



The Kenya Power & Lighting Co. Ltd.
 Central Office – P.O. Box 30099, Nairobi, Kenya
 Telephone – 254-02-3201000
 Fax No. 254-02-3201889
 Stima Plaza, Kolobot Road

Our Ref: KP1/9A.2/OT/105/ICT/23-24/JN/rmh

2nd May, 2024

ALL PROSPECTIVE BIDDERS,

Dear Sir/Madam,

ADDENDUM NO. 1 TO THE TENDER NO. KP1/9A.2/OT/105/ICT/23-24 FOR DESIGN, SUPPLY, INSTALLATION AND COMMISIONING OF GBE AND DWDM FOR KPLC BROADBAND SOLUTION

The following clarifications are made to the specified provisions of the Tender document.

1. RELATIONSHIP WITH THE PRINCIPAL TENDER DOCUMENT

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

2. CLARIFICATION

The following clarification was made on the tender document and shall be deemed to form the Addendum

No.	SUBJECT	QUERIES	RESPONSE
1	OTN Nodes	While most of the services are of packet, what is the requirement for OTN if the solution already has the IPoDWDM with 100G Coherent routers?	We require local access services (MPLs) at majority of the OTN nodes as well as IP MPLS service to some of remote stations and DWDM services between specific nodes. That is for example Naivasha, will serve the local Naivasha town IP services and aggregate traffic from Narok and Nyahururu. Naivasha will also transport DWDM traffic expressly from Lessos to Nairobi
2	Backbone Router	Can we have a more generalized requirement of the Back-bone router? What are the capacity	Refer to section on detailed technical specifications of the various equipment

		Specifications for Backbone router including 1G if necessary	
3	Service Slot	What is the definition of a Slot? The term slot is proprietary. Different vendors have different meanings of slot.	a bay the can support interface card or interface board or both
4	Cross connect capacity	If the solution has IPoDWDM then can the fabric size of the router be defined as an alternative?	We require local IP access services and pass through DWDM services at majority the OTN nodes as well as service to remote stations. For capacity to expand in future expansion we require OTN equipment that can support several lambdas λ .
5	SRV6	The SRV6 feature is still under IETF standardization. Under these conditions what are the applications that are fathomed with respect to SRV6?	Consider Srv6 as per RFC 8986 : Segment Routing over IPv6 (SRv6) Network Programming (February 2021)
6	Hardware Architecture	It is said the system should support NP chipset as against ASIC architecture. What is the application of NP chipsets in the network?	We shall accept ASIC and/or NP architecture based equipment with supporting documents
7	Extension	We are kindly requesting for an extension by one week aforementioned above to enable us to prepare a comprehensive solution.	we have extended the tender closing to Friday 10 May 2024
8	JV	1. ITT 3.1 due to the complexity and scale of this RFP, and being restricted to local bidders only, we request that JV of two entities be allowed.	We recommend single Local Partners and not JV
9	2. Project Scope	2. Project Scope: Procurement and installation of OTN and GbE equipment for provision of 10G/100G DWDM and MPLS broadband capacity nationwide and metro connectivity - Does the RFP consider to allow IPoDWDM to carry the IP and MPLS traffic?	We require local IP access services and pass through DWDM services at majority the OTN nodes as well as service to remote stations. For capacity to expand in future expansion we require OTN equipment that can support several lambdas λ .
10	3. Section 3.2	3. Section 3.2 Technical Specifications for core OTN Platforms No. 4 "Electrical-layer/OTN equipment must support at least the following electrical cross-connect grooming granularities: ODU0, ODU1, ODU2, ODU3, ODU4, ODUFlex, VC4, VC12)." - VC4, VC12 services are obsolete - Can the RFP allow carrying SDH services over IP/DWDM with support for MPLS-TP and IP/MPLS in the same box which will meet this requirement?	This is for backward compatibility to existing SDH equipment. The tributaries of the backbone and access services cards should guarantee quality and integrity of these TDM signals such STM-1, E1's and sub E1's.
11	4. Section 3.2	4. Section 3.2 Technical Specifications for core OTN Platforms No. 5 Support for VC-X which is obsolete similar to #3 above.	This is for backward compatibility to existing SDH equipment. The tributaries of the backbone and access services cards should guarantee quality and integrity of

			these TDM signals such STM-1, E1's and sub E1's.
12	3.1 GENERAL ATTRIBUTES	Could you please inform us about the existing NMS detail information, for example the interface and protocol of existing ,etc.	We have Cisco, SolarWinds and Huawei NCE NMS systems. Vendors should demonstrate how integrate their NMS with these existing platform(s)
13		vi) The complete solution shall be integrated into the existing Kenya Power Network Management system and be available at the Network Operations Centre. Can we use NBI interface connection with your existing NMS	Solar winds does have a Northbound Interface support (ie push/pull data to other NMS)
14	3.2 GUARANTEED TECHNICAL PARTICULARS	Technical Specifications for core OTN Platforms Service Slot For two core sites, Juja Road and Embakasi, the electrical/OTN sub rack should support at least 20 service slots Cross-connect capacity. Juja Road and Embakasi, 2 core sites have a large amount of traffic. The cross-connect capacity of the bidding equipment must be greater than or equal to 4 Tbit/s ODUk (k = 0, 1, 2, 2e, 3, 4, or flex), 500G bit/s VC-4, 40 Gbit/s VC-3 or VC-12, and 4T bit/s packet. Capacity should also be upgradeable to a maximum of 10Tbit/s as traffic grows Would KPLC consider to move the 4T bit/s packet to >2T bit/s packet because usually Packet service is mapped into ODUk, and ODUk capacity of the proposed equipment is more than 10T which can meet your future traffic expansion	The tender states that equipment for the 100G interfaces provided shall be upgradeable to 800GBEs. Similarly, KPLC forecasts that Juja Rd and Embakasi are likely to have 4x800G connections in foreseeable future, hence the demand for 4T bit/s cross connect capability
15		Line-side port Backbone sites must support 100 G/10 G line-side ports. The number of 100 G ports must be at least one for each board , and the number of 10 G ports must be at least four for each board Service Access Capability Electrical-layer/OTN equipment must support the following services, including bandwidth leasing and power production services: Ethernet, SDH, PDH, PCM, SAN	KPLC wishes to carry transmission control signals across the backbone for long transmission lines in terms of virtual circuits mapped on higher traffics container while maintaining the integrity of these signals. The tributaries of the backbone an access service cards should guarantee quality and integrity of these TDM signals such E1's and sub E1's

		Would KPLC consider power production services: Ethernet, SDH, PDH because the PCM is based on 64kbps and not recommend to be support by huge capacity OTN equipment.	
16		<p>Relay protection: To avoid misoperation of the power relay protection device caused by network communication faults, the bidding equipment should support the lossless switching function of the relay protection service (C37.94) to ensure the reliability of the power network. For service protection, the following conditions must be met</p> <ol style="list-style-type: none"> 1. At least two protection trails must be supported to provide protection against multiple (more than two) fiber cuts 2. If the working path is interrupted or abnormal, protection switching is performed. Services are not interrupted or bit errors occur <p>would KPLC consider the relay protection to SNCP protection</p>	<p>The IEEE C37. 94 standard defines the communication of protection relays with communication equipment inside a substation using optical fibers.</p> <p>The IEEE defines the C37. 94 standard as N * 64 kbps optical fiber interface to provide transparent communications between tele-protection relays and multiplexers equipment</p>
17		<p>3.2 Part II - Technical Evaluation Criteria Under Paragraph 28.8 of the ITT</p> <p>3.2.1.17 Market Share of the OEM in the global optical transmission market must be presented, and should be at least in top 5 market share for at least three years. Should provide report issued by the likes of Ovum, HIS of Cignal , Gartner or equivalent</p> <p>Would KPLC consider the top 10 market share for at least three years as this will have more competitive result for KPLC amongst vendors</p>	top 5 for the last 5 years is accepted
18	Tender clarifications	It's clearly asked to continue using the existing management solution on Page 66 Line 11 from Technical Specifications for core OTN Platforms. What is the existing solution in place?	We have Cisco, SolarWinds and Huawei NCE NMS systems. Vendors should demonstrate how integrate their NMS with these existing platform(s)
19	Tender clarifications	In multiple locations, there is a clear ask for the number of service slots that should be supported, without any reference to the port density required. Could you elaborate on the capacity requirements so we can	Please refer to section 2.3 and 2.4 for logical diagram showing distances between nodes and the capacity required

		propose and benefit from smaller alternatives?	
20	Tender clarifications	In multiple locations, there is a request to support SDH. And also, multiple Specialized protocols like C37.94. Actually, we would like to highlight that there is another way to keep your network more resilient to these specific needs: you can keep the network specialized on the transport functionalities (MPLS, Segment Routing, 10Ge/100Ge and even support of 400Ge) and use a specialized access device to support the special protocol and interfaces and emulate it on MPLS or SR. It keeps the transport network easy to scale and troubleshoot and keeps the legacy technologies on smaller devices cheaper and simpler to replace when the access technology shifts to full IP.	Since the KPLC transport is used to support timely connections over C37.94, all devices that are installed should support IEEE1588 V2 which inherently will support C37.94 protection signals that are deployed using IP
21	Tender clarifications	We have detected that there are multiple locations with more than 100km distance and the requirement is for a 10G capacity. Should we propose DWDM devices to support the big range (standard for 10G without amplification is about 80km only).	All device provided shall cover both 80 and 120km. Bidders to specify how they will implement the long distances
22	Tender clarifications	In Page 71 Line 9: The proposed equipment should support NP chipset instead of the ASIC architecture to support new features in future by software upgrade only...All SP routers are ASIC based devices. In general, SP routers are needed to support MPLS and Segment Routing related features and also provide very high throughput: exactly what ASICs specializes into it. For the Enterprise routers where we may need some Firewalling, DPI and other functionalities it is needed to have the Processors to adapt to this fast evolving features at the price of lowering the throughput and increasing the price to achieve the high 100Ge forwarding capacity: it's exactly why Firewalls are much more expansive than the SP routers with way lower throughput capacity. So,	Both NP and ASIC Chipset are acceptable

		we think this point should be removed.	
23	Tender clarifications	Why 5 H-QoS levels? Normal 2 H-QoS level is enough, or we can go to 3 H-QoS level if we want to have a very powerful configuration with multiple services and flows sharing the links. 5 levels are pushing for very powerful platforms that are too expensive and not really needed for the majority of worldwide use cases.	Consider at least 3 H-QoS level and above
24	Tender clarifications	Can we propose an alternative architecture to OTN based on IP to fulfill the optical services? IP is modern and more future proof for KPLC.	We require local IP access services and pass through DWDM services at majority the OTN nodes as well as service to remote stations. For capacity to expand in future expansion we require OTN equipment that can support several lambdas λ .
25	Tender clarifications	We would like to seek clarification on the requirement under technical evaluation criteria 3.2.1.15 for tier 1 partnership with vendor since some of our vendors do not have such partnership as a result this might be restrictive to certain group/vendor	Partners with good standing with the OEM and should among the top two rankings

3. TENDER SECURITY

The validity of tender security shall be considered from the initial tender closing date of **3rd May, 2024**.

4. CLOSING DATE

The Tender closing date is extended from **3rd May, 2024** to **13th May, 2024** at 10.00 am.

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

Yours faithfully,

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



DR. JOHN NGENO, OGW
GENERAL MANAGER, SUPPLY CHAIN AND LOGISTICS