



**Kenya Electricity Generating Company Limited**

**KGN-HYD-013-2018**

**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**

***(RESERVED FOR YOUTH)***

**Kenya Electricity Generating Company Limited,  
Stima Plaza Phase III, Kolobot Road, Parklands,  
P.O. Box 47936,  
Nairobi, Kenya.**

**[www.kengen.co.ke](http://www.kengen.co.ke)**

**March 2018**

*Supply, Installation, Testing and Commissioning of SCADA UPS & UPS Battery Banks*

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## SECTION I; INVITATION TO TENDER

The Company invites sealed tenders from eligible YOUTH candidates for the “**Tender for Supply, Installation, Testing and Commissioning of Industrial Uninterruptible Power Supply Systems (UPS) For Kamburu & Masinga and Battery Banks for Gitaru, Kindaruma, and Kiambere & Turkwel Power Stations** whose specifications are detailed in the Tender Document.

Interested eligible candidates may obtain further information from and inspect the Tender Documents during official working hours starting at the date of advert at the office of:

Supply Chain Director

Tel: (254) (020) 3666000

Email: [tenders@kengen.co.ke](mailto:tenders@kengen.co.ke); Cc: [jmuoka@kengen.co.ke](mailto:jmuoka@kengen.co.ke); [anthonyk@kengen.co.ke](mailto:anthonyk@kengen.co.ke); [pogeto@kengen.co.ke](mailto:pogeto@kengen.co.ke); [dwangariria@kengen.co.ke](mailto:dwangariria@kengen.co.ke)

Where the tender document may be collected upon payment of a non-refundable fee of **KShs.1, 000.00** paid in cash or through a bankers cheque at any KenGen finance office. The document can also be viewed and downloaded from the website [www.kengen.co.ke](http://www.kengen.co.ke) and [www.suppliers.treasury.go.ke](http://www.suppliers.treasury.go.ke). Bidders who download the tender document from the website **are advised to forward their particulars to facilitate any subsequent tender clarifications and addenda**. Downloaded documents are free of charge.

Bidders are advised from time to time to be checking the website for any uploaded further information on this tender.

Unless otherwise stated, tenders must be submitted in a plain sealed envelope and marked “**Tender for Supply, Installation, Testing and Commissioning of Industrial Uninterruptible Power Supply Systems (UPS) For Kamburu & Masinga and Battery Banks for Gitaru, Kindaruma, Kiambere & Turkwel Power**” and addressed to:

Company Secretary & Legal Affairs Director  
Kenya Electricity Generating Company Limited  
7<sup>th</sup> Floor, Stima Plaza Phase III  
Kolobot Road, Parklands  
P O Box 47936 - 00100  
NAIROBI, KENYA

On or before: **26<sup>th</sup> April 2018 at 2.00 p.m.**

Tenders will be opened on **26<sup>th</sup> April 2018 at 2.30 p.m.** in the presence of the candidates’ representatives who choose to attend at Stima Plaza III, Executive Committee Room, 7<sup>th</sup> Floor. The company reserves the right to vary the quantities.

**SUPPLY CHAIN DIRECTOR**

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## SECTION II

### INSTRUCTIONS TO TENDERERS

#### 1. General

**1.1.** The Employer as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The successful Tenderer will be expected to complete the Works by the Intended Completion Date specified in the said Appendix.

**1.2.** Tenderers shall include the following information and documents with their tenders, unless otherwise stated:

- (a) Copies of certificates of registration, and principal place of business;
- (b) Total monetary value of construction work performed for each of the last five years;
- (c) Experience in works of a similar nature and size for each of the last five years, and clients who may be contacted for further information on these contracts;
- (d) Major items of construction equipment owned;
- (e) Qualifications and experience of key site management and technical personnel proposed for the Contract;
- (f) Reports on the financial standing of the Tenderer, such as profit and loss statements and auditor's reports for the last five years;
- (g) Authority to seek references from the Tenderer's bankers.

**1.3.** The Tenderer shall bear all costs associated with the preparation and submission of his tender, and the Employer will in no case be responsible or liable for those costs.

**1.4.** 1.4 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine the Site of the Works and its surroundings, and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Tenderer's own expense.

- 1.5. The procurement entity's employees, committee members, board members and their relative (spouse and children) are not eligible to participate in the tender.
- 1.6. The price to be charged for the tender document shall not exceed Kshs.1,000/= Downloaded documents will be free of charge. Bidders who download documents shall promptly notify the Procuring Entity.
- 1.7. The procuring entity shall allow the tenderer to view the tender document free of charge before purchase.

## **2. Tender Documents**

2.1. The complete set of tender documents comprises the documents listed here below and any addenda issued in accordance with clause 2.4 here below:-

- (a) These instructions to Tenderers
- (b) Form of Tender
- (c) Conditions of Contract and Appendix to Conditions of Contract
- (d) Specifications
- (e) Bills of Quantities/Schedule of Rates (whichever is applicable)
- (f) Other materials required to be filled and submitted in accordance with these Instructions and Conditions

2.2. The Tenderer shall examine all instructions, forms and specifications in the tender documents. Failure to furnish all information required by the tender documents may result in rejection of his tender.

2.3. A prospective Tenderer making inquiries of the tendering documents may notify the Employer in writing at the address indicated in the letter of invitation to tender. The Employer will respond to any request for clarification received earlier than seven [7] days prior to the deadline for submission of tenders. Copies of the Employer's response will be forwarded to all persons issued with tendering documents, including a description of the inquiry, but without identifying its source.

- 2.4.** Before the deadline for submission of tenders, the Employer may modify the tendering documents by issuing addenda. Any addendum thus issued shall be part of the tendering documents and shall be communicated in writing to all Tenderers. Prospective Tenderers shall acknowledge receipt of each addendum in writing to the Employer.
- 2.5.** To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their tenders, the Employer shall extend, as necessary, the deadline for submission of tenders in accordance with clause 4.2 here below.

### **3. Preparation of Tenders**

- 3.1.** All documents relating to the tender and any correspondence shall be in English Language.
- 3.2.** The tender submitted by the Tenderer shall comprise the following:-
- (a) The Tender;
  - (b) The Form of Tender
  - (c) Tender Security;
  - (d) Priced Bill of Quantities/Schedule of Rates for lump-sum contracts
  - (e) Any other materials required to be completed and submitted by Tenderers.
- 3.3.** The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities/Schedule of Rates. Items for which no rate or price is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the other rates and prices in the Bill of Quantities/Schedule of Rates. All duties, taxes and other levies payable by the Contractor under the Contract, as of 30 days prior to the deadline for submission of tenders, shall be included in the tender price submitted by the Tenderer.
- 3.4.** The rates and prices quoted by the Tenderer shall not be subject to any adjustment during the performance of the Contract.
- 3.5.** The unit rates and prices shall be in Kenya Shillings.

#### **4. Tender security - NOT APPLICABLE**

#### **5. Submission of Tenders**

**5.1.** The tender duly filled and sealed in an envelope shall;-

- (a) be addressed to the Employer at the address provided in the invitation to tender;
- [b] bear the name and identification number of the Contract as defined in the invitation to tender; and
- [c] provide a warning not to open before the specified time and date for tender opening.

**5.2.** Tenders shall be delivered to the Employer at the address specified above not later than the time and date specified in the invitation to tender.

**5.3.** The tenderer shall not submit any alternative offers unless they are specifically required in the tender documents.

**5.4.** Only one tender may be submitted by each tenderer. Any tenderer who fails to comply with this requirement will be disqualified.

**5.5.** Any tender received after the deadline for opening tenders will be returned to the tenderer un-opened.

**5.6.** The Employer may extend the deadline for submission of tenders by issuing an amendment in accordance with sub-clause 2.5 in which case all rights and obligations of the Employer and the Tenderers previously subject to the original deadline will then be subject to the new deadline.

## **6. Tender Opening and Evaluation**

- 6.1.** The tenders will be opened in the presence of the Tenderers' representatives who choose to attend at the time and in the place specified in the invitation to tender.
- 6.2.** The Tenderers' names, the total amount of each tender and such other details as may be considered appropriate, will be announced at the opening by the Procuring Entity. Minutes of the tender opening, including the information disclosed to those present will also be prepared by the Procuring Entity.
- 6.3.** Information relating to the examination, clarification, evaluation and comparison of tenders and recommendations for the award of the Contract shall not be disclosed to Tenderers or any other persons not officially concerned with such process until the award to the successful Tenderer has been announced. Any effort by a Tenderer to influence the Employer's officials, processing of tenders or award decisions may result in the rejection of his tender.
- 6.4.** Tenders determined to be substantially responsive will be checked for any arithmetic errors. Errors will be corrected as follows:
- (a) Where there is a discrepancy between the amount in figures and the amount in words, the amount in words will prevail; and
  - (b) where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will prevail, unless in the opinion of the Employer's representative, there is an obvious typographical error, in which case the adjustment will be made to the entry containing that error.
  - (c) In the event of a discrepancy between the tender amount as stated in the Form of Tender and the corrected tender figure in the main summary of the Bill of Quantities/Quotation, the amount as stated in the Form of Tender shall prevail.



- (d) The Error Correction Factor shall be computed by expressing the difference between the tender amount and the corrected tender sum as a percentage of the Corrected Builder's Work (i.e. corrected tender sum less P.C. and Provisional Sums).
  - (e) The Error Correction Factor shall be applied to all Builder's Work (as a rebate or addition as the case may be) for the purposes of valuations for Interim Certificates and valuation of variations.
  - (f) The amount stated in the tender will be adjusted in accordance with the above procedure for the correction of errors and with concurrence of the Tenderer, shall be considered as binding upon the Tenderer. If the Tenderer does not accept the corrected amount, the tender may be rejected and the Tender Security forfeited.
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- 6.5.** The tender evaluation committee shall evaluate the tender within fifteen (15) days of the validity period from the date of opening the tender.
  - 6.6.** Contract price variations shall not be allowed for contracts not exceeding one year (12 months)
  - 6.7.** Where contract price variation is allowed, the valuation shall not exceed 25% of the original contract price.
  - 6.8.** Price variation requests shall be processed by the procuring entity within 30 days of receiving the request
  - 6.9.** Preference where allowed in the evaluation of tenders shall not exceed 15%
  - 6.10.** To assist in the examination, evaluation, and comparison of tenders, the Employer at his discretion, may request [in writing] any Tenderer for clarification of the tender, including breakdowns of unit rates. The request for clarification and the response shall be in writing or by cable, telex or facsimile but no change in the tender price or substance of the tender shall be sought, offered or permitted.
  - 6.11.** The Tenderer shall not influence the Employer on any matter relating to his tender from the time of the tender opening to the time the Contract is awarded. Any effort by the Tenderer to influence the Employer or his employees in his decision on tender evaluation, tender comparison or Contract award may result in the rejection of the tender.

## **7. Award of Contract**

- 7.1.** The award of the Contract will be made to the Tenderer who has offered the lowest evaluated tender price.
- 7.2.** Notwithstanding the provisions of clause 6.1 above, the Employer reserves the right to accept or reject any tender and to cancel the tendering process and reject all tenders at any time prior to the award of Contract without thereby incurring any liability to the affected Tenderer or Tenderers or any obligation to inform the affected Tenderer or Tenderers of the grounds for the action.
- 7.3.** The Tenderer whose tender has been accepted will be notified of the award prior to expiration of the tender validity period in writing. This notification (hereinafter and in all Contract documents called the “Letter of Acceptance”) will state the sum [hereinafter and in all Contract documents called the “Contract Price” which the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract. The contract shall be formed on the parties signing the contract. At the same time the other tenderers shall be informed that their tenders have not been successful.
- 7.4.** The Contract Agreement will incorporate all agreements between the Employer and the successful Tenderer. It will be signed by the Employer and sent to the successful Tenderer, within 30 days following the notification of award. Within 21 days of receipt, the successful Tenderer will sign the Agreement and return it to the Employer.
- 7.5.** Within fifteen (15) days after receipt of the Letter of Acceptance, the successful Tenderer shall deliver to the Employer a Performance Security amount stipulated in the Appendix to Conditions of Contract.
- 7.6.** The parties to the contract shall have it signed within 30 days from the date of notification of contract award unless there is an administrative review request.

- 7.7. The procuring entity may at any time terminate procurement proceedings before contract award and shall not be liable to any person for the termination.

**Corrupt and fraudulent practices**

- 7.8. The procuring entity requires that the tenderer observes the highest standard of ethics during the procurement process and execution of the contract. A tenderer shall sign a declaration that he has not and will not be involved in corrupt and fraudulent practices.
- 7.9. The procuring entity will reject a tender if it determines that the tenderer recommended for award has engaged in corrupt and fraudulent practices in competing for the contract in question.
- 7.10. Further a tenderer who is found to have indulged in corrupt and fraudulent practices risks being debarred from participating in public procurement in Kenya.

## APPENDIX TO INSTRUCTIONS TO TENDERERS

The following information for procurement of small works shall complement or amend the provisions of the instructions to tenderers.

Wherever there is a conflict between the provisions of the instructions to tenderers and the provisions of the appendix, the provisions of the appendix herein shall prevail over those of the instructions to tenderers

TDS Ref. No	ITT Clause No	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers
<b>A. INTRODUCTION</b>		
1	1.1	<p>The “Procuring Entity” also called Employer is:-  <b>KENYA ELECTRICITY GENERATING COMPANY LIMITED</b>                      Stima Plaza Phase III, Kolobot Road,                      P.O. Box 47936 - 00100                      NAIROBI, KENYA.                      Tel: +254 2 3666000                      Email: <a href="mailto:tenders@kengen.co.ke">tenders@kengen.co.ke</a>;                      Cc: <a href="mailto:jtheuri@kengen.co.ke">jtheuri@kengen.co.ke</a></p>
	1.1	<p>The name and identification of the tender is:  <b>Tender For Supply, Installation, Testing And Commissioning Of Uninterruptible Power Supplies (Ups) For Kamburu &amp; Masinga And UPS Battery banks For Gitaru, Kindaruma, Kiambere &amp; Turkwel Power Stations</b></p> <p>The tender number is: <b>KGN-HYD-013-2018</b>                      Date and Time for submission is:  <b>Date: 26<sup>th</sup> April 2018</b>  <b>Time: 2.00 p.m.</b></p>
	1.3	<p><b>SITE VISIT</b></p> <p>There shall be a <b>mandatory</b> site visit on. <b>11.04.2018</b> as from <b>10.00 a.m.</b> at Kamburu Power Station and then at Masinga Power Stations and a pre-bid meeting thereafter at Masinga.</p>

TDS Ref. No	ITT Clause No	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers
		Bidders shall cater for their own transport, accommodation, meals etc and any other necessary costs incurred during site visit
<b>B. TENDERING DOCUMENTS</b>		
2	2.1	The number of documents to be completed and returned with the tender is: <b>one (1) original and two (2) copies.</b>
	2.3	<p><b>CLARIFICATIONS</b></p> <p>Further information and/or clarification may also be obtained from the Employer’s representative at the following address: -</p> <p><b>Supply Chain Director</b>  Kenya Electricity Generating Company Limited  Ground Floor, Stima Plaza, Phase III; Kolobot Road, Parklands  P O Box 47936 - 00100  NAIROBI, KENYA  Email; <a href="mailto:tenders@kengen.co.ke">tenders@kengen.co.ke</a>;  Cc: <a href="mailto:fmakau@kengen.co.ke">fmakau@kengen.co.ke</a> ;  <a href="mailto:jtheuri@kengen.co.ke">jtheuri@kengen.co.ke</a>;  <a href="mailto:pogeto@kengen.co.ke">pogeto@kengen.co.ke</a>  <a href="mailto:dwangariria@kengen.co.ke">dwangariria@kengen.co.ke</a></p>
<b>C. PREPARATION OF TENDERS</b>		
3	3.1	Language of Tender and all correspondence shall be <i>English</i> .
	3.2	List of documents required to be submitted with the tender: <ul style="list-style-type: none"> <li>a. The Form of Tender;</li> <li>b. Tender Security;</li> <li>c. Price Schedules;</li> <li>d. Written confirmation authorizing the signatory of the Tender to commit the Tenderer</li> </ul>
	3.5	The currency in which the prices shall be quoted shall be: <i>Kenya Shillings</i> or in any freely convertible currencies.
	3.5	The authority for establishing the rates of exchange shall be Central Bank of Kenya.

TDS Ref. No	ITT Clause No	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers
		The applicable date for exchange rates for tendering and evaluation purposes is the exchange rate at the tender closing date.
	3.7	Tender shall remain valid for a period of <b>120 days</b> from the specified date of tender opening.
<b>D. SUBMISSION OF TENDERS</b>		
4	4.1	Tenders shall be addressed to : <b>The Company Secretary &amp; Legal Affairs Director Kenya Electricity Generating Company Limited 10<sup>th</sup> Floor, Pension Plaza Phase 1 Kolobot Road, Parklands P.O. Box 47936-00100 Nairobi, Kenya</b>
	4.2	Any extension of the deadline for submission of Tenders shall be made not later than <b>five (5)</b> days before the expiry of the tender deadline.
5	5.1	Evaluation Criteria <b>A) Preliminary/Mandatory Evaluation</b> a) Duly completed Bill of Quantities, Signed, and Stamped with date on every page. b) Duly completed Tender Forms, Signed and stamped with date. c) Copy of certificate of incorporation /Registration. d) Duly filled business mandatory confidential business questionnaires provided e) valid manufacturer authorisation duly filled and signed by manufacturer f) Pagination/serialization of all pages of the bid document g) Duly completed and signed Mandatory site visit certificate h) The Tender has been signed by the person lawfully authorized to do so; i) Copy of Valid Tax Compliance Certificate j) Completeness of Tender – submission of the required number of copies, sequential organization of the bid document k) Duly filled Tender Securing Declaration form

TDS Ref. No	ITT Clause No	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers																															
		<p><b>Note:</b></p> <p>Only tenders which meet the preliminary requirements shall be subjected to technical evaluation and shall not subsequently be made responsive by the tenderer correcting the nonconformity</p> <p><b>(B) Technical Evaluation</b></p> <table border="1" data-bbox="493 646 1247 1898"> <thead> <tr> <th data-bbox="500 646 537 842">Item</th> <th data-bbox="542 646 743 842">Description</th> <th data-bbox="748 646 1240 842">Requirement</th> <th data-bbox="1245 646 1419 842">Bidder compliance (yes/no)</th> </tr> </thead> <tbody> <tr> <td data-bbox="500 848 537 1898">1</td> <td data-bbox="542 848 743 1898">Compliance to Specification</td> <td data-bbox="748 848 1240 995">All UPS equipment and Battery banks offered shall comply fully with the tender specifications.</td> <td data-bbox="1245 848 1419 995"></td> </tr> <tr> <td data-bbox="500 1001 537 1199"></td> <td data-bbox="542 1001 743 1199"></td> <td data-bbox="748 1001 1240 1199">All entries in the TENDERER'S OFFER column have been filled <i>Any empty cell/entry shall lead to rejection of the bid.</i></td> <td data-bbox="1245 1001 1419 1199"></td> </tr> <tr> <td data-bbox="500 1205 537 1451"></td> <td data-bbox="542 1205 743 1451"></td> <td data-bbox="748 1205 1240 1451">All items in the schedules of requirements have been supported by manufacturer technical datasheets, catalogues and signed statement of compliance by the bidder</td> <td data-bbox="1245 1205 1419 1451"></td> </tr> <tr> <td data-bbox="500 1457 537 1604"></td> <td data-bbox="542 1457 743 1604"></td> <td data-bbox="748 1457 1240 1604">Bidder meets or exceeds all the requirements in the schedules of requirements</td> <td data-bbox="1245 1457 1419 1604"></td> </tr> <tr> <td data-bbox="500 1610 537 1709"></td> <td data-bbox="542 1610 743 1709"></td> <td data-bbox="748 1610 1240 1709">All items in the price schedule have been quoted for</td> <td data-bbox="1245 1610 1419 1709"></td> </tr> <tr> <td data-bbox="500 1715 537 1898"></td> <td data-bbox="542 1715 743 1898"></td> <td data-bbox="748 1715 1240 1898">The offered UPS shall be Industrial designed for industrial environment of: temperature 5°C - 40°C continuous, humidity ≥90%, altitude ≥1000m</td> <td data-bbox="1245 1715 1419 1898"></td> </tr> </tbody> </table>				Item	Description	Requirement	Bidder compliance (yes/no)	1	Compliance to Specification	All UPS equipment and Battery banks offered shall comply fully with the tender specifications.				All entries in the TENDERER'S OFFER column have been filled <i>Any empty cell/entry shall lead to rejection of the bid.</i>				All items in the schedules of requirements have been supported by manufacturer technical datasheets, catalogues and signed statement of compliance by the bidder				Bidder meets or exceeds all the requirements in the schedules of requirements				All items in the price schedule have been quoted for				The offered UPS shall be Industrial designed for industrial environment of: temperature 5°C - 40°C continuous, humidity ≥90%, altitude ≥1000m	
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				without derating and vibration 0.2g. standards	
		3	Evidence of after sales support and warranty services	Attach manufacturers' statement of commitment to extend warranty for the equipment to be supplied.	
		4	Method statement and programme of works	<p>Bidder shall submit comprehensive method statement on how the works will be implemented and a complete program of works. The method statement shall cover: -</p> <ul style="list-style-type: none"> <li>• Preliminary works</li> <li>• UPS and Battery banks installation works.</li> <li>• Test and Commissioning procedures.</li> <li>• Safety arrangement</li> <li>• Waste management</li> </ul>	
				Submitted programme of works is complete, covers all items of the requirements and fits the offered delivery time	
				The method statements are comprehensive and pragmatic	
				Delivery time does not exceed nine months	
		5	Qualified full time Technical Staff.	<p>1. project Manager with Degree /Higher National Diploma and minimum 5 years' experience in similar works</p> <p>2. Site supervisor with Diploma</p>	



TDS Ref. No	ITT Clause No	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers			
				<p>Certificate and at least 5 years' experience in similar works.</p> <p>CVs should be signed by authorized representative of the bidder. The CVs should include mobile telephone and email contacts of the staff. KenGen will verify information given.</p>	
		6	Others	<p>Availability of Liquid assets and access to lines of credit for this project or other financial resources from bidders bankers</p>	
		7	Manufacturer Authorisation	<p>Valid, authentic and signed manufacturer authorisation has been provided for the following</p> <ol style="list-style-type: none"> <li>1. Complete Industrial UPS system</li> <li>2. VRLA industrial type long life batteries</li> </ol>	
		8	Warranty	<p>1-year warranty from date of commissioning.</p>	
<p><i>The Technical Evaluation will be based on compliance with the technical specifications (General and Specific) and will follow a "PASS/FAIL" evaluation criteria.</i></p>					
<ul style="list-style-type: none"> <li>• <b>Financial Evaluation</b> <ul style="list-style-type: none"> <li>➤ <i>This will take into account the TENDERER'S tender price after subjecting the bid to preliminary and technical evaluation.</i></li> <li>➤ <i>An examination of the TENDERER'S quoted price competitiveness and a determination that the quoted price is fair and reasonable, and a comparison with the known current market rates</i></li> <li>➤ <i>The financial evaluation will also take into account, in addition to the tender price and the price of incidental services, the following factors:</i></li> </ul> </li> </ul>					

TDS Ref. No	ITT Clause No	Amendments of, and Supplements to, Clauses in the Instruction to Tenderers
		<p style="text-align: center;">(a) <i>deviations in payment schedule from that specified in the Special Conditions of Contract;</i></p> <p style="text-align: center;">(b) <i>The cost of components, maintenance, and service;</i></p> <p><i>At the conclusion of the financial evaluation, KenGen will seek to establish the substantially responsive tender that will be determined to be the lowest evaluated, provided further that the tenderer is determined to be qualified to perform the contract satisfactorily.</i></p>

## **SECTION III**

### **CONDITIONS OF CONTRACT**

#### Table of Clauses

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6. WORK PROGRAM AND SUB-CONTRACTING
7. THE SITE
8. INSTRUCTIONS
9. EXTENSION OF COMPLETION DATE
10. MANAGEMENT MEETINGS
11. DEFECTS
12. BILLS OF QUANTITIES/SCHEDULE OF RATES
13. VARIATIONS

14. PAYMENT CERTIFICATES AND FINAL ACCOUNT
15. INSURANCES
16. LIQUIDATED DAMAGES
17. COMPLETION AND TAKING OVER
18. TERMINATION
19. PAYMENT UPON TERMINATION
20. CORRUPT GIFTS AND PAYMENTS OF COMMISSION
21. SETTLEMENT OF DISPUTES
22. TAXES
23. APPENDIX TO CONDITIONS OF CONTRACT

## 1. **Definitions**

1.1 In this Contract, except where context otherwise requires, the following terms shall be interpreted as indicated;

“Bills of Quantities” means the priced and completed Bill of Quantities forming part of the tender [where applicable].

“Schedule of Rates” means the priced Schedule of Rates forming part of the tender [where applicable].

“The Completion Date” means the date of completion of the Works as certified by the Employer’s Representative.

“The Contract” means the agreement entered into by the Employer and the Contractor as recorded in the Agreement Form and signed by the parties.

“The Contractor” refers to the person or corporate body whose tender to carry out the Works has been accepted by the Employer.

“The Contractor’s Tender” is the completed tendering document submitted by the Contractor to the Employer.

“The Contract Price” is the price stated in the Notification of award.

“Days” are calendar days; “Months” are calendar months.

“A Defect” is any part of the Works not completed in accordance with the Contract.

“The Defects Liability Certificate” is the certificate issued by Employer’s Representative upon correction of defects by the Contractor.

“The Defects Liability Period” is the period named in the Appendix to Conditions of Contract and calculated from the Completion Date.

“Drawings” include calculations and other information provided or approved by the Employer’s Representative for the execution of the Contract.

“Employer” means Kenya Electricity Generating Company Limited and is the party who employs the Contractor to carry out the Works.

“Equipment” is the Contractor’s machinery and vehicles brought temporarily to the Site for the execution of the Works.

“Site” means the place or places where the permanent Works are to be carried out including workshops where the same is being prepared.

“Materials” are all supplies, including consumables, used by the Contractor for incorporation in the Works.

“Employer’s Representative” is the person appointed by the Employer and notified to the Contractor for the purpose of supervision of the Works.

“Specification” means the Specification of the Works included in the Contract.

“Start Date” is the date when the Contractor shall commence execution of the Works.

“ A Subcontractor” is a person or corporate body who has a Contract with the Contractor to carry out a part of the Work in the Contract, which includes Work on the Site.

“Temporary works” are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

“ A Variation” is an instruction given by the Employer’s Representative which varies the Works.

“The Works” are what the Contract requires the Contractor to construct, install, and turnover to the Employer.

## **2. Contract Documents**

2.1 The following documents shall constitute the Contract documents and shall be interpreted in the following order of priority;

- (1) Contract Agreement,
- (2) Notification of award
- (3) Letter of Acceptance,
- (4) Conditions of Contract
- (5) Technical Specifications
- (6) Drawings,
- (7) Bills of Quantities or Schedule of Rates [whichever is applicable)
- (8) Contractor's Tender,
- (9) Applicable Addenda and Clarifications

### 3. Employer's Representative's Decisions

3.1 Except where otherwise specifically stated, the Employer's Representative will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

### 4. Works, Language and Law of Contract

4.1 The Contractor shall construct and install the Works in accordance with the Contract documents. The Works may commence on the Start Date and shall be carried out in accordance with the Program submitted by the Contractor, as updated with the approval of the Employer's Representative, and complete them by the Intended Completion Date.

4.2 The ruling language of the Contract shall be English language and the law governing the Contract shall be the law of the Republic of Kenya.



## 5. Safety, Temporary works and Discoveries

5.1 The Contractor shall be responsible for design of temporary works and shall obtain approval of third parties to the design of the temporary works where required.

5.2 The Contractor shall be responsible for the safety of all activities on the Site.

5.3 Anything of historical or other interest or significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Employer's Representative of such discoveries and carry out the Employer's Representative's instructions for dealing with them.

## 6 Work Program and Sub-contracting

6.1 Within seven days after Site possession date, the Contractor shall submit to the Employer's Representative for approval a program showing the general methods, arrangements, order and timing for all the activities in the Works.

6.2 The Contractor may sub-contract the Works (but only to a maximum of 25 percent of the Contract Price) with the approval of the Employer's Representative. However, he shall not assign the Contract without the approval of the Employer in writing. Sub-contracting shall not alter the Contractor's obligations.

## 7 The site

7.1 The Employer shall give possession of all parts of the Site to the Contractor.

7.2 The Contractor shall allow the Employer's Representative and any other person authorised by the Employer's Representative, access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

## 8 Instructions

8.1 The Contractor shall carry out all instructions of the Employer's Representative which are in accordance with the Contract.

## 9 Extension of Completion Date

9.1 The Employer's Representative shall extend the Completion Date if an occurrence arises which makes it impossible for completion to be achieved by the Intended Completion Date. The Employer's Representative shall decide whether and by how much to extend the Completion Date.

9.2 For the purposes of this clause, the following occurrences shall be valid for consideration;

Delay by:-

- (a) force majeure, or
- (b) reason of any exceptionally adverse weather conditions, or
- (c) reason of civil commotion, strike or lockout affecting any of the trades employed upon the Works or any of the trades engaged in the preparation, manufacture or transportation of any of the goods or materials required for the Works, or
- (d) reason of the Employer's Representative's instructions issued under these Conditions, or
- (e) reason of the contractor not having received in due time necessary instructions, drawings, details or levels from the Employer's Representative for which he specifically applied in writing on a date which having regard to the date for Completion stated in the appendix to these Conditions or to any extension of time then fixed under this clause was neither unreasonably

distant from nor unreasonably close to the date on which it was necessary for him to receive the same, or

- (f) delay on the part of artists, tradesmen or others engaged by the Employer in executing work not forming part of this Contract, or
- (g) reason of delay by statutory or other services providers or similar bodies engaged directly by the Employer, or
- (h) reason of opening up for inspection of any Work covered up or of the testing or any of the Work, materials or goods in accordance with these conditions unless the inspection or test showed that the Work, materials or goods were not in accordance with this Contract, or
- (i) reason of delay in appointing a replacement Employer's Representative, or
- (j) reason of delay caused by the late supply of goods or materials or in executing Work for which the Employer or his agents are contractually obliged to supply or to execute as the case may be, or
- (k) delay in receiving possession of or access to the Site.

## 10 Management Meetings

10.1 A Contract management meeting shall be held regularly and attended by the Employer's Representative and the Contractor. Its business shall be to review the plans for the remaining Work. The Employer's Representative shall record the business of management meetings and provide copies of the record to those attending the meeting and the Employer. The responsibility of the parties for actions to be taken shall be decided by the Employer's Representative either at the management meeting or after the management meeting and stated in writing to all who attend the meeting.

10.2 Communication between parties shall be effective only when in writing.

## 11 Defects

11.1 The Employer's Representative shall inspect the Contractor's work and notify the Contractor of any defects that are found. Such inspection shall not affect the Contractor's responsibilities. The Employer's Representative may instruct the Contractor to search for a defect and to uncover and test any Work that the Employer's Representative considers may have a defect. Should the defect be found, the cost of uncovering and making good shall be borne by the Contractor. However if there is no defect found, the cost of uncovering and making good shall be treated as a variation and added to the Contract Price.

11.2 The Employer's Representative shall give notice to the Contractor of any defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the Appendix to Conditions of Contract.

11.3 Every time notice of a defect is given, the Contractor shall correct the notified defect within the length of time specified by the Employer's Representative's notice. If the Contractor has not corrected a defect within the time specified in the Employer's Representative's notice, the Employer's Representative will assess the cost of having the defect corrected by other parties and such cost shall be treated as a variation and be deducted from the Contract Price.

## 12 Bills of Quantities/Schedule of Rates

12.1 The Bills of Quantities/Schedule of Rates shall contain items for the construction, installation, testing and commissioning of the Work to be done by the Contractor.

The Contractor will be paid for the quantity of the Work done at the rates in the Bills of Quantities/Schedule of Rates for each item. Items against which no rate is entered by the Tenderer will not be paid for when executed and shall be deemed covered by the rates for other items in the Bills of Quantities/Schedule of Rates.

12.2 Where Bills of Quantities do not form part of the Contract, the Contract Price shall be a lump sum (which shall be deemed to have been based on the rates in the Schedule of Rates forming part of the tender) and shall be subject to re-measurement after each stage.

### 13 Variations

13.1 The Contractor shall provide the Employer's Representative with a quotation for carrying out the variations when requested to do so. The Employer's Representative shall assess the quotation and shall obtain the necessary authority from the Employer before the variation is ordered.

13.2 If the Work in the variation corresponds with an item description in the Bill of Quantities/Schedule of Rates, the rate in the Bill of Quantities/Schedule of Rates shall be used to calculate the value of the variation. If the nature of the Work in the variation does not correspond with items in the Bill of Quantities/Schedule of Rates, the quotation by the Contractor shall be in the form of new rates for the relevant items of Work.

13.3 If the Contractor's quotation is unreasonable, the Employer's Representative may order the variation and make a change to the Contract Price, which shall be based on the Employer's Representative's own forecast of the effects of the variation on the Contractor's costs.

### 14 Payments

14.1 Payments shall be made promptly by Kenya Electricity Generating Company Limited, but

subject to a 30day credit period effective from the date of issue of completion certificate for the works.

## 15. Insurance

15.1 The Contractor shall be responsible for and shall take out appropriate cover against, among other risks, personal injury; loss of or damage to the Works, materials and plant; and loss of or damage to property.

## 16. Liquidated Damages

16.1 The Contractor shall pay liquidated damages to the Employer at the rate 0.001 per cent of the Contract price per day for each day that the actual Completion Date is later than the Intended Completion Date except in the case of any of the occurrences listed under clause 9.2. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.

## 17. Completion and Taking Over

17.1 Upon deciding that the Work is complete the Contractor shall request the Employer's Representative to issue a Certificate of Completion of the Works, upon deciding that the Work is completed.

The Employer shall take over the Site and the Works within seven days of the Employer's Representative issuing a Certificate of Completion.

## 18. Termination

18.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract. These fundamental breaches of Contract shall include, but shall not be limited to, the following;

- (a) the Contractor stops Work for 30 days continuously without reasonable cause or authority from the Employer's Representative;
- (b) the Contractor is declared bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
- (c) a payment certified by the Employer's Representative is not paid by the Employer to the Contractor within 30 days after the expiry of the payment periods stated in sub clauses 14.2 and 14.3 hereinabove.
- (d) the Employer's Representative gives notice that failure to correct a particular defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time.

18.2 If the Contract is terminated, the Contractor shall stop Work immediately, and leave the Site as soon as reasonably possible. The Employer's Representative shall immediately thereafter arrange for a meeting for the purpose of taking record of the Works executed and materials, goods, equipment and temporary buildings on Site.

## 19. Payment Upon Termination

19.1 The Employer may employ and pay other persons to carry out and complete the Works and to rectify any defects and may enter upon the Works and use all materials on Site, plant, equipment and temporary works.

19.2 The Contractor shall, during the execution or after the completion of the Works under this clause, remove from the Site as and when required within such reasonable time as the Employer's Representative may in writing specify any temporary buildings, plant, machinery, appliances, goods or materials belonging to him, and in default thereof, the Employer may (without being responsible for any loss or damage) remove and sell any such property of the

Contractor, holding the proceeds less all costs incurred to the credit of the Contractor.

19.3 Until after completion of the Works under this clause, the Employer shall not be bound by any other provision of this Contract to make any payment to the Contractor, but upon such completion as aforesaid and the verification within a reasonable time of the accounts therefore the Employer's Representative shall certify the amount of expenses properly incurred by the Employer and, if such amount added to the money paid to the Contractor before such determination exceeds the total amount which would have been payable on due completion in accordance with this Contract, the difference shall be a debt payable to the Employer by the Contractor; and if the said amount added to the said money be less than the said total amount, the difference shall be a debt payable by the Employer to the Contractor.

## 20. Corrupt Gifts and Payments of Commission

20.1 The Contractor shall not;

- (a) Offer or give or agree to give to any person in the service of the Employer any gifts or consideration of any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract with the Employer or for showing or forbearing to show favour or dis-favour to any person in relation to this or any other contract with the Employer.
- (b) Any breach of this Condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the Laws of Kenya.

## 21. Settlement of Disputes

21.1 Any dispute arising out of the Contract which cannot be amicably settled



between the parties shall be referred by either party to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed by the chairman of the Chartered Institute of Arbitrators, Kenya branch, on the request of the applying party.

## **22 Taxes**

22.1.1 "**Taxes**" means all present and future taxes, levies, duties, charges, assessments, deductions or withholdings whatsoever, including any interest thereon, and any penalties and fines with respect thereto, wherever imposed, levied, collected, or withheld pursuant to any regulation having the force of law and "Taxation" shall be construed accordingly.

### **22.1.2 Local Taxation**

Nothing in the Contract shall relieve the Contractor and/or his Sub-Contractors from their responsibility to pay any taxes, statutory contributions and levies that may be levied on them in Kenya in respect of the Contract. The Contract Price shall include all applicable taxes and shall not be adjusted for any of these taxes.

22.1.3 The Contractor shall be deemed to be familiar with the tax laws in the Employer's Country and satisfied themselves with the requirements for all taxes, statutory contributions and duties to which they may be subjected during the term of the Contract.

22.1.4 In instances where discussions are held between the Employer and the Contractor regarding tax matters, this shall not be deemed to constitute competent advice and hence does not absolve the Contractor of their responsibility in relation to due diligence on the tax issue as per 3.21.2 above.

### **Tax Deduction**

22.1.5 If the Employer is required to make a tax deduction by Law, then the deduction shall be made from payments due to the Contractor and paid directly to the Kenya Revenue

Authority. The Employer shall upon remitting the tax to Kenya Revenue Authority furnish the Contractor with the relevant tax deduction certificates.

22.1.6 Where the Contractor is paid directly by the Financiers and the Employer is not able to deduct tax, then the Contractor will be required to pay the tax deduction to Kenya Revenue Authority in the name of the Employer and furnish the Employer with an original receipt thereof as evidence of such payment. In absence of the said evidence, the Employer will not process any subsequent payments to the Contractor.

### **Tax Indemnity**

22.1.7 The Contractor shall indemnify and hold the Employer harmless from and against any and all liabilities, which the Employer may incur for any reason of failure by the Contractor to comply with any tax laws arising from the execution of the Contract whether during the term of the Contract or after its expiry.

22.1.8 The Contractor warrants to pay the Employer (within fourteen (14) days of demand by the Employer), an amount equal to the loss, liability or cost which the Employer determines has been (directly or indirectly) suffered by the Employer for or on account of the Contractor's Tax liability arising from the Contract.

22.1.9 Where the amount in 3.21.8 above remains unpaid after the end of the fourteen (14) days moratorium, the Employer shall be entitled to compensation for financing charges.

## APPENDIX TO CONDITIONS OF CONTRACT

THE EMPLOYER IS

Name: **KENYA ELECTRICITY GENERATING COMPANY LIMITED**

Address: Stima Plaza Phase III, Kolobot Road,

P.O. Box 47936 - 00100

NAIROBI, KENYA

Name of Employer's Representative: Operations Manager, Eastern Hydro

Telephone: (254) (020) 3666000

The name (and identification number) of the Contract is **Tender For Supply, Installation, Testing And Commissioning Of industrial Uninterruptible Power Supplies (UPS) For Kamburu & Masinga And UPS Battery banks For Gitaru, Kindaruma, Kiambere & Turkwel Power Stations**, The tender number is: **KGN-HYD-013-2018**

The Works consist of: Supply, Installation, Testing and Commissioning of industrial Uninterruptible Power Supplies (UPS) for Kamburu & Masinga and UPS Battery banks for Gitaru, Kindaruma, and Kiambere & Turkwel Power Stations

The commencement Date shall be the date of site takeover date.

The contract duration shall be 18 months.

The Site covers the Six Stations: Masinga, Kamburu, Gitaru, Kindaruma, Kiambere and Turkwel Power stations.

**The Defects Liability Period is** 365 days for each station from the last date of commissioning. The Defects Liability Period shall also be the warranty period.

Amount of Performance Security is **1%** of the contract sum

Within fifteen (15) days of receipt of the notification of Contract award, the successful tenderer shall furnish to Kenya Electricity Generating Company Limited the performance security in the amount specified in Special Conditions of Contract.

The proceeds of the performance security shall be payable to Kenya Electricity Generating Company Limited as compensation for any loss resulting from the Tenderer's failure to complete its obligations under the Contract.

The performance security shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to Kenya Electricity Generating Company Limited and shall be in the form of a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in Kenya or abroad, acceptable to Kenya Electricity Generating Company Limited, in the form provided in the tender documents.

The performance security will be discharged by Kenya Electricity Generating Company Limited and returned to the Candidate not later than thirty (30) days following the date of completion of the Tenderer's performance obligations under the Contract, including any warranty obligations, under the Contract.

Management meetings will be held at least twice during the project works, or as may be necessary.

## SECTION IV

### SPECIFICATIONS AND BILLS OF QUANTITIES

#### GENERAL REQUIREMENTS

##### 1. SITE LOCATION

KenGen seeks to replace its SCADA UPS system with high performance, high efficiency UPS system to ensure protection from power quality events and to supply continuous power during blackouts to the SCADA systems at two of its power stations: Kamburu and Masinga Power Stations.

The company also seeks to replace battery banks for its UPS systems at four (4) of its other power stations, namely: Gitaru, Kindaruma, Kiambere and Turkwel Power stations.

##### 2. SCOPE OF WORK.

The scope of the work will be;

- (a) To supply, deliver, install, test and commission two (2) 20kVA UPS system complete each with its battery bank for Kamburu Power Station,
- (b) To supply, deliver, install, test and commission a 20kVA UPS system complete with battery bank for Masinga Power Station,
- (c) To supply, deliver, install, test and commission UPS battery banks for the existing SCADA UPS systems at each of the following stations: Kindaruma, Gitaru, Kiambere and Turkwel Power Stations.
- (d) Factory testing, and inspection witnessed by KenGen engineers at Manufacturers' premises.
- (e) 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 Battery banks.
- (f) 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.

- (g) Decommissioning and buy back of all battery banks that shall be replaced during the installation works for Gitaru, Kindaruma, 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:

<b>DESCRIPTION</b>	
Make:	Yuasa
Type:	VRLA Lead Acid
Capacity per Cell:	57.2Ah
<b>No. of cells Per Station:</b>	-
Gitaru power station	108
Kindaruma power station	72
Kiambere power station	108
Masinga power station	72
Kamburu power station	108
<b>Total No. of Cells</b>	<b>468</b>

The tenderer shall provide credit note for the buyback rates of old battery banks on completion of the work.

- (h) Technical training of five (5) KenGen staff. 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. The training shall be held at a certified training facility situated within the country. The successful bidder shall pay for the tuition fees and these costs shall be included in the price schedules. The training content shall be submitted to KenGen in advance for approval.

### **3. CLIMATIC CONDITIONS**

The following climatic conditions apply at the sites of the Contract Works and the equipment, materials and installations shall be suitable for these conditions:

Maximum mean temperature:	27.1 °C
Minimum mean temperature:	11.3 °C
Relative humidity range:	- 48 - 93%
Atmospheric salt content:	Less than 0.002%

Relatively dusty conditions prevail

Altitude (approximately) 1010metres above sea level

# TECHNICAL SPECIFICATIONS OF UPS SYSTEMS

## 4. DEFINITIONS

<b>Term</b>	<b>Definition</b>
UPS on-line double conversion	An on-line UPS uses a "double conversion" method of accepting AC input, rectifying to DC for passing through the rechargeable battery (or battery strings), then inverting back for powering the protected equipment. A line-interactive UPS maintains the inverter in line and redirects the battery's DC current path from the normal charging mode to supplying current when power is lost.
UPS Module	It has all the hardware and software needed for autonomous operation: rectifier, inverter, DC booster, and static bypass switch, back feed protection, control logic, monitoring interfaces, service control panel and redundant power supply for control electronics of the module.
UPS unit	It consists of UPS modules, input rectifier, bypass and battery circuit breaker protections, UPS output switch, UPS Maintenance bypass switch, control and monitoring interface, input/output terminals housed in a metal enclosure.
UPS Maintenance bypass switch (MBS)	UPS MBS is designed to isolate the UPS unit, or part thereof, from the load and to maintain continuity of load power via an alternative path during maintenance activities
Circuit breaker with thermomagnetic trip	an automatically operated electrical switch designed to protect an electrical circuit from damage caused by overcurrent or overload or short circuit.
UPS Output switch	controllable switch used in accordance with applicable requirements for load power continuity to interconnect or isolate power ports of UPS unit
Redundant UPS	UPS comprising two UPS units sharing the load power, which upon failure of one UPS unit the remainder UPS can take over full load
Load sharing	simultaneous supply of power to a load from two UPS units
Normal operation	stable mode of operation that the UPS attains under the following conditions:



<b>Term</b>	<b>Definition</b>
	<ul style="list-style-type: none"> <li>a) a.c. input supply is within required tolerances and supplies the UPS;</li> <li>b) the energy storage system remains charged or is under recharge;</li> <li>c) the load is within the specified rating of the UPS;</li> <li>d) the bypass is available and within specified tolerances (if applicable)</li> </ul>
Bypass operation	mode of operation that the UPS attains when the load is supplied via the bypass only
Battery operation	<p>stable mode of operation that the UPS attains under the following conditions:</p> <ul style="list-style-type: none"> <li>a) a.c. input power is disconnected or is out of required tolerance;</li> <li>b) all power is derived from the energy storage system;</li> <li>c) the load is within the specified rating of the UPS</li> </ul>
Float voltage	It is the voltage at which a battery is maintained after being fully charged to maintain that capacity by compensating for self-discharge of the battery.
Power factor	ratio of the absolute value of the active power $P$ (Watt) to the apparent power $S$ (VA)
Rated output	The apparent power $S$ (VA), that can be continuously delivered by the UPS unit over the range of conditions of service and electrical loading without exceeding component ratings or any of the required output tolerances.
Galvanic isolation	Used where two or more electric circuits must communicate, but their grounds may be at different potentials. It is an effective method of breaking ground loops by preventing unwanted current from flowing between two units sharing a ground conductor. Galvanic isolation is also used for safety, preventing accidental current from reaching ground through a person's body.
Mean Time Between Failure (MTBF)	Mean Time Between Failures (MTBF) is a measure of the average time a device will function before failing. MTBF ratings are measured in hours and indicate the reliability of hardware devices
Mean Time To Repair (MTTR)	Mean Time To Repair (MTTR) measures the total time in hours from when a device fails until when it is restored to full operation, divided by number

<b>Term</b>	<b>Definition</b>
	of faults. It generally does not include lead time for parts not readily available or other administrative or logistic downtimes
Autonomy time of the UPS	The time during which the UPS is able to deliver its rated output within the specified a.c. voltage limits when the battery is the sole source of energy.
End of discharge voltage	The voltage at which the battery discharge is terminated and at which the UPS will stop the battery mode and generate the relatives alarm and events.
VLRA battery	Valve Regulated Lead-Acid Batteries more commonly known as a sealed lead-acid (SLA), gel cell, or maintenance free battery, is the most commonly used type of rechargeable battery used in the UPS industry.
Cold start	The cold start (also known as black start or battery start) function allows starting a UPS without the input mains present during the status UPS total off. The startup will be made directly from the battery power and will remain running for a limited time.
IP code	International Protection Marking (or also called Ingress Protection Marking) classifies and rates the degree of protection provided against intrusion (body parts such as hands and fingers), dust, accidental contact, and water by the UPS enclosure.  The digits (characteristic numerals) represents: <ul style="list-style-type: none"> <li>• first digit, single numeral 0–6, Solid particle protection</li> <li>• second digit, single numeral 0–9, Liquid ingress protection</li> </ul>
Conformal coating	protection against moisture, dust, chemicals, and temperature extremes for circuit board to prevent corrosion
Lifting Eyes	A set of bolts with a captive ring on one end and threads on the other end designed to pick up, raise, or carry the UPS system by means of a crane or similar tool

## 5. Performance Requirements

### 5.1. General

The Uninterruptible Power Supply (UPS) systems are required to provide continuous, regulated AC power to Kamburu and Masinga SCADA equipment, irrespective of any disturbances or disruptions occurring on the main power supply.

This specification describes the UPS architecture, the electrical and mechanical characteristics and requirements for a continuous-duty three-phase input single phase output, solid-state, uninterruptible power supply system.

The UPS shall be a modular on-line double conversion uninterruptible power supply system for industrial applications. The uninterruptible power supply system, hereafter referred to as the UPS, shall provide high-quality AC power.

### 5.1.1. Installation conditions

Installation Location: indoor; the rooms are not air conditioned.

Temperature: average day is 35°C and average night is 25°C

## 5.2. Standards

The UPS shall comply with the applicable sections of the current revision of the following standards.

Subject	Standard Reference	Standard Title
Safety	IEC/EN 62040-1	Uninterruptible power systems (UPS) – Part 1: General and safety requirements for UPS
Electromagnetic Compatibility (EMC)	IEC/EN 62040-2	Uninterruptible power systems (UPS) – Part 2: Electromagnetic compatibility (EMC) requirements
Performance	IEC/EN 62040-3	UPS – part 3: Method of specifying the performance and test requirements
Environmental aspects	IEC/EN 62040-4	UPS – part 4: Environmental aspects-requirements and reporting

## 5.3. Basic design

The UPS shall be designed to operate as a true-online, double conversion Voltage and Frequency Independent (VFI) system providing quality power to critical industrial applications with varying temperatures, humidity conditions and level of pollutions.

The design of the UPS shall be such as to minimize the risk of short circuits and ensure personnel and operational safety at all times.

The UPS shall be modularized and based on distributed analogous design. Its modular design shall consist of:

- Distributed analogous UPS modules
- Input, bypass and battery circuit breakers with thermomagnetic trips
- Maintenance bypass switch
- Bypass and output switches
- Incoming and outgoing terminals
- UPS human machine interface with graphical display, control push buttons, UPS operating status indication and programmable alarm section.
- 5 programmable relay inputs and 9 programmable relay outputs, RS-232 port, RS485 port, USB port, ethernet port and to 2 network management card slots.
- Metal galvanized enclosure, color RAL7035
- Input and output transformers

The UPS shall be equipped with dust filters, redundant (N+1) ventilation fans, conformal coating against moisture and fungus and high degree of protection IP42.

Component materials shall be non-flame propagating and the internal wiring shall be halogen free.

The design and selection of equipment and components shall be based on achieving the following minimum lifetimes:

- a) 15 years for UPS power modules and associated auxiliaries
- b) 5 years for continuous operation for input and output filter capacitors, fans for UPS Power Module and Frame Fans

Additionally, the UPS shall be designed to operate totally maintenance free for at least 5 years continuous period except for cleaning in dusty environments.

### **5.3.1. Modular design**

The UPS shall be of modular construction. The UPSs shall comprise of two (2) modules in redundant configuration. These modules shall have all the hardware and software needed for autonomous operation: rectifier, inverter, DC booster, static bypass switch, back feed protection, control logic, monitoring interfaces, service control panel and redundant power supply for control electronics of the module.

It shall be possible to remove or insert a module without the need to turn off or transfer raw mains supply and without risk to the critical load.

## **5.4. Operating Principles**

### **5.4.1. Redundant UPS configuration**

The redundant UPS system shall comprise two identical fully segregated 100% rated UPS, which operate in redundant configuration to energize a single load.

Dual redundant control circuits shall be included to facilitate equal sharing of the load between the two units.

Both UPS shall have the same priority and are equally sharing the total load while 50% of the nominal power rating of either unit shall not be exceeded. A common bypass source is distributed to the UPS module static bypass switches and can be routed directly to the load. Two communication lines together with associated control gear shall obtain proper load sharing and synchronization to the bypass source. All operation modes are duly coordinated. The battery banks can be common or individual (i.e. 2 x 100% or 2 x 50% capacity).

## **5.5. Performance Requirements**

The UPS shall be a true on-line double conversion, belonging to the classification VFI-SS-111 in accordance with IEC/EN 62040-3.

### **5.5.1. Input rectifier specifications**

Voltage (steady-state, r.m.s), rated:	3x415/240V+N	VAC
Frequency, rated	50	Hz
Frequency tolerance	-30/+40	%
total harmonic distortion (THDi)	< 4	%
In-rush current	< 100% of rated current	%
Power factor	0.99 @ 100% load	

### 5.5.1.1. Input Protection

The UPS shall have built-in protection against under voltage, overcurrent, overvoltage and short circuit conditions including low-energy surges introduced on the AC mains source and the bypass source. The main input and bypass input breaker should be equipped with thermomagnetic protection and electronic auxiliary to indicate the status (open/closed)

### 5.5.1.2. Input rectifier transformer

The UPS shall have built-in input rectifier transformer to provide galvanic isolation or to step up/down input voltage. The UPS footprint shall not be increased if the input rectifier transformer is included.

## 5.5.2. Output Specifications

Voltage (steady state, r.m.s.), rated:	1 X 240V+N	Vac
Variation in normal mode / battery mode	$\pm 1.5 / \pm 1.5$	%
Total harmonic distortion (THDu), 100% load, normal mode:		
Linear	< 2.0	%
Non-linear (according to IEC 62040-3)	< 4.0	
Total harmonic distortion, 100 % load, battery mode:		
Linear	< 2.0	%
non-linear (according to IEC 62040-3)	< 4.0	
Voltage unbalance and phase displacement, 100 % load unbalance	0	%
Voltage transient and recovery time, 100% step load:		

Linear	$\pm 4$	%
non-linear (according to IEC 62040-3)	$\pm 4$	%
Transfer normal mode --> Battery mode	0	%
Frequency (steady-state), rated:	50	Hz
variation in normal mode (freq. Synchronized with mains)	$\pm 2 / \pm 4$	%
variation in battery mode (free-running)	$\pm 0.1$	
Max synch phase error (referred to a 360° cycle)	0	°
Max slew-rate	1	Hz/s
Load power factor, rated	0.95	
displacement (permissible lead-lag range)	(all range) 0	%, s

### 5.5.3. Overload

The inverter shall be capable of delivering the following overload levels based on the nominal ratings:

- 150% for 1min
- 125% for 10min
- 110% continuously

A visual alarm shall indicate overload operation. For greater currents or longer time duration, the inverter shall have electronic current-limiting protection to prevent damage to components. The inverter shall be self-protecting against any magnitude of connected output overload. Inverter control logic shall sense and disconnect the inverter from the critical AC load without the requirement to clear protective fuses. The load shall be transferred to bypass when any of the above conditions are exceeded.

### 5.5.4. Output Frequency

The output frequency of the inverter shall be controlled by an oscillator. The oscillator shall hold the inverter output frequency to +/- 0.1% for steady state and transient conditions. The inverter shall track the bypass continuously providing the bypass source maintain a frequency within the user selected synchronization range. If the bypass source fails to remain within the selected range, the inverter shall revert to the internal oscillator.

### **5.5.5. Output Protection**

The UPS inverter shall employ electronic current limiting protection.

### **5.5.6. Output Transformer**

The UPS shall have built-in output transformer to provide galvanic isolation or to step up/down output voltage. The UPS footprint shall not be increased if the output transformer is included.

## **5.6. Bypass specifications**

The bypass circuit shall be rated for the full UPS unit rating at continuous duty with the 110% overload capability. Manual bypass for maintenance shall be provided

## **5.7. UPS Efficiency**

Overall efficiency in double conversion mode (AC/AC), shall be greater than or equal to 90% from 25% load to full rated load.

## **5.8. UPS Reliability**

The Mean Time Between Failure (MTBF) of the single unit shall be higher than 125 000h and the Mean Time To Repair shall be less than 1 h except for power magnetics.

The Manufacturer shall maintain complete spare parts and support capacity, including software for at least 15 years after installation

## **5.9. Electromagnetic compatibility (EMC)**

All UPS units shall comply with the requirements for EM as defined in IEC 62040-2, in order to ensure:

- Conducted emission in both the power supply input and output of the UPS are controlled within acceptable limits;
- Any electromagnetic disturbances generated by the UPS and its individual components don't exceed a level which would affect the correct operation of both, radio and telecommunications equipment;
- The UPS has adequate level of intrinsic immunity to external electromagnetic-and



conducted disturbance to enable it to operate as intended

#### **5.10. Noise limits**

The sound pressure level measured at 1m distance from the UPS, at any position, shall not exceed 70dB (A) at any load between zero and the rated output of the unit.

#### **5.11. Environmental conditions**

The UPS system shall be designed to operate continuously at full load without degradation of its reliability, operating characteristics or service life in the following environmental conditions:

- UPS operation ambient temperature range  $-5^{\circ}\text{C}$  to  $45^{\circ}\text{C}$ ,
- Battery ambient temperature range  $20^{\circ}\text{C}$  to  $25^{\circ}\text{C}$
- Humidity (relative)  $\leq 95\%$  non-condensing
- Storage temperatures: UPS  $-25^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$

The UPS system shall be designed for operation in altitudes up to 1000 meters, without the need for de-rating or reduction of the above environmental operating temperatures.

#### **5.12. Battery specification**

The battery voltage and capacity shall be such as to fulfil the inverter input power requirements when the inverter is delivering its rated output (VA), for an autonomy time of 4hours.

The battery system shall consist of valve regulated, lead acid batteries (VLRA). Each battery rated at 2V. Batteries shall be connected in series or parallel to form a battery bank of a high DC voltage suitable for the UPS rating.

The battery system shall consist of a common battery system feeding the UPS unit. In this case the battery system shall consist of a minimum of two parallel battery banks formed by strings of multiple cells.

Each individual string shall have its own dedicated means of electrical circuit protection.

The nominal ampere-hour (Ah) capacity of the battery supplied with the UPSs shall be for 4hr autonomy at full load. The Nominal Ampere-hour capacity of the battery shall be calculated in line with a battery manufacturer's approved battery sizing tool and shall include all necessary allowances as specified in the datasheet, required to compensate ageing effects that result in the progressive loss of capacity.

The UPS DC bus voltage shall be variable whereby the number of battery blocks (2V blocks) can be adjusted to enable the battery system to be optimized for size and cost.

#### **5.12.1. Battery float-charge operation**

The battery float voltage shall be calculated automatically according to the number of the battery blocks/cell connected to the UPS. However, the float voltage shall be adjusted to particular battery characteristic.

#### **5.12.2. Battery high-rate charge operation**

For vented battery only, the rectifier shall be provided to initiate battery high-rate charge operation by both manual and automatic means

#### **5.12.3. Battery over Discharge Protection**

To prevent battery damage from over discharging, the UPS control logic shall control the shutdown voltage set point. This point is dependent on the rate of discharge.

#### **5.12.4. Temperature compensation**

Temperature compensation of the battery charging voltage shall be provided for the rectifier with an accuracy of  $\pm 1\%$

#### **5.12.5. Battery Test**

All UPS units shall be provided with online battery discharge test facility, which

keeps the rectifier on stand-by for immediate restoration in case of fatal battery failure. The UPS shall also provide an on-line battery testing by means of a partial battery discharge into the load (typically 25%), either manually or automatically.

The facility shall be programmable to define the automatic testing periods. The monitoring system shall compare the discharge values with the actual pre-programmed battery discharge characteristics and shall be capable of providing a detailed analysis of the battery condition and indication of remaining back-up time.

Additionally, provision shall be included to select manually a full battery discharge test.

**5.12.5.1. Automatic Battery Test**

The UPS shall initiate an automatic battery testing sequence periodically (once a month), at a programmed day and time of day, selectable by the client. The client will be able to disable the automatic battery test.

Should a failure of the battery occur, the UPS will immediately return to normal mode and fault signals (visual, audible, and remote via serial) shall be communicated. No audible or remote (via serial/contact closures) indication of the battery test shall be communicated during the duration of the automatic battery test.

The automatic battery test shall be able to operate only if no alarms conditions affect the UPS and if the battery is at least 90% of its full capacity.

Battery type	-	Maintenance-free industrial VRLA (2v per battery)
Battery charger max. power charger capability		30% of the nominal UPS rated power
Floating voltage (VRLA)	Vdc	2.25 / 1.40

End of discharge voltage (VRLA)	$V_{dc}$	1.65 / 1.05
Battery test	-	Automatic and periodically (adjustable)

## 6. Mechanical requirements

### 6.1. Unit Enclosures

The UPS cabinet shall be a freestanding enclosure and shall have a degree of protection of at least IP42 in accordance with IEC 60529. The UPS cabinet shall consist of two compartment. One compartment housing the UPS Modules and the control and monitoring interfaces and the other compartment UPS switches, breakers and incoming/outgoing terminals. The UPS shall allow front access.

### 6.2. Bottom cable entry

The UPS cabinet shall not exceed the following dimensions with bottom cable entry:

Power rating (kVA)	width (mm)	height (mm)	depth (mm)
40	1200	2200	800
20	1200	2200	800

### 6.3. Finish

The UPS cabinet shall be painted with RAL 7035. The treatment and protection of metalwork shall include cleaning, degreasing, rust resisting primers and paint finishes that provide effective protection against corrosion under the functional and climatic conditions described in (3).

### 6.4. Accessibility and maintenance safety

Items requiring access for maintenance such as cooling fans and filter capacitors shall be so located as to facilitate any required maintenance from the front of the unit. The location and grouping of components and auxiliary equipment shall permit easy identification and access for operational, maintenance and repair purposes, without unnecessary interruption of supply to the load. Suitable partitioning between individual items shall be provided where necessary to allow adjustment and inspection to be carried out safely.

Enclosures, barriers or shrouds to a degree of protection of at least IP 20 shall protect exposed parts that can be live when the compartment door is open. This also applies to exposed live parts that become accessible when hinged panels are opened.

A separate compartment with a dedicated door shall be provided to house the maintenance bypass switch and the bypass isolation transformer. The degree of protection towards compartment shall be at least IP 20.

Terminals shall be provided in the maintenance bypass compartment for all wiring to and from the UPS modules to enable full isolation of the latter compartment in case of maintenance or repair

## **6.5. Cooling**

Internal cooling of the UPS unit shall be by natural or forced fan assisted air ventilation. For transformer less UPS topology, the forced fans shall only be built-in the UPS Modules, otherwise additional frame fans shall be provided.

Under normal operating conditions, the UPS Modules shall be capable of continuously delivering its rated output, without switching to bypass mode, with any one forced air ventilation fan out of service (N+1 redundancy). Under the latter conditions, the maximum continuous temperature of components shall not be exceeded. All fans in the UPS Modules shall be equipped with monitoring facilities to provide an alarm in the event of fan failure.

The air circulation shall be from the bottom to the top of the UPS cabinet.

## **6.6. Wiring and terminations**

Internal wiring shall be insulated. The insulation material shall be zero halogen, flame retardant, non-toxic and have a low smoke index. Where current densities are high, preference is for suitably insulated copper bus bars rather than multiple core cables.

All wiring and busbars shall be designed to carry rated and short circuit current

## **6.7. External connections**

The UPS enclosure shall have facilities for the entry of the cable from the bottom or top. For the top cable entry, the incoming terminals shall be located at the top of unit in a separate enclosure. The removable gland plates shall be supplied undrilled.

### **6.7.1. Earthing**

An earth bar, with suitable number of earthing bolts or screws, shall be provided. The earth bar shall be connected to the structure of the cabinet, effectively bounding the entire enclosure.

Electrical conductivity between the exposed, non-current carrying conductive parts of the UPS components and the enclosure and between the enclosure and the earth bar, shall be so arranged as to maintain effective and reliable continuity of the protective circuit. Earth bonding conductor shall be utilized between enclosures and doors.

## **6.8. Marking**

All external operating, measuring and indicating components shall be clearly identified with permanent descriptive labels that allow easy recognition by the operator. All components shall be identifiable by labels inscribed in accordance with the system of identification used on the Manufacturer's reference drawings and documents.

All terminals of equipment, components and connection wires shall be identifiable by numerical or alphabetical markings at both ends, in accordance with the Manufacturer's drawings.

Terminals of input and output supply cables shall be clearly and uniquely marked to indicate the nominal system voltage and the phase/polarity of the supply.

The identification of terminals shall be in accordance with IEC 60445.

The following information shall be inscribed on a corrosion-resistant, indelible name/rating

plate attached to the UPS unit enclosure:

- a) UPS model;
- b) Year of manufacture;
- c) Name of manufacturer;
- d) Type and serial number of unit;
- e) Nominal input current and voltage;
- f) Nominal output current and voltage
- g) Input and output frequency

## **7. Measurement, control & monitoring**

### **7.1. General**

The UPS shall incorporate a central Human Machine Interface (HMI) to enable operation and provide system level information as well as module level information to the user. The HMI shall not be provided with touch-screen function and shall have effective protection under the functional and climatic conditions described in (3).

Further the UPS Modules shall have a service control panel to control and monitor the UPS module.

#### **HMI and service control panel**

The central Human Machine Interface (HMI) shall consist of:

- A graphical display unit providing colored mimic diagram of the UPS, monitoring and measurement information.
- control keypad driven menu for control
- UPS operational status section
- 8 programmable alarm indication section.

The service control panel in the UPS Module shall consist of:

- UPS Module LCD display
- UPS Module mimic diagram
- Control and operating keys

#### **7.1.1. UPS operational status section**

Following operation status should be indicated in the form of LED in the HMI:

- a) Normal operation
- b) Bypass operation
- c) Battery operation
- d) Common alarm

### **7.1.2. Programmable alarm indications**

Up to 8 alarms shall be indicated in the form of LED and shall be programmable.

Following alarms shall be displayed as a minimum:

- a) Mains input failure
- b) Battery Low
- c) Battery discharged
- d) Battery disconnected
- e) MBS Closed
- f) Output overloaded
- g) Over temperature
- h) Fan failure

## **7.2. Measurement**

The following measurement shall be provided on the graphical display of the HMI:

- a) Rectifier input voltage
- b) Rectifier input current
- c) Bypass input voltage
- d) Battery Temperature
- e) Battery charge and discharge current
- f) Battery voltage
- g) Battery capacity (%)
- h) Battery run time (minutes)
- i) UPS output voltage
- j) UPS output current
- k) UPS output frequency



### **7.3. Protection & alarms**

The local alarms below shall be appropriately interconnected to a spring-cage terminal to provide one normally open and one normally closed, potential-free, contact for connection to a remote common UPS alarm. Additionally this information shall be available for remote signaling via the serial interface.

The UPS interface shall provide sufficient storage and memory to allow alarm history to be stored and interrogated.

Following alarm and protection functions shall be provided as a minimum:

- a) Manual bypass switch closed
- b) Over temperature
- c) Fan failure
- d) Main input failure
- e) Bypass operation
- f) Battery operation
- g) Battery low
- h) Battery disconnected
- i) Input breaker opened
- j) Bypass breaker opened
- k) MBS closed
- l) Overload
- m) Common alarm

The status of the alarm and protection functions shall be visually verifiable by appropriate indicators with first failure feature. Alarms associated with trip functions shall be hand reset.

### **7.4. Engineering access and communication facilities**

The UPS shall be provided with a communication facility for connection of a standard Personal Computer. The Manufacturer shall provide all necessary software to monitor, review and control settings on the UPS, on or off line. Facilities shall be provided to change

set points, prepare or examine an event or alarm log, etc. Access to UPS settings and configuration shall be via a password.

Two levels of access shall be available utilizing the software:

#### Level 1: View Only

The maintenance engineer or operator shall only be able to view the set parameters and actual data but is not permitted to change any settings.

#### Level 2: Settings and Control

The maintenance engineer shall be able to control the UPS, reset all trips and reconfigure the UPS set points and protection parameters using a password level of protection. It shall be possible to connect the UPS, via either an Ethernet Network or serial link to the SCADA system for selected analogue and digital data to be made available to a higher-level system.

## **8. Testing & Commissioning**

### **8.1. Type test**

Type test certificates with referenced standards shall be provided.

### **8.2. Routine test**

The following test shall be performed in accordance with IEC 62040-3 as a minimum:

1. Insulation & dielectric test
2. Visual inspection test : Dimensions, IP, Painting, UPS Labels
3. Functional test
4. Dynamic performance test with linear load
5. Overload Test
6. Fault clear capability
7. Burn-in test for a period of 8 hours

### **8.3. Site acceptance test**

The scope of acceptance test shall include, but not be limited to:

Visual inspection test : Dimensions, IP, Painting, UPS Labels

## **9. Documentation**

The specified UPS system shall be supplied with following documents

1. Single line diagram
2. General arrangement
3. Wiring diagram
4. Technical data sheet
5. Operating manual. The manual shall include safety instruction, system description, UPS operating modes, installation, pre-commissioning and commissioning procedures, alarms and troubleshooting procedures.

All documents shall be in English otherwise specified on the Requisition.

## **10. Warranty**

The UPS manufacturer shall warrant the UPS against defects in materials and workmanship for one (1) year. With start-up provided by UPS supplier Global Services, the warranty shall cover all parts and onsite labour for one (1) year. Maintenance contract packages shall also be available.

# TECHNICAL SPECIFICATIONS FOR BATTERIES

## EXISTING SYSTEM

The existing UPS systems at Gitaru, Kindaruma, Kiambere and Turkwel are each rated at 15kVA. The UPSs are configured to operate with VRLA maintenance free batteries.

The cells shall be housed in existing cubicles with tray dimensions of  $L \times W \times H = 285 \times 165 \times 300$  mm

The battery voltage and capacity shall be such as to fulfil the inverter input power requirements when the inverter is delivering its rated output (VA), for the autonomy time of 4hours.

The battery system shall consist of valve regulated, lead acid batteries (VLRA).

The battery system shall consists of a common battery feeding the UPS unit. In this case the battery system consists of a minimum of two parallel strings of multiple cells.

Each individual string has its own dedicated means of electrical circuit protection.

The nominal ampere-hour (Ah) capacity of the battery supplied shall be calculated in line with the battery manufacturer’s approved battery sizing tool and shall include all necessary allowances as specified in the datasheet, required to compensate ageing effects that result in the progressive loss of capacity.

It shall be possible to install the batteries in any orientation except permanently inverted. The battery specifications are as in the table below:

BATTERY CELL	UNIT	SPECIFICATION
Battery capacity: C10 @ 20°C	Ah	74
Nominal voltage	V	12
Optimum battery temperature	°C	20
<b>Operating temperature</b>		
Charge	°C	-15 to 50

Discharge	°C	-20 to 60
<b>Cell dimensions</b>		
Height	mm	223 ±2
Width	mm	173 ±1
Length	mm	305 ±1
<b>Approx. Weight</b>	Kg	36
<b>CELL casing material</b>		ABS
<b>Terminal type</b>		Lead post with brass insert C
<b>Approx. Internal Resistance</b>	mΩ	6
<b>Maximum Short Duration Discharge Current (1min)</b>	A	600
<b>Percentage charge retention at 20°C</b>		
1month	%	97
3 months	%	91
6 months	%	85
<b>Battery type</b>		VRLA
<b>Number of cells (TOTAL)*</b>	Pcs	370
<b>Charging (For Each of the 4 stations)**</b>		
Recharge voltage	V	245
Floating voltage	V	216
Recharge current	A	10

\* this is the total number of batteries to be supplied for all the Four (4) Power Stations, namely: Gitaru, Kindaruma, Kiambere, and Turkwel

\*\* This is the charging parameters for each individual station.

## SCHEDULE OF REQUIREMENTS

All entries in the TENDERER'S OFFER column **MUST** be filled, any empty cell/entry shall lead to rejection of the bid.

All bidders' responses **MUST** be supported by technical datasheets, catalogues and signed statement of compliance for requirements required by the employer.

### SCHEDULE 1

#### 20 KVA INDUSTRIAL UPS SYSTEMS (3) FOR KAMBURU (2) AND MASINGA (1)

INDUSTRIAL UPS SYSTEM	UNIT	EMPLOYER REQUIREMENT	TENDERER'S OFFER
<b>GENERAL</b>	–	–	–
Quantity required	Unit	Three (3)	
System Power rating	kVA	Twenty (20)	
Type	-	Industrial UPS for industrial environment (temperature, humidity, vibration)	
UPS power connections	-	3 Phase In/ Single Phase Out	
Number of converter modules	Unit	Two (2)	
Topology		Online double conversion	
Power Converter Configuration		Redundant - 2N	
Industrial UPS type		Modular	
Power Converter layout		withdrawable (draw out)	
Number of UPS panels per unit	no	One (1)	
Number battery bank panels	no	Max two (2)	
<b>INPUT SPECIFICATIONS</b>	–	–	–
Input power factor		0.99	
Input Voltage	V	3X415+N	
Total Harmonic Distortion (THDI)	%	≤4%	
Connections		L1, L2, L3, N	
<b>OUTPUT SPECIFICATIONS</b>	–	–	–
Rated output voltage	V	1 × 240 V+N	
Output range	%	±10	
<b>FREQUENCY</b>	Hz	50	

<b>INDUSTRIAL UPS SYSTEM</b>	<b>UNIT</b>	<b>EMPLOYER REQUIREMENT</b>	<b>TENDERER'S OFFER</b>
Output voltage distortion	%	<4	
Overload Capacity	%	150% 1min, 125% 10min	
Output short capability	A	2.7 x Inom	
Power factor		0.95	
Crest factor		3:1	
<b>STATIC BYPASS SPECIFICATIONS</b>	–	–	–
Rated voltage	V	1 × 240 V+N	
<b>FREQUENCY</b>	Hz	50	
Rated capacity as % UPS rating	%	100	
Overload Capacity	%	110 continuous	
Static bypass transfer time	ms	<6	
<b>MANUAL BYPASS SWITCH (MBS):</b>	–	–	–
Connections		L, N	
Voltage rating	V	1 × 240 V+N	
Frequency	Hz	50	
Rated current	A	200	
MBS AUX contact		At least 1CO	
<b>ENVIRONMENT AND PHYSICAL FEATURES</b>	–	–	–
Storage temperature	°C	-25 to 70	
Operating temperature	°C	5 to 45	
Humidity	%	5 to 95, without condensation	
Altitude	m	1000m without derating	
Degree of protection		IP42	
Colour		RAL 7035	
Cable entry		Bottom	
Operating and maintenance access		Front access	
Ventilation (N+1 Redundant ventilation fans)		Forced ventilation with monitored fans	
UPS maximum Panel dimensions	–	–	–
Height	mm	2200	
Width	mm	1200	

<b>INDUSTRIAL UPS SYSTEM</b>	<b>UNIT</b>	<b>EMPLOYER REQUIREMENT</b>	<b>TENDERER'S OFFER</b>
Length	mm	800	
Maximum Weight	Kg	Max 650	
Lifting Eyes		Required	
<b>STANDARDS</b>	–	–	–
Safety		IEC / EN 62040-1	
Electromagnetic Compatibility		IEC / EN 62040-2	
Performance		IEC / EN 62040-3	
Environmental aspects		IEC/EN 62040-4	
Manufacturing		ISO 9001:2015, ISO 14001:2015, OHSAS 18001	
<b>GALVANIC ISOLATION TRANSFORMER</b>	–	–	–
At Rectifier input		Required	
At Inverter output		Required	
<b>Integrated back feed protection</b>		Required	
<b>INDUSTRIAL HMI INTERFACE</b>	–	–	–
with graphical display, control push keys, UPS operating status indication and programmable alarm section		Required	
<b>CONTROLLER INTERFACE TO EMPLOYER SCADA</b>	–	–	–
Modbus TCP/IP with ethernet port		Required	
Modbus RS-485 with terminal connection		Required	
Detailed Configuration manual		Required	
<b>USER CONFIGURABLE (RELAY) INPUTS/ OUTPUTS</b>	–	–	–
a) Input signals, Minimum	No.	Three (3)	
b) Output signals, Minimum	No.	Nine (9)	



<b>INDUSTRIAL UPS SYSTEM</b>	<b>UNIT</b>	<b>EMPLOYER REQUIREMENT</b>	<b>TENDERER'S OFFER</b>
<b>ALARM LED INDICATIONS</b>	–	–	–
a) Mains input failure		Required	
b) Battery Low		Required	
c) Battery discharged		Required	
d) Battery disconnected		Required	
e) MBS Closed		Required	
f) Over temperature		Required	
g) UPS module Fan failure		Required	
h) Spare		Required	
<b>PROTECTION FUNCTIONS</b>	–	–	–
1. Manual bypass switch closed		Required	
2. Over temperature		Required	
3. Fan failure		Required	
4. Main input failure		Required	
5. Bypass operation		Required	
6. Battery operation		Required	
7. Battery low		Required	
8. Battery disconnected		Required	
9. Input breaker opened		Required	
10. Bypass breaker opened		Required	
11. MBS closed		Required	
12. Overload		Required	
13. Common alarm		Required	
14. Manual bypass switch closed		Required	
<b>BATTERIES</b>	–	–	–
Battery type		Industrial VRLA Battery	
Battery Nominal Voltage	V	2V	
Ampere-Hour Rating @ 20°C		Bidder to state	
Battery temperature sensor		Required	

<b>INDUSTRIAL UPS SYSTEM</b>	<b>UNIT</b>	<b>EMPLOYER REQUIREMENT</b>	<b>TENDERER'S OFFER</b>
Temperature compensation	-	Required	
Battery Autonomy @100% load	Hours	4hours	
<b>OTHER FEATURES</b>	-	-	-
Panel earthing		Required	
Cold start		Required	
Schematic drawings interfaced to employer drawings		Required	
Detailed assembly, installation and service manuals		Required	
Assembly, installation layout drawings		Required	
Battery capability test at site		Required	

## SCHEDULE 2

### BATTERIES for Gitaru, Kindaruma, Kiambere and Turkwel

<b>FEATURES</b>	<b>UNIT</b>	<b>EMPLOYER REQUIREMENT</b>	<b>TENDERER'S OFFER</b>
<b>Battery type</b>	-	Same as existing or exact equivalent. <i>Bidder to state the offered type, model and country of manufacture</i>	
Battery capacity: C10 @ 20°C	Ah	74	
Nominal voltage	V	12	
Optimum battery temperature	°C	20	
Operating temperature	-	-	-
Charge	°C	-15 to 50	
discharge	°C	-20 to 60	
Cell dimensions	-	-	-
Height	mm	223 ±2	

FEATURES	UNIT	EMPLOYER REQUIREMENT	TENDERER'S OFFER
Battery type	-	Same as existing or exact equivalent. <i>Bidder to state the offered type, model and country of manufacture</i>	
Width	mm	173 ±1	
Length	mm	305 ±1	
Approx. Weight	Kg	36	
CELL casing material		ABS	
Terminal type		Lead post with brass insert C	
Approx. Internal Resistance	mΩ	6	
Maximum Short Duration Discharge Current (1min)	A	600	
Percentage charge retention at 20°C	-	-	-
1 month	%	97	
3 months	%	91	
6 months	%	85	
Battery type		VRLA	
Number of battery cells required	Pcs	375	
Charging	-	-	-
Recharge voltage	V	245	
Floating voltage	V	216	
Recharge current	A	10	
Battery capability test at site		Required	
Guaranteed battery operating life at 20°C temperature	years	≥Ten (10)	

**a. BATTERY TESTING EQUIPMENT**

The tenderer shall supply a battery analyzer: type Fluke BT521 together with all accessories necessary for its operation.

**b. METHOD STATEMENT AND PROGRAMME OF WORKS**

Bidder shall submit comprehensive method statement on how the works will be implemented and a complete program of works. The method statement shall cover: -

- Preliminary works
- UPS and Battery banks installation works.
- Test and Commissioning procedures.
- Safety arrangement
- Waste management

**c. MANUFACTURER AUTHORISATION**

Valid, authentic and signed manufacturer authorisation to be provided as per the form provided for the following

1. Complete Industrial UPS system
2. VRLA industrial type long life batteries

## PRICE SCHEDULES

### General requirements

- i) The tenderer shall complete all schedules. Schedules shall be read in conjunction with the specification.
- ii) The total prices in the Main Summary of price schedules shall be deemed to include for the whole of the contract works in accordance with the specification.
- iii) Any prices omitted from any section or part of prices schedule shall be deemed to have been included in another section of part.
- iv) All prices shall be shown inclusive of duty and of all taxes current at the time of tendering.

NO.	Item Description	UOM	Quantity	Basic Unit Price exclusive all levies	Any other levies (specify)	Unit Price incl. of all levies	Total Price inclusive of all levies/
	<b>SUPPLY OF UPS'S</b>						
1.	20kVA UPS system complete with battery bank	lot	3				
2	Delivery to site, Installation, testing and commissioning works of two (2) 20kVA UPS systems complete with battery banks at Kamburu Power Station	lot	1				
3	Delivery to site, Installation, testing and commissioning works of 20kVA UPS system complete with battery bank at Masinga Power Station	lot	1				
4	Supply of Gitaru SCADA UPS Batteries	pcs	110				
5	Delivery to site, Installation, testing and commissioning of new SCADA UPS batteries, and decommissioning of old of SCADA UPS Batteries at Gitaru Power Station	lot	1				
	<b>KINDARUMA POWER STATION BATTERIES</b>						
6.	Supply of Kindaruma SCADA UPS Batteries	pcs	75				

NO.	Item Description	UOM	Quantity	Basic Unit Price exclusive all levies	Any other levies (specify)	Unit Price incl. of all levies	Total Price inclusive of all levies/
7	Delivery to site, Installation, testing and commissioning of new SCADA UPS batteries, and decommissioning of old of SCADA UPS Batteries at Kindaruma Power Station	lot	1				
9	Decommissioning of old battery banks at Kindaruma Power Station	lot	1				
	<b>KIAMBERE POWER STATION BATTERIES</b>	-	-	-	-	-	-
10	Supply of Kiambere SCADA UPS Batteries	pcs	110				
11	Delivery to site, Installation, testing and commissioning of new SCADA UPS batteries, and decommissioning of old of SCADA UPS Batteries at Kiambere Power Station	lot	1				
	<b>TURKWEL POWER STATION</b>						
12	Supply of Turkwel SCADA UPS Batteries	pcs	75				
13	Delivery to site, Installation, testing and commissioning of new SCADA UPS batteries, and decommissioning of old of SCADA UPS Batteries at Turkwel Power Station	lot	1				
	<b>TEST EQUIPMENT</b>	-	-	-	-	-	-
15	Battery Analyzer; Fluke BT521 plus accessories	lot	1				
	<b>DOCUMENTATION</b>						
16	Technical documentation	lot					
	<b>GRAND TOTAL (Kshs.)</b>						

**NB. The price should be inclusive of all taxes.**

	<b>Item Description</b>	<b>UOM</b>	<b>Quantity</b>	<b>Basic Unit Price</b>	<b>TOTAL PRICE</b>
	<b>BUYBACK OF BATTERIES</b>				
1.	Buy back of old battery banks Gitaru power station	pcs	108		
2.	Buy back of old battery banks Kindaruma power station	pcs	72		
3.	Buy back of old battery banks Kiambere power station	pcs	108		
4.	Buy back of old battery banks Masinga power station	pcs	72		
5.	Buy back of old battery banks Kamburu power station	pcs	108		
6.	Buy back of old battery banks Turkwel power station	pcs	72		
	<b>Total no. of batteries</b>	<b>pcs</b>	<b>540</b>		
	<b>Total price Offered for buy back of Batteries (Kshs.)</b>				

The price should be inclusive of all taxes.

Delivery period \_\_\_\_\_ Months

Signature and stamp of Bidder \_\_\_\_\_ Date \_\_\_\_\_

## **SECTION V**

### **STANDARD FORMS**

#### **INTRODUCTION**

The following schedules form the Contract Schedules and must be completed in their entirety by the Tenderer at the time of tendering.

The Performance Security form is a sample and shall only be completed by the Approved Tenderer.

The Tenderer shall enter in the spaces on the Tender Form and bill of Quantity, price schedules the appropriate unit of currency to which he has tendered.



# FORM OF TENDER

## Tender for Supply, Installation, Testing and Commissioning of Industrial Uninterruptible Power Supply Systems (UPS) For Kamburu & Masinga and Battery Banks for Gitaru, Kindaruma, Kiambere & Turkwel Power Stations”

The Company Secretary & Legal Affairs Director  
The Kenya Electricity Generating Company Limited  
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 **90 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 1% of the above named sum in accordance with the conditions of contract.
  
7. 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)

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.**

## CONTRACT FORM

THIS AGREEMENT, made the \_\_\_\_\_ day of \_\_\_\_2018 between  
\_\_\_\_\_of[or whose registered office is situated at]\_\_

\_\_\_\_\_ (hereinafter called “the Employer”) of the one part AND

\_\_\_\_\_of[orwhose registered office is situated at]\_\_\_\_\_

(hereinafter called “the Contractor”) of the other part.

WHEREAS THE Employer is desirous that the Contractor executes

\_\_\_\_\_ (name and identification number of Contract ) (hereinafter called “the Works”) located at [Place/location of the Works]and the Employer has accepted the tender submitted by the Contractor for the execution and completion of such Works and the remedying of any defects therein for the Contract Price of Kshs\_\_\_\_\_ [Amount in figures],Kenya Shillings [Amount in words].

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and shall be read and construed as part of this Agreement i.e.
  - (i) Letter of Acceptance
  - (ii) Form of Tender
  - (iii) Conditions of Contract

- (iv) Appendix to Conditions of Contract
- (v) Specifications
- (vi) Drawings
- (vii) Priced Bills of Quantities/Priced Schedule of Rates[whichever is applicable]

3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all respects with the provisions of the Contract.

4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The common Seal of \_\_\_\_\_

Was hereunto affixed in the presence of \_\_\_\_\_

Signed Sealed, and Delivered by the said \_\_\_\_\_

Binding Signature of Employer \_\_\_\_\_

Binding Signature of Contractor \_\_\_\_\_

In the presence of (i) Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

[ii] Name \_\_\_\_\_

Address \_\_\_\_\_

Signature \_\_\_\_\_

**PERFORMANCE SECURITY**

[Must be on the letter head of the Bank]

To: Kenya Electricity Generating Company Limited,  
Stima Plaza Phase III, Kolobot Road, Parklands,  
P.O. Box 47936-00100,  
**NAIROBI, KENYA.**

WHEREAS \_\_\_\_\_[name of Contractor] (hereinafter called “the Contractor”) has undertaken, in pursuance of Contract No. \_\_\_\_\_ dated \_\_\_\_\_2018 to \_\_\_\_\_ (hereinafter called “the Contract”).

AND WHEREAS it has been stipulated by you in the said Contract that the Contractor shall furnish you with a bank guarantee by a reputable bank for the sum specified therein as security for compliance with the Contractor’s performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Contractor a guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of \_\_\_\_\_ (words) \_\_\_\_\_ (figures), and we undertake to pay you, upon your first written demand declaring the Contractor to be in default under the Contract and without cavil or argument, any sum or sums within the limits of \_\_\_\_\_ as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until the \_\_\_\_\_ day of \_\_\_\_\_ 2018

Signature and seal of the Guarantors

\_\_\_\_\_  
*[Name of bank or financial institution]*

\_\_\_\_\_  
*[Address]*

\_\_\_\_\_  
*[Date]*

**TENDER SECURING DECLARATION**

[The Bidder shall fill in this Form in accordance with the instructions indicated.]

Date: [insert date (as day, month and year) of Bid Submission]

Tender No.....

To: KenGen

We, the undersigned, declare that:

1. We understand that, according to your conditions, bids must be supported by a Tender Securing Declaration.
2. We accept that we will automatically be suspended from being eligible for bidding in any contract with the Purchaser for THREE YEARS, UPON APPROVAL BY PPADB if we are in breach of our obligation(s) under the bid conditions, because we:
  - (a) Have withdrawn our Bid during the 120 days of bid validity specified by us in the Bidding Data Sheet; or
  - (b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the Instructions to Tenderers.
3. We understand this Tender Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of a copy of your notification of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.
4. We understand that if we are a Joint Venture, the Tender Securing Declaration must be in the name of the Joint Venture that submits the bid. If the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed: .....[insert signature of person whose name and capacity are shown] In the capacity of [insert legal capacity of person signing the Bid Securing Declaration]

Name: .....[insert complete name of person signing the Tender Securing Declaration]

Duly authorized to sign the bid for and on behalf of: [insert complete name of Bidder]

Dated on \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ [insert date of signing]

**MANDATORY CONFIDENTIAL BUSINESS QUESTIONNAIRE**

*(Must be filled by all applicants or Tenderers' who choose to participate in this tender)*

Name of Applicant(s).....

You are requested to give the particulars in Part 1 and either Part 2 (a), 2 (b) or 2 (c), whichever applies to your type of business. Part 2 (d) to part 2 (i / j) must be filled. You are advised that giving wrong or false information on this Form will lead to automatic disqualification/termination of your business proposal at your cost.

**Part 1 – General**

Business Name:.....Certificate of Incorporation / Registration No. .... Location of business premises: Country ..... Physical address ..... Town ..... Building..... Floor..... Plot No..... Street / Road ..... Postal Address ..... Postal / Country Code..... Telephone No's..... Fax No's. .... E-mail address ..... Website ..... Contact Person (Full Names) ..... Direct / Mobile No's..... Title ..... Power of Attorney (Yes / No) If yes, attach written document. Nature of Business (Indicate whether manufacturer, distributor, etc) .....

**(Applicable to Local suppliers only)**

Local Authority Trading License No. .... Expiry Date ..... Value Added Tax No..... Value of the largest single assignment you have undertaken to date (US D/KShs) ..... Was this successfully undertaken? Yes / No. ....(If Yes, attach reference) Name (s) of your banker (s) ..... Branches ..... Tel. No's.....

**Part 2 (a) – Sole Proprietor (if applicable)**

Full names ..... Nationality..... Country of Origin..... Company Profile ..... (Attach brochures or annual reports in case of public company)



**Part 2 (b) – Partnerships (if applicable)**

Give details of partners as follows:

**Full Names Nationality Citizenship Details Shares**

- 1. ....
  - 2. ....
- Company Profile ..... (Attach brochures)

**Part 2 (c) – Registered Company (if applicable - as per the CR12 form)**

Private or public .....

Company Profile ..... (Attach brochures or annual reports in case of public companies)

State the nominal and issued capital of the Company

Nominal Kshs .....

Issued Kshs .....

List of top ten (10) shareholders and distribution of shareholding in the company. Give details of all directors as follows:-

**Full Names Nationality Citizenship Details Shares**

- 1.....
- 2.....

**Part 2 (d) – Debarment**

I/We declare that I/We have not been debarred from any procurement process and shall not engage in any fraudulent, corrupt, coercive and obstructive acts with regard to this or any other tender by the KENGEN and any other public or private institutions.

Full ..... Names

Signature .....

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

In ..... the ..... capacity ..... of

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

**Part 2 (e) – Bankruptcy / Insolvency / receivership.**

I/We declare that I/We have not been declared bankrupt or insolvent by the competent Authorities in Kenya and neither are we under receivership:

Full ..... Names

Signature .....

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

In ..... the ..... capacity ..... of

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

**Part 2 (f) – Criminal Offence**

I/We, (Name (s) of Director (s)):-

a) .....

b) .....

Have not been convicted of any criminal offence relating to professional conduct or the making of false statements or misrepresentations as to its qualifications to enter into a procurement contract within a period of three (3) years preceding the commencement of procurement proceedings.

Signed

.....  
For and on behalf of M/s

.....  
In the capacity of

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

Suppliers' / Company's Official Rubber Stamp  
.....

**Part 2 (g) – Conflict of Interest**

I/We, the undersigned state that I / We have no conflict of interest in relation to this procurement:

a) .....

b) .....

For ..... and ..... on ..... behalf ..... of ..... M/s

.....  
In the capacity of .....

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

Suppliers' / Company's Official Rubber Stamp  
.....

**Part 2 (h) – Interest in the Firm:**

Is there any person/persons in KENGEN or any other public institution who has interest in the Firm?

Yes/No ..... (Delete as necessary) Institution .....

.....  
(Title) (Signature) (Date)

**Part 2(i) – Experience: NOTE: THIS SECTION IS MANDATORY ONLY IF IT FORMS PART OF TECHNICAL EVALUATION. IT'S ALSO NOT NECESSARY FOR ALREADY PRE-QUALIFIED OR DIRECT PROCUREMENT FIRMS. AGPO FIRMS ARE HOWEVER EXCLUDED ENTIRELY FROM FILLING IT.**

Please list here below similar projects accomplished or companies / clients you have supplied with similar items or materials in the last **XX** years.

	Company Name	Country	Contract/Order No.	Value	Contact person (Full Names)	E-mail address	Cell phone No.
1							
2							

**Part 2 (i or j) – Bank account details:**

AGPO firms must provide evidence from their bank that the account to which KenGen shall make payment has a youth or a woman or a PWD listed in the **CR12 form/partnership deed/sole proprietor certificate** as a MANDATORY signatory of that account,- **Sec.157 (11) of PPADA:**

*Account No:.....Name of the person(s) in the CR12 form OR in the partnership deed OR in the sole proprietor certificate...../.....*

*ID No(s):...../.....Signature and stamp of the authorized Banker Representative.....Date.....*

**Part 2(j or k) – Declaration**

I / We, the undersigned state and declare that the above information is correct and that I / We give KENGEN authority to seek any other references concerning my / our company from whatever sources deemed relevant, e.g. Office of the Registrar of Companies, Bankers, etc.

Full names

.....  
Signature.....

For                                  and                                  on                                  behalf                                  of                                  M/s

.....  
In the capacity of

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

Suppliers' / Company's Official Rubber Stamp

## MANUFACTURER'S AUTHORIZATION FORM

To *[name of the Procuring entity]* .....

**WHEREAS** .....*[ name of the manufacturer]* who are established and reputable manufacturers of .....  
*[name and/or description of the goods]* having factories at .....  
..... *[address of factory]* do hereby authorize .....  
..... *[name and address of Agent]* to submit a tender, and subsequently negotiate and sign the Contract with you against tender No. ....  
..... *[reference of the Tender]* for the above goods manufactured by us.

We hereby extend our full guarantee and warranty as per the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Tenders.

---

*[signature for and on behalf of manufacturer]*

*Note:* This letter of authority should be on the letterhead of the Manufacturer and should be signed by a person authorized.