



# JAMAICA PUBLIC SERVICE COMPANY, LIMITED

## ORANGE BAY OLD TRANSFORMERS REPAIR

*REQUEST FOR PROPOSALS*

The Repair of

**One (1) 25 MVA, 69/24KV DISTRIBUTION POWER  
TRANSFORMER**

**RFP # 956143**

Instructions to Bidders  
General Conditions of Contract  
Special Conditions of Contract  
Exhibits  
Bid Form  
Technical Specifications  
Schedules

**December 29 2023**

*Purchasing and Customs  
113 Washington Boulevard Kingston  
JPS Co. Ltd., Jamaica*

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**PART 1**  
**INSTRUCTIONS TO BIDDERS**

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# Introduction

## IB.01 a. Background

The Jamaica Public Service Company would like to engage a suitable manufacture or manufacture representative for the repair of one **(1) 25MVA 69/24kV Distribution Power Transformer** (here after referred to as Distribution transformers).

## b. Source of Funds

The Jamaica Public Service Company Limited (JPS) will fund the repair of the **one (1) 25 MVA, 69/24kV** Distribution transformer. An International Bank mutually agreed between JPS and the successful tender will effect payments to the Contractor.

## c. Subject of Bid

The subject of this invitation consists of the Repair of **one (1) 25MVA** Distribution transformer, complete with fittings, accessories.

Item	Description	Qty
1	<b>25 MVA, 69/24kV</b> Distribution power transformer	<b>1</b>

## IB.02 Eligible Bidders

IB.02.1 This invitation for Bids is open to all suppliers from eligible source countries as defined under the Guidelines for Procurement of the JPS Purchasing Department list of suppliers.

## IB.03 Eligible Goods and Services

IB.03.1 All goods and ancillary services to be supplied under the Contract shall have their origin in eligible source countries, be as defined under the Guidelines for Procurement of the JPS Purchasing Department and all expenditures made under the Contract will be limited to such goods and services.

IB.03.2 For purposes of this clause, "origin" means the place where the goods are mined, grown or produced or from which the ancillary services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.

IB.03.3 The origin of goods and services is distinct from the nationality of the Bidder.

## **IB.04 Cost of Bidding**

- IB.04.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Jamaica Public Service Company Limited (JPS), hereinafter referred to as "the Purchaser," will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.

# **The Bidding Documents**

## **IB.05 Content of Bidding Documents**

- IB.05.1 The goods required, bidding procedures and contract terms are prescribed in the bidding documents. In addition to the invitation for Bids, the Bidding Documents include:
- (a) Instructions to Bidders;
  - (b) General Conditions of Contract;
  - (c) Special Conditions of Contract;
  - (d) Exhibits:     Form of Bid Bond  
                      Form of Performance Bond  
                      Form of Agreement  
                      Form of Purchase Order
  - (e) Bid Form
  - (f) Schedules:    Schedule of Requirements  
                      Schedule of Transformers  
                      Schedule of Information  
                      Schedule of Prices  
                      Schedule of Deliveries  
                      Schedule of Technical Data
  - (g) Technical Specifications
- IB.05.2 The Bidder is expected to examine all instructions, forms, terms and 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.

## **IB.06 Clarification of Bidding Documents**

IB.06.1 A prospective Bidder requiring any clarification of the Bidding Documents may notify the Purchaser in writing or by email at the Purchaser's mailing address indicated in the Invitation for Bids. The Purchaser will respond in writing to any request for clarification of the Bidding Documents, which it receives no later than seven (7) days prior to the deadline for submission of bids prescribed by the Purchaser.

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

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

Name: **Kolonje McKenzie**  
CC: **Mrs. Sharlene Chunnu-Brown**  
Address: Jamaica Public Service Company Limited  
113 Washington Boulevard  
Kingston 20, Jamaica WI  
Email: [komckenzie@jpsco.com](mailto:komckenzie@jpsco.com)  
CC: [SChunnu@jpsco.com](mailto:SChunnu@jpsco.com)

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

All communications and questions should be submitted electronically to the POC's email address. In order to ensure consistency and quality of 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

## **IB.07           Amendment of Bidding Documents**

IB.07.1           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.

IB.07.2           The amendment will be notified in writing to all prospective Bidders, which have received the Bidding Documents and will be binding on them.

IB.07.3           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.

IB.07.4           The Purchaser 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.

# **Preparation of Bids**

## **IB.08           Language of Bid**

IB.08.1           The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser, shall be written in the English language.

## **IB.09           Documents Comprising the Bid**

IB.09.1           The bid prepared by the Bidder shall comprise the following components:

(a) A Bid Form and a Schedule of Prices completed in accordance with Clauses IB.10, IB.11 and IB.12;

(b) Documentary evidence established in accordance with Clause IB.13 that the Bidder is qualified to perform the contract if its bid is accepted;

- (c) Documentary evidence established in accordance within Clause IB.14 that the goods and ancillary services to be supplied by the Bidders conform to the Bidding Documents
- (d) Bid security furnished in accordance with Clause IB.15. (**The Bid Security is waived**)
- (e) Drawings

## **IB.10 Bid Form**

- IB.10.1 The Bidder shall complete the Bid Form and the appropriate Schedule of Prices furnished in the Bidding Documents, indicating for the goods to be supplied, a brief description of the goods, quantity and prices.
- IB.10.2 For the purpose of granting a margin of domestic preference pursuant to Clause IB.27, the Purchaser will classify a bid, when submitted, in one of three groups, as follows:
  - (a) Group A: Bids offering goods manufactured in the Purchaser's country for which the domestic value added in the manufacturing cost is not less than 40% of the ex-factory price;
  - (b) Group B: Bids offering goods manufactured in the Purchaser's country for which the domestic value added in the manufacturing cost is less than 40% of the ex-factory price, and for goods of foreign origin already located in the Purchaser's country; and
  - (c) Group C: Bids offering goods of foreign origin to be imported by the Purchaser directly or through the supplier's local agent.

## **IB.11 Bid Prices**

- IB.11.1 The Bidder shall indicate on the Schedule of Prices attached to these documents the unit prices and total Bid Prices of the goods it proposes to supply under the Contract:
- IB.11.2 Prices indicated on the Schedule of Prices shall be entered separately in the following manner:
  - (A) For Repairs offered abroad:
    - (i) the price of the repair quoted CIF port-of-entry in the Purchaser's country inclusive of all duties, fees and taxes incurred in exporting country.

(ii) The Purchaser is responsible for having the goods delivered to the awarded contractor's repaired facility.

IB.11.3 Fixed price: Prices quoted by the Bidder shall be fixed during the Bidder's performance of the Contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected, pursuant to Clause IB.24.

## **IB.12 Bid Currencies**

IB.12.1 Prices shall be quoted in the following currencies:

(a) For goods and services which the Bidder will supply from outside the Purchaser's country, the prices shall be quoted home country, or in US dollars.

IB.12.2 Further, a Bidder expecting to incur a portion of its expenditures in the performance of the Contract in more than one currency, and wishing to be paid accordingly, shall so indicate in its bid. In such case, either

(i) The bid shall be expressed in different currencies and the respective amounts in each currency together making up the total price, or

(ii) The total bid price shall be expressed in one currency and payments required in other currencies expressed as a percentage of the bid price along with the exchange rate used in such calculation.

## **IB.13 Documents Establishing the Bidder's Eligibility and Qualifications**

IB.13.1 Pursuant to Clause IB.09, the Bidder shall furnish, as part of its bid, documents establishing the Bidder's qualifications to perform the Contract if its bid is accepted.

IB.13.2 The documentary evidence of the Bidder's Qualifications to perform the Contract if its bid is accepted, shall establish to the Purchaser's satisfaction:

(a) That, in the case of a Bidder offering to supply goods under the Contract which the Bidder did not manufacture or otherwise produce, the Bidder has

been duly authorized by the goods' manufacturer or producer to supply the goods in the Purchaser's country;

- (b) **That the Bidder has the financial, technical and production capability necessary to perform the Contract.**

**IB.14 Documents Establishing Goods' Eligibility and Conformity to Bidding Documents**

IB.14.1 Pursuant to Clause IB.09, the Bidder shall furnish, as part of its bid, documents establishing conformity to the Bidding Document of all goods and services, which the Bidder proposes to supply under the Contract.

IB.14.2 The documentary evidence of the goods and services shall consist of a statement in the Schedule of Prices stating the origin of the goods and services offered and shall be confirmed by a certificate of origin issued at the time of shipment.

IB.14.3 The documentary evidence of the goods' and services' conformity to the Bidding Documents may be in the form of literature, drawings and data, and shall furnish:

- (a) a detailed description of the goods' essential technical and performance characteristics;
- (b) a list giving full particulars, including available sources and current prices, of all spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period of two years, following commencement of the goods used by the Purchaser; and
- (c) a clause-by-clause commentary on the Purchaser's Technical Specifications demonstrating the goods' and services' substantial responsiveness to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

IB.14.4 For purposes of the commentary to be furnished pursuant to Clause IB.14.3(c) above, the Bidder shall note that standards for workmanship, material and equipment, and references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser's satisfaction that the substitutions are substantially equivalent or superior to those designated in the Technical Specifications.

**IB.15**                    **Bid Security**  
**(THE BID SECURITY IS WAIVED)**

IB.15.1                    Pursuant to Clause IB.09, the Bidder shall furnish, as part of its bid, bid security in the amount of not less than 5% of the total of the Schedule of Prices comprising the Bid.

IB.15.2                    The bid security is required to protect the Purchaser against the risk of the Bidder's conduct, which would warrant the security's forfeiture, pursuant to para. IB.15.7.

IB.15.3                    The bid security shall be denominated in the currency of the bid or another freely convertible currency, and shall be in one of the following forms:

(a) A Bank Guarantee or Irrevocable Letter of Credit issued by a bank located in the Purchaser's country or abroad acceptable to the Purchaser, in the form provided in the Bidding Documents or another form acceptable to the purchaser and valid for 30 days beyond the validity of the bid; or

(b) A cashier's check or certified check.

IB.15.4                    Any bid not secured in accordance with para. IB.15.1 and IB.15.3 will be rejected by the Purchaser as non-responsive, pursuant to Clause IB.24.

IB.15.5                    Unsuccessful Bidder's bid security will be discharged/returned as promptly as possible but not later than 30 days after the expiration of the period of bid validity prescribed by the Purchaser, pursuant to Clause IB.16.

IB.15.6                    The successful Bidder's bid security will be discharged upon the Bidder's executing the Contract, pursuant to clause IB.34, and furnishing the performance security, pursuant to Clause IB.35.

IB.15.7                    The bid security may be forfeited

(a) if the Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form; or

(b) in the case of a successful Bidder, if the Bidder fails:

(i) to sign the Contract in accordance with Clause IB.34; or

(ii) to furnish performance security in accordance with Clause IB.35.

**IB.16**                    **Period of Validity of Bids**

IB.16.1 Bids shall remain valid for ninety (90) days after the date of bid opening prescribed by the Purchaser, pursuant to Clause IB.19. A bid valid for a shorter period may be rejected by the Purchaser as non-responsive.

IB.16.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and responses thereto shall be made in writing (or by courier or telefax). The bid security provided under Clause IB.15 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.

## **IB.17 Format and Signing of Bid**

IB.17.1 Only **Electronic submissions** will be accepted, using ShareFile by Citrix. All uploads will be confidential. Upload should be place in the appropriate folder (TECHNICAL OR Commercial). Document should be PDF format.

IB.17.2 The bid shall be signed by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract. The latter authorization shall be indicated by written power-of-attorney accompanying the bid. All pages of the bid, except for un-amended printed literature, shall be initialed by the person or persons signing the bid.

IB.17.3 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

# Submission of Bids

## IB.18 Upload and Labeling of Bids

### IB.18.1 Only Electronic submissions will be accepted, using ShareFile by Citrix. All uploads will be confidential.

- 1) Respondents must confirm their intention to bid by the intended date outline in the schedule of calendars in order to be setup in JPS ShareFile folder.
- 2) Access to individual vendor folders will be given 1 weeks before the bid closes to eliminate any issues for bid upload by RFP deadline.
- 3) Files must be accurately labelled/named. Commercial Information must be a separate file from your Technical Proposal.
- 4) ShareFile Access will be removed when the bid closes.

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>

## IB.19 Deadline for Submission of Bids

IB.19.1 Bids must be received by the Purchaser at the address specified under para. IB.18.1 no later than 11:59 pm Eastern Standard Time on **January 30, 2024**.

RFP CALENDAR		
ACTIVITY	DUE DATE	RESPONSIBILITY
RFP date	December 29, 2023	JPS
Bidder submits questions on RFP	January 9, 2024	Bidder
Final date to respond to all queries	January 15, 2024	JPS
Bidders provide their intention to bid	January 19, 2024	Bidder
Completion of RFP and deadline for submission of bids to JPS	January 30, 2024	Bidder
Bid Opening	January 31, 2024	JPS

IB.19.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the Bidding Documents in accordance with Clause IB.07, in which case all rights and obligations of the Purchaser and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

## **IB.20 Late Bids**

IB.20.1 Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser, pursuant to Clause IB.19, will be rejected.

## **IB.21 Modification and Withdrawal of Bids**

IB.21.1 The Bidder may modify or withdraw its bid after the bid's submission, provided that written notice of the modification or withdrawal is received by the Purchaser prior to the deadline prescribed for submission of bids.

IB.21.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of Clause IB.18. with the inner envelopes additionally marked **Modification** or **Withdrawal** as appropriate. A withdrawal notice may also be sent by telefax or courier but followed by a signed confirmation copy, post marked not later than the deadline for submission of bids.

IB.21.3 No bid may be modified subsequent to the deadline for submission of bids.

IB.21.4 No bid shall be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal of a bid during this interval may result in the Bidder's forfeiture of its bid security, pursuant to Clause IB.15.7.

# **Bid Opening and Evaluation**

## **IB.22 Opening of Bids by Purchaser**

The Purchaser will open bids privately.



## **IB.23 Clarification of Bids**

IB.23.1 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 arithmetical errors.

## **IB.24 Preliminary Examination**

IB.24.1 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.

IB.24.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If the supplier does not accept the correction of errors, its bid shall be rejected. If there is a discrepancy between words and figures, the amount in words shall prevail.

IB.24.3 Prior to the detailed evaluation, pursuant to Clause IB.26, the Purchaser will determine the substantial responsiveness of each bid to the Bidding Documents. For purposes of these Clauses, a substantially responsive bid is one which conforms to all the terms and conditions of the Bidding 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 is 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.

IB.24.4 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.

IB.24.5 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.

## **IB.25 Conversion to Single Currency**

IB.25.1 To facilitate evaluation and comparison, the Purchaser will convert all bid prices expressed in the amounts in the various currencies in which bid price is payable, to the United States Dollar currency equivalent and at the selling exchange rate published by an official source and applicable to similar transactions on the day bids are opened or at such later date (30 or 60 days after bid opening) as shall be specified in the call for bids.

## **IB.26 Evaluation and Comparison of Bids**

IB.26.1 The Purchaser will evaluate and compare the bids previously determined to be substantially responsive, pursuant to Clause IB.24.

IB.26.2 The Purchaser 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

<b>CRITERIA</b>	<b>SCORE</b>
At least 10 years' Experience in Power transformer Repairs	Pass/Fail
Compliance to International Standards	Pass/Fail

### Commercial.

<b>CRITERIA</b>	<b>SCORE (%)</b>
Price	90
Terms of payment	5
Delivery / Lead Time	5
<b>Total</b>	<b>100</b>

IB.26.3 The Purchaser's evaluation of a bid will exclude and not take into account:

- (a) in the case of goods manufactured in the Purchaser's country or goods of foreign origin already located in the Purchaser's country, sales and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder; and

(b) in the case of goods of foreign origin offered from abroad, customs duties and other similar import taxes which will be payable on the goods if the Contract is awarded to the Bidder.

IB.26.4 The comparison shall be of ex-factory/ex-warehouse/off-the-shelf price of the goods offered from within the Purchaser's country, such price to include all costs as well as duties and taxes paid or payable on components and raw material incorporated in the goods, and the CIF port-of-entry price of the goods offered from outside the Purchaser's country.

IB.26.5 The Purchaser's evaluation of a bid will take into account, in addition to the bid price and the price of incidental services, the following factors, in the manner and to the extent indicated in para. IB.26.5 and in the Technical Specifications:

**(a) Delivery schedule offered in the bid;**

IB.26.6 Pursuant to para. IB.26.5 the following evaluation methods will be followed:

(a) *Delivery Schedule:*

The purchaser shall receive the goods covered under the invitation, at the time specified in the Schedule of Deliveries. The estimated time of arrival of the goods should be calculated for each bid after allowing for reasonable ocean transportation time. Treating the bid offering the scheduled time of arrival as the base, a delivery "adjustment" will be calculated for other bids at 5% of the ex-factory/CIF price for each month of delay beyond the base and this will be added to the bid price for evaluation.

**IB.27 Margin of Preference**  
**Kindly Ignore – this section was intentionally omitted**

**IB.28 Contacting the Purchaser**

IB.28.1 Subject to Clause IB.23, no Bidder shall contact the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded.

IB.28.2 Any effort by a Bidder to influence the Purchaser in the Purchaser's bid evaluation, bid comparison or contract award decisions shall result in the rejection of the Bidder's bid.

# Award of Contract

## **IB.29 Post-qualification**

IB.29.1 In the absence of pre-qualification, the Purchaser will determine to its satisfaction whether the Bidder selected as having submitted the lowest evaluated responsive bid is qualified to satisfactorily perform the Contract.

IB.29.2 The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to Clause IB.13, as well as such other information as the Purchaser deems necessary and appropriate.

IB.29.3 An affirmative determination will be a prerequisite for award of the Contract to the Bidder. A negative determination will result in rejection of the Bidder's bid, in which event; the Purchaser will proceed to the next lowest evaluated bid to make a similar determination of that Bidder's capabilities to perform satisfactorily.

## **IB.30 Award Criteria**

IB.30.1 Subject to Clause IB.32, the Purchaser will award the Contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid, provided it has been determined that the Bidder is qualified to perform the Contract services satisfactorily.

## **IB.31 Purchaser's Right to Vary Quantities at Time of Award**

IB.31.1 The Purchaser reserves the right at any time of award of Contract to increase or decrease by up to 80% the quantity of goods and services specified in the Schedule of Requirements without any change in price or other terms and conditions.

## **IB.32 Purchaser's Right to Accept Any Bid and to Reject Any or All Bids**

IB.32.1 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.

### **IB.33 Notification of Award**

IB.33.1 Prior to the expiration of the period of bid validity, the Purchaser will notify the successful Bidder in writing by email or by courier or by telefax, to be confirmed in writing by registered letter, that its bid has been accepted.

IB.33.2 The notification of award will constitute the formation of the Contract.

IB.33.3 Upon the successful Bidder's furnishing of performance security pursuant to Clause IB.35, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to Clause IB.15.

### **IB.34 Signing of Contract**

IB.34.1 At the same time as the Purchaser notifies the successful Bidder that its bid has been accepted, the Purchaser will send the Bidder the Contract Form provided in the Bidding Documents, incorporating all agreements between the parties.

IB.34.2 Within fourteen (14) days of receipt of the Contract Form, the successful Bidder shall sign and date the Contract and return it to the Purchaser.

### **IB.35 Performance Security**

IB.35.1 Within fourteen (14) days of the receipt of notification of award from the Purchaser, the successful Bidder shall furnish the performance security in accordance with the Conditions of Contract, in the Performance Security Form provided in the Bidding Documents or another form acceptable to the Purchaser.

IB.35.2 If the performance Security to be provided by the successful bidder is in the form of a bank guarantee it shall be issued either:

- (a) as at the Bidder's option, by a bank located in the country of the Purchaser or by a foreign bank through a correspondent bank located in the country of the Purchaser, or
- (b) with the prior written agreement of the Purchaser, directly by a foreign bank acceptable to the Purchaser.

If the Performance Security is to be provided by the successful Bidder in the form of a bond, it shall be issued by a bonding insurance company, which has been previously approved in writing to be acceptable by the Purchaser.

IB.35.3 Failure of the successful Bidder to comply with the requirement of Clause IB.34 or Clause IB.35 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the Purchaser may make the award to the next lowest evaluated bidder or call for new bids.

**RT 2**

**GENERAL CONDITIONS OF CONTRACT**

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**GC.01**

**Definitions**

In this Contract, the following terms shall be interpreted as indicated:

- (a) "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;
- (b) "The Contract Price" means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations;
- (c) "The Goods" means all of the equipment, machinery, and/or other materials which the Supplier is required to supply to the Purchaser under the Contract;
- (d) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other such obligations of the Supplier covered under the Contract;
- (e) "The Purchaser" means the Organization purchasing the Goods;
- (f) "The Supplier" means the individual or firm supplying the Goods under this Contract;
- (g) IFI means the International Financial Institution and stands for the bank agreed on by both the purchaser and the supplier.
- (h) "Approved" means approved by the Purchaser or its delegated representatives; and
- (i) "Specified" means specified by the Purchaser; either on drawings, in the Technical Specifications, or in writing.
- (j) "Delivery" means delivered CIF Kingston, Jamaica unless otherwise specified.
- (K) "Days" means calendar days acceding to the Gregorian calendar.

**GC.02            Application**

GC.02.1            These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

**GC.03            Country of Origin**

GC.03.1            All Goods and Services supplied under the Contract shall be as defined under the guidelines of procurement of the JPS Purchasing Department. These rules are explained under the Special Conditions of Contract.

GC.03.2            For purposes of this Clause "origin" means the place where the Goods were mined, grown or produced, or from which the Services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembling of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

GC.03.3            The origin of Goods and Services is distinct from the nationality of the Supplier.

**GC.04            Standards**

GC.04.1            The Goods supplied under this Contract shall conform to the standards mentioned in the Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

**GC.05            Use of Contract Document and Information**

GC.05.1            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 so far as may be necessary for purposes of such performance.

GC.05.2 The Supplier shall not, without the Purchaser's prior written consent, make use of any document or information enumerated in para. GC.05.1 except for purposes of performing the Contract.

GC.05.3 Any document, other than the Contract itself, enumerated in para. GC.05.1 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

## **GC.06 Patent Rights**

GC.06.1 The Supplier shall indemnify the Purchaser against all third party claims of infringement of patent, trademark or industrial design rights arising from the use of the Goods or any part thereof in the Purchaser's country.

## **GC.07 Performance Security**

GC.07.1 Within fourteen (14) days after the Supplier's receipt of notification of award of the Contract, the Supplier shall furnish performance security to the Purchaser in the amount specified in the Special Conditions of Contract.

GC.07.2 The proceeds of the performance security shall be payable to the Purchaser as liquidated damages for the Supplier's failure to satisfactorily perform its obligations under the Contract and not as a penalty.

GC.07.3 The Performance Security shall be denominated in the currency of the Contract or in freely convertible currency acceptable to the Purchaser, and shall be in one of the following forms:

- (a) A bank guarantee or irrevocable Letter of Credit, issued by a bank located in the Purchaser's country or abroad acceptable to the Purchaser, and in the form provided in the Bidding Documents or another form acceptable to the Purchaser; or
- (b) A cashier's check or certified check.

GC.07.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than 30 days following the date of completion of the Supplier's performance obligations, including any warranty obligations, under the Contract.

**GC.08            Inspections and Tests**

- GC.08.1            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 Special Conditions of Contract and/or the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing of the identity of any representatives retained for these purposes.
- GC.08.2            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.
- GC.08.3            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 specification requirements free of cost to the Purchaser.
- GC.08.4            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.
- GC.08.5            Risk in the Goods passes to the Purchasers after the Goods arrival in the Purchaser's Country and the Purchaser has inspected, tested and accepted the goods.
- GC.08.6            Nothing in Clause GC.08 shall in any way release the Supplier from any warranty or other obligations under this Contract.
- GC.08.7            At least three (3) weeks' notice of the date, time and place of all tests shall be given to the Purchaser so that arrangements can be made to witness the tests. The Supplier shall conduct the tests and provide all necessary labor and equipment to carry out the tests.

**GC.09 Shop Tests**

- GC.09.1 The transformer shall be tested at the Supplier's works in accordance with ANSI requirements for routine and type tests. At least 3 weeks' notice of the date, time and place of all tests shall be given to the Purchaser so that arrangements can be made to witness the tests.
- GC.09.2 In addition to the requirements of ANSI the following tests on each transformer shall be performed and witnessed by the Purchaser. The total cost for carrying out these tests, inclusive of the cost of all expenses including air fares, hotel transfers 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 transformer to be tested.
- (a) Impulse voltage withstand tests, including chopped waves.
  - (b) Heat run test.
  - (c) Core insulation test. Insulation resistance shall be measured at 1000 V and shall indicate a minimum resistance of 50 M $\Omega$  to ground. These tests on the transformer shall be made at completion of winding and at the conclusion of all other tests, prior to shipment.
  - (d) Partial discharge tests shall be as per IEC standards.
  - (e) Pressure tests at 35 kPa for a duration of 6 hours shall be made on the transformer immediately following the temperature rise test while the oil is hot.
- GC.09.3 The Supplier shall supply three certified copies of all analysis and test results. If the Supplier can show, by certified test data obtained from type tests on a transformer of the same design, these tests, (except those specifically required above), may be waived by the Purchaser at its discretion, but such waiver shall in no way relieve the Supplier from its obligations under the Contract.
- GC.09.4 The test report shall be supplied prior to delivery, but no longer than 2 weeks after completion of the tests.

**GC.10 Packing**

GC.10.1 The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points of transit.

GC.10.2 The packing, marking and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract and, subject to Clause GC.19, in any subsequent instructions ordered by the Purchaser.

**GC.11 Delivery and Documents**

GC.11.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified by the Purchaser in its Schedule of Deliveries and the Special Conditions of Contract. Delivery of the Goods takes place after the goods have been tested, inspected and accepted by the Purchaser upon arrival of the Goods in the Purchaser's Country.

GC.11.2 Subject to SC-7 For the purposes of this Contract, **CFR, CIF** and other trade terms used to describe the obligations of the parties shall have meanings assigned to them by the current edition of the International Rules for the Interpretation of the Trade Terms published by the International Chamber of Commerce, Paris, and commonly referred to as INCOTERMS.

**GC.12 Insurance**

GC.12.1 The Goods supplied under the Contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in the Special Conditions of Contract.

GC.12.2 Where delivery of the goods is required by the Purchaser on a CIF basis, the Supplier shall arrange and pay for marine insurance, naming the Purchaser as the beneficiary. Where delivery is on an FOB or CFR basis, marine insurance shall be the responsibility of the Purchaser.

**GC.13            Transportation**

- GC.13.1            Where the Supplier is required under the Contract to deliver the Goods FOB, transport of the Goods, up to and including the point of putting the Goods on board the vessel at the specified port of loading, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
- GC.13.2            Where the Supplier is required under the Contract to deliver the Goods **CFR or CIF, Kingston, Jamaica** or to a specified destination within the country, transport of the Goods to the port of discharge or such other point in the country of destination as shall be specified in the Contract shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
- GC.13.3            Where the Supplier is required to effect delivery under any other terms, for example, by post or to another address in the same source country, the Supplier shall be required to meet all transport and storage expenses until delivery.
- GC.13.4            In all of the above cases, transportation of the Goods after delivery shall be the responsibility of the Purchaser.
- GC.13.5            Where the Supplier is required under the contract to deliver the Goods CIF, shipment shall be made in a carrier operating under the flag of the purchaser's country. Where the Supplier is required in the Contract (i) to deliver the Goods FOB, and (ii) to arrange on behalf and at the expense of the Purchaser for ocean transportation on specified conference vessels or on national flag carriers of the Purchaser's country, the Supplier may arrange for such transportation on alternative carriers if the specified conference vessels or national flag carriers are not available to transport the Goods within the time period(s) specified in the Contract.

**GC.14 Incidental Services**

GC.14.1 As specified in the Special Conditions of contract, the Supplier may be required to provide any or all of the following services:

- (a) Performance or supervision of on-site assembly and/or start up of the supplied Goods;
- (b) Furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (c) Furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract; and
- (e) Conduct of training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance and/or repair of the supplied Goods.

GC.14.2 Prices charged by the Supplier for the preceding incidental services, shall not be included in, shall be quoted separately in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged by other parties by the Supplier for similar services.

**GC.15 Spare Parts**

GC.15.1 As specified in the Special Conditions of Contract, the Supplier may be required to provide any or all of the following materials and notifications pertaining to spare parts manufactured or distributed by the Supplier:

- (a) Such spare parts as the Purchaser may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
- (b) In the event of termination of production of the spare parts:
  - advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirement; and
  - following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if and when requested.



**GC.16           Warranty**

- GC.16.1           The Supplier warrants that the goods supplied under the Contract are new, unused, of the most recent 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.
- GC.16.2           This warranty shall remain valid for eighteen (18) 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.
- GC.16.3           The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.
- GC.16.4           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.
- GC.16.5           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.

**GC.17           Payment**

- GC.17.1           The method and conditions of payment to be made to the Supplier under the Contract shall be as specified in the Special Conditions of Contract.
- GC.17.2           The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by shipping documents, submitted pursuant to Clause GC.11, and upon fulfillment of other obligations stipulated in the contract.

GC.17.3 Payments shall be made promptly by the Purchaser within sixty (60) days of submission of an invoice/claim by the Supplier.

GC.17.4 The currency or currencies in which payment is made to the Supplier under this Contract shall be as specified in the Special Conditions of Contract subject to the following general principle: Payment will be made in the currency or currencies in which the Contract Price has been stated in the Supplier's bid, as well as in other currencies in which the Supplier had indicated in its bid that it intends to incur expenditures in the performance of the Contract and wishes to be paid.

## **GC.18 Prices**

GC.18.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not, with the exception of any price adjustments authorized by the Special Conditions of Contract, vary from the prices quoted by the Supplier in its bid.

## **GC.19 Change Orders**

GC.19.1 The Purchaser may at any time, by a written order given to the Supplier pursuant to Clause GC.32, make changes within the general scope of the Contract in any one or more of the following:

- (a) drawings, designs or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
- (b) the method of shipment or packing;
- (c) the place of delivery; or
- (d) the Services to be provided by the Supplier.

GC.19.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any part of the work under the Contract, whether changed or not changed by the order, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall be amended accordingly. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.

**GC.20 Contract Amendments**

GC.20.1 Subject to Clause GC.19, 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.

**GC.21 Assignment**

GC.21.1 The Supplier shall not assign, in whole or part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

**GC.22 Subcontracts**

GC.22.1 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.

GC.22.2 Contracts with Subcontractors must comply with the provisions of Clause GC.03, GC.05, GC.10 and GC.16.

**GC.23 Delays in the Supplier's Performance**

GC.23.1 Delivery of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule specified by the Purchaser in its Schedule of Deliveries.

GC.23.2 A delay by the Supplier in the performance of its delivery obligations shall, subject to the provisions of clause GC.26, render the Supplier liable to any or all of the following sanctions: forfeiture of its performance security, imposition of liquidated damages, and/or termination of the Contract for default, unless the reason for such delay is acceptable to the Purchaser.

GC.23.3 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 in accordance with the provision of clause GC.23.2.

**GC.24 Liquidated Damages**

GC.24.1 Subject to Clause GC.26, if the Supplier fails to deliver any or all of the Goods or perform the Services within the time period(s) specified in the Contract, 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 point five percent (2.5%) of the delivered price of the delayed Goods or unperformed Services for each week of delay until actual delivery or performance, up to a maximum deduction of fifteen percent (15%) of the delayed Goods or Services contract price. Once the maximum is reached, the Purchaser may consider termination of the Contract.

## **GC.25 Termination for Default**

GC.25.1 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 pursuant to Clause GC.23; or
- (b) if the supplier fails to perform any other obligation(s) under the Contract.

## **GC.26 Force Majeure**

GC.26.1 Notwithstanding the provisions of Clauses GC.23, 24, 25, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

GC.26.2 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, epidemics, quarantine restrictions and freight embargoes.

GC.26.3 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.

**GC.27 Termination for Insolvency**

GC.27.1 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.

**GC.28 Termination for Convenience**

GC.28.1 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.

GC.28.2 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.

**GC.29 Resolution of Disputes**

GC.29.1 The Purchaser and the Supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

GC.29.2 If, after thirty (30) days from the commencement of such informal negotiation, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the Special Conditions of Contract. The mechanism shall be specified in the Special Conditions of Contract.

**GC.30 Governing Language**

GC.30.1 The Contract shall be written in the language of the bid, as specified by the Purchaser in the Instructions to Bidders. Subject to Clause GC.31, that language version of the Contract shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in that same language.

**GC.31 Applicable Law**

GC.31.1 The Contract shall be interpreted in accordance with the laws of the Purchaser's country.

**GC.32 Notices**

GC.32.1 Any notice given by one party to the other pursuant to the Contract shall be sent in writing or by courier or telefax and confirmed in writing to the address specified for that purpose in the Special Conditions of Contract.

GC.32.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.

**GC.33 Taxes and Duties**

GC.33.1 A foreign Supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Purchaser's country.

GC.33.2 A local Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

**PART 3**

**SPECIAL CONDITIONS OF CONTRACT**

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## **SC General**

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the General Conditions is indicated in parentheses.

KINDLY NOTE THAT THE FOLLOWING SECTIONS WERE INTENTIONALLY OMITTED:

SC.02	SC.04	SC.05	SC.06	SC.09
SC.12	SC.17	SC.18	SC.19	SC.20
SC.21	SC.22	SC.23	SC.24	SC.25
SC.26	SC.27	SC.29	SC.30	

### **SC.01 Definitions (Clause GC.01)**

- (a) The Purchaser is The Jamaica Public Service Company Limited (JPS)
- (b) The Supplier is the successful Bidder
- (c) The Bank is the Bank agreed on by the purchaser and the supplier.
- (d) Delivery is delivered **CIF Kingston, Jamaica, W.I.** PROVIDED THAT risk in the Goods arrival in the Purchasers' Country and the Purchaser has inspected, tested and accepted the Goods.

### **SC.03 Country of Origin (Clause GC.03)**

All member countries as per JPS Purchasing Department pre-qualification list.

### **SC.07 Performance Security (Clause GC.07)**

The Performance Security shall be in the amount of 10% of the Contract price.

### **SC.08 Inspection and Tests (Clause GC.08)**

The required inspection and tests are specified in the Technical Specifications.

**SC.10 Delivery and Documents (Clause GC.11)****(a) For Imported Goods**

Prior to shipment, the Supplier shall notify the Purchaser and its Insurance Company by email or telefax the full details of the shipment including contract number, description of Goods, quantity, the vessel, the bill of lading number and date, port of loading, date of shipment, port of discharge, date of arrival at port of discharge or other information which may be relevant to the purchaser or insurance company. The Supplier shall mail the documents listed in clause 3 of the Purchaser's Purchase Order in accordance with the terms and conditions therein.

- (i) Original and two (2) copies of the Supplier's invoice showing Goods description, quantity, unit price, total amount;
- (ii) First and Second Original of negotiable, clean, on-board bill of lading marked freight prepaid and one (1) copy of non-negotiable bill of lading;
- (iii) Original and two (2) copies of the packing list identifying contents of each package;
- (iv) Original and two (2) copies of the Insurance certificate;
- (v) Original and two (2) copies of the Manufacturer's/supplier's warranty certificate;
- (vi) Inspection certificate, issued by the nominated inspection agency and the Supplier's factory inspection report; and

The above documents shall be received by the Purchaser at least one week before arrival of Goods at the port and, if not received, the Supplier will be responsible for any consequent expenses.

**Customs Regulations Governing Import of Chemical, Liquids, Solvents and Gases:**

All goods falling in the above category deemed hazardous or non hazardous require an import permit. The Supplier is expected to submit the following documents, minimum ten (10) working days prior to shipment.

- (a) Material Safety Data Sheet (MSDS)
- (b) Packing list indicating the description of the item, packing type and quantity.

No shipment should be effected for the above categories of goods without notification that a permit is in place.

**SC.11 Insurance (Clause GC.12)**

Notwithstanding GC 11.2, the marine insurance shall be in an amount equal to 110% of the CIF value of the goods from "warehouse to warehouse" on "All Risks" basis including War Risks and Strike clauses. Warehouse to warehouse shall mean from the warehouse of the supplier to the warehouse of the Purchaser.

**SC.13 Incidental Services (Clause GC.14)**

All required incidental services have been included in the Technical Specifications. The cost shall be included in the Contract price.

**SC.14 Spare Parts (Clause GC.15)**

Supplier shall carry sufficient inventories to assure ex-stock supply of consumable spares such as gaskets, washers, etc. Other spare parts and components shall be supplied as promptly as possible but in any case within six months of placement of order and establishment of Letter of Credit.

**SC.15 Warranty (Clause GC.16)**

In partial modification of the provisions, the warranty period shall be twelve (12) months from the date of commissioning.

**SC.16 Payment (Clause GC.17)**

(a) Payment for Goods.

On Receipt of Goods: 100% of the Contract Price of the Goods received shall be paid within 60 days of receipt of Goods on submission of claim supported by Acceptance Certificate issued by the Purchaser's representative.

**SC.28 Resolution of Disputes (Clause GC.29)**

The dispute resolution mechanism to be applied pursuant to Clause GC.29 of the General Conditions 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.
- (c) The Appointing Authority shall be the President for the time being of the Jamaica Institute of Engineers (J.I.E.).
- (d) There shall be one Arbitrator.

**SC.31 Notices (Clause GC.32)**

For the purpose of all notices, the following shall be the address of the Purchaser and the Supplier.

**Purchaser:**

**Purchasing Manager  
Jamaica Public Service Co. Ltd.  
P.O. Box 54  
Kingston, Jamaica.**

**Supplier:**

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**PART 4**

**EXHIBITS**

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Exhibit 1 1	Form of Bid Bond .....	EX-
Exhibit 2 3	Form of Performance Bond .....	EX-
Exhibit 3 5	Form of Agreement .....	EX-



# Exhibit 1 – This Requirement is waived”

## FORM OF BID BOND

KNOW ALL MEN \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

as Principal, and \_\_\_\_\_

\_\_\_\_\_

as Surety, are held and firmly bound unto Jamaica Public Service Company Limited with Head Office at 6 Knutsford Boulevard, Kingston 5, Jamaica W.I. (hereinafter called the Purchaser) in the sum of

\_\_\_\_\_

\_\_\_\_\_ Dollars (\$.....),

as hereinafter set forth and for the payment on demand of which sum well and truly to be made we bind ourselves, our Executors, our Administrators, Successors and Assigns, jointly and severally, by these present.

WHEREAS, the Principal has submitted a Bid dated \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ for the Repair of **one (1) three phase, 25 MVA, 69/24kV Distribution power transformer.**

NOW THEREFORE, the conditions of the obligation are that if the Purchaser receives the Bid of the Principal and:

(a) If the Bidder does not withdraw the Bid during the bid validity specified by the Bid in the Tender Document, and/ or

(b) If the Purchaser accepts the Bid of the principal, and the principal executes such Contract Documents, if any as may be required by the terms of the bid and give such Supplier's Bond or Bonds for the performance of the contract and for the prompt payment of material furnished or works executed for the project as may be specified in the bid, then this obligation shall be null and void otherwise shall remain in full force and effect

(c) In the event of withdrawal of the bid during the bid validity period or in the event of failure of the Principal to execute such document, if any, and give such Supplier's Bond or Bonds if the Principal shall pay to the Purchaser the difference, not to exceed the sum hereof, between the amount specified in the Bid and such larger sum for



which the Purchaser may in good faith Contract with another party to furnish materials for the project, then this obligation shall be avoided to here-wise remain in full force and effect, and shall be payable forthwith as damages on demand made by the Purchaser. It being expressly agreed that such a demand shall be conclusive evidence as between the Purchaser and the Surety that the sum demanded is properly due and payable.

**IN WITNESS WHEREOF**, the undersigned have caused this instrument to be executed and their respective corporate seals to be affixed and attested by \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

\_\_\_\_\_  
**PRINCIPAL** (SEAL)

**Attest:** **BY** \_\_\_\_\_

\_\_\_\_\_  
**SECRETARY**

\_\_\_\_\_  
**TITLE**

\_\_\_\_\_  
**SURETY**

**Attest:** **BY** \_\_\_\_\_

\_\_\_\_\_  
**SECRETARY**

\_\_\_\_\_  
**TITLE**

## Exhibit 2

### FORM OF PERFORMANCE BOND

To: Jamaica Public Service Company Limited

WHEREAS \_\_\_\_\_ hereinafter called "the Supplier" has undertaken to **Repair one (1) 25MVA** Distribution Power Transformer, hereinafter called "the Contract".

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract. AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of

( \_\_\_\_\_  
\_\_\_\_\_ Dollars \$ \_\_\_\_\_ )

and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limits of

( \_\_\_\_\_  
\_\_\_\_\_ Dollars \$ \_\_\_\_\_ )

as aforesaid, without your needing to prove or to show grounds or reasons for your demand of the sum specified therein.

This guarantee is valid until the \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_

Signature and Seal of the Guarantors

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Date: \_\_\_\_\_

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

## Exhibit 3

# FORM OF AGREEMENT

This Agreement made the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_ for the Repair of **one (1)**  
**25MVA** Distribution Power Transformer. Substation **RFP 956143.**

### **BY AND BETWEEN**

**JAMAICA PUBLIC SERVICE COMPANY LIMITED**, a company incorporated under the laws of Jamaica with Head Office at No. 6 Knutsford Boulevard in the Parish of St. Andrew, Jamaica; hereinafter called the "Purchaser".

### **AND**

with registered office at \_\_\_\_\_ hereinafter called the "Supplier".

**WITNESSETH** that the Purchaser and the Supplier agree as follows:

1. The following documents shall be deemed to form and be read and construed as part of this Agreement, which shall constitute a binding Contract between the Purchaser and the Supplier:

- (a) The Addenda (if any)
- (b) The letter of award/acceptance
- (c) The Technical Specifications
- (d) Drawings referred to in the Specification
- (e) The Special Conditions of Contract
- (f) The General Conditions of Contract
- (g) The Bidders Proposal
- (h) The Instructions to Bidders

The aforesaid documents shall be taken as complimentary and mutually explanatory of one another but in the case of ambiguities or discrepancies shall take precedence in the order set out above.

2. In consideration of the payments to be made by the Purchaser to the Supplier as hereinafter mentioned, the Supplier agrees to furnish the materials and equipment complete in every respect in conformity with the provisions of this Contract and to the satisfaction of the Purchaser and the delivery of such materials and equipment shall be made on or before

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3. In consideration of the Execution of the Works in accordance with the Provisions of this Contract and to the satisfaction of the Purchaser, the Purchaser agrees to pay the Contract Price to the Supplier at the time and in the manner prescribed herein. The Contract Price shall consist of unit prices and lump sums named in the attached Schedule of Prices having a total (based on estimated quantities in the case of unit price items) of

---

\_\_\_\_\_ dollars \$ \_\_\_\_\_

**The Supplier has furnished and the Purchaser accepts:**

**A Performance Bond that is:**

**Issued by the** \_\_\_\_\_

**In the amount of** \_\_\_\_\_

**Dated the** \_\_\_\_\_

**Having a Serial No.**

\_\_\_\_\_  
\_\_\_\_\_

With respect to the execution of the Works by the Supplier which bond shall operate according to its tenure.

This Agreement bears the formal date aforementioned and shall be for all purposes retroactive to such date even though signed and acknowledged on the dates mentioned below.

The Supplier and the Purchaser for themselves, their successors, and assigns hereby agree to the full performance of the covenants herein contained in witness whereof they have executed this Agreement as of the day and year first written above.

**SIGNED SEALED AND DELIVERED** )  
**by the said SUPPLIER in the** )  
**presence of** )

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**WITNESS**

**SIGNED SEALED AND DELIVERED** )  
**by the said PURCHASER in** )  
**the presence of** )

\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
**WITNESS**

**TS - 10**

**PART 5**

**BID FORM**

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Bid Bond .....	BF - 3



Bid for  
**THE JAMAICA PUBLIC SERVICE COMPANY LIMITED**  
**FOR THE REPAIR OF**

**ONE 25 MVA, 69/24KV DISTRIBUTION POWER TRANSFORMERS**

**RFP # 956143**

Proposed by \_\_\_\_\_  
of \_\_\_\_\_  
a Company duly incorporated under the laws of \_\_\_\_\_  
and licensed to carry on business in the Country of \_\_\_\_\_  
and having its head office at \_\_\_\_\_  
hereinafter called the Bidder.

**TO: THE JAMAICA PUBLIC SERVICE CO. LTD.  
6 KNUTSFORD BOULEVARD  
P. O. BOX 54  
KINGSTON 5, JAMAICA W.I.**

Having examined the Bid Documents including Instructions to Bidders, General Conditions of Contract, Special Conditions of Contract, Exhibits, Technical Specification and Attachments to the above named documents the undersigned Bidder hereby proposes and offers to repair **one (1) 25MVA, 69/24kV** Distribution Power Transformer in conformity with the Specification for and at the prices set out in the annexed Schedule of Prices and by the date specified in the Schedule of Requirements.

The total amount of this Bid calculated according to the said Schedule of Prices is

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United States Dollars (US\$ \_\_\_\_\_). The Bidder undertakes to enter into a Contract incorporating Bid Documents and this Bid and the Bidder hereby agrees that until such a Contract is executed, the said documents and the Notification of Acceptance of Bid by the Purchaser to the successful Bidder shall constitute a binding Contract.

The Bidder agrees that his Bid shall continue open to acceptance and irrevocable until the formal Contract is executed by the successful Bidder for the said work and the Purchaser may at any time within ninety (90) days of the closing date for Bids, accept this Bid without notice, whether any other Bid has previously been accepted or not.



**PART 6**  
**TECHNICAL SPECIFICATIONS**

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# Technical Specifications

## **TS.01 Summary of Work**

### **TS.01.1 Description of Works**

### **TS.01.3 Scope of Work**

The complete repair/overhaul of a 25MVA Pauwels Distribution Transformer. The transformer will be shipped to vendor's location where a determination will be made on the repairs to be done.

After repairs are completed, a witness testing of the transformer will be done for the test listed in the Schedule of Requirements.

### **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.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.02.6 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.

At least three (3) weeks' notice of the date, time and place of all tests shall be given to the Purchaser so that arrangements can be made to witness the tests. The Supplier shall conduct the tests and provide all necessary labor and equipment to carry out the tests.

**TS.02.3 Standards**

**1. Cleaning**

Prior to disassembling a transformer, transformer tanks and enclosures shall be cleaned to avoid contaminating the core and coil assemblies when they are removed. Once disassembling to the extent required for the repair, the components shall be thoroughly cleaned. Local environmental regulations must be followed and the effects of cleaning agents upon the insulated components should be known before proceeding.

**2. Painting**

The painting process shall be of present day manufacturing process standard and such that the finish coat forms a moisture, salt and abrasion resisting coating.

Transformers shall have "special paint finishes" suitable for use in close proximity to the sea and industrial plants. These paint finishes shall be capable of withstanding the ASTM B117 1500 hrs./ 5% Salt Spray Test without significant loss of adhesion or under film corrosion. The Contractor shall ensure that the paint manufacturer specify paint finishes and provide certified test results that the relevant standards have been met. These specifications and certified test reports shall be submitted to JPS.

- 3. The Contractor shall operate in compliance with the IEEE Standards, InterNational Electrical Testing Association (NETA), National Environment Planning Agency (NEPA), OSHA and JPS Health, Safety and Environment (HSE) standards.
- 4. 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
InterNational Electrical Testing Association	NETA
Insulated Cable Engineers Association	ICEA



American Welding Society	AWS
American Institute of Steel Construction	AISC
International Electro-technical Commission	IEC

#### **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.

Detachable items such as transformer radiators, transformer bushings shall be removed for shipment and shall be crated in such a way as to prevent weight from being directly placed on the equipment during transportation.

Oil filled shipment of transformers is preferred, but transformers may be shipped under pressure of dry gas. If shipped under pressure of dry gas, sufficient oil shall be provided and shipped in non-returnable steel drums with the transformer. Only new clean drums shall be used.

#### **Transformers are to be fitted with impact recorders prior to shipment.**

The impact recorders shall have sufficient data storage and mechanical or battery energy capacity for at least three months operation.

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, sacks and bundles shall be clearly marked to facilitate field identification as follows:

**Jamaica Public Service Company Limited.**  
**25MVA Distribution Transformer**

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

Jamaica Public Service Co. Ltd.  
 Kingston,  
 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 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 shipping and protected from the harsh environment to 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 Company Ltd.  
Kingston, Jamaica

**TS.03.16 Finish**

Special consideration must be given to the choice of finish, based on the intended harsh corrosive salt spray conditions in which the transformer will operate.

All exposed un-galvanized metal parts shall be thoroughly cleaned and painted with two primer coats and on the exterior with two finish coats of outdoor, organic, weatherproof paint suitable for a tropical climate subject to direct sunlight and heavy salt pollution. The color shall be light gray.

The base of the transformer designed for grade mounting shall, in addition to the above, be treated with bitumastic compound to prevent corrosion.

The interior of the tank shall be painted with two coats of white or clear, oil-resistant finish.

The transformer shall be supplied with five (5) liters of touch up paint.

### **TS.03.18**

#### **Shop Tests**

The transformer shall be tested at the Supplier's works in accordance with ANSI requirements for routine and type tests. At least 3 weeks' notice of the date, time and place of all tests shall be given to the Purchaser so that arrangements can be made to witness the tests.

In addition to the requirements of ANSI the following tests on each transformer shall be performed and witnessed by the Purchaser. The total cost for carrying out these tests, inclusive of the cost of all expenses including air fares, hotel transfers 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 transformer to be tested in 2022.

- (a) Impulse voltage withstand tests, including chopped waves.
- (b) Heat run test.
- (c) Core insulation test. Insulation resistance shall be measured at 1000 V and shall indicate a minimum resistance of 50 MΩ to ground. These tests on the transformer shall be made at completion of winding and at the conclusion of all other tests, prior to shipment.
- (d) Partial discharge tests shall be as per IEC standards. Note: 12.2, 12.3, and 12.4 as quoted.
- (e) Pressure tests at 35 kPa for a duration of 6 hours shall be made on the transformer immediately following the temperature rise test while the oil is hot.

The Supplier shall supply three certified copies of all analysis and test results. If the Supplier can show, by certified test data obtained from type tests on a transformer of the same design, these tests, (except those specifically required above), may be waived by the Purchaser at its discretion, but such waiver shall in no way relieve the Supplier from its obligations under the Contract.

The test report shall be supplied prior to delivery, but no longer than 2 weeks after completion of the tests.

### **TS.03.19**

#### **Performance Guarantees**

Subject to the allowable tolerances stated in ANSI the manufacturer shall guarantee the performance data as provided in Part 6 "Schedule of Technical Data" covering the following:

- No load losses and load losses at rated conditions
- Exciting current

- Impedance at base (ONAN) rating at rated conditions

### TS.03.21 Oil

Oil shall be mineral oil specifically designed for use as an insulating and cooling medium for electrical equipment and conform to the requirements of ASTM Standard Specification D3487. The PCB content of the oil shall be not more than 2 ppm. The supplier must furnish a certificate duly signed by an independent approval body in the Supplier's country indicating the PCB content of the oil.

A sufficient quantity of oil, plus an additional 10% to allow for spillage shall be supplied to fill the transformer and all accessories. Oil shall be supplied in non-returnable 45 gallon drums.

### Transformer Issues

Over the years, the transformer has been experiencing different issues that required intervention to carry the transformer within acceptable standards.

Intervention #	Year	Adverse Condition	Intervention Required	Results	Comments
1	2011	Neutralization Number of 0.06mgKOH/g	Regeneration	Neutralization Number reduce to <0.01 mgKOH/g.	JPSCo has adaptable a stricter standard Neutralization Number of 0.03mgKOH/g
2	2012	Acetylene (C2H2) – 8ppm	Degasification	Acetylene (C2H2) reduce to <1ppm	
3	2017	1. Acetylene (C2H2) – 17ppm 2. Neutralization Number of 0.05mgKOH/g	Regeneration/ Degasification	1. Acetylene (C2H2) reduce to 4ppm 2. Neutralization Number reduce to <0.01 mgKOH/g.	
4	2021	Acetylene (C2H2) – 20ppm	Degasification	Acetylene (C2H2) reduce to 3ppm	
5	2022	Acetylene (C2H2) – 13ppm	Degasification	Acetylene (C2H2) reduce to 1ppm	
6	2023	Acetylene (C2H2) – 16ppm			Transformer was replaced

## Maintenance History

Table 1 - Oil Testing Results | DGA

Report #	Sample Date	Top Oil Temp °C	Hydrogen (H2)	Oxygen (O2)	Nitrogen (N2)	Methane (CH4)	Carbon Monox. (CO)	Ethane (C2H6)	Carbon Dioxide (CO2)	Ethylene (C2H4)	Acetylene (C2H2)	Total Gas
7623099	2/16/2023	36	23	8354	37955	3	190	1	1481	8	16	48031
7616970	1/20/2023	36	42	510	59990	20	1152	5	5644	4	1	67368
7609952	11/25/2022	36	13	500	20374	2	128	1	1001	5	7	22031
7588653	9/27/2022	36	2	25303	53920	1	8	1	720	1	1	79957
7563686	7/12/2022	36	9	20450	60920	4	346	1	2889	16	13	84648
7552774	5/4/2022	36	8	15790	58704	3	303	1	2422	14	13	77258
M1106312	5/25/2021	64	10	1464	10660	1	87	1	568	21	3	12815
M1079905	3/22/2021	29	19	22354	76135	9	943	2	6343	54	20	105879
M1067940	2/15/2021	56	23	24388	87120	10	1113	2	6758	53	18	119485
M0926798	4/24/2020	34	10	26184	77773	6	700	2	4496	35	9	109215
M0726609	3/13/2019	32	10	26393	69086	3	459	1	3634	15	8	99609
M0643988	8/9/2018	57	13	24066	79980	5	524	2	2115	10	6	106721
M0559701	3/24/2018	31.6	10	379	38338	5	180	2	1444	4	4	40366
192917	10/03/2017	48	26	24572	64098	10	610	3.0	4850	22	11	94202
187791	06/23/2017	53	9.6	30483	100064	7.0	672	2.0	4918	35	17	136208
166623	04/20/2016	35	9.0	25767	63631	4.0	510	0	2263	13	4.0	92201
153222	06/17/2015	35	0	23600	62558	4.0	574	0	1886	8.0	0	88630
138766	02/24/2014	34	8.0	11126	33936	19	321	1.0	2036	10	<1	47457
134831	10/15/2013	37	10	15811	45841	7.0	289	0	1650	12	<1	63620
126116	02/20/2013	34	8.0	9792	33630	6.0	173	0	1250	10	1.0	44870
123525	11/08/2012	34	8.0	2844	9482	1.0	168	1.0	714	10	<1	13228
122095	09/24/2012	34	0	7075	43508	1.0	16	1.0	323	12	<1	50936
121519	08/31/2012	34	39	5368	38768	7.0	150	16	2152	10	8.0	46518

Table 2 - Oil Test Results | Oil Quality

Report #	Sample Date	Top Oil Temp °C	Water Content	Relative Saturation	Color	D1816 -1mm	Interfacial Tension	Neut . No.	PF25C	Specific Gravity	Visual	Oxidation Inhibitor DBP	Oxidation Inhibitor DBPC
			ppm	%		kV	mN/m	mgK OH/g	%	60/60		wt. %	wt. %
			D1533 IEC 60814		D150 0	D1816	D971 ISO 6295	D97 4	D924	D4052	D1524	D 4768- 11	D 4768- 11
761697 0	01/20/2 023	36	8		1.0	28	31	0.02	0.016	0.887	Pass	0.18	
760995 2	11/25/2 022	36	18		1.5	19	41	0.01	0.044	0.868	Pass	0.184	
756368 6	07/12/2 022	36	17		1.0	20	38	0.01	0.031	0.869	Pass	0.182	
755277 4	05/04/2 022	36	46		1.0	29	35	0.02	0.009	0.870	Pass	0.169	
M1106 315	05/25/2 021	64	14		1.5	17	37	0.01		0.872	Pass	0.02	0.24
M1079 908	03/22/2 021	29	13		1.5	40	37	0.01		0.870	Pass	0.02	0.27
M1067 942	02/15/2 021	56	12		1.5	29	37	0.01		0.871	Pass	0.02	0.23
M0559 705	03/24/2 018	31.6	13		1.0	61	36	0.01	0.021	0.869	Pass	0.02	0.21
192917	10/03/2 017	48	11	7	1.5	30	38	0.05	0.015	0.870	Clear & Bright		
158256	09/29/2 015	55	17	8	1.0	31	43	< 0.01	0.016	0.869	Clear & Bright		
123525	11/08/2 012	34	9	9	1.0	19	34	< 0.01	0.021	0.869	Clear & Bright		
122095	09/24/2 012	34	15	16	1.5	34	44	< 0.01	0.021	0.869	Clear & Bright		
121519	08/31/2 012	34	11	11	1.0	35	37	< 0.01	0.002	0.869	Clear & Bright		
121027	07/24/2 012	56	14	7	1.0	43	44	< 0.01	0.002	0.871	Clear & Bright		
114055	06/11/2 012	34	14	14	1.0	26	47	< 0.01	0.035	0.868	Clear & Bright		
108820	11/30/2 011	32	7	8	1.0	22	45	< 0.01	0.001	0.868	Clear & Bright		
106365	07/21/2 011	52	19	10	4.0	29	25	0.05	0.338	0.864	Clear & Bright		
104103	04/21/2 011	33	12	13	4.5	29	24	0.06	0.343	0.865	Clear & Bright		

Table 3 - Oil Test Results | Furanic Analysis

Report #	Sample Date	Top Oil Temp °C	HMF	FOL	FAL	AF	MF	Overall FAL Rate	Estimated DP	Estimated Remaining Life to DP 200	Current FAL Rate
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L/Year		%	ug/L/Year
7616970	1/20/2023	36	< 10	< 10	12	< 10	15	0.34	996		
7609952	11/25/2022	36	< 10	< 10	63	< 10	13	1.85	790		
7563686	7/12/2022	36	< 10	< 10	175	< 10	13	5.15	664		
M1106314	5/25/2021	64	< 5	< 5	74	< 5	< 5	2.24	770		
M1067941	2/15/2021	56	< 5	< 5	17	< 5	< 5	0.52	953		
M0559703	3/24/2018	31.6	< 5	< 5	66	< 5	< 5	2.20	785		
192917	10/03/2017	48	7	5	258	5	12	8.90	597	78	30.94
166623	04/20/2016	35	6	7	213	< 5	16	7.61	620	80	14.22
153222	06/17/2015	35	12	< 5	201	< 5	< 5	7.44	628	81	44.42
114055	06/11/2012	34	< 5	< 5	67	< 5	< 5	2.79	764	90	

Transformer Nameplate Data

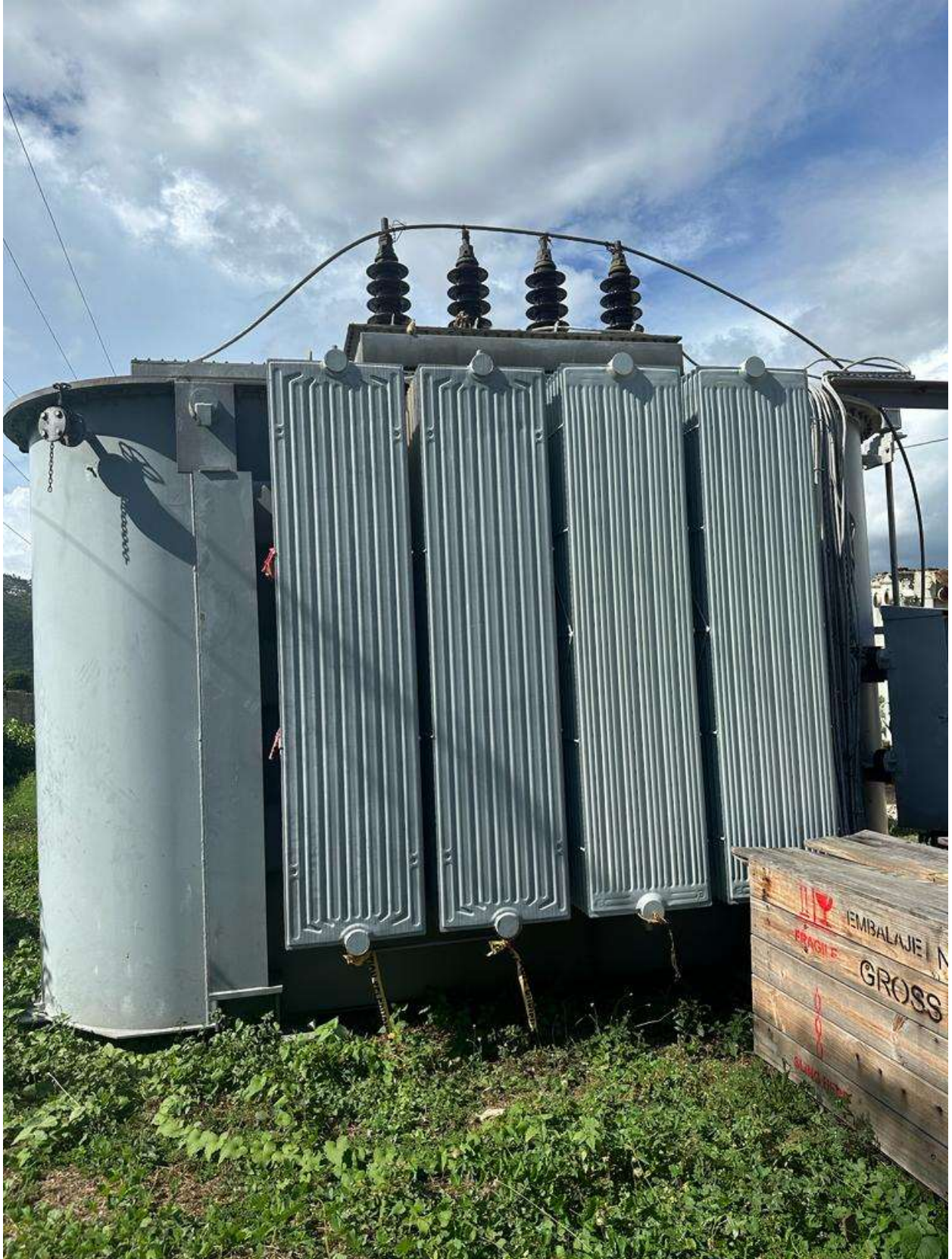




Transformer Photo





















## 1.3 Insulation Resistance/PI

Substation/Location:	<b>Orange Bay Substation</b>				
Date:	<b>16-Oct-07</b>				
Transformer S.N.:	<b>88.2.4020</b>				
MVA Rating	<b>25</b>				
Manufacturer:	<b>Pauwels</b>				
Voltage Rating HV/LV, kV:	<b>69/24kV</b>				
Ambient Temperature:		Deg. C		Test Equipment	AVO
Winding Temperature		Deg. C		Model	Megger BM110
Oil Temperature		Deg. C			
Temperature Correction					
Humidity		%			
Item No.	Test	Test Result Readings			
		Duration		Capacitance	P.I.
		1 Minute	10 Minute		
<b>1</b>	<b>I.R. Test P.I.</b>				
1.1	HV - LV	<b>919 M<math>\Omega</math></b>	<b>1.72 G<math>\Omega</math></b>		<b>1.88</b>
1.2	LV - Ground	<b>653 M<math>\Omega</math></b>	<b>1.01 G<math>\Omega</math></b>		<b>1.67</b>
1.3	HV - Ground				
1.4	HV & LV - Ground				
<b>2</b>	<b>Core Insulation Res.</b>	<b>500V</b>	<b>2 Min</b>		
2.1	Core ground strap - tank ground				

## 1.4 Hydran

Substation:	<b>Orange Bay</b>		
Transformer Manufacturer	<b>Pauwels</b>		
Transformer S.N.	<b>88.2.4020</b>		
Date:	<b>23-Oct-07</b>		
Transformer ID	<b>T1</b>		
Item No.	Test/Description	Readings	Item No.
<b>1</b>	<b>Dielectric Strength</b>	<b>kV</b>	<b>3</b>
1.1	Sample 1	<b>40</b>	3.1
1.2	Sample 2	<b>46</b>	3.2
1.3	Sample 3	<b>49</b>	
1.4	Sample 4	<b>50</b>	
1.5	Sample 5	<b>49</b>	
1.6	Average	<b>47</b>	
<b>2</b>	<b>Hydran</b>	<b>ppm</b>	
2.1	Hydrogen Content, ppm		



2. Test Done 2017

2.1 Insulation Resistance/PI/Hydran

Substation/Location:	ORANGE BAY
Date:	20-Nov-17
Transformer S.N.:	88.2.4020
MVA Rating	25
Manufacturer:	PAUWEL TRAF0
Voltage Rating HV/LV, kV:	69/24

Test Equipment	MEGGER
Model	S1-1568

Ambient Temperature:		Deg. C
Temperature Correction Factor:	20	
Winding Temp, Deg. C	39	
Oil Temp, Deg. C	39	
Humidity:		

*D-1816 1MM GAP*

Oil Dielectric Test (KV)	
Test 1	40.6
Test 2	32.9
Test 3	44
Test 4	26.2
Test 5	25.9
Average	34

Item No.	Test	Test Volts	Duration	Resistance Readings - M Ohms				
				Measured	Corrected to 20 deg. C	Duration	Measured	PI
1	Megger - Insulation			Ω			Ω	
1.1	HV to LV and ground	5 KV	1 Min	4.34 GΩ		10 Min	6.58 GΩ	1.58
1.2	HV and LV to Ground	5 KV	1 Min	3.33 GΩ		10 Min	4.93 GΩ	1.48
1.3	LV to HV and Ground	5 KV	1 Min	4.82 GΩ		10 Min	6.99 GΩ	1.45
1.4	HV to LV	5 KV	1 Min	5.43 GΩ		10 Min	9.40 GΩ	1.73
2	Core Insulation Res.							
2.1	Core ground strap - tank ground	500V	2 Min	1.87 GΩ				

2.2 Capacitance/Power Factor

TRANSFORMER OVERALL TEST SET UP							TRANSFORMER OVERALL TEST RESULTS									
Test No.	Insulation Tested	Test Mode	Test Lead Connections				Test KV	DFR	Capacitance C (pF)	POWER FACTOR %			DIRECT		%VDF	IR
			HV	Red	Blue	Grnd				Measured	@ 20°C	Corr Factor	mA	Watts		
1	C <sub>HG</sub> + C <sub>HL</sub>	GST-GND	H	L		G	10.00	✓	13,132.45	0.24	0.22	0.940	41.2358	0.9738	0.02	G
2	C <sub>HG</sub>	GSTg-RB	H	L		G	10.00	✓	3,619.47	0.35	0.33	0.940	11.3628	0.3974	0.01	G
3	C <sub>HL</sub>	UST-R	H	L		G	10.00	✓	9,539.79	0.19	0.18	0.940	29.7716	0.5656	0.02	G
4	C <sub>HL'</sub>		Test 1 Minus Test 2						9,512.98				29.8729	0.5763		Valid
5	C <sub>LG</sub> + C <sub>HL</sub>	GST-GND	L	H		G	10.00	✓	20,396.32	0.29	0.27	0.940	64.0574	1.8458	0.02	G
6	C <sub>LG</sub>	GSTg-RB	L	H		G	10.00	✓	10,892.31	0.37	0.35	0.940	34.1816	1.2631	0.02	G
7	C <sub>HL</sub>	UST-R	L	H		G	10.00	✓	9,538.86	0.19	0.18	0.940	29.9266	0.5603	0.02	G
8	C <sub>HL'</sub>		Test 5 Minus Test 6						9,504.01				29.8759	0.5827		Valid
9	C <sub>HG'</sub>		C <sub>HG</sub> Minus H Bushings						3,425.89				10.7542	0.8498		
10	C <sub>LG'</sub>		C <sub>LG</sub> Minus L Bushings													
Oil Test 1	Overall Oil Test	UST-R	L	H		G						0.580				
Oil Test 2	LTC Chamber Oil Test	UST-R	L	H		G						0.580				



## 2.3 Winding Resistance

### HIGH VOLTAGE WINDING RESISTANCE

Show Graph

Corrected Resistance to 85°C

Units: mΩ

#	TAP	Current (amp)	Nameplate Voltage	H <sub>1</sub> - H <sub>3</sub>	H <sub>2</sub> - H <sub>1</sub>	H <sub>3</sub> - H <sub>2</sub>	Reading Stability %	Winding Difference %	
1	1	10.08	75,900	581.6	584.0	581.1	99.91	0.498	
2	2	10.08	75,037	565.7	568.3	565.1	99.92	0.558	
3	3	10.08	74,175	549.9	552.5	549.5	99.91	0.548	
4	4	10.07	73,312	534.3	537.5	533.7	99.92	0.707	
5	5	10.07	72,450	518.5	520.7	517.9	99.90	0.535	
6	6	10.07	71,587	502.6	505.8	502.1	99.87	0.737	
7	7	10.07	70,725	486.9	489.0	486.1	99.91	0.578	
8	8	10.07	69,862	471.5	473.5	470.6	99.91	0.607	
9	Nominal	10.07	69,000	455.3	457.7	454.7	99.88	0.636	
10	10	10.07	68,137	438.3	441.0	438.0	99.88	0.666	
11	11	10.07	67,275	455.2	457.1	454.6	99.91	0.546	
12	12	10.07	66,412	470.7	473.0	470.1	99.89	0.617	
13	13	10.07	65,550	486.2	488.0	485.6	99.92	0.511	
14	14	10.06	64,687	501.6	504.2	501.0	99.93	0.620	
15	15	10.06	63,825	517.2	519.5	516.6	99.95	0.544	
16	16	10.07	62,962	532.8	534.9	532.3	99.95	0.495	
17	17	10.07	62,100	549.0	551.3	548.0	99.93	0.592	

### LOW VOLTAGE WINDING RESISTANCE

Show Graph

Corrected Resistance to 85°C

Units: mΩ

#	TAP	Current (amp)	Nameplate Voltage	X <sub>1</sub> - X <sub>0</sub>	X <sub>2</sub> - X <sub>0</sub>	X <sub>3</sub> - X <sub>0</sub>	Reading Stability %	Winding Difference %	
5	Nominal	10.06	23,900	23.85	23.97	23.86	99.82	0.515	



### 3. Test Done 2021

#### 3.1 Insulation Resistance/PI/Hydran

Substation/Location:	ORANGE BAY
Date:	2-May-21
Transformer S.N.:	88.2.4020
MVA Rating	25
Manufacturer:	PAUWEL TRAFO
Voltage Rating HV/LV, kV:	69/24

<b>Test Equipment</b>	MEGGER
Model	S1-1568

Ambient Temperature:		Deg. C
Temperature Correction Factor:	20	
Winding Temp, Deg. C	40	
Oil Temp, Deg. C	40	
Humidity:		

Oil Dielectric Test	
Test 1	56.2
Test 2	60.1
Test 3	52.8
Test 4	59.2
Test 5	59.3
Average	<b>57.52</b>

Item No.	Test	Test Volts	Resistance Readings - M Ohms						
			Duration	Measured	Corrected to 20 deg. C	Duration	Measured	PI	
<b>1</b>	<b>Megger - Insulation</b>			$\Omega$				$\Omega$	
1.1	HV to LV & ground	5 KV	1 Min	5.47 G $\Omega$		10 Min	8.28 G $\Omega$	1.51	
1.2	LV to HV and Ground	5 KV	1 Min	3.56 G $\Omega$		10 Min	6.44 G $\Omega$	1.81	
1.3	HV To LV	5 KV	1 Min	4.11 G $\Omega$		10 Min	7.78 G $\Omega$	1.89	
1.4									
<b>2</b>	<b>Core Insulation Res.</b>	500V	2 Min						
2.1	Core ground strap - tank ground			3.18 G $\Omega$					

#### 3.2 Capacitance/Power Factor

	Insulation	Test kV	mA	Watts	% PF Corr	Corr Fctr	Cap (pF)	FRANK™	Manual
1	CH+CHL	10	40.788	1.017	0.222	0.889	13114.6		
2	CH	10.001	11.242	0.451	0.357	0.889	3614.785	Good	
3	CHL(UST)	10.001	29.532	0.559	0.168	0.889	9495.49	Good	
4	CHL	0	29.546	0.566	0.17	0.889	9499.815		
5	CL+CHL	10	63.281	1.778	0.25	0.889	20346.35		
6	CL	10	33.74	1.219	0.321	0.889	10848.05	Good	
7	CHL(UST)	10	29.531	0.551	0.166	0.889	9494.8		
8	CHL	0	29.541	0.559	0.168	0.889	9498.299	Good	

### 3.3 Winding Resistance

#### HIGH VOLTAGE WINDING RESISTANCE

Show Graph

Disable Recording of Make/Break Transition

Units:

#	TAP	Current (amp)	Nameplate Voltage	Measured Resistance			Reading Stability %	Winding Difference %	Make/Break			
				H <sub>1</sub> - H <sub>3</sub>	H <sub>2</sub> - H <sub>1</sub>	H <sub>3</sub> - H <sub>2</sub>			20 ms	Pass	Pass	Pass
1	1	0.1077	75,900	470.3	465.4	471.1	99.8810	1.212	20 ms	Pass	Pass	Pass
2	2		75,037									
3	3		74,175									
4	4		73,312									
5	5		72,450									
6	6		71,587									
7	7		70,725									
8	8		69,862									
9	Nominal	0.1077	69,000	366.7	364.8	367.6	99.8622	0.761	20 ms	Pass	Pass	Pass
10	10		68,137									
11	11		67,275									
12	12		66,412									
13	13		65,550									
14	14		64,687									
15	15		63,825									
16	16		62,962									
17	17	0.1077	62,100	448.4	445.6	449.8	99.9277	0.941	20 ms	Pass	Pass	Pass

#### LOW VOLTAGE WINDING RESISTANCE

Show Graph

Units:

#	TAP	Current (amp)	Nameplate Voltage	Measured Resistance			Reading Stability %	Winding Difference %	
				X <sub>1</sub> - X <sub>0</sub>	X <sub>2</sub> - X <sub>0</sub>	X <sub>3</sub> - X <sub>0</sub>			
18	Nominal	1.0091	24,000	19.69	19.78	19.67	99.9651	0.585	

### 3.4 Transformer Turns Ratio

Substation:	<b>ORANGE BAY</b>	
Date:	02-May-21	
Transformer S.N.:	88.2.4020	
MVA Rating	25	
Manufacturer:	PAUWELS TRAF0	
Year of Manufacturer:	1988	
Voltage Rating HV/LV:	69/24	kV

Test	Equipment	Result
Ambient Temperature		
Humidity		

Test Method	Equipment	Type/Model
SINGLE	MEGGER	TTR 100-1

Item No.	Connections	Ratio																
		Tap Positions																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	Voltage	75,900								69,000								62,100
	Design Ratio																	
<b>1</b>	<b>Star - Delta (Ynd)</b>																	
1.1	Phase A (H <sub>1</sub> -Ho:X <sub>1</sub> -X <sub>2</sub> )																	
1.2	Phase B (H <sub>2</sub> -Ho:X <sub>2</sub> -X <sub>3</sub> )																	
1.3	Phase C (H <sub>3</sub> -Ho:X <sub>3</sub> -X <sub>1</sub> )																	
1.4	Maximum Variation (%)																	
<b>2</b>	<b>Delta - Star (Dyn1)</b>																	
2.1	Phase A (H <sub>1</sub> -H <sub>2</sub> :X <sub>1</sub> -X <sub>0</sub> )	5.51								5.01								4.50
2.2	Phase B (H <sub>2</sub> -H <sub>1</sub> :X <sub>2</sub> -X <sub>0</sub> )	5.51								5.01								4.50
2.3	Phase C (H <sub>3</sub> -H <sub>2</sub> :X <sub>3</sub> -X <sub>0</sub> )	5.51								5.01								4.50
2.4	Maximum Variation (%)	0.16%								0.18%								0.18%
	Max allowed = 0.5%																	

### 4. Test Done 2022

#### 4.1 Capacitance/Power Factor

	Insulation	Test kV	mA	Watts	% PF Corr.	Corr Fctr	Cap (pF)	FRANK™	Manual
1	CH+CHL	10	40.762	1.003	0.222	0.903	13105.80		
2	CH	10	11.207	0.42	0.339	0.903	3603.39	Good	
3	CHL(UST)	10	29.538	0.569	0.174	0.903	9497.30	Good	
4	CHL	0	29.555	0.583	0.178	0.903	9502.41		
5	CL+CHL	10	63.321	1.811	0.258	0.903	20359.55		
6	CL	10	33.773	1.242	0.332	0.903	10858.95	Good	
7	CHL(UST)	10	29.534	0.561	0.171	0.903	9495.99		
8	CHL	0	29.549	0.57	0.174	0.903	9500.60	Good	

#### 4.2 Insulation Resistance/PI/Hydran

Substation/Location:	ORANGE BAY
Date:	17-Sep-22
Transformer S.N.:	88.2.4020
MVA Rating	25
Manufacturer:	PAUWEL TRAF0
Voltage Rating HV/LV, kV:	69/24

<b>Test Equipment</b>	MEGGER
Model	S1-1568

Ambient Temperature:	32	Deg. C
Temperature Correction Factor:	20	
Winding Temp, Deg. C	40	
Oil Temp, Deg. C	40	
Humidity:		

Oil Dielectric Test (KV)	
Test 1	60.0
Test 2	60.0
Test 3	60.0
Test 4	60.0
Test 5	60.0
Average	60.0

Item No.	Test	Test Volts	Resistance Readings - M Ohms					
			Duration	Measured	Corrected to 20 deg. C	Duration	Measured	PI
<b>1</b>	<b>Megger - Insulation</b>			$\Omega$			$\Omega$	
1.1	HV to LV and ground	5 KV	1 Min	4.17 G $\Omega$		10 Min	5.70 G $\Omega$	1.37
1.2	LV to HV and Ground	5 KV	1 Min	2.82 G $\Omega$		10 Min	4.24 G $\Omega$	1.50
1.3	HV to LV	5 KV	1 Min	4.47 G $\Omega$		10 Min	6.63 G $\Omega$	1.48
1.4								
<b>2</b>	<b>Core Insulation Res.</b>							
2.1	Core ground strap - tank ground	500V	2 Min	4.77 G $\Omega$				

### 4.3 Transformer Turns Ratio

#	Tap Pri/Sec		Voltage Pri/Sec		Test V	Calc TTR	$H_1 - H_3 / X_1 - X_0$				$H_2 - H_1 / X_2 - X_0$				$H_3 - H_2 / X_3 - X_0$			
							Actual TTR	% Error	I exc mA	Phase (Deg)	Actual TTR	% Error	I exc mA	Phase (Deg)	Actual TTR	% Error	I exc mA	Phase (Deg)
1	1	Nominal	75,900	23,900	80	5.501	5.497	-0.06	2.2	-0.370	5.501	0.00	2.0	-0.426	5.502	0.03	3.8	-0.413
2	2	Nominal	75,038	23,900		5.438												
3	3	Nominal	74,175	23,900		5.376												
4	4	Nominal	73,313	23,900		5.313												
5	5	Nominal	72,450	23,900	80	5.251	5.246	-0.09	2.4	-0.360	5.250	-0.02	2.1	-0.414	5.252	0.03	4.2	-0.401
6	6	Nominal	71,588	23,900		5.188												
7	7	Nominal	70,725	23,900		5.125												
8	8	Nominal	69,863	23,900		5.063												
9	Nominal	Nominal	69,000	23,900	80	5.000	4.997	-0.07	2.7	-0.342	5.000	-0.00	2.4	-0.397	5.001	0.02	4.6	-0.384
10	10	Nominal	68,138	23,900		4.938												
11	11	Nominal	67,275	23,900		4.875												
12	12	Nominal	66,413	23,900		4.813												
13	13	Nominal	65,550	23,900		4.750												
14	14	Nominal	64,688	23,900	80	4.688	4.683	-0.10	3.0	-0.334	4.686	-0.04	2.7	-0.383	4.689	0.03	5.1	-0.371
15	15	Nominal	63,825	23,900		4.625												
16	16	Nominal	62,963	23,900		4.563												
17	17	Nominal	62,100	23,900	80	4.500	4.495	-0.11	2.7	-0.341	4.496	-0.09	2.1	-0.362	4.496	-0.11	2.4	-0.360



### 4.4 Winding Resistance

#	TAP	Current (amp)	Nameplate Voltage	H <sub>1</sub> - H <sub>3</sub>	H <sub>2</sub> - H <sub>1</sub>	H <sub>3</sub> - H <sub>2</sub>	Reading Stability %	Winding Difference %	Make/Break			
									5 ms	Pass	Pass	
1	1		0	487.2	487.4	486.5	99.6850	0.192	5 ms	Pass	Pass	Pass
2	2		0									
3	Nominal		0									
4	4		0									
5	5		0	434.6	435.7	433.7	99.6940	0.444	5 ms	Pass	Pass	Pass
6	6		0									
7	7		0									
8	8		0									
9	9		0	381.0	381.0	381.4	99.7910	0.086	5 ms	Pass	Pass	Pass
10	10		0									
11	11		0									
12	12		0									
13	13		0	407.0	407.6	407.3	99.8560	0.144	5 ms	Pass	Pass	Pass
14	14		0	421.2	420.8	420.2	99.6420	0.244	5 ms	Pass	Pass	Pass
15	15		0									
16	16		0									
17	17		0	460.4	461.4	460.5	99.8270	0.214	5 ms	Pass	Pass	Pass

### LOW VOLTAGE WINDING RESISTANCE

Show Graph

Units: mΩ

#	TAP	Current (amp)	Nameplate Voltage	Measured Resistance			Reading Stability %	Winding Difference %	
				X <sub>1</sub> - X <sub>0</sub>	X <sub>2</sub> - X <sub>0</sub>	X <sub>3</sub> - X <sub>0</sub>			
37	Nominal		23,900,000	19.92	19.88	19.97	99.9630	0.449	



**PART 7**  
**SCHEDULES**

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# Schedules

## **SCH.01 Schedule of Requirements**

Repair of One (1) – 25 MVA, 69/24 kV Distribution Power transformer.

## **SCH.02 Schedules of Information**

### **SCH.02.1 Financial Data**

The Bidder attaches the following information concerning his financial resources and previous experience in order to fully demonstrate his ability to undertake the Works:

### **SCH.02.2 Addenda to Bid Documents**

The Bidder has received the following Addenda to the Bid Documents prior to submission of this Bid.

ADDENDA NO.

DATED

Name of Bidder \_\_\_\_\_

Signature of Bidder \_\_\_\_\_

### **SCH.02.3 Sub-Contracted Work**

Sub-suppliers may be used to supply the following materials and services:

**SCH.03****SCHEDULE OF PRICES****SCH.03.1****Distribution Transformer One (1) – 25 MVA, 69/24 kV**

<b>Item</b>	<b>Equipment Description</b>	<b>Unit</b>	<b>Qty.</b>	<b>Unit Price</b>	<b>Total Cost</b>
1	Inspection and testing in factory for failure determination	each			
2	Repair/Overhaul of 25MVA transformer. The transformer will be delivered in FCA (factory) condition. Ref.: TRANSFORMER ID N°: T1 SERIAL NUMBER: 88.2.4020 YEAR OF MANUFACTURER: 1988 RATED POWER: 25 MVA RATED VOLTAGE: 69/24KV MANUFACTURER: PAUWELS TRAF0	each			
3	Witness Testing - ANSI requirements for routine testing of power transformer	Lot			
4	Witness Testing - Impulse voltage withstand tests, including chopped waves.	each			
5	Witness Testing - Heat run test	each			
6	Witness Testing - Core insulation test. Insulation resistance shall be measured at 1000 V and shall indicate a minimum resistance of 50 MΩ to ground.	each			
7	Witness Testing - Partial discharge tests shall be as per IEC standards	each			
8	Witness Testing - Pressure tests at 35 kPa for a duration of 6 hours shall be made on the transformer immediately following the temperature rise test while the oil is hot.	each			
9	All expenses including air fares, hotel transfers and accommodations paid for two (2) of the Purchaser's engineers to witness such tests	lot			

**Total Cost: US\$** \_\_\_\_\_**Name of Bidder:** \_\_\_\_\_**Address of Bidder:** \_\_\_\_\_**Bidder's Signature:** \_\_\_\_\_

**SCH.04 SCHEDULE OF DELIVERIES**

**Repair Distribution Power Transformer One (1) –25MVA**

Purchaser's Required Repair: Three (3) months A.R.O

Supplier's Proposed Delivery: \_\_\_\_\_

Name of Bidder: \_\_\_\_\_

Signature of Bidder: \_\_\_\_\_

**SCH.05 Schedule of Technical Data**

**SCH.05.1 Materials and Workmanship**

The Supplier guarantees that the equipment/material furnished hereunder will be entirely suitable for the service specified, will conform to all conditions of performance and design, be free from manufacturing and material defects.

The Supplier also guarantees that he will at the convenience of and without charge to the Purchaser replace, repair and install any of the Works or part thereof which prove defective as a result of faulty materials or workmanship, in accordance with the warranty requirements stated in section SC-10 of this specification.