

APPENDIX II

ENGINEERS'/ MARKET RATES ESTIMATES

KPLC TENDER NO. KP1/9A.2/OT/005/ICT/24-25

DEFINITIONS:

1. **Passive equipment** is the non-electronic component of the network that forms the core medium of transmitting data. They include network cabinets, patch panels, copper and fiber ducts, copper and fiber optic cables, connectors, fiber termination boxes (ODF,FAT,FDT) etc.
2. **Active equipment** is the electronic component of the network that requires external source energy to operate. Examples are servers, network cards, routers, switches, Optical line Terminal (OLT), Optical Network Terminal (ONT), Wi-Fi access points, DWDM equipment etc. For the purposes of this tender, the active equipment has been categorized into four groups/active equipment site as explained below.
3. **High Capacity Site**-This active equipment site consists of 4 port ONU, POE Switch, Indoor Wi-Fi Access points, Outdoor Wi-Fi Access points and a Network Cabinet.
4. **Low Capacity Site**- This active equipment site consists of 4 port ONU, POE Switch, Indoor Wi-Fi Access points, Outdoor Wi-Fi Access points and a Network Cabinet
5. **Public Wifi**-The Public Wifi sites consists of a 4 port ONU, POE Switch, Indoor Wi-Fi Access points, Outdoor Wi-Fi Access points, Network Cabinet and an 18 Meter Concrete pole with its associated accessories.
6. **OLT Site**-This is the core of the GPON network consisting of a 16 port OLT, Backup Power Supply, Network cabinet and all the associated copper and optical fiber cable patch cords required to integrate the OLT with other active equipment like routers or switches where necessary.
7. **Corrective Maintenance**- This is an activity carried out to find, separate, and cure a defect so that the failed equipment or system can be reinstated to an operational status within the standards or limits established for normal operations.
8. **Preventive Maintenance**- This is a routine pre-determined activity carried out to maintain the working conditions of an equipment or system to ensure normal operations

1. Table 1 -LOT A- Passive Network Installation Bill of Quantities

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/ MARKET PROPOSED UNIT RATE (Kshs. VAT Excl)
1	Cables Crossing Roads: Where cable crosses a road, a heavy gauge PVC duct (150mm diameter) with concrete surround shall be used at a depth of 3 ft by 2ft wide. All cables shall be overlaid with	1	1,500.00

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/ MARKET PROPOSED UNIT RATE (Kshs. VAT Excl)
	danger/hatari tiles (cost per crossing)		
2	Underground: Trenching, laying of underground cables in 3ft deep by 2ft wide trenches, overlaying with Telcomm/Hatari tiles and backfilling where no road crossing is involved);	1	500.00
3	Pole dressing per pole (existing poles) - <i>The rate captures the cost of dressing the pole and fitting the cable cramps.</i>	1	400.00
4	Bush clearing per km (for new lines) including suitable disposal of cuttings as approved by local authority - <i>This applies to cutting/clearing shrubs and trees whose diameter is less or equal to 12 inches. It also includes the cost of disposing the cuttings to the nearest approved local authority yard</i>	1	6,000.00
5	Pruning of a mature tree with over hanging branches - <i>This applies to pruning trees whose diameter is greater 12 inches. It also includes the cost of disposing the cuttings to the nearest approved local authority yard</i>	1	2,000.00
6	Cutting down a mature tree - <i>This applies to cutting/felling trees whose diameter is greater 12 inches. It also includes the cost of disposing the cuttings to the nearest approved local authority yard</i>	1	3,000.00
7	Single FOC stringing per km - <i>This rate captures the cost of running, installing and tensioning an FOC per km.</i>	1	5,000.00
8	Transfer of single FOC during installation per km - <i>This rate captures the cost of removing, running-installing and re-tensioning an FOC cable per km.</i>	1	3,000.00
9	Jointing and termination of ADSS (splicing) per joint - <i>This rate applies to jointing of a OPGW fibre cable per core</i>	1	50.00
10	Jointing and termination of OPGW (splicing)	1	50.00

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/ MARKET PROPOSED UNIT RATE (Kshs. VAT Excl)
	<i>per joint - This rate applies to jointing of a OPGW fibre cable per core</i>		
11	Recovery of ADSS communication cable per km including recovery of dressing materials - <i>This rate includes costs of transportation of recovered material to the nearest KPLC store</i>	1	2,000.00
12	Recovery of OPGW communication cable per km including recovery of dressing materials - <i>This rate includes costs of transportation of recovered material to the nearest KPLC store</i>	1	3,000.00
	Fiber Plant Installation		
13	Mounting - <i>This is the rate for lifting and securing the FOC Pole mounted Fiber Distribution Box on the pole using a lifting equipment</i>	1	3,000.00
14	Pole Mounted FOC equipment Earthing (To earth metallic boxes installed on poles on the power lines) - <i>This rate captures the cost of earthing that achieves the minimum earth values as required by KPLC installation/construction standards</i>	1	1,500.00
15	Commissioning - <i>This rate shall cater for all labour cost during commissioning</i>	1	5,000.00
16	Dismantling the ODF structure from an old structure - <i>This is the cost of bringing down a Optic Fiber Distribution frame during maintenance</i>	1	3,000.00
	TRANSPORT OF FIBER CABLE AND RELATED MATERIALS		
17	Fixed materials transport cost per lorry load (lorry load = 2.3km of fiber cable materials for jobs whose distance from issuing store does not exceed 20km.	1	9,000.00
18	Materials transport cost per lorry load per km (lorry load = 2.3km of fiber cable materials for jobs whose distance from issuing store is more than 20 KM.	1	11,000.00

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/ MARKET PROPOSED UNIT RATE (Kshs. VAT Excl)
19	Fixed materials/accessories transport cost <u>excluding fiber cables and ODFs</u> (for small maintenance jobs requiring no FOC) per km	1	500.00
20	Fixed Transport of recovered FOC cables and associated recovered materials (for jobs not exceeding 20km to the issuing store) per km.	1	500.00
	TOTAL A		60,000.00

2. Table 2; LOT B –Regional Cluster Work Area Active Network Installation Bill of Quantities

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	ACTIVE EQUIPMENT		
1	Deployment (Install and commission) of a low capacity site. <i>This rate captures the cost of installing and Commissioning all the end user devices in a low capacity site. The rate should be per site.</i>	1	25,000.00
2	Deployment (Install and commission) of a high capacity site. <i>This rate captures the cost of installing and Commissioning all the end user devices in a high capacity site. The rate should be per site.</i>	1	38,160.00
3	Deployment (Install and commission) of a Public Wi-Fi site. <i>This rate captures the cost of installing and Commissioning all the end user devices in a Public Wi-Fi site. The rate should be per site.</i>	1	30,000.00
4	Install and Commission an Optical Network Unit(ONU) <i>This rate captures the cost of installing an Optical Network Unit (ONU) .The rate</i>	1	1,500.00

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	<i>should be per device.</i>		
5	Install and Commission an Optical Network Terminal(ONT) <i>This rate captures the cost of installing an Optical Network Terminal (ONT). The rate should be per device.</i>	1	1,500.00
6	Install and Commission a Wifi Access Point (indoor and outdoor) <i>This rate captures the cost of installing an Outdoor / indoor Wi-Fi access point. The rate should be per device.</i>	1	1,000.00
7	Installation of a Network Cabinet(Floor standing, wall mount or Pole mount) <i>This rate captures the cost of installing/Mounting a network cabinet either floor standing, Wall mount or Pole Mount. The rate should be per Cabinet size installed or Mounted. Outdoor Cabinet up to 11 U and indoor cabinet size up to 42U.</i>	1	5,000.00
8	Install and Commission a Network Switch <i>This rate captures the cost of installing and Commissioning a network switch .The rate should be per device.</i>	1	1,200.00
9	Install and Commission an SDWAN Router <i>This rate captures the cost of installing and Commissioning an SD-WAN Router .The rate should be per device.</i>	1	30,000.00
10	Install and Commission an Optical Line terminal(OLT) site <i>This rate captures the cost of installing and Commissioning an Optical Line terminal (OLT) site. The rate should be per device.</i>	1	25,000.00

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
11	Install and Commission an Inverter/Charger(Upto to 2KW) This rate captures the cost of installing and Commissioning an inverter/Charger <i>with associated accessories like MCBs .The rate should be per device.</i>	1	8,000.00
12	Fixed materials transport cost per truck load (load size = Upto 4 boxes/Pallets not exceeding 1m by 1m each of material whose distance from issuing store does not exceed 20km.		9,000.00
13	Materials transport cost per truck load (load size = Upto 4 boxes/Pallets not exceeding 1m by 1m each of material whose distance from issuing store more than 20 Km.		11,000.00
14	Materials/accessories transport cost excluding fiber cables and ODFs (for small jobs requiring no FOC) per km		500.00
15	Transport of recovered FOC cables and associated recovered materials (for jobs not exceeding 20km to the issuing store) per km.		500.00
	TOTAL - LOT B		187,360.00

3. Table 3: LOT C-- Regional Cluster Work Area Passive Network Maintenance
Bill of Quantities

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	FIBER CABLE LINES		

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
1	Cables Crossing Roads: Where cable crosses a road, a heavy gauge PVC duct (150mm diameter) with concrete surround shall be used at a depth of 3 ft by 2ft wide. All cables shall be overlaid with danger/hatari tiles (cost per crossing)	1	1,500.00
2	Underground: Trenching, laying of underground cables in 3ft deep by 2ft wide trenches, overlaying with Telecoms/Hatari tiles and backfilling where no road crossing is involved);	1	500.00
3	Pole dressing per pole (existing poles) - <i>The rate captures the cost of dressing the pole and fitting the cable clamps (Universal pole clamps, Suspension fittings).</i>	1	400.00
4	Bush clearing per km including suitable disposal of cuttings as approved by local authority - <i>This applies to cutting/clearing shrubs and trees whose diameter is less or equal to 12 inches. It also includes the cost of disposing the cuttings to the nearest approved local authority yard</i>	1	6,000.00
5	Pruning of a mature tree with over hanging branches - <i>This applies to pruning trees whose diameter is greater 12 inches. It also includes the cost of disposing the cuttings to the nearest approved local authority yard</i>	1	9,502.00
6	Cutting down a mature tree - <i>This applies to cutting/felling trees whose diameter is greater 12 inches. It also includes the cost of disposing the cuttings to the nearest approved local authority yard</i>	1	2,000.00
7	Single FOC stringing per km - <i>This rate captures the cost of running, installing and tensioning the FOC per km.</i>	1	5,000.00
8	Transfer of single FOC during installation per km - <i>This rate captures the cost of removing, running-installing and re-</i>	1	3,000.00

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	<i>ensioning an FOC cable per km.</i>		
9	Jointing and termination of ADSS (splicing) per joint - <i>This rate applies to jointing of a ADSS fibre cable per core</i>	1	50.00
10	Jointing and termination of OPGW (splicing) per joint - <i>This rate applies to jointing of a OPGW fibre cable per core</i>	1	50.00
11	Recovery of ADSS communication cable per km including recovery of dressing materials - <i>This rate includes costs of transportation of recovered material to the nearest KPLC store</i>	1	2,000.00
12	Recovery of OPGW communication cable per km including recovery of dressing materials - <i>This rate includes costs of transportation of recovered material to the nearest KPLC store</i>	1	3,000.00
	Fiber Plant Installation		
13	Mounting - <i>This is the rate for lifting and securing the FOC Fiber Distribution Terminal boxes on the pole, ground or wall mounted (using a lifting equipment where necessary)</i>	1	5,000.00
14	Pole Mounted FOC equipment Earthing (To earth metallic boxes installed on poles on the power lines) - <i>This rate captures the cost of earthing that achieves the minimum earth values as required by KPLC installation/construction standards</i>	1	1,500.00
15	Dismantling the Distribution terminal box - <i>This is the cost of bringing down a Fiber Optic Distribution Terminal box on the pole, ground or wall mounted (using a lifting equipment where necessary)</i>	1	3,000.00

No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	TRANSPORT OF FIBER CABLE AND RELATED MATERIALS		
16	Fixed materials transport cost per lorry load (lorry load = Upto 4 drums of 4 km each of fiber cable materials for jobs whose distance from issuing store does not exceed 20km.	1	9,000.00
17	Materials transport cost per lorry load per km (lorry load = Upto 4 drums of 4 km each cable materials for jobs whose distance from issuing store is more than 20 Km.	1	11,000.00
18	Fixed materials/accessories transport cost <u>excluding fiber cables and ODFs</u> (for small maintenance jobs requiring no FOC)	1	500.00
19	Fixed Transport of recovered FOC cables and associated recovered materials (for jobs not exceeding 20km to the issuing store).	1	500.00
	Total Kshs		63,502.00

1. **Table 4 - LOT D –County Cluster Work Area Active Equipment Maintenance Bill of Quantities**

Item No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	PREVENTIVE MAINTENANCE		
1	Preventive Maintenance of a low capacity site. <i>This rate captures the cost of carrying out preventive maintenance in a low capacity site including filling in the maintenance checklist and maintenance reports. The rate should be per site.</i>	1	12,500.00
2	Preventive Maintenance of a high capacity site <i>This rate captures the cost of carrying out</i>	1	17,000.00

			PROPOSED UNIT RATE (Kshs. VAT Exclusive.)
Item No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	<i>preventive maintenance in a high capacity site including filling in the maintenance checklist and maintenance reports. The rate should be per site.</i>		
3	Preventive Maintenance of a Public Wi-Fi site <i>This rate captures the cost of carrying out preventive maintenance in a Public Wi-Fi site including filling in the maintenance checklist and maintenance reports. The rate should be per site.</i>	1	17,000.00
4	Preventive Maintenance of an OLT site <i>This rate captures the cost of carrying out preventive maintenance in an OLT site including filling in the maintenance checklist and maintenance reports. The rate should be per site.</i>	1	12,500.00
	CORRECTIVE MAINTENANCE	1	
5	Corrective maintenance a low capacity site. <i>This rate captures the cost of maintaining (corrective) for all the end user devices in a low capacity site. The rate should be per site.</i>	1	10,500.00
6	Corrective maintenance a high capacity site. <i>This rate captures the cost of maintaining (corrective) for all the end user devices in a high capacity site. The rate should be per site.</i>	1	15,000.00
7	Corrective maintenance a Public Wi-fi site. <i>This rate captures the cost of maintaining (corrective) for all the end user devices in a Public wi-fi site. The rate should be per site.</i>	1	15,000.00
8	Corrective maintenance an Optical Network Unit (ONU). <i>This rate captures the cost of maintaining (corrective) for an ONU device. The rate should be per unit.</i>	1	1,000.00
9	Corrective maintenance an Optical Network Terminal (ONT). <i>This rate captures the cost of maintaining (corrective) for an ONT device. The rate should</i>	1	1,000.00

			PROPOSED UNIT RATE (Kshs. VAT Exclusive.)
Item No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
	<i>be per unit.</i>		
10	Corrective maintenance of a Public Wi-fi Access Point. <i>This rate captures the cost of maintaining (corrective) a public wi-fi access point. The rate should be per unit.</i>	1	1000.00
11	Corrective maintenance of a Network Cabinet(Floor standing, wall mount or Pole mount) <i>This rate captures the cost of maintaining (corrective) of the active components of a network cabinet i.e MCBs, power supply, indoor lighting. The rate should be per Cabinet size installed Outdoor Cabinet up to 11 U and indoor cabinet size up to 42U.</i>	1	1000.00
12	Corrective maintenance of a Network Switch <i>This rate captures the cost of Corrective maintenance of a network switch. The rate should be per device.</i>	1	1000.00
13	Corrective maintenance of a SDWAN Router <i>This rate captures the cost of corrective maintenance of an SD-WAN Router. The rate should be per device.</i>	1	1500.00
14	Corrective maintenance of an Optical Line Terminal(OLT) equipment <i>This rate captures the cost of corrective maintenance of an Optical Line terminal (OLT). The rate should be per device.</i>	1	7,000.00
15	Corrective maintenance of a Inverter/Charger (Upto to 2KW) <i>This rate captures the cost of corrective maintenance of an inverter/Charger with associated accessories like MCBs .The rate should be per device.</i>	1	1,000.00
	TRANSPORT OF ACTIVE EQUIPMENT AND RELATED MATERIALS		

			PROPOSED UNIT RATE (Kshs. VAT Exclusive.)
Item No.	DESCRIPTION OF WORKS	QTY	ENGINEERS'/MARKET PROPOSED UNIT RATE (Kshs. VAT Excl.)
16	Fixed materials transport cost per truck load (load size = Upto 4 boxes/Pallets not exceeding 1m by 1m each of material whose distance from issuing store does not exceed 20km.		9,000.00
17	Materials transport cost per per truck load (load size = Upto 4 boxes/Pallets not exceeding 1m by 1m each of material whose distance from issuing store more than 20 Km.		11,000.00
18	Materials/accessories transport cost excluding fiber cables and ODFs (for small jobs requiring no FOC) per km		500.00
19	Transport of recovered materials (for jobs not exceeding 20km to the issuing store) per km.		500.00
	TOTAL – LOT D		135,000.00