Kenya Power

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Our Ref: KP1/6A.1/PT/1/18/A69 ***11th June* 2018**

Dear Sir/ Madam

CLARIFICATION No. 2 OF BIDDING DOCUMENT FOR ICB NO: KP1/6A.1/PT/1/18/A69 PROCUREMENT OF DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF TRANSMISSION SUBSTATION AND LINES (AFD) PROJECT DATED 10TH APRIL,2018.

1. CLARIFICATION TO BID DOCUMENT

The following responses are made to clarifications sought on various issues in the bidding document for procurement of transmission substations and lines and associated attachments.

No	Bidder Query/Comment	KPLC Response
1	NRK -410-Volume I Please explain about NRK 410 - What are the Activities to be considered? Like Access Roads, Soil Investigation etc.	Restoration works along the 132kv corridor and access roads after and during project implementation
2	2.3 Soils-Volume **II:** Ground condition is fairly homogenous along the transmission line routes, being mainly residual soil comprising silt clay..... Please clarify for Tender Estimating same classification shall be considered as defined here.	It is in contractor's scope to establish the nature of the soil for the purpose of bidding, in addition to information acquired during pre-bid site visit
3	5.6 & 20.6-Volume II: Please confirm in which Schedule 1 or 2 to be included the Price of the Vehicle. Is the same should be supplied for both Lots?	Schedule no.4 under transport services. Each lot requires a Vehicle
4	12.4.2 & 12.4.3-Volume II: Schedule 4 does not have provision for PILING Works and Flood Protection Wall. Please clarify	This is part of civil works for line and earthworks works for substations.
5	12.7-Volume II: The unit prices shall include for conductors, jumpers and associated fittings but excluding insulator sets and earth wire tension sets. Whereas in Page 58 – NRK -022 it says to be	This shall be as specified in the Price schedules and Amendment.

No	Bidder Query/Comment	KPLC Response
	included. Please clarify.	
6	20.6 Volume II - The Contractor shall provide at least one (1) no. 4-Wheel Drive vehicles for use by the Employer's Project Inspection and Supervision Teams. Is only supply of Vehicle to be made or any other scope is involved during 24 months duration of the contract?	This shall be as specified in the bidding document: 4 Wheel Drive vehicle for each lot (1&2) inclusive of transport costs for the entire project duration.
7	Page 53- Volume II - (vii) Spare Towers: Please clarify about Spare as its mentioned Towers. Is Monopole Towers as Spare or Lattice steel Towers as Spare for Lot 2	This shall be as specified in bidding document: Lo1 Lattice towers, Lot 2 Monopole towers
8	Volume II - 26.5 - ERECTION OF MONOPOLES: The procedure given for Erection of Monopoles is given similar to self-support Lattice steel structure. Please clarify	What is provided is a general statement, actual line construction procedures are in the scope of contractor under method statement.
9	Volume II – No12 – Testing of Rock Anchors. ..... The cost rock test shall be included in the relevant schedule rates..... Query – Please clarify the usage of the Testing of Rock Anchors in	This shall only apply if required as per issued bidding document
10	"Volume II, Part 2B, Clause 16.2 and Particular Technical Specifications - 132kV Circuit Breakers: Please confirm whether we can use the rating as per the particular Technical specification of the tender	Follows as per clause 16.2. particular Technical specification 132kv CB: Normal current - 2000 Amps - Rated short circuit current - 40 kA - Duration of short circuit - 1 Sec.
11	Please clarify the following regarding Submarine Cable installation laying works: The submarine cables will be laid on the seabed (OR) will be laid below the seabed i.e. 1-meter depth below the seabed."	Cable shall be laid on the sea bed as per amendment no.1. Buried at the sea shore to transition structure and some meters from sea shore to sea bed so that is not exposed during low tides. Section above the ground on the transition structure shall be put in an approved conduit.
12	"'Item No. 1' under 'clause 3.3' of Section III (Evaluation & Qualification Criteria) it is stated that for Equipment manufacturers, they need to meet the minimum criteria that their equipment must have been more than 05 years of services outside the country of origin. In this regard, we request you to kindly confirm that manufacturer can participate using the credentials/experience of their parent company (which is located in different country of origin) to meet the above minimum criteria."	The manufacturer's equipment service of 5years outside country of origin, shall be specifically for the company supplying the equipment and not its subsidiaries or parent company.
13	16.3.3: For disconnector, only main contact is copper not all event carrying parts, the other parts are aluminum alloy, please kindly confirm,	Follow as specified in the issued bidding document.

No	Bidder Query/Comment	KPLC Response
14	28.2: We have known the altitude of Kipevu and MBARAKI is below l000m from site survey. Please confirm the altitude of Kipevu and Mbaraki substation	All High and Medium Voltage equipment shall be designed for installation at 2200 meters above sea level.
15	35.2.17: Please kindly confirm if the neutral termination is designed for full insulation of both llV side and IN side for power transformer,	This shall be as specified in the issued bidding document i.e. All transformers shall be designed for full insulation on all terminations
16	Kindly Confirm whether specifications for 33KV, Single core 630 mm2 Cu conductor Submarine Underground cable and it's installation / laying works is available with KPLC or Bidder to do the design for the same and propose it's installation / laying methodology.	Design and installation is in the scope of contractor. Contractor is required to submit method statement on installation.
17	Allowable strength of concrete: As per the clause, allowable compressive, tensile & shear strength of concrete shall be 60 kg/sqm ,6kg/sqm & 6kg/sqm. The compressive strength of concrete is looking very low Please confirm.	Refer to Amendment no.1. In addition, it is in Contractor's scope to design for the correct concrete strength subject to by approval employer.
18	Cl 25.2 "As per the clause, "The monopole shall be designed to carry two circuits of 33kV line below the 132kV circuit." Kindly provide the vertical separation between 33kV & 132kV Circuits."	Adequate working clearance shall be maintained between 132kv and 33kv Lines to ensure work can be carried out on the 33kv lines without switching off the 132kv line.
19	Design Life: As per clause 25.2.5, "Design life of not less than 50 years," & As per clause 25.2.3, "(a) Wind Loads -on power conductors and overhead earthwire: 385N/m2 (on the projected area of conductor or wire)". Kindly confirm, whether the life factor is incorporated in the given wind load on conductor & earthwire.	The life factor shall be considered in the design of towers as per issued bidding document.
20	Cl 25.2: Kindly provide the maximum length of section along with maximum weight lifting capacity. "	This is in contractors' design scope
21	Cl 11.3: Density of concrete for submerged condition for raft type foundation. Please confirm whether our understanding is correct. Also, Density of concrete at submerged condition not provided. Kindly furnish.	The contractor's calculated design values considering loading and soil condition shall apply. Density of concrete at submerged condition is in contractor's scope.
22	Sag Ratio: Sag ratio between conductor and earth wire not furnished. Kindly provide.	This is in contractor's design scope
23	Cl 2.2 "As per this clause, ""Altitude or Terrain: 1500-2500m a.s.l"" & As per APPENDIX 9.A.2, Minimum clearance of live parts to towers is given. Kindly confirm whether this live metal clearance is including the altitude correction factor."	Altitude correction is in contractor's design scope.
24	Cl 11.2: Yield strength of reinforcement bar not	The grade of steel and applicable

No	Bidder Query/Comment	KPLC Response	
	provided, kindly provide.	standards is provided in the issued bidding document	
25	Clause no: 28.2 and15.5, "Design Data for high Voltage equipment" item 11e. We presume that Lowest part of insulators above ground to be 2500mm instead of 3500mm	Use 2500mm for both Lot 1 and Lot 2 equipment, and not 3500mm as given in bidding document for both	
26	Clause no: 28.2 "Design Data, high and Medium Voltage". As per IEC 60071/62271 is recommended to consider 1.31/1.16 altitude correction factor. When the factor is applied do we need to go for the next higher system voltage of 220kV equipment instead of 132kV? Please confirm whether 220kV equipment are acceptable?	The correction of equipment rating to meet operating altitude requirement is in contractors' design scope.	
27	Correction has been made to clause no.15.5 and 28.2 on HV and MV design data	132kv	33kv
	Height to live parts above ground [mm]	3500	2900
	Height to live parts above ground at transformer transport routes [mm]	7500	5000
28	Clause no: 39: "Substation control, protection and Metering Panel can be placed in the common panel". Please confirm whether one common panel for control, metering and protection equipment's for 132kV and 33kV voltage level shall be provided?"	Protection panel shall be independent from control and metering panel. Panels for 33kv shall be independent from those of 132kV Voltages as per issued bidding document.	
29	Clause no: 39 "Particular technical specification-Substation control, protection and Metering. We presume that the local control panel with Mimic for 132kV and 33kV is not in bidder scope of supply. Please confirm. "	Control panel with Mimic for 132kV and 33kV is in bidders' scope as per issued bidding document.	
30	As per clause no. 16.3.4 rated normal current of Disconnector is 1600A whereas the Circuit breakers are rated for 2000A. Please confirm the rated normal current of Disconnector to be considered 2000A or 1600A?"	Follow as specified in the issued biding document	
31	Clause no: 16.5.4 ""Technical Data"" for Current Transformers, required is 4 core whereas as per the SLD there are 5 cores. Please confirm the CT requirements	132kv current transformers for Narok/Bomet shall have 4cores	
32	Clause no: 15.9 "Earthing" Please confirm the proposed bay Earthing below: Main Earth mat size - 120sq.mm Equipment earthing - 120sq.mm."	Values given are minimum requirement for earthing conductor. Contractor shall provide earthing conductor design calculated values for approval.	
33	Kindly confirm the 33kv protection and control IED can be installed in the GIS panel	The Local control and operation cabinets/panels (LCC) of the GIS shall be supplied for each bay. Protection and IEDs (BCU) shall be supplied in one panel for each GIS bay as per issued bidding document.	

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34	Considering the short distance of Kipevu-Mbaraki line, we presume the distance relay is not required. Kindly confirm.	Distance relay is required as per the issued bidding document.
35	We assume the payments terms of installation & services shall be as follows. • 10% advance against receipt of invoice and an irrevocable ABG • 80% of the measured value of work performed by contractor during preceding month. • 10% of the total or pro rata DDP amount upon issue of the Operational Acceptance Certificate, within sixty (60) days after receipt of invoice.	This shall follow as specified in the issued bidding document and amendment.
36	Please provide us with the following details pertaining to Submarine cables which are needed to obtain comprehensive offers: • Water depth. • Laying method (whether to be directly laid on seabed or buried in seabed), if the cable is buried in seabed, please provide the buried depth of seabed, soil temperature and thermal resistivity. • Performance specification and technical requirement for submarine cable and applied environment • If transient joint is required, than detailed for the underground cable to be given	Water depth at Likoni crossing channel refer to state agency Kenya maritime authority data Refer to issued bidding document, clarifications no.1 and amendment no.1.
37	• Please confirm if submarine cable system is for Single Circuit (S/C) or Double Circuit (D/C) purpose. • As per Tender Specification Volume II, Part 2, Section VII, Clause 36.1.1 and 36.1.2, It is not mentioned whether 33kV line concrete poles are to designed for single circuit line or double circuit line. Request you to please clarify.	Shall be 33kv single circuit. The 33kv feed out lines are single circuits. However it shall be required to carry any existing 11/0.45kv lines in its way leave as per issued bidding document
38	We confirm that for OPGW, both modes ITU G652 & G655 are to be used for both Lots. Please confirm the Mode-Fibre Breakup of G652 & G6522 for the OPGW. (for E.g. 24 Fibre considering G652 & remaining 24 Fibre for G655).	Since the Bomet-Narok line (Lot 1) about 85km, use G655 which has a better dispersion than G652. Use G655C/D for Lot 2 .No mixing of the fibre break mode
39	As per Clarification 1no. 153, Demolition is not in the scope of the Contractor. However, in the Price schedule, there is a mention of the same. Please confirm.	The demolition is in the scope of the contractor and is related to Mbaraki substation site clearing works. Recovery of existing 33kv line after transfers to multicircuit transmission line is not in contractor's scope. It is not mentioned in the price schedules. It is not called demolition.

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40	Please confirm if the 33kV OHTL Line is Single Circuit or Double Circuit. Also, please give outline drawing of 33kV Concrete Pole for Suspension and Angle structures.	33kv line running together with transmission line is a double circuit. The 33kv lines running as feed outs from GIS substation are single circuits. The design is in the scope of the contractor.
41	We presume that since only one outline drawing of Monopole has been furnished under Lot 2 Appendix 1.A-1 of "Particular Technical Specification -Self Supporting Monopole tower", the same structure will be used for Suspension as well as Angle Structures. In case, we have to design separate structures, please furnish the outline drawings for the same.	The drawing provided is indicative of the shape of monopole towers required, Bidder have been requested to design different types of towers for use at different angles. Design as requested and guided by the by the issued bidding document and Amendment.
42	The Minimum clearance value in still air is specified as 1530 mm in clause 24.10 Appendix 9.A.2. However, in "Particular technical specifications 132KV Composite Insulators", the horizontal length of 132 kV Post insulator is specified as 1500 mm. If we use the specified 132 kV composite insulator as specified in clause 4.3 of "Particular technical specifications 132KV Composite Insulators", then we are not getting required clearance of 1530 mm from pole body. Please clarify.	Use composite Post insulator horizontal distance of 1530mm as provided in the issued bidding document.
43	Please provide us the clearance requirements for 33 kV Lines.	The clearances are given in the tender document under section 36 and other related clauses. The information given and good engineering practise is adequate to do the designs.
44	Minimum air temperature is specified as 10°C & Conductor minimum temperature is 0°C. Generally minimum air temperature and conductor temperature are same. Please confirm and clarify the same.	The minimum conductor temperature is to be taken 10°C.
45	As per Clarification No. 1 point no. 97, the bidder has to enter KES equivalent amounts for the Euro component on the E Procurement while the Price Schedules can be duly filled using currency as either EURO or KES which will be uploaded in the PDF format. Also, as per BDS Clause ITB 32.1, Bid prices will be converted into single currency i.e. KES for Bid evaluation purpose. We understand from the above that for the purpose of bid evaluation, KES equivalent prices entered on the E-Procurement site shall be considered. Also, the	The prices provided by the bidder on the price schedule attached in the notes and attachment icon are critical and shall be used for evaluation and contract award.

No	Bidder Query/Comment	KPLC Response
	prices mentioned in the PDF uploaded consisting the combination of EURO & KES prices will be used for invoicing purpose during execution stage. Please confirm if our understanding is correct.	
46	We wish to know what is the present works for Substation Automation System at the stations-Narok and Bomet	Refer to response: Clarification No1 item 195 that states **New Equipment and Integration required**. Further to that, the Substation Automation Works for the extended bays shall comprise a new SAS complete with integration into existing system in a master – slave configuration.
47	We wish to know what happens if the Company that attended the Pre-bid meeting and the site visit is a sub-contractor of the main contractor and not a member of the JV?	If the person attended for the JV or any of the companies forming the JV, it will be a good representation in the pre-bid attendance. The representative should therefore have attended the pre-bid and site visits on behalf of the bidder submitting the bid.Otherwise, the JV or main contractor was not represented.
48	There are many references to the Single Line diagrams but we cannot find any in any of the provided documents including the addendum and clarifications issued. Can you provide the Electrical single line diagrams please?	Refer to issued bidding document pages 189-192 and 609&610 , the clarification and amendments
49	The clause referes to Appendix 1.A-1, Appendix 1.A-2, Appendix 1.A-3 and Appendix 1.A-4. However these have not been provided along with the documents. Please provide.	Refer to issued clarifications no.1 and amendment no.1
50	We understand that, If the unconditional guarantee is issued by a financial institution located outside the Employer's Country, the issuing financial institution shall have a correspondent financial institution located in the Employer's Country to make it enforceable. However, In the case of a bank guarantee, please confirm if same can we issued by bank in Bidder's home country.	This shall be as specified in the issued bidding document and Clarification no1.
51	Payment terms have been provided only for Schedule No 1. Please advice payment terms for all	Payment terms shall be as follows; 10% Advance payment against

No	Bidder Query/Comment	KPLC Response
	other Schedules i.e. Schedule No 2, 3, 4 and ESHS.	Advance Payment Guarantee 80% On Progress 10% On Completion and Take Over Certificate. Details are as per section VIII and IX General Condition and Particular Conditions of contract-of the issued bidding document
52	With respect to schedule no. 3 Design Services and schedule no. 4 Installation and other services, please confirm whether Unit price shall be inclusive or exclusive of VAT. If the price is inclusive, whether same will be reimbursed or not.	Follow as specified in the bidding document and clarification no.1 Reference should be made to Existing Kenyan Tax Laws
53	As per clause No. 11.2, factor of safety for foundation shall not be less than 2.5 under normal working loading condition & 1.25 under broken wire condition. We presume that the factors are applicable over the working tower reactions, Please confirm.	Determination of working lattice tower reaction is in the contractor's design scope. Best engineering practice should be used.
54	Wind pressure on conductor as per clause no. 10.2.3, Page No. 48, is mentioned as 385 N/m2. Whereas, as per clause no. 15.6, page no. 87, it is mentioned as 430 N/m2. Please clarify the wind pressure on conductor to be considered.	Refer to clarification no.1 item no. 245
55	Wind pressure on tower, as per clause No. 10.2.3, Page No. 48 is mentioned as 690 N/m2. Whereas, as per clause No. 16.11.4 (b) (iii), Page No. 157, it is mentioned as 590 N/m2. Please clarify the wind pressure on tower to be considered.	Refer to clarification no.1 item no. 245
56	Maximum conductor temperature (continuous loading) as per clause No. 7.3, Page No. 31 is mentioned as 350C. Whereas, as per clause no. 22.1.2, Page No. 251 it is mentioned as 900C. Pease clarify the maximum conductor temperature to be considered.	Use values given in clarifications and amendment no. 1.
57	In specification only 48 fibre OPGW is mentioned but the properties of OPGW are not provided. Please furnish the all the properties of OPGW. Shield angle for OPGW is also not mentioned in the specification. Please clarify.	Refer to issued bidding document and amendment no1.

No	Bidder Query/Comment	KPLC Response
58	As per the scope of work, we understand that Tower Design and testing is in our scope. However, the tower type and combination of body and leg extension to be tested is not specified. Please clarify. Also confirm whether towers are to be tested for design load or up to destruction.	The tower types are defined in the tender document. The extensions are defined in the tender document. All the towers types that will be used in the line design will be tested as per tower test given /internationally accepted standards.
59	Please provide the following Drawings. 1. Electrical Layout Plan & Section drawings of existing Narok & Bomet Substations. 2. Existing Earth-mat layout at Narok & Bomet Substations.	The provided drawings in the clarification no.1 and data gathered during pre-bid site visit should be sufficient to prepare the bids. Refer to issued bidding document and clarification no.1
60	Please provide the following details. 1. Type and size of Conductor to be used for Bus. 2. Type of Equipment Interconnection (Conductor or IPS Tube with Type & size). 3. Type of Insulator String. 4. Type & size of existing earthing materials, (for main earth-mat, equipment earthing, panel earthing etc.)	Refer to clarification and amendment no.1, Substation earthing design is in the scope of contractor.
61	Specify the brand of the existing SCADA system on regional and National level	Refer to issue bidding document and clarification no.1
62	Specify whether control system should be redundant or not	This shall be as specified in the issued bidding document and Clarification no.1
63	Confirm that the existing SDH equipment is extensible	Refer to issued bidding document and clarification no.1
64	Specify the brand of existing phones object of extensions	IP phones
65	Confirm the control system to install will be applicable only to new bays to realize for Kipevu 132/33kV	Refer to issued bidding document and Clarification no.1
66	Specify the Version of the existing Telecommunication equipment on KPLC Network, as long as there is possibility to upgrade all Telcom equipment	Refer to issued bidding document and clarification no.1
67	Page 53-VII. Spare towers: please clarify about WEB bracing	This shall be as specified in the issued bidding document.
68	What is the minimum chimney height above ground level?	This is in contractor's design scope

No	Bidder Query/Comment	KPLC Response
69	Please provide us some percentage share of line route for mentioned types of concrete foundation and natures of earth.	Geotechnical and soil investigation which is in contractor's scope determines the type of concrete, foundation and nature of soil
70	What is the minimum chimney height above ground level? And Is there any limits regarding members thickness?	This is in contractor's design scope. The minimum members' grade and thickness is provided in the issued bidding document and clarification.
71	The Bidder shall submit with its bid the following additional documents... Manufacturer's warranty as stipulated in Section III – Evaluation Criteria. Since there's no request for Manufacturer's warranty in Section III, could you please clarify this request?	Manufacturer's conformity and warrant shall be submit together with bid document for evaluation as per Section II-Bid Data Sheet ITB II.1(i) of the issued bidding document
72	please confirm that the Bidder shall submit the Audited Financial Statements for the last 5 Audited years (in our case 2012 – 2016)	Follow as specified in the issued bidding document. "Audited financial statement for the last 5years".
73	Regarding the major equipment for this project I would kindly ask you to define which items are applicable for which LOT, having in mind that, for example, monopole towers and GIS are specified only for LOT 2. So I would kindly ask you to divide the mentioned table according to LOT's	This shall follow as per issued tender document and clarifications.
74	Please inform whether any Nominated Subcontractors shall be named by the Employer, in case such information is known to you at this stage	This shall be as specified in the issued bidding document and clarification.
75	I would kindly like to ask you when we may expect the response to our Requests for Clarifications.	Clarification and amendment no.1 has already be issued. Check Kenya power wed site and e-procurement portal
76	As per Specification-7.Conductor & fittings, clause no.7.3, Maximum conductor Temperature= 35°C (continuous loading) and Max. Conductor temperature=200°C (Fault conditions), Average conductor temperature '=36°C, Please confirm Maximum & Minimum Temperature and Wind pressure to be consider for Sag and Tension calculation.	Refer to Clarification and Amendment no.1
77	As per Specification Transmission line - 2. Site conditions, clause no. 2.2, Page no.2 Altitude or Terrain given = 1500-2500m a.s.l., Please confirm clearance values given in the specification Insulators-Appendix 9.A.2, page no.45 are	Altitude effect and derating have not been factors in all values given. It is in contractor's design to factor in the altitude effect considering that all HV and MV equipment shall be designed

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	considering Altitude effect and any further increase in clearances because of higher altitude effect are not required i.e. Tower Clearance to be consider as it is given in specification- Insulators-Appendix 9.A.2, page no.45 .Please confirm.	for application of altitude above 2200 meters.
78	Please furnish minimum phase to phase minimum Horizontal, Vertical and inclined Distance to be consider for Tower design.	This is in contractors design scope considering data provided in issued bidding document and clarification
79	Please furnish requirement of Sag Difference between Conductor & EW/OPGW for each condition. Please furnish Minimum Mid-span Clearance requirement between Conductor & EW/OPGW at span and Tower. Please furnish Sag Error to be consider for tower design. Please furnish Muff Height i.e. Height between Concrete level and Ground level.	This is in contractor's design scope
80	Please confirm that Pilot suspension insulator can be use in towers and also furnish Swing angle and clearance to be consider for Pilot suspension insulator.	Refer to clarification. This is in contractor's design scope.
81	Please furnish factor of safety/ over load factor requirement for Foundation design for Suspension tower and tension tower. Please furnish details for Test Tower i.e. Numbers of towers required to be tested with which Body and Leg extension	Refer to issued bidding document and clarifications.
82	Please furnish diameter and length of Step bolts required for towers.	Refer to issued bidding document and clarification no.1
83	Please furnish Tower quantities with Body and Leg extension requirement for the project.	This is in contractor's design scope
84	As per clause No. 26.2, Page No. 286, factor of safety for foundation shall not less than 2.5 under normal working loading condition & 1.25 under broken wire condition. We assume that it is over the working monopole reactions, Please clarify.	We clarify that factor of safety for monopole foundations shall not be less than 3.0 under normal working condition and 1.5 under the broken wire condition. Determination of working monopole reaction is in the contractor's design scope.

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85	Kindly provide Report on Engineering Practice No. 74.	It is in contractor's scope to get any engineering practice information required for his design works.
86	Kindly provide the Impedance rating of 45MVA, 132/33 kV Power Transformer at Mbaraki Substation.	Refer to issued bidding document, amendment and clarification no.1
87	Referring to all mentioned sections I would kindly like to ask you to provide us with more detailed BoQ containing all necessary elements (works, materials, equipment, design etc.) and detailed breakdown of items from the current Price Schedules provided in Bid Documents. This is important due to the fact that the transmission part of the contract works shall be on admeasurement basis, therefore in doing so it will be more transparent to all parties in both bid evaluation and project realization.	Use the BoQ and Price schedules provided in the issued bidding document, clarifications and amendment no.1
88	As per Clarification.1, KPLC response to No. 328, Refer to Volume II, Clause 10, The towers shall be fabricated only from high tensile steel grade Fe510B or S355JR. We are considering a combination of both Mild steel and High tensile steel, complying to the steel grades mentioned in technical specifications, for economical tower design. Request you to please confirm.	Clarified as per high tensile steel grade Fe510B or S355JR.
89	As per Tender Specification Volume II, Part 2, Section VII, Clause 36.1.7, The minimum ground clearances of conductors for 33kV poles is given as 6.4m. We are considering the above value for 33kV D/C steel monopoles as well. Request you to please confirm. The Minimum clearance of live parts to monopole for 33kV D/C steel monopoles are not provided. Request you to please furnish above data.	The values is indicative minimum ground clearance the actual value to be used shall be determined from design of 132kv line. Design data for 33kv line provided in section 36 of issued bidding document shall apply.
90	As per Clarification.1, KPLC response 39, The Sketch of multicircuit Monopole is provided. It is not clear whether arrangement using post insulator (as shown in sketch) shall be used for suspension as well as tension monopole. We feel that for tension monopole metallic cross arms will be required for attaching tension, insulator.	The monopole sketch is an indicative of monopole shape and jointing required. Design of the insulator arrangement to be used in any type tower is in the contractor's scope. Metallic cross shall not be used in any

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	However, as per Amendment on Monopole design general arrangement, Clause 25.2, Point No. 12, Metallic cross arms shall not be used. Request you to please furnish the suspension monopole and tension monopole sketch Separately with required insulator arrangement.	case as clarified in amendment no.1 Design of the line towers is in the scope of contractor.
91	As per As per Clarification.1, KPLC response, No. 237, The factor of safety provided in the Technical specification is to be considered for design of monopole and foundations. Whereas the factor of safety for monopoles structure design and foundation design are different. We feel the factors mentioned for monopole foundations in the above table are typographical error. We are considering the factor of safety for foundations related to monopoles same as monopole structure design i.e. 3 in normal condition and 1.5 in broken condition. Request you to please confirm.	The factor of safety for monopole foundations shall not be less than 3.0 under normal working condition and 1.5 under the broken wire condition.
92	As per Tender Specification Volume II, Part 2, Section VII, Clause 36.1,Drawings related to 33kV line concrete poles are referred which are missing in the specification. Kindly provide the above mentioned drawings.	Drawings not provided and not referenced, but data on 33kv concrete poles is provided in the issued bidding document
93	The details of 33kV composite line post insulators required for the monopole design are missing. Request you to please furnish the 33kV composite line post insulators data. In the specification for 66kV & 132kV composite line post insulators - Vertical & Horizontal mounting, Table 3, the electrical and mechanical characteristics of composite line Insulators are provided. Wherein for 132kV post insulators the dimensions (L) – Horizontal is given as 1500mm. However as per Tender Specification Volume II, Part 2, Section VII, Clause 24.10, Appendix 9.A.2, The minimum electrical clearances of live parts to earthed monopole structure are provided. Wherein a clearance of 1530mm is to be provided for	The particulars technical specifications for 33kv composite insulators is provided in the amendment no.1 Use 1530mm as the insulator horizontal length.

No	Bidder Query/Comment	KPLC Response
	suspension insulators in still air and also during 15deg swing. Complying to the clearance required as per specification will not be possible by using the dimensions provided in 132kV composite post insulators. So we will have to increase the horizontal length of post insulator to comply to clearance requirement furnished in specification. Please confirm.	
94	In Original Tender Specification Item No. TL 007 is "Undersea fiber optic cable". As per our Understanding we have to Amend Item no. TL007. Please confirm.	Undersea fibre optic is composite of the submarine Cable as per amendment no.1, hence shall not be quoted separately as item TL 007
95	TL 006a: material for transfer of 11/0.43Kv four (4) Kms of overhead lines fittings and conductor to the new 33kv overhead lines	We clarify that this item (TL 006a) is not deleted as suggested in the amendment. Deleted Item is TL 007(Undersea fibre optic)
96	Please specify the required lightning protection angle	Refer to clarification no.1
97	Insulators tension string : Please indicate in which case we have to use double tension string	This is in contractor's design scope
98	No information are given about routing of the 33KV lines , please provide us coordinate of angle points	Refer to clarification no.1. 33kv in the route of 132kv line shall be carried in the monopole.
99	We need more details in the plan of anti-climbing device and grounding system, the drawing in page 192 is not complete	This shall be as per issued bidding document, detailed design is in the scope of contractor subject to approval by employer.
100	• Please provide us with the attachments of general arrangements and configurations of monopole towers (paragraph 25.2 - 132 KV) and concrete pole (33 KV) • Please specify the compressive strength of concrete to use to foundation design • Please specify the yield strength of steel reinforcement to use to foundation design (deformed bar reinforcement) • Please send us the APPENDIX 1.A.3. with foundations drawing • Please confirm that we can use EN 1992-1 (Eurocode 2) for reinforcement concrete design of foundation	Refer to appendix III of the issued amendment no.1 This shall be as per issued bidding document and clarification no.1

No	Bidder Query/Comment	KPLC Response
101	11/0.43 KV: No information in giver about it, please provide us more information (routing, type of support, etc.)	Refer to Clarification no. Shall be used to transfer existing 11/0/43Kv overhead lines on the new 33kv overhead line where the 33kv line is using the same way leave.
102	Please specify the standard to use to verify the overturning stability of foundation	Accepted current international standards and best engineering practise
103	Please confirm that submerged soil is considered for the check of special foundation only	Tower foundation design and geotechnical investigation is in the scope of contractor.
104	Page 54 : Please clarify the signification of foundation types L : Light concrete foundation M : Medium concrete foundation H : Heavy concrete foundation	Required concrete foundations design is in contractor's scope considering information provided in issued bidding document and clarifications.
105	Please provide us datasheet to be completed for monopole tower (33 KV and 132 KV)	Refer to issued bidding document under guaranteed technical schedules
106	Pease provide us datasheet to be completed for foundation of monopole tower (33 KV and 132kv) • Page 296, Article 6 : Please clarify the test to be carried • Please indicate the towers which must be tested (132 KV (Lattice and monopole) and 33 KV , concrete pole)	Contractor is required to provide as part of design scope for employer's approval. Refer to issued bidding document, clarification and amendment no.1
107	Lattice Tower type T: Please confirm the angle support, 60 ° or 90 °?	Refer to clarification and amendment no.1 item number 134

Yours faithfully,
For: KENYA POWER & LIGHTING COMPANY LIMITED.

DANIEL MUGA
Ag. GENERAL MANAGER, SUPPLY CHAIN