



CD 27/2023

**MANUFACTURE, SUPPLY AND DELIVERY OF POLE
MOUNTING POWER TRANSFORMERS**

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1. INVITATION

CENTLEC (SOC) Ltd a Municipal Entity distributing electricity in Mangaung, and other Municipalities invites service providers for the manufacture, supply and delivery of pole mounting power transformers as per specifications detailed below for a period of thirty six (36) months.

2. MINIMUM REQUIREMENTS

Any omission of the below listed items would render an automatic disqualification.

- 2.1 Supply unique security personal identification number (PIN) from SARS for TAX compliant status and a valid original tax clearance certificate.
- 2.2 Supply municipal services (water, sanitation, rates and electricity) clearance certificate or Lease Agreement with a current Bill and rates clearances, or hardware Current Bill of Account not owing more than 90 days. In a case where the services are paid by the Landlord, the signed lease agreement and statement of account must be submitted by the bidder.
 - 2.2.1 In an event, that the Bidder utilizes prepaid services (e.g. Water or electricity) a valid municipal clearance certificate(s) must still be provided.
- 2.3 Submit proof of registration on the National Treasury Centralized Supplier's Database.

3. SCOPE OF WORK

This part of the bid calls for the manufacturing, supply and delivery of the following pole mounting power transformers (as specified) for use on the 11kV, 22kV and 2.2kV network of the CENTLEC supply area.

4. TECHNICAL SPECIFICATION

Meteorological Conditions at CENTLEC Supply Area

Table 1: Climatological Data

1. Outdoor temperatures in degrees Celsius	Annual mean – 24.4 °C; Maximum = 40 °C; Minimum = -10 °C
2. Average relative humidity	At 08h00 = 76%; at 14h00 = 33%; at 20h00 = 48% Minimum = 7% and Maximum = 98%
3. Thunderstorm activity	Severe Thunderstorms

4.1 Electrical System at CENTLEC Supply Area

- a) Voltage: 11 000 /400 Volt and 22 000 /400 Volt
- b) Phases: 3
- c) Frequency : 50 Hz
- d) On the 11 kV side at the 33/11 kV distribution centres in Mangaung area, the neutral is earthed through a resistor to limit the maximum current to 600A and 300A.
- e) Phase rotation is non-standard.
- f) The load on the system consists mainly of lighting, heating and inductive loads.
- g) The two types of cable mainly used on the 11 kV network are 185mm² Al and 70 mm² Cu paper insulated cable.
- h) The insulation level for the transformers must be according to SANS 780: 2009

4.2 Item description of pole mounted power transformers.

ITEM 1: 200 kVA 11 000/400/231 Volt, 3 phase hermetically sealed with outdoor bushings suitable for double pole mounting.

ITEM 2: 100 kVA 11 000/400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for double pole mounting.

ITEM 3: 100 kVA **22 000** /400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for double pole mounting.

ITEM 4: 200 kVA **22 000** /400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for double pole mounting.

ITEM 5: 50 kVA **22 000** /400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for single pole mounting.

ITEM 6: 50 kVA 11 000/400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for single pole mounting.

ITEM 7: 25 kVA 1 000/400/231 Volt, 3 phase hermetically sealed with outdoor bushings and with provision for single pole mounting.

ITEM 8: 25 kVA 11 000/231 Volt, single phase hermetically sealed with outdoor bushings and with provision for single pole mounting.

ITEM 9: 25 kVA **2 200**/400/231 Volt, 3 phase hermetically sealed with outdoor bushings and with provision for single pole mounting.

ITEM 10: 50 kVA **2 200**/400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for single pole mounting.

ITEM 11: 100 kVA **2 200**/400/231 Volt, 3 phase hermetically sealed with outdoor

bushings and provision for double pole mounting.

4.3 Applicable Standards

All low-loss transformers must conform to the latest requirements of NRS 054: 2002, NRS 066: 2002 and SANS 780: 2009. Copies of all test certificates must be submitted by the successful bidder with each unit delivery.

4.4 General Technical Requirements

4.4.1 Connecting facilities.

Bushings on the 11 kV (22kV) side of the transformer **must be of the porcelain type**, according to SANS 1037: 2001 as amended. The bushings mountings shall be of the type that permits replacement of the bushing without entering the tank and must be sealed with pure cork gaskets. (Type) Bushings must be suitable for outdoor use and transformers as specified in items 1 to 8 must be fitted with mounting brackets for JOSLYN (currently utilised by CENTLEC) Type ZHP0012 surge arresters with a minimum safety clearance of 200mm from bushing or arrester top to the mounting bracket and metal tank. On the low tension side of the transformer the bushings must be fitted on the side of the transformer with a minimum safety clearance of 60mm from bushing top to pole mount bracket. Bushings and connecting terminals shall be permanently and clearly marked each with **an individual label** (A, B, C, a, b, c and yn) fixed next to each terminal.

4.4.2 Vector Group

All three phase transformers shall have a vector group in accordance with SANS 780 section 4.14.3 viz Dyn 11.

4.4.3 Oil

- Transformer oil must comply with SANS 555: 2002 as amended. All transformers supplied must be filled with **PCB free**, grade 1 oil before being dispatched (Transformers must be labelled **PCB free**).
- Tanks must be sealed before dispatch to prevent moisture and unwanted objects from entering.
- Vacuum must be applied to all transformers during oil-filling and testing.

4.4.4 Anti-Corrosion Coating

The primer paint for the exterior surfaces of the transformer shall conform to SANS 780: 2009 for coastal protection. The final colour must be "Avocado" shade C12 in accordance with SANS 1091: 2004.

4.4.5 Mounting

Units specified under items 1 – 4 and 11 must be of the skid base type fitted with two channel irons underneath to mount transformer on a double pole H - structure.

4.4.6 Transformer

Units specified under items 5 - 10 (Items 2, 4 and 11 must be equipped with both mounting options) must be for single pole mounting and supplied complete with 8mm thick V -type pole clamps with three punched holes 21mm diameter (not slotted) and two M20 x 250mm galvanised threaded rods, each with two flat, two spring washers and four nuts.

The transformer shall comply with all the relevant electrical requirements of SANS 780. The transformer shall be equipped with an off-load circuit tapping device with a range of +/- 5% in 2.5% steps. **The tap selector shall be mounted on the outside of the tank, at a level higher than the top of the transformer core and MV bushings.**

The selector shaft oil seal must be replaceable from the outside of the tank. The rated no-load secondary voltage shall be 400/231 volt at tap position 3. An oil level indicator shall be installed.

4.4.7 Dimensional requirements

Units specified under items 1 – 4 and 11 must be constructed in such a way that it will fit safely between the HT overhead line and the H - structure with a **maximum overall height of 840 mm and a maximum width of 1400mm.**

4.4.8 Accessories

Each transformer shall be supplied with the following accessories:

- a) Brackets shall be provided adjacent to medium-voltage bushings for mounting MV surge arresters (items 1 - 11)

- b) All three phase transformers must be equipped with tap changers as described in par 4.4.6 Tap changer selector and oil seal must be serviceable from the outside.
- c) The transformer capacity in kVA and voltage levels must be painted in black lettering (75mm high x 50mm wide) on the front side underneath the MV bushings. Use UV stable and heat resistant paint only.
- d) Gaskets between the tank and the bushings shall be pure cork (Type TE Z1 of Cork Rite Grade or the equivalent) only. NB – There must be no rubber in the cork.

4.4.9 Drawings

Bidders must submit three (3) sets, when submitting this bid, include layout drawings depicting all elevations and main dimensions.

4.4.10 Guarantee

The successful bidder must submit a written guarantee from the manufacturer that would cover all parts of the transformer that may fail either mechanically or electrically due to faulty design, bad workmanship or material for a period of twelve months without any cost to CENTLEC.

4.4.11 Testing

All transformers shall be tested in accordance with the relevant SANS specification and signed three (3) copies of the complete test report, in a sealed envelope addressed to Supply Chain Manager or his representative, must accompany the transformers at delivery.

4.5 Schedules for Pole Mounting Power Transformers

Index to the schedules

- 4.5.1 SCHEDULE NO 1 : POWER TRANSFORMER SPECIFICATIONS
- 4.5.2 SCHEDULE NO 2 : BUSHING SPECIFICATIONS
- 4.5.3 SCHEDULE NO 3 : MANUFACTURING PARTICULARS

NO	TRANSFORMER PARTICULARS	ITEM 1 200kVA 11 kV	ITEM 2 100kVA 11kV	ITEM 3 200kVA 22kV	ITEM 4 100kVA 22kV	ITEM 5 50kVA 22kV	ITEM 6 50kVA 11kV	ITEM 7 25kVA 3 ϕ 11kV	ITEM 8 25 kVA 1 ϕ 11kV	ITEM 9 25kVA 3 ϕ 2.2kV	ITEM 10 50kVA 2.2kV	ITEM 11 100kVA 2.2kV
6.	% Impedance at principal tap											
7.	% Efficiency: Normal operation											
	Full load PF = 1,0											
	$\frac{3}{4}$ Load PF = 1,0											
	$\frac{1}{2}$ Load PF = 1,0											
	$\frac{1}{4}$ Load PF = 1,0											

NO	TRANSFORMER PARTICULARS	ITEM 1 200kVA 11 kV	ITEM 2 100kVA 11kV	ITEM 3 200kVA 22kV	ITEM 4 100kVA 22kV	ITEM 5 50kVA 22kV	ITEM 6 50kVA 11kV	ITEM 7 25kVA 3 φ 11kV	ITEM 8 25 kVA 1 φ 11kV	ITEM 9 25kVA 3 φ 2.2kV	ITEM 10 50kVA 2.2kV	ITEM 11 100kVA 2.2kV
8.	Mass (kg): Core Only											
	Windings only											
	Tank only											
	Oil only											
	Total Mass											

NO	TRANSFORMER PARTICULARS	ITEM 1 200kVA 11 kV	ITEM 2 100kVA 11kV	ITEM 3 200kVA 22kV	ITEM 4 100kVA 22kV	ITEM 5 50kVA 22kV	ITEM 6 50kVA 11kV	ITEM 7 25kVA 3 φ 11kV	ITEM 8 25 kVA 1 φ 11kV	ITEM 9 25kVA 3 φ 2.2kV	ITEM 10 50kVA 2.2kV	ITEM 11 100kVA 2.2kV
9.	Sealed (0) or Air vented (X)											
10.	Volume Oil (L)											
11.	Dimensions (mm): Length (L)											
	Width (W)											
	Height (H)											
12.	Height without oil tank (mm)											

NO	TRANSFORMER PARTICULARS	ITEM 1 200kVA 11 kV	ITEM 2 100kVA 11kV	ITEM 3 200kVA 22kV	ITEM 4 100kVA 22kV	ITEM 5 50kVA 22kV	ITEM 6 50kVA 11kV	ITEM 7 25kVA 3 φ 11kV	ITEM 8 25 kVA 1 φ 11kV	ITEM 9 25kVA 3 φ 2.2kV	ITEM 10 50kVA 2.2kV	ITEM 11 100kVA 2.2kV
13.	Material Thickness: Tank (mm)											
	Cooling tubes (mm)											
14.	Winding material (aluminum)											

4.5.2 SCHEDULE NO 2: BUSHING SPECIFICATION (PORCELAIN)

Table 3: Schedule No 2

NO	TRANSFORMER PARTICULARS	ITEM 1 200kVA 11 kV	ITEM 2 100kVA 11kV	ITEM 3 200kVA 22kV	ITEM 4 100kVA 22kV	ITEM 5 50kVA 22kV	ITEM 6 50kVA 11kV	ITEM 7 25kVA 3 φ 11kV	ITEM 8 25 kVA 1 φ 11kV	ITEM 9 25kVA 3 φ 2.2kV	ITEM 10 50kVA 2.2kV	ITEM 11 100kVA 2.2kV
1.	Manufacturer:											
2.	Wet flash-over value											
3.	Dry flash-over value											

4.5.3 SCHEDULE NO 3: MANUFACTURING PARTICULARS

Table 4: Schedule No 3

NO	TRANSFORMER PARTICULARS	ITEM 1 200kVA 11 kV	ITEM 2 100kVA 11kV	ITEM 3 200kVA 22kV	ITEM 4 100kVA 22kV	ITEM 5 50kVA 22kV	ITEM 6 50kVA 11kV	ITEM 7 25kVA 3 φ 11kV	ITEM 8 25 kVA 1 φ 11kV	ITEM 9 25kVA 3 φ 2.2kV	ITEM 10 50kVA 2.2kV	ITEM 11 100kVA 2.2kV
1.	Manufacturer											
2.	Place of manufacturing											
3.	Guaranteed % SA Content											

5 SPECIAL CONDITIONS OF CONTRACT

- 5.1 Please note that CENTLEC reserves the right to appoint more than one bidder where applicable.
- 5.2 Any amendments to the legal and procedural content of this bid shall be addressed in the SLA entered by CENTLEC and successful bidder(s).
- 5.3 The successful bidder will be expected to enter into a Service Level Agreement with CENTLEC.

6. EVALUATION CRITERIA

All proposals submitted will be evaluated in accordance with the criteria set out in the policy of Supply Chain Management of the Entity.

The most suitable candidate will then be selected. Please take note that CENTLEC is not bound to select any of the bidders' submitting proposals.

Furthermore, technical competence is the principal selection criteria. CENTLEC will evaluate the technical criteria first and will only look at the price and specified goals if it is satisfied with the technical evaluation. As a result of this, CENTLEC does not bind itself in any way to select the bidder offering the lowest price.

6.1 The relative technical weighting of the criteria is as follows:

Table 5 – Evaluation criteria

No.	Criteria	Description	Points
1.	Track record and experience	Submit reference letters on company's letterhead confirming previous services related to the scope of work. Letters must be signed by a duly authorized person (Executive Manager or HOD). Two (2) reference letters = 10 Points Three (3) or more reference letters = 20 Points	20
2	Technical specified requirements	Submit drawings as required in 4.4.9 for approval = 20 points Submit all detailed schedules as required per item 4.5 = 20 points	40
3.	Quality and compliance to SANS requirements as specified in the technical specifications	Submit standards certificates for all items that needs to comply with such standards. Certificates submitted for at least: ISO 9001 certificate as obtained from the manufacturer = 10 points Relevant SANS Certificates as per technical specification as obtained from manufacturers = 10 points	20
4.	Local Mangaung Metropolitan Municipality operational capability and economic investment	Does the bidder have an existing and established local office (CENTLEC distribution area) = 20 points Bidder must submit pictures of the premises. The Bid Evaluation Committee has the right to verify the existence of premises before the allocation of points. If not (Within South Africa) = 10 points	20
	TOTAL		100

A bidder who gets a minimum of 80 points and above on will qualify to the next stage. Individual tenders would have to be evaluated according to the preferential point system.

The bidder must score minimum points as follows:

Item 1 - 10 points

Item 2 - 40 points

Item 3 - 20 points

Item 4 – 10 points

6.2 PRICE AND REFERENTIAL POINTS SCORING – STAGE 2 (Price and Specified Goals)

All Bidders that have passed the technical evaluation threshold of 80 points would also be scored based the 90/10 principle where 90 Points is for the Price and 10 points for specified goals as per the detail given below.

6.3 Points awarded for price.

A maximum of 90 Points is allocated for price on the following basis:

Where
$$P_s = 90 \left[1 - \frac{P_t - P_{\min}}{P_{\min}} \right]$$

P_s = Points Scored for comparative price of bid under consideration

P_t = Comparative Price of bid under consideration

P_{\min} = Comparative Price of lowest acceptable bid

6.4 Points awarded for Specified Goals Requirement

In terms of Regulation 3.(1) An organ of state must, in the tender documents, stipulate— (a) the applicable preference point system as envisaged in regulations 4, 5, 6 or 7; (b) the specific goal in the invitation to submit the tender for which a point

may be awarded, and the number of points that will be awarded to each goal, and proof of the claim for such goals in accordance with the table below;

Table 6: Specified Goals for Preferential Point System

Specified Goals	Points Allocation
50% Black owned	6
50% Women owned	2
50% Youth owned <35 years	2
Total Points	10

7 PRICE SCHEDULE

Table 7: Pricing Schedule

Item	Description	Unit of measure	Price in Rands (Excl VAT)	Delivery Lead Time
1	200 kVA 11 000/400/231 Volt, 3 phase with outdoor bushings suitable for double pole mounting	each		
2	100 kVA 11 000/400/231 Volt, 3 phase with outdoor bushings and provision for double pole mounting	each		
3	200 kVA 22 000 /400/231 Volt, 3 phase with outdoor bushings and provision for double pole mounting	each		
4	100 KVA 22 000 / 400 / 231 Volt, 3 phase with outdoor bushings and provision for double pole mounting.	each		

Item	Description	Unit of measure	Price in Rands (Excl VAT)	Delivery Lead Time
5	50 kVA 22 000 /400/231 Volt, 3 phase with outdoor bushings and provision for single pole mounting	each		
6	50 kVA 11 000/400/231 Volt, 3 phase with outdoor bushings and provision for single pole mounting	each		
7	25 kVA 11 000/231 Volt, 3 phase with outdoor bushings and with provision for single pole mounting	each		
9	25 kVA 2 200/231 Volt, 3 phase hermetically sealed with outdoor bushings and with provision for single pole mounting	each		
10	50 kVA 2 200/400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for single pole mounting.	each		
11	100 kVA 2 200/400/231 Volt, 3 phase hermetically sealed with outdoor bushings and provision for double pole mounting.	each		

8. CONTACT INFORMATION

- 8.1 For any further technical information regarding the document contents please contact Mr Andre Oelofse e-mail: Andre.Oelofse@centlec.co.za such queries must be done in writing, the email address provided serves this purpose. The answer to one question will be sent to all the other prospective bidders that have bought the bid documents.
- 8.2 For Supply Chain Related questions, Please contact Me. Palesa Makhele at palesa.makhele@centlec.co.za