



KenGen

KENYA ELECTRICITY GENERATING COMPANY PLC.

KGN-HYD-051-2018.

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF UNINTERRUPTIBLE POWER SUPPLIES (UPS) FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.

9th January, 2019.

ADDENDUM NO 2.

In Accordance with the Tender for “Supply, Installation, Testing and Commissioning of Uninterrupted Power Supplies(UPS) for Kamburu and Masinga and SCADA UPS Battery banks for Gitaru Kindaruma, Kiambere and Turkwel Stations”. KenGen hereby issues **Addendum No.1**

REVIEW OF SCOPE OF WORK INTO TWO LOTS

REVIEWED TECHNICAL SCHEDULE, BILL OF QUANTITIES & FORM OF TENDER

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1 GENERAL REQUIREMENTS

1.1. Revised Scope of Tender

- 1.1.1. By this Addendum, KenGen has split the tender KGN-HYD-051-2018 into two lots and has reviewed the scope of supply for each lot. Bidders are free to submit offers for one lot or for both lots. Tender shall be awarded to the lowest evaluated bidder in each lot.
- 1.1.2. Bidder shall fill a *Form of Tender* for each lot tendered for and fill the corresponding *Bill of Quantities* for the lot tendered for. The revised *Form of Tender* is included in this addendum.
- 1.1.3. The two lots will be awarded to bidders independently. Award of one lot **shall** not influence award of the other lot.
- 1.1.4. **Lot1: UPS Systems** shall include supply, installation & commissioning of four (4) UPS systems complete with Batteries for Kamburu, Masinga and Kindaruma and buy-back of existing batteries in these stations. The revised battery Autonomy for each UPS is provided. Power rating for all the UPS Systems shall be the same.
- 1.1.5. **Lot II: SCADA UPS Batteries** shall include supply, installation and commissioning of Batteries for Gitaru, Kiambere and Turkwel and buy-back of existing batteries in these stations.
- 1.1.6. Delivery period for LOT I shall remain **Twelve (12) months** while delivery period for LOT II shall be **Nine (9) months**

1.2. Technical bid offers and technical evaluation criteria

- 1.2.1. Bidders shall provide technical offer and supporting documents for each lot. Bid offer for lot 1 shall be accompanied by a dully filled *Technical Schedule 1* (provided for in this addendum) and all other documents stated in the *Schedule of Requirements*. Bid offer for lot II shall be accompanied by a duly filled *Technical Schedule 2* and all the documents stated in the schedule of requirements
- 1.2.2. Technical schedule 1: Industrial UPS systems in the tender document has been annulled and replaced by a new *Technical Schedule 1* in this addendum.
Technical Schedule 2: VRLA batteries for UPS remains unchanged and shall be filled by bidders submitting offer for lot II.
- 1.2.3. The Technical Schedules shall be filled by bidders and shall form the primary document of the bidders offer to be used for tender evaluation. Technical Schedules shall be part of the bidders offer. Where there are conflicts between what is stated in the *Technical Schedules* and what is stated in another bidders' document, the information supplied by the bidder in the schedules shall take precedence.

- 1.2.4. Bids offering equipment/devices/components of lower rating, lower quantities or lower performance than the employer's minimum requirements stated in the *Technical Schedules* shall be rejected.
- 1.2.5. Bids offering equipment/devices/components of higher rating, greater quantities or higher performance than the employer's minimum requirements stated in the *Technical Schedules* shall be accepted. However this shall not earn any favour during evaluation and shall be treated as having met the minimum requirements only.
- 1.2.6. All the dimensions and capacities of the equipment to be supplied shall not be less than those required in the specifications. Deviations from the basic requirements, if any shall be explained in detail in writing with the offer, with supporting data such as calculation sheets, etc. The procuring entity reserves the right to reject the products, if such deviations shall be found critical to the use and operation of the products.
- 1.2.7. In the Technical Schedules, all entries in the *Tenderer's Offer Column* MUST be filled with numbers or descriptive statements illustrating what the bidder is offering for each given employer requirement. Responses such as "compliant", "supported", "yes", "in agreement" etc that do not clearly indicate what is offered SHALL NOT be accepted as entries in the *Tenderers Offer Column*, other than where its EXPRESSELY allowed for, as indicated in employer minimum requirements column (stated in italics). Offers that do not comply with this requirement will be rendered unresponsive.
- 1.2.8. Bidders guaranteed figures shall be supported by documents such as technical data sheets, technical manuals, type test reports and any other relevant manufacturer's technical specification documents. Bidders MUST submit documents supporting their entries along with the bid.
- 1.2.9. A statement either in the schedules or on the supporting document that is found to be false either during Bid Evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bid unresponsive or a contractor in breach of contract.
- 1.2.10. All data (values) entered in the Schedules are guaranteed values by the Tenderer and cannot be departed from during project implementation
- 1.2.11. After tender award technical schedules shall become part of the contract documents.
- 1.2.12. Bidder shall append their firms seal or stamp on each page of the schedules.

1.3. Technical Specifications

- 1.3.1. Where in the tender specifications that the required battery autonomy time is stated as four hours, the statement shall read “battery autonomy time stated in the technical schedules or scope of supply”.
- 1.3.2. Where in the tender document, supply of batteries to Kiambere, Gitaru, Kindaruma and Turkwel is stated, the statement shall read “supply of batteries to Kiambere, Gitaru and Turkwel”
- 1.3.3. Scope of works in tender (Clause 2 of Technical Specification) has been annulled and replaced by the new scope of works for each lot as provided for in this addendum.
- 1.3.4. Factory Acceptance Tests for lot II shall be carried out at the bidder’s premise and not necessarily in the battery factory. Bidder shall provide test equipment and personnel to carry out battery capability tests and other tests as detailed in the tender document (UPS technical specification clause 8, page 41-44). Test equipment to be used during tests MUST be calibrated as detailed in the tender document (UPS Technical Specification clause 8, page 41-44). Delivery shall only be allowed after successful testing as detailed in tender document.

1.4. Price Schedules

- 1.4.1. All the price schedule entries MUST be filled failure to which the bid offer shall be rendered unresponsive
- 1.4.2. The total prices shall be **Delivered Duty Paid** as per incoterms 2010 to the stated Power Stations.
- 1.4.3. Bidder shall include in their costs the withholding taxes which shall be retained by the employer as per Kenyan tax laws. Bidders shall familiarise themselves with all the applicable laws before filling the bid.

2. LOT I SCOPE OF WORKS

- 2.1. To supply, deliver, install, test and commission two (2) complete 20kVA industrial grade UPS systems each with two battery banks for Kamburu Power Station,
- 2.2. To supply, deliver, install, test and commission an industrial grade complete 20kVA UPS system with two battery banks for Masinga Power Station,
- 2.3. To supply, deliver, install, test and commission an industrial grade complete 20kVA UPS system with two battery banks for Kindaruma Power Station,
- 2.4. Factory testing and inspection witnessed by KenGen engineers at Manufacturers’ premises.
- 2.5. Provide accurate test reports for the new installed systems, reference documents for the various equipment and as-built documentation for the new installed UPSs’ and their Battery banks.
- 2.6. Provide comprehensive warranty for all components supplied (UPSs’ and Batteries) for a period of one year from the date of issuance of completion certificates by KenGen upon completion of all works.
- 2.7. Decommissioning of existing UPS and battery banks in Kamburu, Masinga and Kindaruma
- 2.8. Buy back of all existing battery banks at site in Kindaruma, Masinga and Kamburu. The tenderer shall quote buy-back price along with the offer for the old battery banks as per the existing system with the following specifications:

Station	Number of batteries	Battery rating AH	Battery Type
Masinga	72	57.2	YUASA, UK SWL1850
Kamburu	108	90	YUASA, UK SWL*
Kindaruma	72	75	HIGH POWER SERIES
Total	252	~	~

- 2.9. Technical training of five (5) KenGen staff.
 - 2.9.1. The training duration shall not be less than five (5) days, and the course shall cover, at the minimum, UPS and Battery bank maintenance and troubleshooting techniques.
 - 2.9.2. The training shall be held at a certified training facility situated within the country.
 - 2.9.3. The successful bidder shall pay for the tuition fees and these costs shall be included in the price schedules.
 - 2.9.4. The training content shall be submitted to KenGen in advance for approval

- 2.10. Scope of supply of materials shall be as follows:

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REF	EQUIPMENT DESCRIPTION	UNIT	Quantity
2.10.1	Kamburu UPS 1	–	–
2.10.1.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI and all components as specified in the tender and technical schedules	Unit	One (1)
2.10.1.2	Battery bank complete with panel, isolators, long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two (2)
2.10.1.3	Total battery bank Autonomy @ 20KW and 80% battery DoD	Hrs	Four (4)
2.10.1.4	Rating and capacity of each battery bank @ 20KW and 80% battery DoD	KWH	50
2.10.2	Kamburu UPS 2	–	–
2.10.2.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI and all components as specified in the tender and technical schedules	Unit	One (1)
2.10.2.2	Battery bank complete with panel, isolators, long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two (2)
2.10.2.3	Total battery bank Autonomy @ 20KW and 80% battery DoD	Hrs	Two (2)
2.10.2.4	Rating and capacity of each battery bank @ 20KW and 80% battery DoD	KWH	25
2.10.3	Kindaruma UPS	–	–
2.10.3.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI and all components as specified in the tender and technical schedules	Unit	One (1)
2.10.3.2	Battery bank complete with panel, isolators, long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two (2)
2.10.3.3	Total battery bank Autonomy @ 20KW and 80% battery DoD	Hrs	Two (2)
2.10.3.4	Rating and capacity of each battery bank @ 20KW and 80% battery DoD	KWH	25
2.10.4	Masinga UPS	–	–
2.10.4.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI and all components as specified in the tender and technical schedules	Unit	One (1)
2.10.4.2	Battery bank complete with panel, isolators, long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two (2)
2.10.4.3	Total battery bank Autonomy @ 20KW and 80% battery DoD	Hrs	Two (2)

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



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REF	EQUIPMENT DESCRIPTION	UNIT	Quantity
2.10.4.4	Rating & capacity of each battery bank @ 20KW and 80% battery DoD	KWH	25
2.10.5	Test Equipment	–	–
2.10.5.1	Battery Analyzer; Fluke BT521 plus accessories	Set	One (1)
	Spectro CA-12 Battery Rapid Tester plus accessories	Set	One (1)
2.10.6	Other Accessories and Components	–	–
2.10.6.1	4X16mm sq. SWA (steel wire armour) Cable with electrolytic stranded copper conductor cores, coloured brown, black, grey and blue (standard IEC AC phases colours). To be used to connect the Battery banks to the UPS. The extra cable to be retained by the employer	meters	300
2.10.6.2	Cable connectors, lugs etc and all cable termination accessories for terminating existing AC supply and load cables and the new battery cables	lot	One (1)
2.10.6.3	Other accessories and Materials necessary to complete the installation and commissioning of the industrial UPS. (bidder to itemise in the offer)	lot	One (1)

3. LOT II SCOPE OF WORKS

- 3.1. To supply, deliver, install, test and commission Seventy-five (75),74Ah,12V long life (> 10 years) VRLA batteries at Gitaru power station.
- 3.2. To supply, deliver, install, test and commission Seventy-five (75),74Ah,12V long life (> 10 years) VRLA batteries at Kiambere power station.
- 3.3. To supply, deliver, install, test and commission Seventy-five (75),74Ah,12V long life (> 10 years) VRLA batteries at Turkwel power station.
- 3.4. Removal of existing batteries in Gitaru, Kiambere and Turkwel.
- 3.5. Mount the new batteries in the existing battery cabinets, carry out termination of the new batteries and terminate to the existing panel connections in Gitaru, Kiambere and Turkwel
- 3.6. Factory testing and inspection witnessed by KenGen engineers at bidders’ or Manufacturers’ premises.
- 3.7. Provide accurate test reports for the new installed systems, reference documents for the various equipment and as-built documentation for the new Battery banks.
- 3.8. Provide comprehensive warranty for Batteries for a period of one year from the date of issuance of completion certificates by KenGen upon completion of all works.
- 3.9. Buy back of all existing battery banks at site in Gitaru, Kiambere and Turkwel. The tenderer shall quote buy back price along with the offer for the old battery banks as per the existing system with the following specifications:

Station	Number of batteries	Battery rating AH	Battery Type
Gitaru	72	74	YUASA, UK SWL1850
Turkwel	72	74	YUASA, UK SWL1850
Kiambere	72	74	YUASA, UK SWL1850
Total	216	~	~

- 3.10. Scope of supply of materials shall be as follows

REF	EQUIPMENT DESCRIPTION	UNIT	Quantity
3.10.1	Gitaru Batteries	–	–
3.10.1.1	74Ah,12V long life (>10 years) VRLA batteries	Unit	75
3.10.1.2	Battery terminal connectors and cable lugs	sets	150
3.10.1.3	Connecting cables, 25mm ² Single core electrolytic stranded copper conductor cables with red coloured sheath for battery terminations	meters	150

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REF	EQUIPMENT DESCRIPTION	UNIT	Quantity
3.10.1.4	Other accessories and Materials necessary to complete the installation and commissioning of the batteries. (bidder to itemise in the offer)	lot	One (1)
3.10.2	Kiambere Batteries	–	–
3.10.2.1	74Ah,12V long life (>10 years) VRLA batteries	Unit	75
3.10.2.2	Battery terminal connectors and cable lugs	sets	150
3.10.2.3	Connecting cables, 25mm ² Single core electrolytic stranded copper conductor cables with red coloured sheath for battery terminations	meters	150
3.10.2.4	Other accessories and Materials necessary to complete the installation and commissioning of the batteries. (bidder to itemise in the offer)	lot	One (1)
3.10.3	Turkwel Batteries	–	–
3.10.3.1	74Ah,12V long life (>10 years) VRLA batteries	Unit	75
3.10.3.2	Battery terminal connectors and cable lugs	sets	150
3.10.3.3	Connecting cables, 25mm ² Single core electrolytic stranded copper conductor cables with red coloured sheath for battery terminations	meters	150
3.10.3.4	Other accessories and Materials necessary to complete the installation and commissioning of the batteries. (bidder to itemise in the offer)	lot	One (1)

REVISED TECHNICAL SCHEDULES 1: INDUSTRIAL UPS SYSTEMS (FOR LOT I ONLY)

4. REVISED TECHNICAL SCHEDULES 1: INDUSTRIAL UPS SYSTEMS (LOT 1)

APPLICABLE TO LOT I ONLY

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.1	GENERAL	–	–
4.1.1	Quantity of Complete UPS unit required	Four (4)	
4.1.2	UPS Power rating	20KVA	
4.1.3	UPS Type	Industrial UPS for industrial environment (temperature, humidity, vibration) application as per IEC/EN 62040-4	
4.1.4	UPS power connections	Three Phase Input and Single-Phase Output	
4.1.5	UPS Topology	Online double conversion	
4.1.6	Industrial UPS assembly and configuration type	Modular	
4.1.7	Power Converter Configuration	Redundant - 2N	
4.1.8	Number of converter modules per UPS	Two (2)	
4.1.9	Power Converter layout	withdrawable (draw out)	
4.1.10	Number of battery banks per UPS unit	Two (2)	
4.1.11	Number of UPS panels per UPS unit	One (1)	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.1.12	Number battery bank cabinets per UPS unit	Two (2)	
4.1.13	Manufacturer of offered UPS	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.14	UPS model and type offered	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.15	UPS country of Manufacture	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.16	Manufacturer of offered Batteries	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.14	Batteries model and type offered	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.15	Batteries country of Origin	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.16	Manufacturer of offered battery bank cabinet	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.17	Battery Cabinet model and type offered	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.1.18	Battery cabinet country of Manufacture	<i>Bidder to state and attach supporting document (catalogue/data sheet etc)</i>	
4.2	UPS INPUT SPECIFICATIONS	–	–
4.2.1	Input power factor	≥ 0.98	
4.2.2	Input Voltage	3X415 V AC+N	
4.2.3	Total Harmonic Distortion (THD) at 100% load	≤ 5%	
4.2.4	Connections	L1, L2, L3, N	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.2.5	Nominal Frequency	50 Hz	
4.3	OUTPUT SPECIFICATIONS	–	–
4.3.1	Rated output voltage	1 × 240 V AC +N	
4.3.2	Output range	≥ ±10%	
4.3.3	Nominal Frequency	50 Hz	
4.3.4	Total harmonic distortion	< 5%	
4.3.5	Overload Capacity	≥ 150% for 1min & ≥ 125% for 10mins	
4.3.6	Power factor	≤ 0.9	
4.3.7	Load Crest factor	≥ 3	
4.4	STATIC BYPASS SPECIFICATIONS	–	–
4.4.1	Rated voltage	1 × 240 V AC+N	
4.4.2	Nominal Frequency	50Hz	
4.4.3	Rated capacity as % of UPS rating	≥ 100%	
4.4.4	Overload Capacity	≥ 110% continuous	
4.4.5	Static bypass transfer time	<6ms	
4.5	MANUAL BYPASS SWITCH (MBS):	–	–
4.5.1	Connections	L, N	
4.5.2	Nominal Voltage rating	1 × 240 V AC +N	
4.5.3	Nominal Frequency	50Hz	
4.5.4	Rated current	≥100A	
4.5.5	MBS auxiliary contacts	≥ one (1) CO or ≥ Two (2) NO+NC	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.6	ENVIRONMENT AND PHYSICAL FEATURES	–	–
4.6.1	Operating temperature	≤5°C to ≥40°C without derating	
4.6.2	Storage temperature (without batteries)	≤-25°C to ≥70°C	
4.6.3	Humidity	≤5% to ≥95%, without condensation	
4.6.4	Altitude	≥1000m ASAL without derating	
4.6.5	Degree of protection	≥IP42	
4.6.6	Colour	RAL 7035 or equivalent. <i>(bidder to specify panel colour offered)</i>	
4.6.7	Cable entry	Bottom	
4.6.8	Operating and maintenance access	Front access	
4.6.7	Ventilation	Forced ventilation with individually monitored fans	
4.6.8	Number of cooling fans	N+1 ventilation fans per converter <i>(bidder to specify cooling configuration)</i>	
4.6.9	UPS Panel dimensions	–	–
4.6.9.1	Height	≤2200 mm & ≥1800 mm	
4.6.9.2	Width	≤1200 mm & ≥600 mm	
4.6.9.3	Length	≤800 mm & ≥600 mm	
4.6.10	Lifting Eyes	Must be included <i>(bidder to state compliance and indicate any deviation)</i>	
4.6.11	UPS design life	≥20 years	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.7	DESIGN AND TEST STANDARDS	–	–
4.7.1	Safety	IEC / EN 62040-1	
4.7.2	Electromagnetic compatibility	IEC / EN 62040-2	
4.7.3	Performance	IEC / EN 62040-3	
4.7.4	Environmental aspects	IEC/EN 62040-4	
4.7.5	Manufacturing	ISO 9001:2015, ISO 14001:2015, OHSAS 18001	
4.8	GALVANIC ISOLATION TRANSFORMER	–	–
4.8.1	Isolating transformer at Rectifier input	Must be included <i>(bidder to state compliance)</i>	
4.8.2	Isolating transformer at Inverter output	Must be included <i>(bidder to state compliance)</i>	
4.9	Integrated back feed protection	To be offered <i>(bidder to state compliance and indicate any deviation)</i>	
4.10	INDUSTRIAL HMI INTERFACE	–	–
4.10.1	HMI features	HMI unit shall have a graphical display, control push keys, UPS operating status indication and programmable alarm section <i>(bidder to state compliance and indicate any deviation)</i>	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.11	CONTROLLER INTERFACE TO EMPLOYER SCADA	–	–
4.11.1	Modbus TCP/IP with Ethernet port	UPS shall have an RJ45 ethernet port supporting fast ethernet and Modbus TCP. Modbus register configuration to provided. <i>(bidder to state compliance and indicate any deviation)</i>	
4.11.2	Modbus RS-485 with terminal connection	Serial output port (RJ45/DB9) or terminal connections supporting Modbus RTU shall be provided. Modbus register configuration to provided. <i>(bidder to state compliance and indicate any deviation)</i>	
4.11.3	Detailed Configuration manual	Must be provided after tender award <i>(bidder to state compliance and indicate any deviation)</i>	
4.12	USER CONFIGURABLE (RELAY) INPUTS/ OUTPUTS	–	–
4.12.1	Available potential free, 24V DC or 110V DC, optically isolated, user configurable, digital Inputs	≥ Three (3)	
4.12.2	Available potential free, 24-250V DC/AC, 3A, galvanically isolated, user	≥ Five (5)	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
	configurable, digital Outputs		
4.13	ALARM LED INDICATIONS	–	–
4.13.1	Number of LED indications to be offered	≥ Eight (8)	
4.13.2	Configured LED's	The following LED indications to be configured a) Mains input failure b) Battery Low c) Battery discharged d) Battery disconnected e) MBS Closed f) Over temperature g) UPS module Fan failure h) user configurable spare <i>(bidder to state compliance and indicate any deviation)</i>	
4.14	PROTECTION FUNCTIONS	–	–
4.14.1	UPS protective functions	The following UPS protection functions shall be provided 1. Manual bypass switch closed 2. Over temperature 3. Fan failure 4. Main input failure 5. Bypass operation 6. Battery operation 7. Battery low	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
		8. Battery disconnected 9. Input breaker opened 10. Bypass breaker opened 11. MBS closed 12. Overload 13. Common alarm <i>(bidder to state compliance and indicate any deviation)</i>	
4.14.2	Protective functions Interfacing	a. Operation of any of the above protection function shall be indicated on the UPS HMI and shall have a Modbus register configured for remote indication. b. Each of the protective function can be configured in the digital outputs for hardwiring by employer. <i>(bidder to state compliance and indicate any deviation)</i>	
4.15	BATTERY CHARGER	–	–
4.15.1	Battery charger rating	To be sized for a full battery recharge from 20% -100% SoC in eight hours with full load (20KVA@0.99pf) connected to the UPS AC output. <i>(bidder to state the charger rating (voltage, Current, power output) to</i>	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
		<i>proof compliance with this requirement)</i>	
4.15.2	Battery charger voltage rating (V)	<i>Bidder to state</i>	
4.15.3	Battery charger current rating (A)	<i>Bidder to state</i>	
4.16	BATTERIES	–	–
4.16.1	Safety standard compliance	IEC/EN 60068-2-32	
4.16.2		IEC 60695-11-10	
4.16.3	Performance standard compliance	IEC 60896 - 22	
4.16.4	Testing standard	IEC 60896 - 21	
4.16.5		IEC 61056-1	
4.16.6	Battery type	Industrial VRLA Battery	
4.16.7	Battery Nominal Voltage (V)	12V <i>(2V batteries allowed if offered)</i>	
4.16.8	Ampere-Hour Rating @ 20°C	<i>Bidder to state</i>	
4.16.9	Battery temperature sensor	Must be provided <i>(bidder to state compliance and indicate any deviation)</i>	
4.16.10	Temperature compensation	To be provided <i>(bidder to state compliance and indicate any deviation)</i>	
4.16.11	Guaranteed battery operating life at 20°C temperature	>Ten (10) years	

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



KGN-HYD-051-2018 - ADDENDUM 2

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.16.12	Battery Autonomy @20KVA, 0.99Pf & 80% max battery DoD for Kamburu UPS 1	≥Four (4) hours (100KWH)	
4.16.13	Battery Autonomy @20KVA, 0.99Pf & 80% max battery DoD for Kamburu UPS 2	≥Two (2) hours (50KWH)	
4.16.14	Battery Autonomy @20KVA, 0.99Pf & 80% max battery DoD for Kindaruma UPS	≥Two (2) hours (50KWH)	
4.16.15	Battery Autonomy @20KVA, 0.99Pf & 80% max battery DoD for Masinga UPS 2	≥Two (2) hours (50KWH)	
4.16.16	Number of Batteries for two-hour Autonomy (@20KVA, 0.99Pf & 80% max battery DoD) battery bank (50KWH)	<i>Bidder to state</i>	
4.16.17	Number of Batteries for one-hour Autonomy (@20KVA, 0.99Pf & 80% max battery DoD) battery bank (25KWH)	<i>Bidder to state</i>	
4.17	TYPE TEST	—	—

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
4.17.1	Basic requirement	UPS on offer has been type tested by an EU/USA/Canadian National Standards and Testing Authority (NSTA) or by a third party (not manufacturer or manufacturer subsidiary) Reputable Testing Authority accredited by EU/USA/Canadian National Standards and Testing Authority (NSTA). <i>(Bidder to state compliance)</i>	
4.17.2	Type test report for UPS	Copy of type test reports & certificates in accordance to IEC/EN 62040-3 for tests conducted by an EU/USA/Canadian National Standards and Testing Authority (NSTA) or by a third party (not manufacturer or manufacturer subsidiary) Reputable Testing Authority accredited by EU/USA/Canadian National Standards and Testing Authority (NSTA) MUST be provided with the bid offer. <i>(bidder to state compliance and attach the type test report, type test report MUST be attached for offer to meet this requirement)</i>	
4.18	OTHER FEATURES & REQUIREMENTS	–	–
4.18.1	Panel earthing	Must be carried out during installation	

REF	DESCRIPTION	EMPLOYER MINIMUM REQUIREMENT	TENDERER'S GUARANTEED OFFER
		<i>(bidder to state compliance and indicate any deviation)</i>	
4.18.2	Cold start	To be supported by UPS <i>(bidder to state compliance and indicate any deviation)</i>	
4.18.3	Schematic drawings interfaced to employer drawings	Must be provided after tender award <i>(bidder to state compliance and indicate any deviation)</i>	
4.18.4	Detailed assembly, installation and service manuals	Must be provided after tender award <i>(bidder to state compliance and indicate any deviation)</i>	
4.18.5	Assembly, installation and layout drawings; Typical UPS panel schematic drawing and UPS single line drawing.	Must be provided with the bid <i>(bidder to state compliance and attach the drawings. Drawings MUST be attached for offer to meet this requirement)</i>	
4.18.6	Battery capability test at site	Must be carried out during commissioning. <i>(bidder to state compliance and indicate any deviation)</i>	

LOT 1 PRICE SCHEDULES

5. LOT 1 PRICE SCHEDULES

5.1. UPS Systems Price Schedule

NO.	Item Description	UOM	Quantity	Basic Unit Price exclusive all tax and other levies Taxes and other levies (specify)	Unit Price incl. of all taxes & levies	Total Price inclusive of all levies/ Taxes
5.1	Kamburu UPS 1 (Delivered to Kamburu)	-	-	-	-	-
5.1.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI and all components as specified in the tender and technical schedules	Unit	One			
5.1.2	Battery bank complete with panel, isolators, 50KWH long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two			
5.2	Kamburu UPS 2 (Delivered to Kamburu)	-	-	-	-	-
5.2.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI and all components as specified in the tender and technical schedules	Unit	One			
5.2.2	Battery bank complete with panel, isolators, 25KWH long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two			
5.3	Kindaruma UPS (Delivered to Kindaruma)	-	-	-	-	-
5.3.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI	Unit	One			

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



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NO.	Item Description	UOM	Quantity	Basic Unit Price exclusive all tax and other levies Taxes and other levies (specify)	Unit Price incl. of all taxes & levies	Total Price inclusive of all levies/ Taxes
	and all components as specified in the tender and technical schedules					
5.3.2	Battery bank complete with panel, isolators, 25KWH long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two			
5.4	Masinga UPS (delivered to Masinga)	—	—	—	—	—
5.4.1	20KVA complete industrial grade UPS with redundant 1+1 draw out converters, panel, HMI and all components as specified in the tender and technical schedules	Unit	One			
5.4.2	Battery bank complete with panel, isolators, 25KWH long life (10 year) VRLA batteries and all accessories and components as specified in the tender and technical schedules	Unit	Two			
5.5	Test equipment (delivered to Kamburu)	—	—	—	—	—
5.5.1	Battery Analyzer; Fluke BT521 plus accessories	Set	One			
5.5.1	Spectro CA-12 Battery Rapid Tester plus accessories	Set	One			
5.6	Other Accessories and Components	—	—	—	—	—
5.6.1	4X16mm sq. SWA (steel wire armour) Cable with electrolytic stranded copper conductor cores, coloured brown, black, grey and blue (standard IEC AC phases colours). To be used to connect the Battery banks to the UPS.	meters	300			

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



KGH-HYD-051-2018 - ADDENDUM 2

NO.	Item Description	UOM	Quantity	Basic Unit Price exclusive all tax and other levies Taxes and other levies (specify)	Unit Price incl. of all taxes & levies	Total Price inclusive of all levies/ Taxes
5.6.2	Cable connectors, lugs etc and all cable termination accessories for terminating existing AC supply and load cables and the new battery cables	lot	One			
5.6.3	Other accessories and Materials necessary to complete the installation and commissioning of the industrial UPS. (bidder to itemise if any)	lot	One			
5.7	SERVICES					
5.7.1	Engineering work Prior to Installation	Lot	One			
5.7.2	Factory acceptance tests	Lot	One			
5.7.3	Decommissioning of each existing UPS, Installation, Site testing and commissioning of each new UPS unit (inclusive of the battery banks)	Lot	Four			
5.7.4	Technical documentation	Lot	One			
5.7.5	Technical training of five (5) KenGen staff for at least five days locally (in Kenya)	Lot	One			
5.7.6	One-year warranty	Lot	One			
SUPPLY OF UPS'S TOTAL (Ksh.)						
Total VAT						
Total Other duties						
Withholding taxes						
TOTAL INCLUSIVE OF ALL TAXES (DDP)						

5.2. Batteries buy back Price offer

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



KGN-HYD-051-2018 - ADDENDUM 2

	Item Description	UOM	Quantity	Basic Unit Price	TOTAL PRICE
	BUYBACK OF BATTERIES				
5.2.1	Buy back of old battery banks Kindaruma power station	pcs	72		
5.2.2	Buy back of old battery banks Masinga power station	pcs	72		
5.2.3	Buy back of old battery banks Kamburu power station	pcs	108		
	Total no. of batteries	pcs	252		
	Total price Offer for buy back of Batteries (Ksh.)				

5.3. Total offer Price

	Amount (Ksh.)
SUPPLY OF UPS'S TOTAL (DDP)	
Less Total price Offer for buy back of Batteries	()
FINAL / DISCOUNTED OFFER PRICETAKEN TO FORM OF TENDER	

Delivery Period.....

Name: Signature:

Position in the Firm: Date:

LOT II PRICE SCHEDULES

6. LOT II PRICE SCHEDULES

6.1. UPS System Price Schedule

NO.	Item Description	UOM	Quantity	Basic Unit Price exclusive all tax and other levies Taxes and other levies (specify)	Unit Price incl. of all taxes & levies	Total Price inclusive of all levies/ Taxes
6.1	Gitaru Batteries (Delivered to Gitaru)	-	-	-	-	-
6.1.1	74Ah,12V long life (>10 years) VRLA batteries	Units	75			
6.1.2	Battery terminal connectors and cable lugs	sets	150			
6.1.3	Connecting cables, 25mm ² Single core electrolytic stranded copper conductor cables with red coloured sheath for battery terminations	meters	150			
6.2	Kiambere Batteries (Delivered to Kiambere)	-	-	-	-	-
6.2.1	74Ah,12V long life (>10 years) VRLA batteries	Units	75			
6.2.2	Battery terminal connectors and cable lugs	sets	150			
6.2.3	Connecting cables, 25mm ² Single core electrolytic stranded copper conductor cables with red coloured sheath for battery terminations	meters	150			
6.3	Turkwel Batteries (Delivered to Turkwel)	-	-	-	-	-
6.3.1	74Ah,12V long life (>10 years) VRLA batteries	Units	75			

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



KGN-HYD-051-2018 - ADDENDUM 2

NO.	Item Description	UOM	Quantity	Basic Unit Price exclusive all tax and other levies Taxes and other levies (specify)	Unit Price incl. of all taxes & levies	Total Price inclusive of all levies/ Taxes
6.3.2	Battery terminal connectors and cable lugs	sets	150			
6.3.3	Connecting cables, 25mm ² Single core electrolytic stranded copper conductor cables with red coloured sheath for battery terminations	meters	150			
6.4	Other Accessories and Components	-	-	-	-	-
6.4.1	Other accessories and Materials necessary to complete the installation and commissioning of the batteries. (bidder to itemise if any)	lot	1			
6.5	SERVICES					
6.5.1	Engineering work Prior to Installation	lot	1			
6.5.2	Acceptance tests	lot	1			
6.5.3	Removal of existing batteries and mounting the new batteries in the existing battery cabinets, carrying out termination of the new batteries to the existing panel connections for each station	lot	3			
6.5.4	One-year warranty	Lot	1			
SUPPLY OF BATTERIES TOTAL (Ksh.)						
Total VAT						
Total Other duties						
Withholding taxes						
TOTAL INCLUSIVE OF ALL TAXES (DDP)						

6.2. Batteries buy back Price offer

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



KGN-HYD-051-2018 - ADDENDUM 2

	Item Description	UOM	Quantity	Basic Unit Price	TOTAL PRICE
	BUYBACK OF BATTERIES				
5.2.1	Buy back of old battery banks Gitaru power station	pcs	72		
5.2.2	Buy back of old battery banks Kiambere power station	pcs	72		
5.2.3	Buy back of old battery banks Turkwel power station	pcs	72		
	Total no. of batteries	pcs	216		
	Total price Offer for buy back of Batteries (Ksh.)				

6.3. Total offer Price

	Amount (Ksh.)
SUPPLY OF SCADA BATTERIES TOTAL (DDP)	
Less Total price Offer for buy back of Batteries	()
FINAL / DISCOUNTED OFFER PRICETAKEN TO FORM OF TENDER	

Delivery Period.....

Name: Signature:

Position in the Firm: Date:

REVISED FORM OF TENDER

LOT I FORM OF TENDER

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF UNINTERRUPTIBLE POWER
SUPPLIES (UPSs) FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA,
KIAMBERE & TURKWEL POWER STATIONS

LOT I: UPS System

The Company Secretary & Legal Affairs Director
The Kenya Electricity Generating Company Limited PLC
P. O. Box 47936-00100
NAIROBI 00100
KENYA

Gentlemen and/or Ladies:

1. Having examined the Tender Documents including the Specification Drawings, Conditions of contract & Requirements, Specifications and Bill of Quantity Price Schedules for the execution of the above-named contract, the receipt of which is hereby duly acknowledged, we, the undersigned, hereby offer to execute, complete and remedy defects in the whole of the works in conformity with the said document for the sum

[Amount in figures]

[State currency]

[Amount in words]

2. We undertake, if our Tender is accepted, to complete the whole of the Works comprised in the contract within a period of _____ calendar months, subject to the said Conditions.
3. We agree to abide by this Tender for a period of 120 days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.
4. This Tender is submitted under our covering letter reference _____ dated



_____ and the complete tender documents and other information, required by the instructions to Tenderers, which are enclosed therewith all of which shall be read and construed as forming a part hereof.

5. Unless and until an agreement is prepared and executed, this Tender, your letter of Intent/Award, together with our written acceptance thereof, shall constitute a binding Contract between us.

6. If our Tender is accepted, we will furnish a Performance Security issued by a Bank (to be approved by you) to be jointly and severally bound with us in an amount of 10% of the above-named sum in accordance with the conditions of contract.

7. Commissions of gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and Address of agent	Amount and Currency	Purpose of Commission gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
(If none, state "none")		

8. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this..... day of.....2018.....

Signature.....in the capacity of

.....

Duly authorized to sign Bid for and on behalf of.....

.....

(In capital letters)

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



KGN-HYD-051-2018 - ADDENDUM 2

Witness.....

Address.....

.....

Occupation

Witness; Name _____ Signature _____

Note: In accordance with Clause 82 of the Public Procurement and Asset Disposal Act 2015

“The tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity.

LOT II FORM OF TENDER

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF UNINTERRUPTIBLE POWER SUPPLIES (UPSs) FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS

LOT II: SCADA UPS BATTERIES

The Company Secretary & Legal Affairs Director
The Kenya Electricity Generating Company Limited PLC
P. O. Box 47936-00100
NAIROBI 00100
KENYA

Gentlemen and/or Ladies:

1. Having examined the Tender Documents including the Specification Drawings, Conditions of contract & Requirements, Specifications and Bill of Quantity Price Schedules for the execution of the above-named contract, the receipt of which is hereby duly acknowledged, we, the undersigned, hereby offer to execute, complete and remedy defects in the whole of the works in conformity with the said document for the sum

[Amount in figures]

[State currency]

[Amount in words]

2. We undertake, if our Tender is accepted, to complete the whole of the Works comprised in the contract within a period of _____ calendar months, subject to the said Conditions.
3. We agree to abide by this Tender for a period of 120 days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted by you at any time before the expiration of that period.
4. This Tender is submitted under our covering letter reference _____ dated



_____ and the complete tender documents and other information, required by the instructions to Tenderers, which are enclosed therewith all of which shall be read and construed as forming a part hereof.

5. Unless and until an agreement is prepared and executed, this Tender, your letter of Intent/Award, together with our written acceptance thereof, shall constitute a binding Contract between us.

6. If our Tender is accepted, we will furnish a Performance Security issued by a Bank (to be approved by you) to be jointly and severally bound with us in an amount of 10% of the above-named sum in accordance with the conditions of contract.

7. Commissions of gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded this Bid, and to contract execution if we are awarded the contract, are listed below:

Name and Address of agent	Amount and Currency	Purpose of Commission gratuity
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

(If none, state "none")

8. We understand that you are not bound to accept the lowest or any tender you may receive.

Dated this..... day of.....2019.....

Signature.....in the capacity of

Duly authorized to sign Bid for and on behalf of.....

(In capital letters)

TENDER FOR SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF INDUSTRIAL UNINTERRUPTIBLE POWER SUPPLY SYSTEMS FOR KAMBURU & MASINGA AND SCADA UPS BATTERY BANKS FOR GITARU, KINDARUMA, KIAMBERE & TURKWEL POWER STATIONS.



KGN-HYD-051-2018 - ADDENDUM 2

Witness.....

Address.....

.....

Occupation

Witness; Name _____ Signature _____

Note: In accordance with Clause 82 of the Public Procurement and Asset Disposal Act 2015

“The tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in any way by any person or entity.



ACKNOWLEDGEMENT OF ADDENDUM NO 2.

We, the undersigned hereby certify that the Addendum is an integral part of the document and has been incorporated in the tender proposal.

Signed.....

Tenderer.....

Date.....