation and other Substation to the NCC/RCC/NSCC</p>	<p>In Telecommunication System Layout Kabarnet 132/33kV Substation Dwg no. KABARNET-TELECOM-001 is shown STM-1 as bandwidth requirement, but as per Kenya Telecom STM-4 is the minimum bandwidth requirement. Please confirm.</p>	<p>STM-4 is required and refer to the revised drawing in Addendum 2 serial no. 4</p>
97		<p>Optical Distribution panel for Main Communication room</p>	<p>In Telecommunication System Layout Kabarnet 132/33kV Substation Dwg no. KABARNET-TELECOM-001 is shown one existing ODF in the ODF panel. However the existing ODF is a wall mounted ODF (WODF) not 19" patch panel. WODF can not be installed in the panel. Please confirm if we should supply a panel for one ODF only or the new ODF can be supplied as WODF.</p>	<p>Provide a panel which can accommodate four ODFs (including the future)</p>
98		<p>Optical Distribution Unit (OCDF) 48 cores fiber for Main Communication room</p>	<p>In Telecommunication System Layout Kabarnet 132/33kV Substation Dwg no. KABARNET-TELECOM-001 is shown 4 ODF in the panel being 2 for Future use. Please confirm if the future ODF shall be included or not.</p>	<p>The future ODF is not under current scope</p>

99		Digital Distribution Unit (ODF) for 48 cores fiber	We do not understand the difference between 9.8.2 (OCDF) and 9.8.3 (ODF). Please clarify.	Refer to the telecommunication drawing
100		Tail Optical Fiber	We understand that this is indicating to pigtails which will be delivered along with patch panels (OCDF/ODF) as per actuals. Please confirm.	Confirmed
101		48 cores Optical Cable	We understand this as Approach Cable. Please confirm.	Approach cable and for all other necessary connections
102		2M Coaxial Cable	This not applicable for FOTE. Please clarify.	This is required
103		All necessary licences, hardware, software and configuration needed for the existing network management system (NMS) to create the STM-1 link that forms part of the Optic network from Rumuruti 132/33kV Substation and other Substation to the NCC/RCC/NSCC	In Telecommunication System Layout Rumuruti 132/33kV Substation Dwg no. RUMURUTI-TELECOM-001 is shown STM-1 as bandwidth requirement but as per Kenya Telecom STM-4 is the minimum	STM-4 is required .Please refer to the revised drawing in Addendum 2 Item no.4



			bandth requirement. Please confirm.	
104		Optical Distribution Unit (OCDF) 48 cores fiber for Main Communication room	<p>In Telecommunication System Layout Rumuruti 132/33kV Substation Dwg no. RUMURUTI-TELECOM-001 is shown 5 ODF in the panel where 1 existing, 3 required and 1 for future use. We understand that one ODF panel including 3 ODFs is required. Please clarify why only 2 ODFs are required instead of 3 and whether the ODF for the future use shall be included or not.</p>	3 No's ODF are required and shown in the drawing ,The future ODF is not under current scope,
105		Digital Distribution Unit (ODF) for 48 cores fiber	<p>We do not understand the difference between 9.7.2 (OCDF) and 9.7.3 (ODF). Please clarify and also refer to the comment in 9.7.2.</p>	Refer the telecommunication drawing RUMURUTI-TELECOM-001
106		Tail Optical Fiber	<p>We understand that this is indicating to pigtails which will be delivered along with patch panels (OCDF/ODF) as per actuals. Please confirm.</p>	Confirmed

107		48 cores Optical Cable	We understand this as Approach Cable. Please confirm.	Approach cable and for all other necessary connections.
108		2M Coaxial Cable	This not applicable for FOTE. Please clarify.	This is required
109		Exchange	We understand EPABX shall be analogue type and installed at Guard House. Please confirm.	The exchange shall be IP EPABX
110		Telephone Equipment	We understand those are analogue telephone type. Please confirm.	The telephones are VoIP.
111	Protection & Scope of Work Automation system	Upgrade/replacement of the entire SCADA SAS system to include the existing bays and new (extension) bays. Design, supply, test, commission two new redundant Gateways for Integrating the new scope to the existing. The new Gateways to have a spare 40% signal capacity after the commissioning. The supplied Gateways to have 110VDC supply.	Kindly provide existing make details to meet the compatibility with existing system.	The bidder shall design, supply and install a new SCADA system for Kabarnet and Rumuruti substations.

		The existing gateway needs to be recovered and handed over to KETRACO.		
112	Technical details of S.No:2.16.1	Electrical endurance class of disconnectors as 'Class E2'. In this regard, we wish to inform you that our Earth Switches of Disconnectors are Electrical Endurance ' Class E0' type and suitable for off Load disconnectors only. It can withstand Short Time current and does not have any Short Circuit making capacity i.e E2 Type.	Please confirm Class E0 type Earth Switches shall be acceptable.	Not acceptable (please follow the requirements as in E-TECHNICAL DATA SCHEDULES)
113	ITB 20.1	<p>A Bid Security amount shall be required.</p> <p>A Bid-Securing Declaration shall not be required.</p> <p>The amount and currency of the Bid Security shall be 450,000.00 (Four hundred and fifty thousand) US Dollars.</p>	Please confirm whether bid security will be accepted in the form of a bid bond or an insurance surety bond from any financial institution in Kenya, or if it must strictly be provided as a bank guarantee?	Please refer to ITB 20.3
114	As per 3.2 Average Annual Turnover of Section III: Evaluation and Qualification Criteria (Page No 65)	<p>Minimum average annual turnover in Power Transmission sector of 10 (Ten) Million US Dollars, calculated as total certified payments received for contracts in progress or completed, within the last 5 (five) years</p>	<p>We assume that Minimum average annual turnover in Power sector Projects of 10 (Ten) Million US dollar</p> <p>Kindly confirm.</p>	Please follow the bid requirement.

<p>115</p>	<p>As per 4.2(a) Specific Experience of Section III: Evaluation and Qualification Criteria (Page No 69)</p>	<p>(a) Participation as contractor, joint venture member, management contractor, or subcontractor, in at least two (2) contracts within the last eight (8 ) years, each with a value of at least eight million US Dollars (USD 8,000,000 ), that have been successfully and substantially completed and that are similar to the proposed Plant and Installation Services.  The similarity of the contracts shall be based on the following: Design, supply, construction, testing and commissioning of • 132/33kV and above substations. <b>These works must have been carried outside its country.</b> The works must have been completed prior to bid submission. These criteria must be evidenced by a completion certificate issued to the bidder</p>	<p>Please clarify, if the bidders is having experience in Design, supply, construction, testing and commissioning of 132/33kV substations and higher voltage work in home country are allowed to participate.</p> <p>Please follow the bid requirement</p>
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116	<p>As per 4.2(b) Specific Experience of Section III: Evaluation and Qualification Criteria (Page No 70)</p>	<p>(b) For the above or other contracts executed during the period stipulated in 4.2(a) above, a minimum experience in the following key activities:</p> <ul style="list-style-type: none"> <li>• Four (4) successfully accomplished and operated air insulated substations of 132/33kV with double busbar configuration</li> <li>• Procurement, installation, and commissioning of 2 x 23 MVA 132/33kV transformers or above for all the above substations and transmission lines; they must have been completed prior to bid submission. <b>These criteria must be evidenced by a completion certificate issued to the bidder.</b></li> </ul>	<p>As per World bank/African Development bank/ADB procurements guidelines the bidder work experience / Substantial completion projects (80%) are qualified to participate in bidding process. Therefore we kindly request to allow us for the same.</p> <p>We also request you to relax in Qualification criteria as :</p> <p>(a) Instead of Four (4) successfully accomplished and operated air insulated substations of 132/33kV with double busbar configuration please allow two (2) successfully accomplished and operated air insulated substations of 132/33kV and 132/11kV or higher voltage</p> <p>(b) Instead of Four (4) successfully accomplished and operated air insulated substations of 132/33kV with double busbar configuration please allow two (2) successfully accomplished and operated air insulated substations of 132/33kV and 132/11kV or higher voltage with double or single busbar configuration.</p>	<p>Please follow the bid requirement</p>
117	Site Visit		<p>During the site visit, it was observed significant elevation difference across the terrain. Please kindly provide the topographic maps for the Kabarnet Substation and Rumuruti Substation.</p>	<p>Bidder to conduct due diligence and collect necessary information</p>
118	Site Visit		<p>During the site visit, it was observed that the existing substation's property boundary is enclosed by a chain-link fence supported by precast concrete posts. Our understanding is that this existing property fence will be demolished and replaced with a new solid boundary wall as per the descriptions in the Part</p>	<p>Refer to Employer's Requirement 1.1, 1.3.1 and 1.3.2 on scope of fencing</p>

			2-A Employer's Requirements (Scope of Work). Please kindly confirm if our understanding is correct?	
119	Clause 1.3.1 Extension Works at Rumuruti 132/33kV Substation_Part 2-A Employer's Requirements	iv. Construction of technical staff housing (4 units) and security housing (3 units) as per tender drawings	The tender drawing RUMURUTI-GL(OVERALL)-002 GENERAL LAYOUT (OVERALL) depicts 4 units technical staff housing and 4 units security housing. However, Clause 1.3.1 of Part 2-A (Employer's Requirements) specifies construction of technical staff housing (4 units) and security housing (3 units) . Which is correct?	4 units technical staff housing and 4 units security housing shall be required. Please refer to the price Schedule 4_SS, 17.3.1 & 17.3.2 and the drawing RUMURUTI-GP-SCOPE-003, GENERAL PLAN (CURRENT SCOPE OF WORK)
120	Clause 1.1 Scope of Work_Part 2-A Employer's Requirements  Clause 16.11.2.2.5 HVAC System and Design Conditions_Part 2-B Employer's Requirements	As per the Clause 1.1 Scope of Work_Part 2-A Employer's Requirements, HVAC system shall include Dual Split Units and shall be considered in the control building, guard house and telecom collocation room, staff housing according to KETRACO requirements.  As per the Clause 16.11.2.2.5 HVAC System and Design Conditions_Part 2-B Employer's Requirements, Central air conditioning system with 2x100% air handling units and standby mechanical cooling used for control rooms, offices, electronic rooms, laboratories, relay rooms.	The Clause 1.1 Scope of Work of Part 2-A (Employer's Requirements) specifies Dual Split Units air conditioning system for the control building, guard house and telecom collocation room, staff housing according to KETRACO requirements. Conversely, the Clause 16.11.2.2.5 HVAC System and Design Conditions of Part 2-B (Employer's Requirements)	Dual Split units air conditioning system shall be required.

			mandates a central air conditioning system for the control building as per. This contractual discrepancy between the HVAC specifications requires clarification: Which clause governs the final system design (the HVAC system adopts the dual split units air conditioning system or the central conditioning system?)	
121	General	General	The descriptions regarding 132kV busbar protection in the technical specifications are contradictory. Some sections mention it is a centralised busbar protection scheme, while others refer to it as a distributed busbar protection scheme. Please clarify whether it is centralised or distributed.	Busbar protection required is centralized busbar protection Scheme
122	Clause 7.2.1.2 New Overhead Line Feeders_Part 2-B Employer's Requirements	d)Back-up protection: the technical specification mentions that "The back-up protection functions shall be provided as stand-alone protection relays. There shall be one back up protection relay for each main protection panel."	The technical specifications mention that each line protection panel must be equipped with a separate backup protection device. This implies that each 132kV line requires two sets of backup protection. However, according to the PSD, only one set of backup protection is configured per 132kV line bay.	Refer to the PSD's



			Please confirm whether one set or two sets of backup protection devices are to be provided.	
123	Clause 7.2.1.3 Modifications of Existing Overhead Line Feeders due to LILOs_Part 2-B Employer's Requirements	c)Main protection: The existing system is composed of line distance and line differential protection. In this scope the contractor will implement main A and main B of line differential protection. The contractor will maintain the existing differential protection and replace the existing distance protection and panels with a new differential protection scheme and panels.	The technical specifications mention that for 132kV LILo lines, the distance protection must be replaced with differential protection. Please clarify which lines in the current project phase fall under the LILo type.	There is no LILo line in the current project
124	Section IV-Price Schedules-Kabarnet 132-33kV SS-13.2 LVDC system	Modification, wiring and integration of 48Vdc distribution panel, fuse boxes, with all required accessories (including CBs, Contactors, Metering and Protection, Fuses, Aux. Relays and etc.)	The Price Schedule only mentions that "Modification, wiring and integration of 48Vdc distribution panel, fuse boxes, with all required accessories " about the DC48V system,Please clarify whether this means there is no need to add two new 48V battery systems along with associated battery chargers and related equipment for this substation.	Additional 48V DC battery system is not required. However, any modification required is part of the scope of work
125	Section IV-Price Schedules-Rumuruti 132-33kV SS-13.2 LVDC system	Modification, wiring and integration of 110Vdc Main and distribution panels, fuse boxes, with all required accessories (including CBs, Contactors, Metering and Protection, Fuses, Aux. Relays and etc.)Modification, wiring and integration of 48Vdc	The Price Schedule only mentions that "Modification, wiring and integration of 48Vdc/110Vdc distribution panel, fuse boxes, with all required accessories "	Additional 48V DC battery system is not required. However, any modification



		<p>distribution panel, fuse boxes, with all required accessories (including CBs, Contactors, Metering and Protection, Fuses, Aux. Relays and etc.)</p>	<p>about the DC system, Please clarify whether this means there is no need to add two new 48V battery and two new 110V battery along with associated battery chargers and related equipment for this substation.</p>	<p>required is part of the scope of work</p>
126	<p>Clause 7.2.2.1.9 Main protection_ Part 2-B Employer's Requirement</p>	<p>The new overhead line feeder circuits between the existing substation and the new substation shall be provided with a single main protection system that comprise one set of numerical 3-Zone distance protection operating in "Blocked mode". The Main 1 distance relay shall also incorporate Directional Earth Fault protection and shall operate in blocked mode.</p>	<p>According to the technical specifications, 33kV feeders require tele protection operating in BLOCKED mode(85). However, the PLSd indicates that only distance protection(21) is provisioned for 33kV lines. Please clarify whether pilot-assisted distance protection is required for 33kV feeders.</p>	<p>Pilot assisted distance protection is not required for 33kV feeders</p>
127	<p>Power Transformer Part 2-Employer's Requirements A. Scope of Supply of Plant &amp; Installation Services by the Contractor 1.3.1 Extension Works at Rumuruti 132/33 kV Substation page 2-20</p>	<ul style="list-style-type: none"> <li>Supply, installation, test and commissioning of one (1) No. 132/33kV, 18/23MVA ONAN/ONAF Power Transformer. Dyn1, with OLTC in steps of 1.67%. 17 Steps are required and shall feed into the 33kV switchyard. <u>The new power transformer shall be capable of operating in parallel with the existing power transformer.</u></li> </ul>	<p>Please kindly provide the following technical documents/data for the existing transformer (including its components) due to the technical requirements indicated by the red underlines:          *nameplate          *specific technical data          *any relevant drawings          *brand requirements (including its components), if any</p>	<p>This shall be provided during the detailed design.</p>

