



RURAL ELECTRIFICATION AND RENEWABLE ENERGY CORPORATION

25th October 2023

To: ALL BIDDERS

Dear Sir/ Madam

ADDENDUM NO. 2 OF BIDDING DOCUMENT FOR DESIGN, SUPPLY, INSTALLATION AND COMMISSIONING OF SOLAR PHOTOVOLTAIC GENERATION PLANTS WITH ASSOCIATED POWER DISTRIBUTION NETWORK (MINI- GRIDS) IN TURKANA, MARSABIT, SAMBURU & ISIOLO COUNTIES IN KENYA WITH 7 YEARS O&M SERVICES

The following addendum is issued in accordance with ITB 8.1, as read together with ITB 7.6, of the issued bidding document for procurement of design, supply, installation and commissioning of solar photovoltaic generation plants with associated power distribution network (mini- grids) in Turkana, Marsabit, Samburu & Isiolo counties in Kenya with 7 years O&M services

Save where expressly amended by the term of this addendum, the Principal Bidding Document shall continue to be in full force and effect. The provision of this addendum shall be deemed to have been incorporated, read and construed as part of the Principal Bidding Document as per ITB 8.2.

VOLUME I: BIDDING PROCEDURES AND CONDITIONS OF CONTRACT AND CONTRACT FORMS

PART I, SECTION II: BID DATA SHEET, SUB SECTION C (PREPARATION OF BIDS)

This section has been amended to read as follows:

ITB 11.1: DOCUMENTS COMPRISING THE BID, ITEM (J)

The major items in this project are:

No	Major equipment
1	Solar Photovoltaic Modules
2	Battery Energy Storage System
3	PV Inverter
4	Battery Inverter
5	Diesel Generator
6	Transformers (step up and step down transformers)
7	Concrete Poles (10m, 11m, 12m)
8	Conductors (75 Sqmm ACSR, 100 Sqmm bare All Aluminium, 50 Sqmm bare All Aluminium)
9	Service Cables (25sq. mm 4 core Al, 10sq. mm 2 Core Concentric Aluminium)
10	Line Insulators (11kV and LV)

SECTION III: EVALUATION AND QUALIFICATION CRITERIA

Parts of this section are amended to read as follows:

3.2 **Average Annual Turnover:** Minimum average annual turnover calculated from total certified payments received for contracts in progress or completed from any five (5) of the last seven (7) years.

SECTION IV: BIDDING FORMS; CLAUSE 2.5 - CONTRACTOR'S REPRESENTATIVE AND OTHER KEY PERSONNEL PER LOT

Part of the Table under this clause has been amended to read as follows:

No.	Position/ Specialization	Relevant Academic Qualifications	Number of Personnel	Minimum General work experience (years)	Minimum Specific work experience (years)
1.	Resident Project Manager	Degree in Electrical, Electronics, Mechanical or Mechatronics Engineering. Professional Engineer (EBK)	1	10	5
2.	Resident Construction Engineer	Degree/Higher National Diploma in Civil Engineering Registered with the relevant body	1	7	4
3.	Design Engineer	Degree in Electrical/Mechanical Engineering. Graduate Engineer (EBK) Energy and Energy & Petroleum Regulatory Authority (EPRA) Solar PV System Class T3 license or equivalent	1	7	4 (In solar projects)
4.	Resident Solar PV Specialist	Degree in Electrical /Mechanical/ Renewable Energy and Energy & Petroleum Regulatory Authority (EPRA) Solar PV System Class T3 license or equivalent	1	7	4
5.	Power Distribution Engineer	Degree or Higher National Diploma in Electrical Registered with the relevant body	1	7	4
6.	Project Surveyor	Degree in Survey/Geospatial/ Geomatic Full Member ISK Specialize in Engineering Survey Experience in power line distribution survey	1	6	4
7.	Environmental Social, Health and Safety (ESHS) specialist	Environmental/ Safety/Health /Social sciences or other relevant Degree	1	5	3

PART 2, SECTION VII: EMPLOYER'S REQUIREMENTS; CONTRACTOR'S REPRESENTATIVE AND KEY PERSONNEL

The entire Table appearing on Page 137 has been deleted.

PART 3 SECTION IX: PARTICULAR CONDITIONS OF CONTRACT

Particulars in this section have been amended to read as follows:

PCC 8.2 The Time for Completion of the whole of the Facilities shall be fifteen (15) months from the Effective Date as described in the Contract Agreement.

PCC 9.1 Connections to be made to consumers immediately after commissioning of SPGP and PDN. The Contractor shall commission SPGP and PDN and connect 100% of customers who have paid connection charges to KPLC within the twenty-four months, otherwise applicable Liquidated Damages apply.

SECTION X - CONTRACT FORMS DETAILS OF WORK & SERVICES FOR 7YEARS OPERATION AND & MAINTENANCE OF SPGP & PDN AND RELIABLE SUPPLY TO CONSUMERS:

CLAUSE 4.1 - SCOPE OF O&M WORK FOR SPGP

- i) **ITEM NO. (XV) - "Cost of Diesel for DG for supply of energy as per requirement to maintain the regular Supply to consumers" has been deleted from the scope.**

CLAUSE 9.1: Contractor shall ensure

- i. Collection of Connection charges from Consumers and
- ii. Revenue collection from consumers on behalf of KPLC for energy consumed by them
- iii. Disconnection if consumers fail to pay bill for energy supplied
- iv. Reconnection on payment of due charges of energy bill
- v. Deposit to collected charges to Govt. /KPLC Account as per KPLC Norms

Has been deleted, in its entirety, from the scope.

VOLUME II: EMPLOYERS REQUIREMENTS, TECHNICAL SPECIFICATIONS & DRAWINGS

Parts of Table 2, Table 3, Table 4, Table 5, Table 6 and Table 7 have been amended to read as shown below:

1.2 SCOPE AND CHARACTERISTICS OF SOLAR PHOTOVOLTAIC (SPV) MINI GRIDS

No	County	Constituency	Mini Grid Name	Step Up TX (KVA)	Step Down TX (KVA)
Lot 1 (Parts of Turkana County – Turkana West & Turkana North Constituencies)					
1	TURKANA	T. NORTH	KAIKOR	200	4 x 25
2	TURKANA	T. NORTH	KANAKURDIO	100	2 x 50
3	TURKANA	T. NORTH	KOKURO	100	2 x 50
4	TURKANA	T. NORTH	NACHUKUI	100	2 x 50
Lot 2 (Parts of Turkana County – Turkana South, Turkana Central, Turkana East & Loima Constituencies)					
5	TURKANA	T. CENTRAL	KALOKOL	315	6 x 50
6	TURKANA	T. CENTRAL	NAMUKUSE	100	2 x 50
7	TURKANA	LOIMA	LORENGIPPI	100	2 x 50

8	TURKANA	T. SOUTH	LOCHWAANGIAMATAK	100	2 x 50
Lot 3 (Parts of Marsabit County –Moyale and Saku Constituencies)					
9	MARSABIT	SAKU	KARGI	150	2 x 50
10	MARSABIT	MOYALE	BORI	100	2 x 50
Lot 4 (Parts of Marsabit County - Laisamis and North Horr Constituencies)					
11	MARSABIT	LAISAMIS	GATAB	100	2 x 50
12	MARSABIT	NORTH HERR	BUBISA	200	3 x 50
13	MARSABIT	LAISAMIS	SOUTH HERR	150	2 x 50
Lot 5 (Part of Samburu County - Samburu West, Samburu East and Samburu North Constituencies)					
14	SAMBURU	S. NORTH	TUUM	100	2 x 50
Lot 6 (Parts of Isiolo County - Isiolo North & Isiolo South Constituencies)					
15	ISILOLO	ISILOLO SOUTH	GARFASA	150	3 x 50
16	ISILOLO	ISILOLO SOUTH	MALKADAKA	100	2 x 50

The maximum string inverter capacity (kW) in Bubisa is amended to read as follows:

No	County	Constituency	Mini Grid Name	Max. String Inverter Capacity (kW)
1	MARSABIT	NORTH HERR	BUBISA	100

The number of customer connections in Oropoi is amended to read as follows:

No	County	Constituency	Mini Grid Name	Residential Users (No.)	Non-Residential Users (No.)
1	TURKANA	T. WEST	OROPOI	247	9

The entire clause 1.2.8 that was reading as below has been deleted from the scope of the contractor

Clause 1.2.8 Collection of connection charges from consumers and ensure revenue collection from consumers on behalf of KPLC (including Disconnection and reconnection) and its deposit to Govt. / KPLC Account as per KPLC Requirements/specifications has been deleted.

These clauses have been amended to read as follows:

12. SUPERVISION OF CONSTRUCTION AND COMMISSIONING WORKS

Clause 12.1 Completion Time

Clause 12.1.1 All mini-grids in each lot (1 to 6) shall be completed within **Fifteen (15) Months** from the Effective Date as described in the Contract Agreement for Supply and Installation.

Clause 8.3.15 The Contractor is fully responsible for defects and equipment failure during the **7 years O&M** period.

Clause 4.18.1.5 Generator Set – Prime Power

The generator set shall run at 1500 rpm to supply power at 50Hz. The prime Power rating of the set shall be slightly above the stated kVA, at temperatures up to 45°C and Altitude at site elevation. There shall be a 10% overload capacity available for one hour in twelve. The gen-set shall be enclosed with a super silenced residential silencer having stainless steel flexible bellows and exhausting 6m above ground level applying an extend pipe. The noise level must be below 85db at 1m.

Clause 4.18.1.8.2 Frequency regulation

The frequency regulation shall be isochronous from steady state no load to steady state rated load. The random frequency variation shall not exceed +/- 1.5% of its mean value for constant loads at any load from no load to rated load.

Clause 4.6.7: Minimum System voltage of 48V.

Clause 5.7: DRAWINGS

Clause 5.7.1 Drawings issued with these documents are for tendering purposes only. Provisional Power Distribution Network drawings are available on the Employer's website www.rerec.co.ke. The quantities derived from the provisional drawings are not to be considered as limiting or extending the amount of work to be done by the Contractor.

Firm Drawings for this project shall be made by the Contractor at the detailed design stage and shall be to the approval of the Employer.

17: FACILITIES FOR THE EMPLOYER

Clause 17.1 (1) "Office facilities including full services per site."

Clause 17:1 (3) Communication facilities for Site Works supervision. These shall include, but are not limited to Cell Phones(2), Laptops with MS office & CAD software (2), Tablet Pro-11, Desktop Computer with MS office & CAD software (1), Laser Jet Printer & Photocopier (1), Internet & Data services. Technical Specifications for some of the Communication facilities is attached in Annex III

Clause 17.5 : The Contractor shall provide for the entire duration of the Contract, for each site, contractor's site office, fully furnished, complete with all electrical fittings, plumbing and sanitary systems, clean and provided with windows to give a sufficient supply of natural light and adequate security.

13. QUALITY ISSUES

An additional sub section has been added to clause 13 and reads as follows.

Clause 13.1.9 Factory Acceptance Test (FAT)

FAT shall be carried out for each of the major equipment at the manufacturer's premises. All routine test shall be carried out in the presence of employer's representatives. Contractor shall arrange and meet the full costs of air and local transport and the cost of inspection and test at the manufactures premises, daily subsistence allowances per SRC guidelines. Such FAT is expected to take 7 days for each major equipment and to involve 4 staff.

VOLUME III: SCHEDULE OF RATES AND PRICES

Parts of Schedules 1, 2 & 4 have been amended for the sites shown in the list below:

No	County	Constituency	Mini Grid Name	Step Up TX (KVA)	Step Down TX (KVA)
Lot 1 (Parts of Turkana County – Turkana West & Turkana North Constituencies)					
1	TURKANA	T. NORTH	KAIKOR	200	4 x 25
2	TURKANA	T. NORTH	KANAKURDIO	100	2 x 50
3	TURKANA	T. NORTH	KOKURO	100	2 x 50
4	TURKANA	T. NORTH	NACHUKUI	100	2 x 50
Lot 2 (Parts of Turkana County – Turkana South, Turkana Central, Turkana East & Lolma Constituencies)					
5	TURKANA	T. CENTRAL	KALOKOL	315	6 x 50
6	TURKANA	T. CENTRAL	NAMUKUSE	100	2 x 50
7	TURKANA	LOIMA	LORENGIPPI	100	2 x 50
8	TURKANA	T. SOUTH	LOCHWAANGIAMATAK	100	2 x 50
Lot 3 (Parts of Marsabit County –Moyale and Saku Constituencies)					
9	MARSABIT	SAKU	KARGI	150	2 x 50
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11	MARSABIT	LAISAMIS	GATAB	100	2 x 50
12	MARSABIT	NORTH HERR	BUBISA	200	3 x 50
13	MARSABIT	LAISAMIS	SOUTH HERR	150	2 x 50
Lot 5 (Part of Samburu County - Samburu West, Samburu East and Samburu North Constituencies)					
14	SAMBURU	S. NORTH	TUUM	100	2 x 50
Lot 6 (Parts of Isiolo County - Isiolo North & Isiolo South Constituencies)					
15	ISIOLO	ISIOLO SOUTH	GARFASA	150	3 x 50
16	ISIOLO	ISIOLO SOUTH	MALKADAKA	100	2 x 50

VOLUME IV: TECHNICAL SPECIFICATIONS DOCUMENTS (POWER DISTRIBUTION COMPONENT)

Technical specification document for mineral insulating oil (transformer & switchgear oil) doc No.KP1/3CB/TSP/08/001 is attached on www.rerec.co.ke

Technical specification document for 12kV Outdoor Protection and Metering Vacuum Circuit Breaker Units (KP1/6C/4/1/TSP/14/018) is attached on www.rerec.co.ke

APPENDIX I: COUNTY RENEWABLE ENERGY OFFICERS (CREOs)' CONTACTS

S/NO	Name	County	Tel	Email Address
1.	Abdi Osman Guyo	Isiolo	0704267955	kotileabdi@gmail.com
2	Jalle Gesile Gideon	Marsabit	0716894494	jallegesile@gmail.com
3	Wyclef Munene Ngure	Samburu	0725678988	ngure.wyclef@gmail.com
4.	Caleb Ewoi Nakain	Turkana	0714371688	calebewoi@gmail.com

APPENDIX II: TECHNICAL SPECIFICATIONS FOR COMMUNICATION DEVICES

TABLET

Description	Specification	Mandatory Requirement	Bidder Response
Operating System	Windows 11 Pro	YES	
Dimensions	11.3-inch x 8.2-inch x 0.37-inch (287mm x 208mm x 9.3mm)	YES	
Display	Screen: 13-inch PixelSense™ Flow Display Resolution: 2880 x 1920 (267 PPI) Refresh Rate: Up to 120Hz (60Hz default) Aspect ratio: 3:2 Touch: 10-point multi touch GPU Ink Acceleration Dolby Vision® support	YES	
Memory	16GB, (LPDDR5 RAM)	YES	
Internal Storage	1TB SSD	YES	
Processor	Quad-core 11th Gen Intel® Core™ i7-1185G7	YES	
Weight (g)	889	YES	
Camera	Rear Camera – 10.0MP rear-facing autofocus camera with 1080p HD and 4k video Front camera – 5MP, 1080p full HD video front-facing webcam	YES	
Connectivity	USB-C with USB 4.0/Thunderbolt 4- 1 Wi-Fi – 802.11a/b/g/n/ac Bluetooth – 5.10 technology	YES	
Battery	16 hours or more of typical device usage	YES	
Pen & accessories compatibility	- Surface Slim Pen 2 - Integrated storage and wireless charging for Surface Slim Pen 2 with Surface Pro Signature Keyboard - Supports tactile signals with Surface Slim Pen 2 - Surface Pro Keyboard - Microsoft Arc Mouse	YES	
Eco Labels and Rating	Registered EPEAT® Gold in the US and Canada Meets ENERGY STAR® requirements	YES	
Warranty	1-year limited hardware warranty	YES	
Sleeve case	Fintie sleeve case	YES	

PRINTER

LIGHT-DUTY PRINTER – 37-SPEED COLOR MULTIFUNCTIONAL PHOTOCOPIER

COLOUR MULTIFUNCTIONAL PHOTOCOPIER		BIDDER RESPONSE
ITEM	MINIMUM SPECIFICATIONS	
Technology	Laser Colour	
Engine speed (pages per minute)	High speeds up to 37 ppm A4 in colour and black and white	
Resolution	1,200 x 1,200 dpi, 600 x600 dpi scan/copy	
Warm-up time from power on	Approx. 25 seconds or less from power on	
Time to first page	Approx. 8.5seconds or less in b/w Approx. 7.5 seconds or less in colour	
CPU	ARM Cortex-A9 Dual core 1.2 GHz + ARM cortex M3 100MHZ	
Display Panel (TSI)	7" color TSI - intuitive user interface	
Memory	1GB RAM, Max 3GB + 128 GB SSD	
HyPAS Capable	Yes - Optional HD-6: 32 GB SSD / HD-7: 128 GB SSD	
Standard interfaces	4x USB 2.0 (Hi-Speed), USB Host 2.0, Fast Ethernet 10 BaseT/100 BaseTX/1000 BaseT	
Input capacity	250 sheets (Cassette) + 100 sheets (MPT)	
Document processor	Reversing Automatic Document Processor (RADF) / 50 Sheets	
Duplex unit	Duplex as standard supports	
Output capacity	250 sheets	
Print functions		
Emulations	PCL6 (PCL5c / PCL-XL), KPDL3(PostScript 3 compatible), PDF Direct Print, XPS Direct Print	
Operating systems	All current Windows operating systems, Mac OS X Version 10.4 or higher, UNI X	

COLOUR MULTIFUNCTIONAL PHOTOCOPIER		BIDDER RESPONSE
	LINU X, as well as other operating systems on request.	
Print features	Encrypted PDF Direct Print, IPP printing, e-mail printing, WSD print, secure printing via SSL, IP sec, SNMPv3, Quick copy, proof and hold, Private Print, job storage and job management functionality	
Copy functions		
Max. original size	A4	
Continuous copying	1-999	
Zoom range	25-400 % in 1 % steps	
Preset magnification ratios	5R/5E	
Digital features:	Scan-once-copy-many, electronic sort, 2in1 and 4in1 function, image repeat copy, page numbering, cover mode, booklet copy, interrupt copy, form overlay	
Exposure mode	Auto, manual: 7 or 13 steps	
Image adjustments	Text + photo, text, photo, map	
Scan functions		
Functionality	Scan to USB; Scan to SMB; Scan to E-mail ; Scan to FTP or FTP over SSL; TWAIN Scan; WSD Scan, WIA	
Scan speed	(A4, 300 dpi, Dual Scan) b/w 160 images per minute, colour 100 images per minute	
Scan resolution	600dpi, 400dpi, 300dpi, 200dpi, 200x400dpi, 200x100dpi	
Max. scan size	A4	
Original recognition	Text, photo, text + photo, OCR	
Network protocol	TCP/IP	
File types	TIFF, JPEG, XPS, Open XPS, PDF (MMR/JPEG compression/High-compression PDF), Encrypted PDF, PDF/A-1, PDF/A-2,	

COLOUR MULTIFUNCTIONAL PHOTOCOPIER		BIDDER RESPONSE
	MS Office file (option), Searchable PDF (option)	
Warranty	1-year warranty as standard.	
Original detailed and highlighted Brochures MUST be submitted		

LAPTOP

Specification	Minimum Requirement	Mandatory Requirement	Bidder's Response
Operating System	Windows 11 PRO 64-bit	YES	
Processor & Chipset	11th Gen Intel(R) Core(TM) i7-1165G7 @ 2.80GHz 2.80 GHz	YES	
RAM Memory	16.0 GB (15.8 GB usable) and above DDR4-3200, LPDDR4x-4267	YES	
Solid State Drive (SSD)	SSDs (PCIe x4 a Plus)	YES	
keyboard	Full size Backlit with white LED lighting keyboard, Spill resistant	YES	
Pointing Device Type	TouchPad, Pointing Stick	YES	
Physical Dimension	(H x W x D) 18.9mm x 357mm x 235 / 0.74 x 14.05 x 9.25	YES	
Weight	3.75 lbs (1.7 kg)	YES	
Security features	Smart Power Button with fingerprint reader Webcam privacy cover Trusted Platform Module (TPM) 2.0 (firmware) Kensington NanoSaver lock slot	YES	
Manufacturer Warranty	1-1-1 (1 years parts, labor and on-site support)	YES	
	Bidder must issue warranty commitment letter on supply of the items.	YES	
Laptop Type	Brand new (Refurbished laptop will be rejected)	YES	

Specification	Minimum Requirement	Mandatory Requirement	Bidder's Response
Memory card reader	4-in-1 card reader (SD/SDHC/SDXC/MMC)	YES	
Display			
Screen Size	15.6 inches	YES	
Resolution	1080 x 1920 Pixels	YES	
Screen Type	FHD IPS, anti-glare, TÜV Rheinland Low Blue Light certification, 250 nits	YES	
Backlight Technology	Yes	YES	
Graphics	Nvidia Pascal Graphics	YES	
Network & Communication			
Wireless LAN	Wi-Fi 6 802.11AX (2 x 2)	YES	
Bluetooth	Yes, 5.1	YES	
Ethernet Technology	Yes (10/100/1000 Mbps)	YES	
Battery & Power			
Type & Capacity	3 Cell Li-Ion 45Wh battery	YES	
Battery Timing	Up to 6 hours	YES	
Power Supply Wattage	65W AC adapter	YES	
Interfaces/Port			
USB	USB 3.2 Gen 2 Type-C (USB/DP/PD) USB 3.2 Gen 2 Type-C with Thunderbolt 4 2 x USB-A 3.2 Gen 1 (1 always on) Headphone / mic combo	YES	
HDMI	1 HDMI	YES	
VGA	720p HD, Webcam privacy shutter	YES	
Audio	2 x 2W speakers, Dual-array mics	YES	
Extras			

Specification	Minimum Requirement	Mandatory Requirement	Bidder's Response
Software Ready	MS Office CAD Software		
Accessories	Specialized manufacturer laptop bag (back pack from the laptop manufacturer)	YES	
	USB Mouse (from the laptop manufacturer)	YES	

DESKTOP

COMPONENT	SPECIFICATION
Memory (RAM)	8-16 GB of RAM
Storage	240 GB solid state drive, or larger.
Video/Graphics	Integrated or discrete graphics processor capable of 1440 X 900 resolution, or better (1920 X 1080 or 1200 ideal)

Specification	Minimum requirement	Mandatory Requirement	Bidder's Response
Operating System	Windows 10 PRO	YES	
Minimum Internal storage	1TB SATA HDD 7200 rpm	YES	
Minimum Memory	8 GB DDR4-2400 SDRAM (1 X 8GB)	YES	
Form Factor	All-in-One	YES	
Processor	Intel Core i7-8700 Processor (3.2 GHZ, up to 4.6 GHz w. Turbo, 12 MB Cache, 2666 MHz, 6 Core) + UHD graphics 630	YES	
Chipset	Intel® Q370	YES	
Display	All-in-One 23.8" diagonal FHD IPS widescreen WLED-backlit touch screen (1920 x 1080)	YES	
Graphics	Intel® UHD Graphics 630	YES	
Keyboard and Pointing device	1 x USB keyboard and USB optical mouse	YES	
Optical drive	DVD-Writer	YES	
I/O Port	1 audio-out; 1 Display Port™ 1.2; 1 HDMI; 1 power connector; 1 RJ-45; 2 USB 3.1 Gen 1; 4 USB 3.1 Gen 2; 1 USB 3.1 Type-C™ Gen 2	YES	

Webcam	2 MP full HD pop-up webcam with integrated dual array digital microphone, maximum resolution of 1920 x 1080; 2 MP, 1080p, FHD pop-up Camera with IR sense (front) and 2 MP webcam (rear) with integrated dual array digital microphone, maximum resolution of 1920 x 1080, IR camera for face authentication with Windows Hello	YES	
Communication interface	Integrated intel 10/100/1000 Mbps Gigabit Ethernet; Intel 802.11ac Network interface card PCIe x1 with bluetooth	YES	
Power	180 W internal power supply, up to 90% efficiency, active PFC	YES	
Warranty	1 year (1-1-1) limited warranty and service offering includes 1 years of parts, labor and on-site repair.	YES	
Desktop type	Brand new (Refurbished Desktop will be rejected)	YES	

UPS

Specification	Minimum requirement	Mandatory Requirement	Bidder's Response
OUTPUT			
Output power capacity	390Watts / 650VA	YES	
Max Configurable Power (Watts)	390Watts / 650VA	YES	
Nominal Output Voltage	230V	YES	
Output Frequency (sync to mains)	50/60Hz +/- 3 Hz	YES	
Output Frequency (not synced)	50/60 Hz +/-1 Hz	YES	
Output Frequency (sync to mains)	50/60Hz +/- 3 Hz	YES	
Output Connections	(4) IEC 320 C13 (Battery Backup) (1) IEC Jumpers (Battery Backup)	YES	
INPUT			
Nominal Input Voltage	230V	YES	
Input frequency	45 - 65 Hz	YES	
Cord Length	1.16meters	YES	
Input voltage range for main operations	140 - 300V	YES	
Maximum Input Current	7.0A	YES	
BATTERIES & RUNTIME			
Battery type	Maintenance-free sealed Lead-Acid battery with suspended electrolyte or Lithium Ion Batteries: Leak proof	YES	
Typical recharge time	8hour(s)	YES	
Expected Battery Life (years)	3 - 5 YRS	YES	

CELL PHONES

Specification	Minimum requirement	Mandatory Requirement	Bidder's Response
Dimensions	157.8 x 76.2 x 7.6 mm (6.21 x 3.00 x 0.30 in)	YES	
Weight (g)	196	YES	
SIM	Nano-SIM and eSIM or Dual SIM (2 Nano-SIMs and eSIM, dual stand-by)	YES	
IP Rating	IP68 dust/water resistant	YES	
Display Type	Dynamic AMOLED 2X, 120Hz, HDR10+, 1200 nits (HBM), 1750 nits (peak)	YES	
Size	6.6 inches, 105.3 cm ²	YES	
Resolution	1080 x 2340 pixels 19.5:9 ratio	YES	
Operating System	Android 13, One UI 5.1 with OS upgrade capabilities	YES	
Chipset	Qualcomm SM8550-AC Snapdragon 8 Gen 2 (4 nm)	YES	
CPU	Octa-core (1x3.36 GHz Cortex-X3 & 2x2.8 GHz Cortex-A715 & 2x2.8 GHz Cortex-A710 & 3x2.0 GHz Cortex-A510)	YES	
Memory	8GB RAM, 256GB and above, UFS 4.0	YES	
Network	GSM / CDMA / HSPA / EVDO / LTE / 5G	YES	
Rear Camera	50 MP, Dual Pixel PDAF, OIS	YES	
Front Camera	10 MP and above	YES	
WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e, tri-band, Wi-Fi Direct	YES	
Positioning	GPS, GLONASS, BDS, GALILEO	YES	
USB	USB Type-C 3.2	YES	
Battery	Li-Ion 4,500 mAh and above	YES	
Battery Charging	45W wired fast charging capability	YES	
Security	Fingerprint screening and facial recognition	YES	

INTERNET & DATA SERVICES

Specification	Minimum requirement	Mandatory Requirement	Bidder's Response
Data Bandwidth	20Mbps and above	YES	
Router			
Dimensions	219 mm x 138 mm x 25.6 mm	YES	
Processors	Balongs chip, Gigahome dual-band Wi-Fi chip	YES	
Network Port	1 Wan / Lan GE port, 3 Lan GE port, one SIM card slot (micro-SIM)	YES	
5G/4G			
Communication Standard	3GPP Release 11, LTE CAT7	YES	
Applicable Network	4G	YES	
4G Transmission Rate	DL 300Mbps UL 100Mbps	YES	
Network Frequency Band	LTE: B1 / B3 / B7 / B8 / B20 / B28 / B32 / B38, UMTS: B1 / B8	YES	
Antenna Type	LTE / UMTS main and diversity antennas	YES	
Wi-Fi			
Transmission Standard	802.11ac/a/n 2 x 2 & 802.11b/g/n 2 x 2, MIMO	YES	
Wireless Transmission Rate	DBDC, 1167 Mbps	YES	
Wireless Frequency Band	2.4 GHz & 5GHz, band steering	YES	
Antenna Type	Dual-band Wi-Fi antenna	YES	
Power Supply			
Power Consumption	< 12W	YES	
AC / DC Power Supply	AC: 100V - 240V 50Hz / 60Hz, DC: 12V / 1A	YES	

APPENDIX III: Provisional PDN Drawings

APPENDIX IV: TABLES 2 – TABLE 7

APPENDIX V: SCHEDULES OF RATES

