

APRIL 2023

**JAMAICA PUBLIC SERVICE COMPANY, LTD.**

**REQUEST FOR THE SUPPLY OF**

**TWO (2) 38KV VACUUM  
CIRCUIT BREAKER  
(TO BE USED WITH CAPACITOR BANKS).**

KOLONJE MCKENZIE  
BUYER-PURCHASING AND CUSTOMS  
JAMAICA PUBLIC SERVICE COMPANY LIMITED

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## **1.0 Introduction**

The Jamaica Public Service Company Limited (JPS) is seeking qualified offers from manufactures or authorized manufacturer's representatives to supply the company with Brackets per list in section 1.2 scope of this RFP.

### **1.1 About JPS**

The Jamaica Public Service Company Limited (JPS) is an integrated electric utility company, and the sole distributor of electricity in Jamaica. The Company is engaged in the generation, transmission and distribution of electricity, and also purchases power from a number of independent power producers (IPPs).

Marubeni Corporation of Japan and East West Power Company (EWP) of Korea are majority shareholders, with joint ownership of eighty percent of the shares in JPS. The Government of Jamaica and a small group of minority shareholders own the remaining shares.

JPS serves over 600,000 residential, commercial and industrial customers, through a workforce of over of 1,700 employees and a network of offices throughout the island. The Company owns and operates 4 power stations, 8 hydroelectric plants, one Wind Park, 43 Substations, and approximately 14,000 kilometers of distribution and trans-mission lines. The total installed generating capacity is 789 MW. The company owns 80%, or 621.0 MW of this capacity. The remaining 168 MW is owned by Independent Power Producers (IPPs). The company also manages and operates the transmission and distribution system.

Along with the provision of electricity, the JPS is a key partner in national development. The Company has a vibrant corporate social responsibility portfolio and makes significant contributions in the areas of education, sports, and community development. The Company also has a strong environmental focus and carries out its operations in an environmentally friendly manner.

Jamaica lies 145 kilometers south of Cuba and 160 kilometers west of Haiti. Its capital city, Kingston, is about 920 kilometers southeast of Miami. At its greatest extent, Jamaica is 235 kilometers long, and it varies between 35 and 82 kilometers wide, with an area of 10,911 square kilometers. The highest area is that of the Blue Mountains. The crest of the ridge exceeds 1,800 meters. The highest point is Blue Mountain Peak at 2,256 meters.

Two types of climate are found on Jamaica. An upland tropical climate

prevails on the windward side of the mountains, whereas a semiarid climate predominates on the lee-ward side. Warm trade winds from the east and northeast bring rainfall throughout the year. The rainfall is heaviest from May to October, with peaks in those two months. The average rainfall is 196 centimeters per year. Temperatures are fairly constant throughout the year, averaging 25 °C to 32 °C in the lowlands and 15 °C to 22 °C at higher elevations. Temperatures may dip to below 10 °C at the peaks of the Blue Mountains.

Jamaica lies at the edge of the hurricane track; as a result, the island usually experiences indirect storm damage. Hurricanes occasionally strike the island with full force, including winds speeds up to 240 km/hr. JPS has the following status with Jamaica Customs – Authorized Economic Operator (AEO). It is an internationally recognized quality mark which indicates that the JPS supply chain is secure, and that the JPS customs' procedures and policies are compliant. With this designation, JPS Warehouse and Procurement Teams are subject to audit and monitoring by Jamaica Customs.

The Office of Utilities Regulation (OUR) has regulatory authority over JPS' operations

## 1.2 Scope of RFP

Line	Description	Unit	Quantity
1	38KV CAPACITOR CIRCUIT BREAKER TO BE USED WITH CAPACITOR BANKS	EACH	2

## 1.4 Definitions

**Bidder, Vendor or Contractor** shall mean JPS qualified provider of goods and / or services acting in the role of the prime Contractor who responds with a proposal to this RFP.

**Bid/ Proposal** shall mean the Bidder's formal written response indicating committed price, delivery schedule and conformance to product specification

All references to JPS or Company shall mean the Jamaica Public Service Company Limited.

**"The Purchaser"** means the Organization purchasing the Goods, i.e. Jamaica Public Service Company limited

**"The Supplier"** means the individual or firm supplying the Goods under this Contract;

**"The Contract"** means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, including attachments and appendices thereto and all documents incorporated by reference therein.

**"The Contract Price"** means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.

**"The Goods"** means all the items the Supplier is required to supply to the Purchaser under the Contract.

**"Services"** means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as the taking of measurements, training and other such obligations of the Supplier covered under the Contract.

**"Approved"** means approved by the Purchaser or its delegated representatives; and

**"Specified"** means specified by the Purchaser; either on drawings, or in writing.

**"Delivery"** means delivered to JPS designated locations unless otherwise specified.

**"Days"** means calendar days acceding to the Gregorian calendar.

This document shall not be construed as a request for the authorization to perform work at JPS expense. Any work performed by the Bidder in connection with preparation and responding to the Request for Proposal (RFP) and, if selected, negotiating a definitive agreement will be at the Bidder's own discretion and expense. This RFP does not represent a commitment to enter into a contract.

JPS reserves the right to reject any and all proposal(s) at its sole and absolute discretion. Submission of a proposal constitutes acknowledgment that the Bidder has read and agrees to be bound by such terms and conditions as outlined in the Bid document.

## **2.0 General Instructions to Bidders**

The Bidder is expected to examine all instructions, terms specifications in

the Bidding Documents. Failure to furnish all information required by the Bidding Documents or submission of a bid not substantially responsive to the Bidding Documents in every respect will be at the Bidder's risk and may result in the rejection of its bid.

## **2.1 Points of Contact (POC)**

All communications and questions with JPS regarding this RFP must be directed to the following Points of Contact (POC):

Name: **Kolonje McKenzie**  
CC: Ms. Dianne Plummer  
Address: Jamaica Public Service Company Ltd  
113 Washington Boulevard  
Kingston 20, Jamaica WI

Email: [komckenzie@jpsco.com](mailto:komckenzie@jpsco.com) cc: [dplummer@jpsco.com](mailto:dplummer@jpsco.com)

## **2.2 Communication Regarding the RFP**

*Unauthorized communications concerning this RFP with other Company employees, executives or Contractors may result in immediate disqualification.*

All communication and questions should be submitted in writing, electronically to the POC. In order to ensure consistency in the information provided to Bidders, responses to questions received will be communicated to all participants, without revealing the source of the inquiries.

Only written responses will be considered official and binding. JPS reserves the right, at its sole discretion, to determine appropriate and adequate responses to questions and requests for clarification.

A Bidder contact should be provided for all questions and clarifications arising from the Proposal Queries should include:

- (a) Company's name, company address and phone number, contact person, email address, position.
- (b) References to specific points within this RFP using the Section number as reference
- (c) Clear and concise questions

## **2.3 RFP Amendment and Cancellation**



At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the Bidding Documents by amendment.

The amendment will be done in writing to all prospective Bidders who have received the Bidding Documents, and will be binding on them.

In order to afford prospective Bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser may, at its discretion, extend the deadline for the submission of bids.

JPS reserves the unilateral right to cancel or reissue the RFP at its sole discretion. Bidders will respond to the final written RFP and any exhibits, attachments and amendments.

## **2.4 Confidentiality of Data**

The Bidder should recognize that JPS operates in a sensitive business environment and, for that reason the Bidder must treat the materials and data provided by JPS as confidential. The successful Bidder may be required to agree to and execute the confidentiality agreement.

## **2.5 Written Clarification**

JPS reserves the right, at its sole discretion, to request clarifications of any Proposal or to conduct discussions for the purpose of clarification with any or all vendors. The purpose of any such discussions will be to ensure full understanding of the proposal.

Discussions will be limited to specific sections of the proposal identified by JPS and, if held, will be after initial evaluation of the Proposal. If clarifications are made as a result of such discussion, the vendor will submit such clarifications electronically.

Refusal to respond to JPS request for clarifications may be considered non-responsive and be used as grounds for rejection of the Proposal.

## **2.6 Oral Clarification**

If requested, the vendor will make an oral presentation to the Proposal Evaluation Team and other designated Company representatives. All expenses for the presentation will be borne by the vendor.

## **3.0 Bid Format**

The bid shall be prepared in two (2) parts, Financial and Technical. The Technical profile, should not contain any pricing information. The financial proposal shall be separate and contain price information.

The proposals must include the following in the prescribed order below: -

A. **Financial Profile**

- a) General Information Sheet
- b) Evidence of establishment, type of organization, size, and professional affiliate
- c) Executive Summary indicating why your firm should be chosen to provide the goods or services for JPS
- d) Provide the names and profiles of the top 3 executives
- e) Audited Financial Statements for the last 2 years
- f) The financial proposal shall consist of cost estimates along with a payment schedule.
- g) Quotations must be submitted in the form specified in the Scope of Requirements (**Appendix 3**) and should include any applicable volume discounts or rebates.

B. **Technical Proposal**

- a) Qualification and experience of your staff that will provide the goods described in the Scope of Requirements
- b) The technical data sheet which govern the goods covered under this RFP.

All the relevant drawing as it relates to the proposal.

Technical Specification should include Guaranteed Performance, any applicable Safety & Environmental Standards.

**3.1 Bid Prices**

The Bidder shall indicate the unit prices and total Bid Prices of the goods and services it proposes to supply under the Contract:

Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract.

If prices are subject to an adjustment clause, kindly state:

1. The variables that will affect the price
2. The reference index that will govern movement of prices and
3. The base price index.

**3.2 Proposal Withdrawal**

The Bidder may modify or withdraw its proposal after the proposal's submission, provided that written notice of the modification or withdrawal is received by the

Purchaser prior to the deadline prescribed for submission of proposals. To

withdraw a proposal, the Bidder must submit a written request electronically or signed document by an authorized representative to JPS before the deadline for submitting proposals. After withdrawing a previously submitted proposal, the Bidder may submit another proposal at any time up to the deadline for submitting proposals.

**3.3 Cost of Proposal Preparation**

The Bidder shall bear all costs associated with the preparation and submission of its bid, and the JPS will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

**3.4 Bidder's Eligibility and Qualifications**

This invitation for Bids is open to all suppliers from eligible source countries.

(a) In the case of a Bidder offering to supply goods under the Contract which the Bidder did not manufacturer or otherwise produce, the Bidder has been duly authorized by the goods' manufacturer or producer to supply the goods in the Purchaser's county.

(b)The Bidder is to confirm the financial, technical and production capability necessary to perform on the Contract.

(c) Contractors are to provide proof of MR certification regarding proof of competency to perform the servicing of diverter switches.

**3.5 Period of Validity of Bids**

Bids shall remain valid for sixty (60) days, after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period may be rejected by the Purchaser as non-responsive.

**4.0 Submission of Bids and Selection Criteria**

All responses must be in English Language. Your bid response must be presented in two (2) separate files namely Financial/Costing and Technical Specifications. The deadline for submission of bids is **11:59pm on Tuesday May 16, 2023.**

<b>RFP CALENDAR</b>		
<b>ACTIVITY</b>	<b>DUE DATE</b>	<b>RESPONSIBILITY</b>
RFP date	April 25, 2023	JPS

<b>RFP CALENDAR</b>		
<b>ACTIVITY</b>	<b>DUE DATE</b>	<b>RESPONSIBILITY</b>
Bidder submits questions on RFP	May 1, 2023	Bidder
Final date to respond to all queries	May 5, 2023	JPS
Bidder provide their intension to bid	May 10, 2023	Bidder
Completion of RFP and deadline for submission of bids to JPS	May 16, 2023	Bidder
Bid Opening	May 17, 2023	JPS

The Company may, at its discretion, extend this deadline for the submission of bids, in which case all rights and obligations of the Company and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended. The dates are subject to change on the RFP Calendar.

#### **4.1 Late Bids**

Any bid received by the Company after the deadline for submission of bids prescribed by the Company will be rejected and/or returned unopened to the Bidder.

#### **4.2 Sealing and Marking Bids**

Observing the deadline of the RFP, responses should be submitted electronically with appropriately file labels/names, and information required using ShareFile by Citrix. Documents should be Adobe Pdf file formats. Proposal must be signed by an official, authorized personnel who can bind the contractor to the provision of the RFP.

All uploads will be confidential. Additional information on this software can be accessed by clicking the links below:

- Basic Client Guide <https://citrix.sharefile.com/share/view/s1bff52f8d434781a>
- Training (video) <https://www.sharefile.com/support/training>

Activities are guided by the dates stated in the Calendar of Events

highlighted in Section 4 of this RFP. Observing these dates,

- 1) Section 2.1 provides Instructions to submit questions via email only
- 2) A combined response to questions will be shared with all bidders
- 3) Respondents must confirm their intention to bid in order to be setup in JPS ShareFile folder
- 4) Access to individual vendor folders will be given 1 weeks before the bid closes to eliminate any issues for bid upload by RFP deadline.
- 5) Files must be accurately labelled/named. Commercial Information must be a separate file from your Technical Overview.
- 6) ShareFile Access will be removed when the bid closes.

### **4.3 Proposal Rejection**

Any bid received after the deadline for submission of bids prescribed by the Company will be rejected. Any proposal received that does not meet the requirements of this RFP may be considered to be non-responsive, and the proposal may be rejected.

Bidders must comply with all of the terms of this RFP. JPS may reject any proposal as being non-responsive that does not comply with the terms, conditions and characteristics of this RFP or the key criteria for selection.

JPS reserves the right, at its sole discretion, to reject any and all proposals or to cancel this RFP in its entirety, and to accept a proposal other than the lowest price or proposal presented outside of this RFP that meets the company's requirement.

JPS assumes no responsibility for delays caused by any mail/bearer delivery service.

### **5.0 Selection Process and Award Criteria**

JPS will evaluate proposals using an internal scoring method that weighs various parameters to give the evaluation team insight into the strengths of each proposal relative to JPS needs. JPS internal scoring method values the following proposal attributes (Order of presentation here does not reflect priority)

#### TECHNICAL EVALUATION

CRITERIA	Score
Compliance to JPS specification	Pass/Fail

#### COMMERCIAL EVALUATION

CRITERIA	Score (%)
Price	90
Terms of payment	5
Delivery / Lead Time	5
Total	100

### **5.1 Opening of Bids by Purchaser**

The Purchaser will open bids privately, on *Wednesday May 17, 2023*. At the following location:

Jamaica Public Service Company Limited  
113 Washington Boulevard  
Kingston 20  
Jamaica, W.I.

### **5.2 Schedule**

For purposes of responding to this RFP, Bidders should assume that JPS' procurement and implementation planning will be completed by *June 2023*.

### **5.3 Clarification of Bids**

To assist in the examination, evaluation and comparison of bids the Purchaser may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing and no change in the price or substance of the bid shall be sought, offered or permitted, except as required to confirm the correction of arithmetic errors.

### **5.4 Preliminary Examination**

The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

Arithmetical errors will be rectified on the following basis:

1. If there is a discrepancy between the unit price and the total price, the unit price shall prevail;

2. If there is a discrepancy between words and figures, the amount in words shall prevail;
3. If the supplier does not accept the correction of errors, its bid shall be rejected.

documents without material deviations or reservations. A material deviation or reservation is one which affects in any substantial way the scope, quality or performance of the contractual obligations or which limits in any substantial way or inconsistent with the bidding documents and the rectification of which deviation or reservation would affect unfairly the competitive position of other bidders presenting substantially responsive bids. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

A bid determined as not substantially responsive will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the non-conformity.

The Purchaser may waive any minor informality or non-conformity or irregularity in a bid, which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

**Bid inconsistencies:** Any deviation in a bidder's proposal that are inconsistent with the provisions of this Bid, unless expressly described in the proposal as being exceptions or alternates, are deemed waived by the Bidder. In the event that the Contract is awarded to the bidder, any claim of inconsistency between the proposal and this Bid will be resolved in favor of this bid unless otherwise agreed in writing.

## **5.5 Bid Currency:**

Prices quoted by the bidder and further negotiated and agreed between the bidder and JPS shall be fixed during the bidder's performance of the contract and not subject to variations on any account.

International Supplier

- Prices should be quoted in USD.

Local Supplier

- Prices should be quoted in JMD

## **6.0 Award of Contract**

### **6.1 Award or Rejection**

The Purchaser will award the contract to the successful Bidder(s) whose bid has been determined to be substantially responsive. The Purchaser reserves the right not to accept the lowest bid if it does not meet JPS requirement.

Issuance of this bid does not constitute a commitment by JPS to award any contract or purchase products or services offered in response to this bid.

### **6.2 Purchaser's Right to Accept Any Bid and to Reject Any or All Bids**

The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Purchaser's action.

### **6.3 Notification of Award**

Prior to the expiration of the period of bid validity, the Purchaser will notify the successful Bidder in writing by email or fax, that its bid has been accepted. Upon the successful Bidder's signing a contract with JPS for the subject RFP, the Purchaser will promptly notify each unsuccessful Bidder.

## **7.0 General Conditions of Contract**

These General Conditions shall apply to the extent that provisions in other parts of the Contract do not supersede them.

### **7.1 Contract Term**

The period of Contract shall be for the duration of the service being reform subject to prior termination as herein provided and shall be effective from the date of signing of the Contract.

The Contractor is obligated to perform in accordance with the scope of work and project requirements.



## **7.2 Standards**

All product shall conform to the latest editions of all relevant ANSI standards. Where equipment, components or materials are not covered by appropriate ANSI standards, relevant IEE, NEMA, ASTM, AISC and AWS shall apply. If equipment or materials conforming to other recognized national standards are offered, the bidder shall submit a copy, in English, of the standard offered and shall itemize the pertinent areas where the standard differs from the requirements of the relevant ANSI standard.

The supplier shall comply with JPSCo's Health, Safety, Security and Environment Regulation and any other local and or international regulations regarding the safe handling, transport, use and disposal of the material covered by this contract.

The supplier agrees to provide at no cost to JPSCo periodic testing of in service materials. The frequency of testing shall be mutually agreed upon by JPSCo and the supplier.

## **7.3 Use of Contract Document and Information**

The Supplier shall not, without the Purchaser's prior written consent, disclose the Contract, or any provision thereof, of any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only as far as may be necessary for purposes of such performance.

The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in the above paragraph except for purposes of performing the Contract.

Any document, other than the Contract itself, as enumerated above shall remain the property of the purchaser and shall be returned (in all copies) to the Purchaser on completion of the supplier's performance under the Contract if so required by the purchaser.

### **Proprietary Content:**

JPS understands that certain elements of the Bidder's proposal may contain information, including pricing, that is competitively sensitive. JPS acknowledges that all information furnished in the proposals will be for the exclusive use of JPS, in evaluating and selecting a Supplier for goods or services, and that all parties will respect the sensitive nature of that information in accordance with sound commercial practices.

## **7.4 Inspection and Tests**

The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract.

The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery and/or at the Good's final destination. Where conducted on the premises of the supplier or its subcontractor(s), all reasonable facilities and assistance - including access to drawings and production data - shall be furnished to the inspectors at no charge to the Purchaser.

Should any inspected or tested Goods fail to conform to the Specifications, the Purchaser may reject them and the Supplier shall either replace the rejected Goods or make all alterations necessary to meet the specification requirements free of cost to the Purchaser.

The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Good's arrival in the Purchaser's country shall in no way be limited or waived by reason of the Goods having been previously inspected, tested and passed by the Purchaser or its representative prior to the Goods' shipment from the country of origin.

## **7.5 Prices**

Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not, with the exception of any price adjustments authorized and agreed on by Supplier and Purchaser, vary from the prices quoted by the Supplier in its bid.

## **7.6 Delivery and Shipment**

### a) Local suppliers

It is the responsibility of the Seller to obtain at their expense:

- all licenses
- customs formalities
- transport associated with the delivery of the goods to JPS

The Seller shall bear all risks of loss of or damage to the goods until such time as they have been delivered to JPS.

The Seller must provide the goods, the payment invoice and delivery slip in conformity with the contract and any other evidence of conformity; (example test certificates,) which may be required by the contract.

### b) Overseas suppliers

accordance with Incoterms 2020.

## **7.7 Payment**

a) Overseas suppliers

Payment shall be effected within 60 days of receipt and acceptance of the product by JPS.

The preferred payment term for JPS to its Supplier is through open account, net 60 days. Should the supplier not opt to have payment made via open account, a 5% charge will be added to the bidders' payment proposal in the evaluation process.

b) Local suppliers

Payment shall be effected within 30 days of receipt and acceptance of the product by JPS.

The preferred payment term for JPS to its Supplier is through open account, net 30 days. Should the supplier not opt to have payment made via open account, a 5% charge will be added to the bidders' payment proposal in the evaluation process.

## **7.8 Warranty**

Proposal must carry: OEM approval, Manufacturer's warranty and Independent accreditation.

The Supplier warrants that the goods supplied under the Contract are new, unused, of the most re-cent or current models and incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that the Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except insofar as the design or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions obtaining in the country of final destination.

This warranty shall remain valid for twelve (12) months after the Goods, or any portion thereof as the case may be, have been delivered (and commissioned) to the final destination indicated in the Contract.

The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

Upon receipt of such notice, the Supplier shall, depending on which of the methods can be achieved more expeditiously with reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Purchaser and under the terms and conditions as if the replacement Goods or parts were being delivered to the Company for the first time.

If the Supplier, having been notified, fails to remedy the defect(s) within a reasonable period, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

### **7.9 Contract Amendments**

No variation in or modification of the terms of the Contract shall be made except by written amendment signed by the duly authorized agents of both parties.

### **7.10 Assignment**

The Supplier shall not assign, in whole or part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

### **7.11 Subcontracts**

The supplier shall notify the purchaser in writing of all subcontracts awarded under the Contract if not already specified in his bid. Such notification, in his original bid or later, shall not relieve the supplier from any liability or obligation under the Contract with the Purchaser.

JPS reserves the right to refuse, at its sole discretion, any subcontractors or any personnel provided by the supplier or its subcontractors based on standards JPS deems reasonable.

### **7.12 Delays in the Supplier's Performance**

If at any time during the performance of the Contract, the Supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Purchaser shall evaluate the situation and may at its discretion extend the Supplier's time for performance, in which case the extension

shall be ratified by the parties by amendment of the Contract, or terminate the Contract for default.

### **7.13 Liquidated Damages**

If the supplier fails to deliver the goods in accordance with the agreed delivery schedule, the purchaser shall without prejudice, to its other remedies under the contract, deduct from the contract price, as liquidated damages, a sum equivalent to two and one half percent (2.5%) of the delivered price of the delayed goods for each month of delay until actual delivery up to a maximum deduction of fifteen percent (15%) of the delayed goods contract price. Once the maximum is reached, the purchaser may consider termination of the contract.

### **7.14 Termination for Default**

The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or in part:

- (a) If the Supplier fails to deliver any or all of the Goods within the time period(s) specified in the Contract, or any extension thereof granted by the Purchaser.
- (b) If the supplier fails to perform any other obligation(s) under the Contract.

In the event the Purchaser terminates the Contract in whole or in part. The Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Goods similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods. However, the Supplier shall continue performance of the Contract to the extent not terminated.

### **7.15 Force Majeure**

The Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, the delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

For the purposes of this clause, "Force Majeure" means an event beyond the control of the Supplier and not involving the Supplier's fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Purchaser either in its sovereign or contractual capacity, wars or revolutions, fires, floods, hurricanes, epidemics, quarantine restrictions and freight embargoes.

If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise

directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

### **7.16 Termination for Insolvency**

The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, without compensation to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

### **7.17 Termination for Convenience**

The Purchaser, may by written notice sent to the Supplier, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of work under the Contract is terminated, and the date upon which such termination becomes effective.

The Goods that are complete and ready for shipment within 30 days after the Supplier's receipt of notice of termination shall be purchased by the Purchaser at the Contract terms and prices. For the remaining goods, the Purchaser may elect:

- (a) To have any portion completed and delivered at the Contract terms and prices; and/or
- (b) To cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and for materials and parts previously procured by the Supplier.

### **7.18 Governing Language**

The Contract shall be written in the language of the bid, English. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in that same language.

### **7.19 Applicable Law**

The Contract shall be interpreted in accordance with the laws of the Purchaser's country.

### **7.20 Resolution of Disputes:**

The dispute resolution mechanism to be applied shall be as follows:

- (a) In the case of a dispute between the Purchaser and a Supplier which is a national of the purchaser's country, the dispute shall be referred to adjudication/arbitration in accordance with the laws of the Purchaser's country; and
- (b) In the case of a dispute between the Purchaser and a foreign Supplier, the dispute shall be settled by arbitration in accordance with the provisions of the UNCITRAL Arbitration Rules.

There shall be one Arbitrator.

### **Specifications**

Notwithstanding the attached information, all drawings and technical literature detailing the description of the product and services being offered must accompany the Bid (MSDS, LM 79, LM 80, etc.) and be included with the technical proposal.

## **7.21 Packing and Delivery**

The Supplier shall ensure that all shipments are packed properly for shipment and protected from the harsh environment in which it may be subjected over a long period.

No delivery of equipment or materials shall be initiated without the written approval of the Purchaser. Deliveries should be made in accordance with the Schedule of Deliveries and unnecessarily early delivery will not be acceptable.

All equipment and materials shall be delivered to:

Jamaica Public Service Co. Ltd  
6 Knutsford Blvd  
Kingston 5  
Attention: Dianne Plummer

**APPENDIX 1**

**REQUEST FOR PROPOSAL (RFP)  
38KV Circuit Breaker for Capacitor Bank  
RFP # 945596**

**GENERAL INFORMATION**

Name of Organization: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Key Contact: \_\_\_\_\_

Title: \_\_\_\_\_

Telephone Numbers: \_\_\_\_\_  
\_\_\_\_\_

Email Address: \_\_\_\_\_



## Company Profile

Please submit the requested information below:

- Directors names and profiles
- Company references
- Complete set of audited financial statements for the last two (2) years
- Average employee tenure
- Staff turnover ratio
- Names of top 5 executives, their tenure, experience, qualifications etc.
- Three (3) top achievements of the company in the last 5 years
- Companies must state 5 reasons for JPS to consider Partnering/Selecting them (your company) for this RFP
- Organizational structure for the top five levels in your organization.
- Please provide a short profile such as name, title, experience and education level for the personnel at the top five levels within the organization
- How long has your company been in business?
- How many people do you employ?
- Does your company currently have a Risk Management or Business Continuity Programme in place?
  - If yes, please provide details of the programme you have in place
- Three (3) Customer references (for similar purchases)

## APPENDIX 2

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**with capacitor bank)**

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**TS.01 Summary of Work****TS.01.1 Description of Works**

This specification covers the design, manufacture, factory testing and delivery of 38kV vacuum circuit breaker complete with all necessary fittings, mounting frames accessories and spare parts.

**TS.01.2 Location**

Jamaica Public Service Company substation

**TS.01.3 Scope of Work**

The Supplier shall design, supply, factory test and deliver to Kingston, Jamaica, W.I. all equipment and material in accordance with these specifications.

**TS.01.4 Specification Drawings**

The Supplier is free to use designs and arrangements that best suit the equipment proposed. Detailed design and provision of proper electrical working clearances, phase to phase and phase to ground shall be the responsibility of the Supplier.

**TS.01.5 Works Not Included**

The following work shall not form part of this contract

- Assembly, installation, adjustment and commissioning of equipment on site unless separately and specifically requested by Purchaser.

**TS.01.6 Supplier's Drawings and Schedules**

The Supplier shall submit two (2) copies of drawing(s) showing any proposed deviations from the original tender, for review by the Purchaser.

The Supplier shall submit, for review, within the time specified in the agreed Work Schedule, two (2) copies of all general assembly drawings, together with such additional detailed drawings as are required or specifically requested to fully demonstrate that all parts of the equipment to be furnished will conform to the provisions and intent of this specification. Any drawing of a preliminary nature must be so indicated.

One copy of each drawing submitted for review will be returned with any necessary changes or comments noted on the drawing. The drawings will be reviewed only for general design, overall dimensions and materials. Review by the Purchaser will not relieve the supplier of responsibility for conformity to the specification, correct details and fit of parts when erected. Drawings which have been reviewed except "as noted" will not have to be resubmitted for review unless so indicated. No major revision affecting the design shall be made after a drawing has been approved, without resubmitting the drawing for review. Every revision shall be shown by number, date and subject in a revision block. The symbology to be used shall be in accordance with ANSI Standards.

All applicable requirements in the preceding paragraphs, with reference to drawings, shall apply to catalog cuts, illustrations, printed specifications or any other data submitted.

After reviewed drawings have been received, the Supplier shall without delay complete all necessary corrections or additions and furnish the Purchaser with one (1) reproducible (Mylar or Dylar) copy of each drawing. If minor revisions are made subsequently, one (1) reproducible (Mylar or Dylar) copy of the revised drawing shall be forwarded to the Purchaser.

The Bill of Materials shall be treated as a drawing and one (1) reproducible (Mylar or Dylar) copy shall be furnished. Soft copy in AutoCAD 2000 – shall also be provided for all final drawings. In addition to the requirements specified in Section TS.02.0 "General Requirements" for drawings related to the equipment being supplied.

**TS.02            General Requirements****TS.02.1        Work Schedule**

The Supplier shall submit within 15 working days of acceptance of the tender a general Work Schedule showing key dates required for sub-orders and drawing approvals so that the specified delivery date(s) shall be met.

The schedule shall indicate commencement and completion dates for the principal features of the Works including, but not limited to, engineering design and submittal of drawings for review.

**TS.02.2        Information to be Submitted by the Supplier**

The Supplier shall submit to the purchaser drawings, design data, operation and maintenance manuals, as may be called for herein, or as the purchaser may reasonably require. The Supplier's drawings and design data shall bear the Supplier's official verification that the information shown thereon has been checked by the Supplier and is correct for use in construction, except for drawings of a preliminary nature furnished for information only, which shall be clearly identified as such.

Where applicable, the following essential drawings and information are to be submitted for approval before manufacture commences.

- equipment arrangement - plan and elevations
- dimensioned outline drawings, details and weights of all equipment
- equipment type test reports
- nameplate diagram
- equipment wiring diagrams
- schematic control diagrams
- manuals for installation, operation and maintenance of the equipment
- testing and commissioning procedures

### **TS.02.3 Submission and Approval of Drawings**

The Supplier shall submit two (2) copies of all drawings, and data to the Purchaser for approval.

The Purchaser will either approve these documents or, request changes or modifications to be made, and shall return one (1) copy to the Supplier within two (2) weeks after receipt of the drawings. The time required for the approval, revision and possible resubmission of drawings must be allowed for in the overall schedule.

The Supplier shall submit for final approval revised copies within two (2) weeks of the receipt of the marked-up drawings. Any manufacturing done before approval of the drawings will be at the Supplier's own risk. The Purchaser will have the right to require the Supplier to make any changes in design which are necessary, in the opinion of the Purchaser, to make the equipment conform to the requirements and intent of the Specifications without additional cost.

All drawings or documents submitted to the Purchaser shall bear the Supplier's stamp "For Approval", the date of submission and the Supplier's signature.

Drawings will be reviewed only for general design, overall dimensions and materials. Approval by the Purchaser of the Supplier's drawings shall not relieve the Supplier of his responsibility for the correctness of his drawings.

Drawings and data shall be submitted within the agreed time after the date on which an order or letter of intent is received by the Supplier.

### **TS.02.4 Drawing Format**

Each Drawing shall have a title block provided at the lower right-hand corner. The following information shall be included in the title block but shall not be limited to:

- the Supplier's name
- the Purchaser's name (Jamaica Public Service Company Limited)
- drawing title (brief description of drawing)
- drawing and revision number
- first date and revision dates
- scale and scale bar (where applicable).

Letters and figures shall be clear, uniform and evenly spaced. The graphical symbols on electrical drawings, diagrams, and other documents shall be in accordance with ANSI standards.

**Dimensions of drawing frames without folding margin shall be as follows**

Drawing	Dimension of Size Drawing Frame (mm)
A1	566 x 801
A2	400 x 566
A3	283 x 394

Outline drawings of major electrical equipment, panels, schematics and substation steel details shall be A1 format.

Units of measure and weights shall be expressed in the metric (SI) system of measurements.

**TS.02.5 Installation, Operation and Maintenance Manual**

Three (3) copies of the installation, operation and maintenance manual shall be furnished by the Supplier not later than thirty (30) days before shipment of equipment and materials. This must be written in English.

If this schedule is not met, the supplier shall send the O&M manuals by airfreight to arrive Kingston, Jamaica before the equipment.

The manual shall contain the following minimum information:

- General descriptive information
- Assembly and/or erection details
- Operating and Maintenance instructions
- Instructions for testing and adjustments
- One copy of each approved drawing including catalog cuts and other pertinent data.
- Test Certificate(s)
- List of recommended spares
- Equipment insulation curves
- Parts identification list for each item of equipment furnished
- Manufacturer's descriptive information and instructions for all accessory equipment.



## **TS.02.6 Inspection and Testing**

All equipment and materials supplied under this Contract shall be subject to inspection and testing by the Purchaser or his appointed representative. Satisfactory completion of such inspection and testing shall not prejudice the right of the Purchaser to reject the equipment if it fails to comply with the Specifications or fulfill the function for which it was intended.

The Supplier shall perform factory tests on all materials, equipment, parts, assemblies and sub-assemblies in accordance with the latest revisions of the applicable standards. The Supplier shall comply in every respect with the provisions of Section GC.08 of the General Conditions of Contract concerning Inspection and Tests of material and equipment.

The Supplier shall conduct the tests and provide all necessary labor and equipment to carry out the tests.

## **TS.02.7 Standards**

All equipment and materials shall conform to the latest editions of all relevant ANSI standards. Where equipment, components or materials are not covered by appropriate ANSI standards, relevant IEEE, NEMA, ASTM, AISC and AWS shall apply. If equipment or materials conforming to other recognized national standards are offered, the bidder shall submit a copy, in English, of the standard offered and shall itemize the pertinent areas where the standard differs from the requirements of the relevant ANSI standard.

### **The foregoing referenced standards and their abbreviations are as follows:**

<u>Name</u>	<u>Abbreviations</u>
American National Standards, Inc	ANSI
American Society for Testing and Materials	ASTM
National Electrical Manufacturers Ass.	NEMA
Institute of Electrical and Electronic Engineers, Inc.	IEEE
Insulated Cable Engineers Association	ICEA
American Welding Society	AWS
American Institute of Steel Construction	AISC

**TS.02.8****System Characteristics**

(i)	System Phase to phase voltage	24/12 kV
	Nominal system voltage	24/12 kV
	Maximum operating voltage	25.8 kV
(ii)	System BIL	150 kV
(iii)	Number of phases	3
(iv)	Frequency	50 Hz
(v)	System connection	Wye
(vi)	Method of Grounding	Effectively grounded (solid)
(vii)	Fault level (symmetrical), MVA	300
(viii)	Auxiliary power supply	120 V single-phase 240 V three-phase 125 VDC or 48 VDC

**TS.02.9****Environmental Conditions**

(i)	Type of Circuit:	Radial
(ii)	Environmental Conditions:	Tropical
(iii)	Altitude	Less than 500 ft (150 m).
(iv)	Ambient Temperatures	Maximum 40°C Average 30°C over 24hrs Minimum 15°C
(v)	Atmospheric Conditions:	Tropical climate subject to direct sunlight, 200 km/hr wind. High salt spray and dust.
(vi)	Seismic Coefficient	0.25g
(vii)	Relative Humidity	Maximum - 100% Average - 50%

**TS.02.10 Preparation for Shipment**

The Supplier shall prepare all equipment and their components in such a manner as to facilitate handling and to adequately protect them from contamination, corrosion or damage in-transit and shall be responsible for and make good any or all damages due to improper preparation or loading.

Small or fragile pieces shall be carefully boxed or otherwise protected against loss or damage during shipment. Delicate electrical and other parts shall be boxed in weather-proof containers.

It shall be the responsibility of the Supplier to take any other precautions required to ensure the arrival of the equipment in an undamaged and satisfactory working condition.

All crates, wooden reels, sacks and bundles shall be clearly marked to facilitate field identification as follows:

**Jamaica Public Service Company Limited.****38KV Capacitor Circuit Breaker**

Order No. \_\_\_\_\_

Jamaica Public Service Co. Ltd.

Substation Department,

Jamaica, W.I.

And any other relevant identification marks.

All external markings shall be legible and durably printed or stenciled on two sides and both ends (where applicable) of containers in letters at least 50 mm high.

In order to facilitate field identification, shipping documents shall include lists with type and quantities of materials contained in each crate.

**TS.02.11 Shipping Documents**

The following should be adhered to when issuing shipping documents

- (a) Original invoice must be signed and state whether prices are FOB or CIF.
- (b) No lot value should appear on the invoice, each item should have a unit price and total value.
- (c) A proper description or generic description with part number or catalogue number is required and not part number or catalogue number only.
- (d) In the case of NO CHARGE ITEMS state "Value for customs purposes only".

**TS.02.12 Tropicalization of Equipment**

In the selection of materials and equipment, due regard shall be given to the **harsh, corrosive hot and humid** conditions to which they will be subjected. Untreated organic materials, such as cotton, paper or wood, shall not be used. Operating coils of relays and meters shall be impregnated with a fungus-inhibiting varnish. Marking strips and nameplates shall be of plastic laminate or anodized aluminum. Paper label shall not be used even if protected in a plastic envelope.

Panels, enclosures and cubicles shall totally enclose the equipment. Doors of panels shall be close fitting and ventilated openings shall be suitably screened to prevent entrance of insects and rodents. All cable entrances to equipment shall be tightly sealed with gland plates.

All enclosures containing motors, instruments, control and switching equipment shall be equipped with anti-condensation heaters. The construction of the enclosures and placement of heaters shall be such as to ensure effective air circulation while avoiding local overheating.

Internal wiring shall be dual insulated thermoplastic or rubber and Teflon or halogen based non-flammable insulation suitable for a minimum continuous operating temperature of 105°C. All live and exposed conductors and connections shall be suitably insulated to prevent short-circuiting by vermin.

Prior to shipment, surfaces of wiring and all other parts susceptible to moisture absorption or fungus attack shall receive treatment with fungicidal varnish.

**TS.02.13      Packing and Delivery**

The Supplier shall ensure that all shipments are packed properly for shipment and protected from the harsh environment in which it may be subjected over a long period.

No delivery of equipment or materials shall be initiated without the written approval of the Purchaser. Deliveries should be made in accordance with the Schedule of Deliveries and unnecessarily early delivery will not be acceptable.

**All equipment and materials shall be delivered to:**

Jamaica Public Service Co. Ltd  
6 Knutsford Blvd  
Kingston 5  
Attention: Dianne Plummer

**TS.02.14      Design and Workmanship**

The design of the equipment and materials shall be such as to give long and continuous service with minimum maintenance under all operating conditions. Equipment shall be of the best quality and most suitable for the function intended, and shall withstand all normal working conditions without deterioration. All equipment shall operate without excessive vibration and noise. Equipment and accessories shall be of well-proven design and provide ease of inspection and maintenance.

The Specification layout drawings showing structures are intended to show only governing dimensions, unless otherwise indicated, and are not intended to define exact details to be furnished.

The Supplier should utilize designs and arrangements to suit his particular equipment and the design loads specified.

**TS.02.15 Spare Parts**

The Supplier shall supply spare parts required for 2 years normal operation. All spare parts shall be identical to the original parts and shall be properly treated and packed for prolonged storage in the prevailing ambient conditions. Each part shall be clearly identified with its description and function on the outside of the package.

All spare parts shall be shipped with the main equipment and shall be appropriately labeled as spares.

**TS.03 38kV, Vacuum High Voltage Circuit Breakers (to be used with capacitor bank)****TS.03.1 General**

The 38-kV circuit breakers will be used for switching and fault current interruption. All equipment furnished shall be suitable for operation under all possible load conditions.

**TS.03.2 Standards and Codes**

The circuit breakers shall comply with the requirements of all applicable standards in the ANSI C37 series and other relevant ANSI standards.

If this Specification conflicts in any way with any of the above standards or codes, this Specification shall have precedence and shall govern. However, the Bidder shall point out these conflicts in its Bid.

**TS.03.3 Ratings**

The circuit breakers shall have the following ratings.

- Nominal system voltage	38-kV
- Type of circuit breaker	Vacuum
- Rated maximum voltage	25.8-kV
- Rated frequency	50 Hz
- Rated lightning impulse withstand level	200-kV
- Min. Continuous current	600 A or 1200A (as determined by designs)
- Short circuit interrupting current	25-kA
- Maximum interrupting time	5 cycles
- Rated control voltage	125 V dc

### **TS.03.4 Design and Performance**

The circuit breakers shall be of the outdoor dead tank type, vacuum, designed with two interrupters. The breaker shall be supplied complete with operating mechanism and other accessories necessary for installation and operation.

The circuit breaker will be installed in harsh, corrosive, salt spray environment therefore special consideration must be given to this condition during the design exercise.

The circuit breaker shall be re-strike free, trip free and suitable for remote and local electrical tripping and closing, or local emergency mechanical tripping and closing. The circuit breaker shall have proven ability for full out-of-phase switching of its rated interrupting capacity, and for handling short-line fault conditions with short-circuit capacity of all current-carrying parts equal to the circuit breaker's rated interrupting capacity.

Supplier shall provide appropriate test data, curves and oscillograms to establish the ability of all equipment proposed to meet the conditions specified.

### **TS.03.5 Operating Mechanism**

The circuit breaker operating mechanism shall be a magnetic actuator with electronic controller and capacitors.

The closing operating mechanism of the circuit breaker can be operable low voltage DC supply provided with the unit (125VDC/48VDC).

The circuit breaker shall be provided with the following:

- Manual operating facility.
- Mechanical position status indicator, which clearly indicates the closed or open position of the circuit breaker. The indicator shall be visible from the ground.
- The operating mechanism should be provided with at least three "a" and three "b" contacts for the Purchaser's use.

The circuit breaker shall be equipped with trip and close coils suitable for local and remote operation from the station battery supply. It shall also incorporate a manually operated, independent, local tripping device for use in emergency or during maintenance. The necessary terminals and wiring for trip circuit supervision in both open and closed positions shall be provided.

Kirk type key interlocks shall be provided to prevent the local manual operation of the associated disconnect switches when the breaker and interrupters are closed and

closing of the circuit breaker and/or interrupters when the capacitor ground switch is closed.

Each circuit breaker shall have a facility for mechanical and electrical timing of the main interrupting contacts.

Each circuit breaker pole shall be equipped with an enclosed type mechanical position indicator clearly visible from the ground.

### **TS.03.6 Current Transformers**

All circuit breakers shall be equipped with bushing type, multi-ratio current transformers on each bushing (to be used on 12kV/24kV Wye with neutral bus configuration). The quantity on each bushing and ratings of current transformers shall be as follows:

Voltage Class:	27kV (extended creepage)
Quantity	2
Ratio:	600:5/1200:5 multi-ratio
Accuracy:	C400
Terminal connectors:	For Cu. or Al. Conductor 4/0 (107 sq.mm) to 500 MCM (253 sq.mm)

The polarity should be towards external bushing terminals. Current transformers shall be mounted such that the bushing can be removed without disturbing the transformers. The Supplier shall provide ratio and phase angle correction factor curves, excitation curves and resistance values of the secondary winding and connecting leads together with the approval drawings.

### **TS.03.7 Control and Auxiliary Power**

The following power supplies will be provided in the substation and the equipment shall be suitable for operation from these supplies, as applicable:

- DC supply voltage 125 V nominal, range 105 - 140 V
- AC supply 120 V, single-phase, 50 Hz
- 240 V, single-phase, 50Hz

### **TS.03.8 Grounding Terminals**

Ground studs and clamp type terminal connectors suitable for 7 #5 (0.428"dia) stranded copperweld cable shall be fitted near the base of the circuit breaker. The ground studs shall be of bronze, brazed to the metal unit.



## TS.03.9 Wiring and Terminations

### (a) High Voltage Bushings

Bushings for circuit breakers shall be of the porcelain (**quote for polymer bushings is also requested**) condenser type designed to have rated insulation, high mechanical strength and rigidity under the conditions under which they will be used. The bushings shall be located so as to provide adequate electrical clearance between bushings of any phase and between phases. Bushings of like voltages shall be inter-changeable. Bushings shall be so designed that there will be no undue stress on any part due to temperature changes, and adequate means shall be provided to accommodate conductor expansion. The bushings shall be as free as possible from radio disturbances when operating at normal rated voltage. The design of the circuit breakers shall be such that under impulse voltage, flashover will occur outside of the tank before flashover occurs within the breaker. Polymer type bushings shall be quoted as an option.

The bushing shall be constructed with standard 4-hole NEMA terminal pad and each circuit breaker shall be supplied with connectors suitable for accommodating stranded cable 4/0(107 sq. mm) – 500 MCM(253 sq. mm) Copper/Aluminum conductors.

it is All connectors shall be of the **bolted** type, welded connectors are not acceptable. The current carrying capacity of each connector shall not be less than the conductor to which to be applied. Connectors shall be compatible with the 150 deg. C maximum conductor temperature.

### (b) Control Wiring

All control wiring shall be 600-V, 90degC, flame- and oil-resistant insulated, stranded copper wire. Wire sizes shall be appropriate for the function, but not be less than 2.5 mm<sup>2</sup> for control circuits. All power and control wiring shall be shielded from metering conductors. All wiring connections shall be readily accessible and removable for test or other purposes. Wiring between terminals of the various devices shall be point to point. Splices or tee connections are not acceptable. Wire runs shall be neatly trunked inside the panels or in wiring troughs. All wires shall be identified at both ends with sleeve type markers.

Terminal blocks with removable marking strips shall be provided for all circuits and 20% of the total number of spare terminals shall be supplied. Terminal blocks for the current transformer leads shall be of the short-circuiting type. Buchanan type 3B or approved equal.

**TS.03.10 Nameplates**

Nameplates shall be of stainless steel and contain, but shall not be limited to the following:

- Name and address of manufacturer
- Type and designation or serial number
- Rated voltage
- Rated frequency
- Lightning impulse withstand voltage
- Rated short-circuit breaking current
- Year of manufacture
- Operating pressure range
- Control voltage range.

All nameplate data shall be legible to an observer at ground level. All equipment shall be identified, and all nameplate wording shall be subject to Purchaser's approval.

**TS.03.11 Control Cabinet**

The circuit breaker shall be provided with a rigidly framed, weatherproof, sheet steel control cabinet, minimum 3 mm thick, mounted on the breaker supporting structure and positioned such that all controls may be operated from grade level. The cabinet shall be fitted with a hinged door complete with a 3-point latch with padlocking facility and shall be equipped with a detachable bottom entry conduit plate suitable for drilling in the field. The control cabinet shall contain, but shall not be limited to:

- one set of control components, as required, to operate the 3-pole breakers
- one circuit breaker trip-close control switch, rotary, panel-mounted type, enclosed contact mechanism with removable cover
- two indicating lamps, one red and one green, for circuit breaker position indication
- one molded case 2-pole circuit breaker for dc control supply with minimum of 10 000 A interrupting capability.
- operation counter
- one two-position selector switch marked 'remote-local'
- one mechanically driven circuit breaker auxiliary switch with necessary contacts for proper circuit breaker operation, remote indication, supervisory control and indication,

and six "a" and six "b" spare contacts. All contacts shall be rated 20 A continuous and 2.5 A break of inductive load at 125-V dc

ungrounded circuit. Each contact shall be electrically independent and adjustable for late or early opening or closing. All 'a' and 'b' contacts shall be readily interchangeable

- one 15-A molded case circuit breaker having a 10,000-A rms symmetrical interrupting capacity controlling the 240-V ac supply

- one incandescent lamp with door activated switch

- one duplex convenience outlet, 15 A, 120 V, 2-pole, 3-wire, polarized, grounded

- one control cabinet dual element anti-condensation heater with thermostat.

- porcelain housings and bushings

- complete sets of interrupting contacts

- interrupting chambers

- trip and close coils

- density monitor

- sets of all necessary gaskets and 'O' rings

### **TS.03.12 Tools and Accessories**

The Supplier shall furnish a complete set of any special tools or equipment that may be necessary or convenient for assembly, filling or maintenance of the breaker. Manual operating levers and any other devices necessary for satisfactory operation shall also be furnished.

### **TS.03.13 Factory Tests**

The circuit breakers shall be completely assembled at the factory, and shall be subjected to all routine and type tests in accordance with ANSI Standards. If the Supplier can supply satisfactory proof of type tests having been completed on identical equipment, then Purchaser will waive such type tests entirely.

Purchaser reserves the right to witness all tests and shall be notified at least 3 weeks prior to the commencement of the tests.

Supplier shall furnish six certified copies of all test reports, curves and oscillograms within 2 weeks after completion of any tests.

The total cost for carrying out these tests, inclusive of the cost of all expenses including air fares, hotel transfers, meals and accommodations paid for two (2) of the Purchaser's Engineers to witness such tests, shall be included in the quoted CIF cost for the circuit breaker. But itemized separately.

#### **TS.03.14      Painting**

All painted surfaces shall be shop painted with a compatible primer which shall have a dry film thickness of not less than 75  $\mu\text{m}$ . Final paint finish shall be light grey (ANSI 70/ASA 61)

Two finish coats of light grey epoxy paint shall be applied over the primer. The paint should be weatherproof and specially treated for use in a tropical environment.

#### **TS.03.15      Bases and Structures**

The support structures shall be supplied complete with adequately sized anchor bolts.

The equipment and its supporting structures shall be designed such as to prevent any distortion under a suddenly applied load which would adversely affect the operation of the equipment.

#### **TS.03.16      Spare Parts**

All spare parts shall be interchangeable and of the same material and workmanship and shall meet the same requirements as the corresponding original parts furnished with the breaker.

The Supplier shall supply spare parts for the circuit breakers. These spare parts shall include, but not be limited to the following:

- (i) Bushings: Porcelain or Polymer
- (ii) Complete sets of contacts;
- (iii) Vacuum bottles;
- (iv) Tripping and closing coils;
- (v) Set interrupter unit;
- (vi) Two (2) complete set of gaskets.
- (vii) One (1) microprocessor-based protection/control unit for circuit breaker;

Based on the proposed scope of work the Tenderer shall specify any other type of device and quantities for which spare are recommended for an operation period of 5 years. Each item shall be adequately described and separately priced as set out in the Schedule of Spare Parts and Tools.

The Tenderer shall also propose additional spare parts necessary for 10 years operation.