MOGALAKWENA LOCAL MUNICIPALITY



PROCUREMENT DOCUMENT

TENDER No. 25-2020/2021

ADVERT DATE : 21 JANUARY 2021

CLOSING DATE: 22 FEBRUARY 2021

Terms of Reference (ToR)

APPOINTMENT OF AN PANEL OF 04(FOUR) SERVICE PROVIDER TO PROVIDE SERVICES WITH RESPECT TO SERVICING AND REFURBISHING OF ALL POWER TRANSFORMERS THAT BELONG TO THE MOGALAKWENA MUNICIPALITY FOR THE PERIOD OF THREE (03)YEARS

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APPOINTMENT OF AN PANEL OF 04 (FOUR) SERVICE PROVIDER TO PROVIDE SERVICES WITH RESPECT TO SERVICING AND REFURBISHING OF ALL POWER TRANSFORMERS THAT BELONG TO THE MOGALAKWENA MUNICIPALITY FOR THE PERIOD OF THREE (03)YEARS

MOGALAKWENA LOCAL MUNICIPALITY

Contents

THE TENDER

Part T1: Tendering procedures

- T1.1 Tender notice and invitation to tender
- T1.2 Tender data

Part T2: Returnable documents

- T2.1 List of returnable documents
- T2.2 Returnable schedules

THE CONTRACT

Part C1: Agreements and Contract data

- C1.1 Form of offer and acceptance
- C1.2 Agreement in Terms of the Occupational Health & Safety Act
- C1.3 Contract data

PART C2: PRICING DATA

- C2.1 Pricing Instructions
- C2.2 Bills of Quantities

Part C3: Scope of Service

C3.1 Description of Works and standard specifications.



APPOINTMENT OF AN PANEL OF 04 (FOUR) SERVICE PROVIDER TO PROVIDE SERVICES WITH RESPECT TO SERVICING AND REFURBISHING OF ALL POWER TRANSFORMERS THAT BELONG TO THE MOGALAKWENA MUNICIPALITY FOR THE PERIOD OF THREE (03)YEARS

MOGALAKWENA LOCAL MUNICIPALITY

T1 – Tender Procedure

For the purpose of this tender process a Quality-Based Selection (QBS) method of selection is to be used.

The tender data is according to Treasury document: Supply Chain Management: A Guide for Accounting Officers of Municipalities and Municipal Entities (2005): Construction Procurement, Best Practice Guideline #A7, September 2015. Only the relevant sections of these documents are included below:

T1.1 Tender Notice and Invitation to Tender

Mogalakwena Local Municipality hereby invites suitably qualified service providers to tender for the below mentioned project:

The details of the project are as follows:

No:	Project Name	Tender	Compulsory Briefing	Enquiries
		Number	Session	
1	APPOINTMENT OF AN PANEL OF 04 (FOUR) SERVICE PROVIDER TO PROVIDE SERVICES WITH RESPECT TO SERVICING AND REFURBISHING OF ALL POWER TRANSFORMERS THAT BELONG TO THE MOGALAKWENA MUNICIPALITY FOR THE PERIOD OF THREE (03)YEARS	25-2020/2021	None Due to Covid 19 Regulations	015 491 9671/9731/9649 Supplychain@mogalak- wena.gov.za

Mogalakwena Municipality will evaluate, adjudicate and award the bids in accordance with the PPPFA of 2017

BID DOCUMENTS CONTAINING THE CONDITIONS OF BIDS AND REQUIREMENTS CAN BE DOWNLOADED ON E-TENDERS PUBLICATION PORTAL AT www.etenders.gov.za for free and Municipality website.

The project name with the project number must be clearly marked on the envelope before submission.

Complete tender documents, fully priced, signed and sealed in an envelope must be deposited in the Tender Box at Mogalakwena Municipality, 54 Retief Street, Mokopane, by no later than **12:00 on 22 February 2021** for the above project. On the closing date and time, all tenders received will be opened in public in the Old Council Chamber, on the Ground Floor Civic Centre.

No late, faxed, telegraphic, emailed and telephonic tenders will be accepted. The council also reserves the right to negotiate further conditions and requirements with the successful tenderer.

NB* Service providers should take note that no bid/service will be awarded to a service provider who is not registered or have a valid Web Based Central Supplier Database (CSD) registration.

Enquiries related to this tender must be addressed to Supply Chain Management at 015 491 9671/9731/9649/9647.

The Municipality does not bind itself to accept the lowest or any tender and reserves the right to accept any tender or any part thereof, which may result in the acceptance of more than one tender, whichever the case may be.

BS.GUNQISA

MUNICIPAL MANAGER

54 RETIEF STREET

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MOKOPANE

0600

NOTICE NO 12/2021

1. PURPOSE

To identify, select and appoint a local and independent service provider to service and refurbish all power transformers that belong to the Mogalakwena Municipality on behalf of the Municipality.

2. OBJECTIVE

The objective of this ToR is to provide project specifications and evaluation criteria for the appointment of an independent service provider to provide services in respect of servicing and refurbishing of all power transformers that belong to the Mogalakwena Municipality.

3. SCOPE AND EXTENT OF WORK

- 3.1 The service provider will be expected to engage and sign a Service Level Agreement (SLA) with the Municipality;
- 3.2 The service provider will be expected to engage electrical services management and consider their inputs in terms of all areas of work to be done on an ongoing basis;
- 3.3 Assess and determine the volume of power transformers that can be collected, serviced and delivered on a monthly basis;
- 3.4 The service provider will be expected to strip and quote all transformers subject to approval by the Electrical Services department of the Municipality;
- 3.5 The service provider will be expected to fulfil the following requirements to the satisfaction of the Municipality:
 - 3.5.1 Manned telephone support;
 - 3.5.2 Monitored email support;

- 3.5.3 Must be situated within the vicinity of the Municipality to afford the Municipal Officials an opportunity to come an view stripped transformers and approve quotations;
- 3.5.4 Make provisions for planned or emergency onsite assistance (extra costs may apply) as and when required to do so; and
- 3.5.5 Schedule monthly system health check on transformers that are at municipal storages

4. EXPECTED DELIVERABLES/OUTCOMES

- 4.1 The service provider is expected to provide the Municipality with a detailed service and refurbishment plan which clearly defines work that needs to be done on each transformer, expected date of conclusion and delivery date;
- 4.2 The service provider is expected to submit a price quotation to the Municipality within Eight (8) working hours upon approval a strip and quote assessment;
- 4.3 The service provider must submit to the Municipality Certificates of Compliance (CoC) upon completion of each assignment per transformers and test certificate prior and after be submitted.
- 4.4 The service provider must ensure safety and security of all transformers that are delivered and stored at its premises; and
- 4.5 The service provider may be required to submit quantitative reports for work done to the Manager Electrical Services Department of the Municipality.

5. PERIOD / DURATION OF PROJECT / ASSIGNMENT

The duration of the project is Thirty Six (36) months, starting immediately after the signing of the SLA by both parties.

6. COSTING/QUOTATIONS

- 6.1 The service provider shall be bound to execute all of the required quantities of scope as needed by the Municipality during the period of the contract;
- 6.2 The validity of the contract shall in no way be affected by the differences between the quantities in the bill of quantities and the quantities finally certified for payment. Work shall be valued at the percentage rates or lump sums tendered, subject only to the provisions within the SLA;
- 3.3 The quantities and/or hours of work finally accepted and certified for payment shall be used for determining payments to the service provider; and
- 3.4 The Service provider shall furnish the Municipality with a comprehensive price quotation for scheduled servicing and maintenance as and when required by the Municipality.

7. APPOINTMENT CRITERIA

- 7.1 Only service providers that are situated within the vicinity of the Municipality will be given first preference for this assignment;
- 7.2 Service providers who are EME which are, at least 51% owned by black people will be considered for this assignment as per Preferential Procurement Regulations 2017.
- 7.3 Service providers are required to submit an original or certified copy of the BBBEE Status Level of contributor issued by SANAS only or an original or certified copy of DTI sworn affidavit in terms of Codes of good practice" indicating that service provider is an EME;
- 7.4 Failure to submit an original or certified copy of the B-BBEE Status Level of contributor issued by SANAS or an original or certified copy of DTI sworn affidavit will result on bid being non-responsive or disqualification; and
- 7.5 Eligible Service Providers must be registered on the Central Suppliers Database (CDS).

8. Special Conditions

- 8.1 The performance measures for the delivery of the work by the service provider will be closely monitored by the Manager Electrical Services;
- 8.2 The service provider will inform the Department or delegated official immediately of any situation that may hinder the progress
- 8.3 The service provider will attend meetings to provide feedback and discuss the progress in terms of the activities of this assignment as and when required by the Municipality;
- 8.4 The service provider/s must guarantee the presence of the senior in charge of fieldwork throughout the duration of the assignment; and
- 8.5 The valid Tax Clearance Certificate must be submitted together with the bid or PIN number issued by SARS.

9. PAYMENT TERMS

- 9.1 The Municipality undertakes to pay out in full or as per deliverables within 30 (thirty) days all valid claims for work done to its satisfaction upon presentation of a substantiated claim and/or the required reports stipulated in SLA; and
- 9.2 No payment will be made where there is outstanding information/work not submitted by the Service Provider until that outstanding information is submitted. Claims will be in line with the approved deliverable.

10.TECHNICAL ENQUIRIES

Should you require any further information in this regard, please do not hesitate to contact:

Name:	
Telephone:	
E-Mail:	

SECTION 2: EVALUATION CRITERIA

STAGES OF EVALUATION

Stage 1: PREQUALIFICATION- DESIGNATED GROUPS

Stage 2: QUALITY EVALUATION

Stage 3: RESPONSIVESS/ADMINISTRATIVE

Stage 4: PRICE AND PREFERANCE

This is a pre-qualification tender to advance certain designated groups in terms of National Treasury's Preferential Procurement Regulation 2017 and BBBEE Act of 2013.

Targeted groups

- 1. An EME which is at least 51% owned by black people who are are military veterans.
- 2. An EME which is at least 51% owned by black people who are women.
- 3. An EME which is at least 51% owned by black people with disabilities.

A tender that fails to meet the prequalification criteria will be disqualified before evaluation in terms of quality and price.

The first top Four (04) Bidders in terms of points obtained will form part of the Panel.

The bid will be evaluated based on functionality as outline below:

Criteria	Weight	Score
 Workshop that will cater for transformers from 5MVA – 20MVA (Attach signed SLA or proof of ownership) Overhead Crane (Minimum capacity of 100 Tons) Oil Filtration & Degassing Plant Assembly Bay Test Bay (Fixed or Mobile) Oil Storage Tanks Oil Regeneration Plant Vapour Drying out Oven 	15	FAILURE TO SUBMIT ALL OF THE MENTIONED ITEMS, WILL LEAD TO A COMPANY SCORING ZERO
 Mobile Onsite Equipment (Attach signed SLA or proof of ownership) Mobile Oil Regeneration Plant Mobile Oil Filtration & Degassing Plant Mobile Oil Storage Mobile Crane 	10	10
Company Experience: minimum of 3 years' on similar scope detailing experience in the refurbishment & maintenance of power transformers and supply of spares (Attach signed reference letters on client's letter heads with contactable details – No appointment letters or purchase orders will be accepted)	20	3 Years10 POINTS2 Years5 POINTS1 Year2 POINTS
 Transportation: Provide proof of Low-bed Truck (Attach proof of ownership or lease agreement or intent to lease) 	20	2 10 POINTS VEHICLES 5 POINTS 1 VEHICLE

 Provide proof of Oil Tanker with minimum 10 000 litres (Attach proof of ownership or lease agreement or intent to lease) 		
Testing Facilities: provide proof of full capabilities of testing based on Clause 4.7.2 of CP_TSSTAN 063	5	FAILURE TO SUBMIT ALL OF THE MENTIONED ITEMS, WILL LEAD TO A COMPANY SCORING ZERO
Provide the following valid ISO Certificates: • ISO 9001 (3) • ISO 14001 (3) • ISO 18001 (4) or Detailed SHERQ Plan covering Environment (3), Quality (3) and Health & Safety plan (4)	10	5
Team Composition (minimum of 1 field team) – Attach proof of qualifications & CV's: Crane Operator – Certificate Rigger – Trade Test Certificate Electrician – Trade Test Certificate Test Technician – National Diploma SHEQ Officer – Certificate Fitter – Trade Test Certificate	10	FAILURE TO SUBMIT ALL OF THE MENTIONED RESOURCES, WILL LEAD TO A COMPANY SCORING ZERO
Locality Mogalakwena Local Municipality	10	Within Mogalakwena=10 Outside Mogalakwena=5

Urban - Valid certified copy of Rates and taxes bill in the	
company owner's name or lease agreement in case of	
rental included as a source of evidence	
Rural - Valid certified copy of proof of occupation in the	
company name supported by permission to occupy from	
CoGHSTA and lease agreement in case of rental to be	
included as a source of evidence	
TOTAL WEIGHT	100

MINIMUM SCORE OBTAINABLE FOR FURTHER EVALUATION =70

Note:

1. SITE INSPECTION WILL BE CONDUCTED TO THOSE COMPANIES THAT MEET THRESHOLD.

2. A BIDDER THAT FAILS TO SHOW ALL WORKSHOP & MOBILE ONSITE EQUIPMENT, WILL AUTOMATICALLY REDUCE THE SCORE UNDER ITEM 1 & 2 ABOVE.

Cost to rewind 1 x coil (Various sizes of transformers) and it also include oil, labour and materials (Collection and delivery) Transport.

KVA 3PHASE/ 1PHASE	REWIND	1HV	COIL	REWIND	1HV	COIL	REWIND	1HV	COIL
	33KVA/11KVA			11KVA/400V	33KVA/400V				
16									
25									
50									
100									
200									

315		
500		
850KVA		
1500MVA		
20MVA		

Cost to rewind 2 x coil (Various sizes of transformers) and it also include oil, labour and materials

KVA 3PHASE/1PHASE	REWIND 2HV COIL 33KV/11KVA	REWIND	2HV C	OIL	REWIND	2HV	COIL
		11KVA/400V			33KVA/40	0V	
16							
25							
50							
100							
200							
315							
500							
850							
1500							

20MVA

Cost to rewind 3 x coil (Various sizes of transformers) and it also include oil, labour and materials

KVA 3PHASE/1PHASE	REWIND 3HV COIL 33KV/11KVA	REWIND 3HV COIL	REWIND 3HV COIL			
		11KVA/400V	33KVA/400V			
16						
25						
50						
100						
200						
315						
500						
850						
1500MVA						
20MVA						

ANNEXURE "D" PHASE 1: WORKSHOP TRANSFORMER ASSESSMENT

		PHASE 1 : Workshop Transformer Assessment					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
1		Site Establishment					
1.1.1	total Site Establishment	Establish site according to sub – clause 4.7.1	sum	1			
1.1.2	Rent 44ft container _Site Est	Rent 44 ft container Establish site	sum	1			
1.1.3	Port 20sm office Site Est	portable Office 4m x5m Establish site	sum	1			
1.1.4	Port Toilet _ site Est	Portable flushable toilet	sum	1			
2		Transport and Rigging					
2.1.1	Hydralic_crn_0-40T	Hydraulic crane hire 0 - 40 tons	each	1			
2.1.2	Hydralic_crn_41-60T	Hydraulic crane hire 41 - 60 tons	each	1			
2.1.3	Hydralic_crn_61-80T	Hydraulic crane hire 61 - 80 tons	each	1			
2.1.4	Hydralic_crn_81-100T	Hydraulic crane hire 81 - 100 tons	each	1			
2.1.5	Hydralic_crn_50T_boom_40m	Hydraulic crane truck 50 ton with boom reaching 40 metres.	each	1			
2.1.6	Hydralic_crn_100-160T_boom_50m	Hydraulic crane truck 100 - 160 ton with boom reaching 50 metres.	each	1			
2.1.7	Hydralic_crn_161-300T_boom_50m	Hydraulic crane truck 160 - 300 ton with boom reaching 50 metres.	each	1			

		PHASE 1 : Workshop Transformer Assessment					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
2		Transport and Rigging					
2.2.1	Rig_0-40T_crane	Rigging of transformer on and Off the Low-bed 0-40 tons using a crane	each	1			
2.2.2	Rig_0-40T_jack	Rigging of transformer on and Off the Low-bed 0-40 tons using jacking system	each	1			
2.2.3	Rig_41-60T_crane	Rigging of transformer on and Off the Low-bed 4160 tons using a crane	each	1			
2.2.4	Rig_41-60T_jack	Rigging of transformer on and Off the Low-bed 4160 tons using jacking system	each	1			
2.2.5	Rig_61-80T_crane	Rigging of transformer on and Off the Low-bed 6180 tons using a crane	each	1			
2.2.6	Rig_61-80T_jack	Rigging of transformer on and Off the Low-bed 6180 tons using jacking system	each	1			
2.2.7	Rig_81-100T_crane	Rigging of transformer on and Off the Low-bed 81100 tons using a crane	each	1			
2.2.8	Rem_80 – 100T_jack	Rigging of transformer on and Off the Low-bed 81100 tons using jacking system	each	1			
2.3.1	Transp_TFR_(per KM)	Transport of transformer to workshop (per km)	km	1			

		PHASE 1 : Workshop Transformer Assessment						
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total iten	n cost
3		Inspections and Analysis - Active Part						
3.1.1	Unt_act_parts_assess	Untank active parts and assess	each	1				
3.1.2	Cond_prelim test_act_part	Conduct preliminary test on transformer active parts	each	1				
3.1.3	Cond_oil&DGA	Conduct oil and gas analysis	each	1				
3.1.4	Cond_fur_ana	Conduct furanic analysis	each	1				
3.1.5	Cond_paper_ana	Conduct physical paper analysis	each	1				
3.2.0		Inspections and Analysis - Tank						
3.2.1	Insp_tank	Inspect tank	each	1				
3.2.2	Insp_mot&cooler	Inspect all motors and coolers	each	1				
3.2.3	Insp_pres_relief_dev	Inspect all pressure relief devices	each	1				
3.2.4	Insp_conserv	Inspect conservator	each	1				
3.2.5	Inspec_valv&pipe	Inspect all valves and piping	each	1				
3.2.6	Inspec_rad_fins	Inspect all radiator fins	each	1				

		PHASE 1 : Workshop Transformer Assessment					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
4		Bushings					
4.1	Prelim_test_bush	Conduct preliminary tests on all bushings. For condenser type bushings, Tan Delta/Partial Discharge test are required (issue test certificate)	each	1			
4.2	oil &DGA_bush	Take oil samples from bushings and have them analysed (with supervision from City Power)	each	1			
4.3	Inspec_bush	Drain oil, dismantle and inspect all the bushings	each	1			
5		On-load tap changer (Box-type)					
5.1	Ope_fro cov_insp	Open front cover and inspect the defects	each	1			
5.2	Rem_epo_board_insp_defec	Remove all contact epoxy boards and inspect for cracks or any other defects	each	1			
5.3	Rem_bar_board_insp_defec	Remove barrier boards and inspects for cracks and effects	each	1			
5.4	Insp_relay_defec	Inspect pressure relays for defects and check settings	each	1			
5.5	Insp_mechdriv_defec	Inspect mechanical drive mechanism for defects	each	1			
5.6	Rec_res_val	Record transitional resistor value and compare with the name plate information where applicable	each	1			
5.7	Insp_cont_defec	Inspect all contacts and shafts for wear and defects	each	1			

		PHASE 1 : Workshop Transformer Assessment					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
6.0		On-load tap changer (Cylinder-type)					
6.1	Ope_divert_switc	Open and drain oil from the diverter switch	each	1			
6.2	Dism_untank_switc	Dismantle and untank the diverter switch	each	1			
6.3	Insp_test_divert_switc	Inspect and test diverter switch	each	1			
6.4	Test_divert_leaks	Test the diverter tube for leaks	each	1			
7		Reporting					
7.1	Supp_report_	Supply full detailed report and recommendations	each	1			
7.2	Scrap_Cu_saving	Scrap copper price must be provided and indicated as a savings on all quotations	each	1			
		TOTAL					

ANNEXURE "D" PHASE 3: Workshop Transformer Repairs/Refurbishment

	PHASE 3 : Workshop Transformer Repairs/Refurbishment										
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost				
1.0		Site Establishment									
1.1.1	Security	Allow for the storage and safe keeping of all materials and equipment including the provision of insurances as stipulated in the Conditions of Contract. Allow for 24 hour security for the duration of the contract.	sum	1							
1.1.2	As built drawings and manuals	Allow for marking-up a full set of drawings to show the exact positions of cables, transformer earthing etc. These "As Built" drawings must be handed to the engineer at commissioning of the equipment. Also all maintenance manuals, including all technical literature, test certificates and wiring diagrams as per specification.	sum	1							
1.1.3	Training	Allow for training for City Power staff during installation and commissioning of complete installation.		1							
1.2	Additional Items	Any additional item(s), not shown in the schedules, that the tenderer considers essential and wish to detail and price. (Provide full details)	month	1							
1.3	Additional Item a		month	1							
1.4	Additional Item b		sum	1							

		PHASE 3 : Workshop Transformer Repairs/Refurbis	shment				-
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
2.1	Onsite maintenance/service/repairs	(work to be done)					
2.1.1	Onsite_Risk_assessment	Onsite risk and condition assessment	Each	1			
2.1.2	Hi_pressure_wash	High pressure wash the transformer to remove all oil and dirt from the transformer as well as the plinth	Each	1			
2.1.3	Regasket_main_tank	Re-gasketing of main tank	Each	1			
2.1.4	Regasket_bushings	Re-gasketing of bushings	Each	1			
2.1.5	Remove_install_new_bushings	Remove and Install new bushings where required	Each	1			
2.1.6	Regasket_tapchanger_chamber	Re-gasketing of tap changer chamber	Each	1			
2.1.7	Serive_tapchanger	Tap changer service/maintenance	Each	1			
2.1.8	oil_purification	Oil purification [regeneration],	Each	1			
2.1.9	Oil_top_up	Oil drainage and top up	Each	1			
2.1.10	Inspect_service_radiator_fins	Radiator fins inspection and maintenance	Each	1			
2.1.11	Inspect_service_breather	Dehydrating Breather Maintenance/Service	Each	1			
2.1.12	Change_silica_gel	Changing of Silica Gel Dessicant	Each	1			

		Phase 2: Workshop Transformer Repairs/Refurbi	shment				
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total
2,00		Active parts	:		•		•
2,10	Dismantle_yoke_remove_windings	Dismantle yoke and remove faulty windings	Each	1			
2,20	check_clean_core	Check, clean and overhaul core	Each	1			
2,30	Renew_core_bolt_clamp_inspect	Renew core bolt and clamp insulation as required	Each	1			
2,40	Strip_rewind_coils_copper_purity99.9%	Strip and rewind coils using copper with a purity of 99.9% or better	Each	1			
2,50	Conduct_prelim_test	Conduct preliminary test on new coils	Each	1			
2,60	Pre _press_windings	Pre press winding(s) to specification	Each	1			
2,70	Reassemble_drycore_windings	Reassemble and dry core and windings	Each	1			
2,80	Conduct_ratio_test_resistance	Conduct pre-test to ensure correct ratios and resistances	Each	1			
2,90	Fit _tape_harness_dryout	Fit and tape harnessing for final dry-out	Each	1			

	Phase 2: Workshop Transformer Repairs/Refurbishment									
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total			
3,00		Tank and parts								
3,10	Drain_oil_inspec_tank	Drain oil from tank and clean and inspect tank.	Each	1						
3,20	Overhaul_regasket_tank_parts	Overhaul and re-gasket tank and parts (valves, pumps, inspection plate, coolers etc.)	Each	1						
3,30	Overhaul_pressure_test_coolers	Overhaul and pressure test all coolers (issue test certificate)	Each	1						
3,40	Overhaul_cooling_motor_fans	Overhaul cooling motors and fans (issue test certificate)	Each	1						
3,50	Overhaul_test_fit_bucholz	Overhaul, test and fit Buchholz relay (issue test certificate)	Each	1						
3,60	Service_pressure_relief_device	Service all pressure devices, supply and fit new micro switches to all of them (issue test certificate)	Each	1						
3,70	Inspect_clean_associated_cables	Inspect, clean and test all associated cable work	Each	1						
3,80	Overhaul_regasket_replace_seals_conservator	Overhaul, re-gasket and replace all seals on conservator gauges and conservator tank	Each	1						
3,90	chec_serv_conserv_bag	Check and service conservator bag	Each	1						

	Phase 2: Workshop Transformer Repairs/Refurbishment										
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total Total				
4,00		Bushings									
4,10	Conduct_prelim_test_bushings_certificate	Conduct preliminary tests on all bushings. For condenser type bushings, Tan Delta/Partial Discharge test are required (issue test certificate)	Each	1							
4,20	Draw_oil_sample_analyse	Draw oil samples from bushings and have them analysed (with supervision from City Power)	Each	1							
4,30	Replace_seals_gaskets_clean_porcelain	Replace seals and gaskets and clean porcelain shells	Each	1							
4,40	assemble_fill_oil	Assemble and fill with oil where applicable	Each	1							
4,50	Final_test_bushings_certificate	Final test the bushings (issue test certificate)	Each	1							
5,00		On-load tap changer (Box-type)									
5,10	Open_front_cover_inspect	Open front cover and inspect the defects	Each	1							
5,20	Remove_boards_inspect	Remove all contact epoxy boards and inspect for cracks or any other defects	Each	1							
5,30	Remove_barrier_inspect	Remove barrier boards and inspects for cracks and effects	Each	1							
5,40	Inspect_relays_settings	Inspect pressure relays for defects and check settings	Each	1							
5,50	Inspect_mech_drive shaft	Inspect mechanical drive mechanism for defects	Each	1							

5,60	Record_resistor_values_compare	Record transitional resistor value and compare with the name plate information where applicable	Each	1		
5,70	Inspect_contacts_defects	Inspect all contacts and shafts for wear and defects	Each	1		
5,80	Repair_replace_tap changer	Repair/replace tap changer contacts where necessary	Each	1		

	.Phase 2: Workshop Transformer Repairs/Refurbishment									
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total			
6,00		On-load tap changer (Cylinder-type)								
6,10	Open_drain_divert_switch	Open and drain oil from the diverter switch	Each	1						
6,20	Dismante_Detank_divert_switch	Dismantle and Detank the diverter switch	Each	1						
6,30	Inspect_test_overhaul_divert_switch	Inspect, test and overhaul diverter switch	Each	1						
6,40	Replace_faulty_parts	Replace all faulty parts	Each	1						
6,50	Test_divert_tubes_leaks	Test the diverter tube for leaks	Each	1						
6,70	Asse_and_the_part	Assemble and re-tank diverter switch for final reconnection to the active parts	Each	1						
7,00		Auxiliaries								
7,10	Supply_new_silica gel_breather	Supply new silica gel breather where applicable	Each	1						
7,20	Check_replace_pressure relief_device	Check and replace pressure relief devices	Each	1						

7,30	Check_Service_DryKeep	Check and service Dry-Keep unit where required	Each	1		
7,40	Check_Test_protection_indicators	Check and test transformer protection indicators	Each	1		

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	Phase 2: Workshop Transformer Repairs/Refurbishment											
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total					
8,00	Final Assembly											
8,10	Check_tighten_active parts	Check and tighten all parts of the active parts and final tank	Each	1								
8,20	Draw_vacuum	Draw vacuum	Each	1								
8,30	Break_vacuum_test	Break the vacuum and test fit all parts {bushings. tap changer (box type) and ancilliary parts}	Each	1								
8,40	Draw_vacuum_fill_oil	Draw vacuum and fill transformer with oil	Each	1								
9,00	Test transformer as per SANS 60076 (part 1,2,3,4,5 and 10) included tests are as follows:											

9,00	Test transformer as per SARVS 00070 (part 1,2,5,4,5 and 10) merudeet tests are as follows.							
9,10	elec_tests_performed	Electrical Tests to be performed						
	a) Ind_over_volt	a) Induced over voltage	Each	1				
	b) Separate_potential	b) Separate source over potential	Each	1				
	c) No-load	c) No-load	Each	1				

d) Loadloss_impedance voltage	d) Load losses and impedance voltage	Each	1		
e) Noload _loss	e) No load loss [Copper and Iron losses]	Each	1		
f) Cellulose _moisture_content	f) Cellulose moisture content	Each	1		
g) Insulation_resistance	g) Insulation resistance	Each	1		
h) Winding_resistance	h) Winding resistance	Each	1		

9,00	Test transformer as per SANS 60076 (part 1,2,3,4,5 and 10) included tests are as follows:									
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total			
9,10	elec_tests_performed	Electrical Tests to be performed			•					
	i) Turns_ratio_phase_displacement	i) Voltage/Turns ratio and Phase displacement	Each	1						
	j) Zero_Impedance	j) Zero phase Impedance	Each	1						
	k) Tan_Delta_capacitance	k) Transformer Tan Delta and Capacitance	Each	1						
	1) Magnetising_current	1) Magnetising current	Each	1						
	m) Core_ground_insulation	m) Core ground insulation	Each	1						
9,20	DP_paper_test	Remove paper sample and test for DP	Each	1						
9,30	SANS_555_report	Draw oil sample for SANS 555 report from bulk oil	Each	1						
9,40	Oil_sample_report	Draw oil sample for full DGA, moisture and KV report	Each	1						

	Phase 2: Workshop Transformer Repairs/Refurbishment									
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total			
10,00		Transport to site and offload								
10.1.1	Transport_site_km	Transport of transformer to site (per km)	Each	1						
10.1.2	Offload_site_km	Offload transformer at site	Each	1						
10.2.0		Rigging and Installation								
10.2.1	Prov_malth_plinth	Provide malthoid on plinth where required	Each	1						
10.2.2	Inst_0-40_tons	Install unit at selected site: $0 - 40$ tons	Each	1						
10.2.3	Inst_41-80_tons	Install unit at selected site: 41 – 80 tons	Each	1						
10.2.4	Inst_81-100_tons	Install unit at selected site: 81 – 100 tons	Each	1						

		Phase 2: Workshop Transformer Repairs/R	efurbishment
Item	Short Description	Long Description	Labour
10,00		Transport to site and offload	
10.1.1	Transport_site_km	Transport of transformer to site (per km)	
10.1.2	Offload_site_km	Offload transformer at site	
10.2.0		Rigging and Installation	
10.2.1	Prov_malth_plinth	Provide malthoid on plinth where required	
10.2.2	Inst_0-40_tons	Install unit at selected site: $0 - 40$ tons	
10.2.3	Inst_41-80_tons	Install unit at selected site: 41 – 80 tons	
10.2.4	Inst_81-100_tons	Install unit at selected site: 81 – 100 tons	

	Phase 2: Workshop Transformer Repairs/Refurbishment									
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total			
11,00		On – site activities								
11,10	Drain_oil_prep_aux_parts_paint	Drain oil and prepare auxiliary parts for spray painting with original paint	Each	1						
11,20	Load_tranformer_transport	Wait to dry and load transformer and parts for transport to site	Each	1						
11,30	Draw_vacuum_48hrs	Draw a vacuum for 48 hours	Each	1						
11,40	supply_virgin_oil	Supply virgin oil (per litre) where applicable	Each	1						

11.4.1	Fill_oil_under_vacuuum	Fill oil under vacuum	Each	1		
11.4.2	Connect_bushings	Connect the HV and MV bushings	Each	1		
11.4.3	Connect_HV_bushing_clamps	HV Busbar/Conductor Clamps	each	1		
11.4.4	Connect_HV_conductor	HV Conductor (Centipede) where required	m	1		
11.4.5	Connect_HV_conductor_surge arrestors	HV Conductor (Hare) to Surge Arrestors	m	1		
11.4.6	Connect_solid_copper_MV_busb ars	Solid Copper Busbar 160mm x 12mm between MV TX bushing and cable termination	m	1		
11.4.7	Connect_flexible_clamp_copper _MV_busbars	Flexible clamp for Solid Copper Busbar 160mm x 12mm onto MV bushing	each	1		
11.4.8	Provide_MV_busbars_clamps	Provide MV Busbar/Conductor Clamps wher required	each	1		
11.4.9	Provide _Tube_clamps	Tubular Aluminium busbar clamps (inclusive of end cap on one side)	each	1		
11,50	Connect_MV_conductor (bull)	MV Conductor (Bull)	m	1		

	.Phase 2: Workshop Transformer Repairs/Refurbishment									
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total			
11,00		On – site activities								
11,90	Supply_Install_surge arrestor_brackets	Supply, Install surge arrestors brackets where required	Each	1						
11,10	Conn_aux_wiring_kiosk	Connect the auxilliary wiring to the marshalling kiosk	Each	1						
11,11	Conn_NECR_earthcond	Connect the NECR/Aux transformer and transformer earth lead	Each	1						
11,12	Remove_plinth	Remove existing plinth	Each	1						
11,13	Install_new plinth_25MPA	Install new concrete plinth (25MPA)	Each	1						
11,13	Remove_existing_kiosk	Remove existing marshalling kiosk	Each	1						
11,14	Remove_existing_structure	Remove existing termination structure	Each	1						
11,15	Supply_install_cable_term_str ucture	Supply & install complete cable support structure for cable terminations & cable supports. Required foundations, bolts, nuts, indication signage and earthing to be included	Each	1						
11,16	Corrosion_protection _steel	Corrosion protection paint to steel	litre	1						
11,17	Supply_install_ galvanized_holddown_bolts	Supply and install galvanized holding down bolts for steel structures	each	1						
11,18	Install_new barrier_ fence_frame	Install new removable barrier welded mesh fence with frame	m2	1						
11,19	Provide_earthing_70mm ² _ exothermic_weld	70mm2 CCS conductor and connect onto main earth grid using exothermic welding only	m	1						
11,20	Test_verify_earthmat_ integrity	Test and verify earthmat integrity	each	1						

11,21	Supply_install_LV cables	Control and Low Voltage cables where required	each		1				
		Phase 2: Workshop Transformer Repairs/Refurbi	ishme	nt			·		
Item	Short Description	Long Description	U	nit	Q	ty	Material	Labour	Total
	Adhoc purchases	Adhoc purchases							
11,20	7_core_2.5mm ²	7 Core - 2.5mm ²	n	1	1				
11,21	12_core_2.5mm ²	12 Core - 2.5mm ²	n	n	1				
11,22	4_core_2.5mm ²	4 Core - 2.5mm ²	n	1	1				
11,23	4_core_16mm ²	4 Core - 16mm ²	n	1	1				
11,24	4_core_4mm ²	4 Core - 4mm ²	n	1	1				
11,25	19_core_2.5mm ²	19 Core - 2.5mm ²	n	ı	1				
11,26	4_core_1.5mm ² _screened	4 Core - 1.5mm ² (screened)	n	1	1				
11,27	Cable_rack_300mm_wide	Cable racking - 300mm wide	n	ı	1				
11,28	7_core_2.5mm ² _ termination	7 Core - 2.5mm ² termination	Е	ach	1				
11,29	12_core_2.5mm ² _termination	12 Core - 2.5mm ² termination	Е	ach	1				
11,30	4_core_2.5mm ² _termination	4 Core - 2.5mm ² termination	E	ach	1				
11,31	4_core_16mm ² _termination	4 Core - 16mm ² termination	Е	ach	1				

11,32	4_core_4mm ² _termination	4 Core - 4mm ² termination	Each	1		
11,33	4_core_2.5mm ² _termination	19 Core - 2.5mm ² termination	Each	1		
11,34	4_core_1.5mm ² _termination	4 Core - 1.5mm ² termination	m	1		

	Phase 2: Workshop Transformer Repairs/Refurbishment										
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total				
	Adhoc purchases	Adhoc purchases									
11,35	Verify_control_cct_as built_drawings	Verification of all control and protection circuits and as the supply of as-built drawings	Sum	1							
11,36	Terminate_630mm ² _cu_cable (4 x phase)	Terminate 630 mm ² x 1c Cu Cable (4 x phase)	each	1							
11,37	Joint_630mm ² _cables	Joint 630mm ² x 1c Cu Cable	each	1							
11,38	Terminate_1000mm ² _al_cable (4 x phase)	Terminate 1000mm ² x 1c Alu Cable (4 x phase)	each	1							
11,39	Joint_1000mm ² _cables	Joint 1000mm ² x 1c Alu Cable	each	1							
11,40	Terminate_300mm ² _3c_al_cable	Terminate 300mm ² x 3c Alu Cable	Each	1							

	Phase 2: Workshop Transformer Repairs/Refurbishment									
Item	Short Description	Long Description	Unit	Qty	Material	Labour	Total			
12,00		On site Testing								
12,1	electrical_test_performed	Electrical Test to be performed								
12.1.a	a) Ind_over_volt	a) Induced over voltage	Each	1						
12.1.b	b) Separate_potential	b) Separate source over potential	Each	1						
12.1.c	c) No-load test	c) No-load	Each	1						
12.1.d	d) Load loss_ZV	d) Load losses and impedance voltage	Each	1						
12.1.e	e) No load _loss	e) No load loss [Copper and Iron losses]	Each	1						
12.1.f	f) Cell_moist_cont	f) Cellulose moisture content	Each	1						
12.1.g	g) Ins_ resis	g) Insulation resistance	Each	1						
12.1.h	h) Wind_ resis	h) Winding resistance	Each	1						
12.1.i	i) Rat_phase_displ	i) Voltage/Turns ratio and Phase displacement	Each	1						
12.1.j	j) Zero_ Phase _ Imped	j) Zero phase Impedance	Each	1						
12.1.k	k) Trans_tan_delta & Cap	k) Transformer Tan Delta and Capacitance	Each	1						
12.1.1	1) Mag_curr	1) Magnetising current	Each	1						

12.1.m	m) Noise _level_test	m) Noise level test	each	1		
12.1.n	n) Core_ground_resis	n) Core ground insulation	Each	1		
12,20	Oil_sample_report	Draw oil sample for DGA report	Each	1		
		Total				

		PHASE 3 : Transformer Service/Maintenance					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
1.0		Site Establishment					
1.1.1	total Site Establishment	Establish site according to sub – clause 4.7.1	sum	1			
1.1.2	Rent 44ft container _Site Est	Rent 44 ft container Establish site	sum	1			

1.1.3	Port 20sm office Site Est	portable Office 4m x5m Establish site	sum	1			
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ANNEXURE "D" PHASE 3: TRANSFORMER SERVICE & MAINTENANCE

1.1.4	Port Toilet _ site est	Portable flushable toilet	sum	1		
1.2	Security	Allow for the storage and safe keeping of all materials and equipment including the provision of insurances as stipulated in the Conditions of Contract. Allow for 24 hour security for the duration of the contract.	month	1		
1.3	As built drawings and manuals	Allow for marking-up a full set of drawings to show the exact positions of cables, transformer earthing etc. These "As Built" drawings must be handed to the engineer at commissioning of the equipment. Also all maintenance manuals, including all technical literature, test certificates and wiring diagrams as per specification.	sum	1		
1.4	Training	Allow for training for Mogalakwena Municipal staff during installation and commissioning of complete installation.	no of ppl	1		
1.5	Additional Items	Any additional item(s), not shown in the schedules that the tenderer considers essential and wish to detail and price. (Provide full details)		1		
1.6	Additional Item a			1		
1.7	Additional Item b			1		
1.8	Additional Item c			1		

1.9	Additional Item d						
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		PHASE 3 : Transformer Service/Maintenance					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
2.1		Onsite maintenance/service/repairs (work to be done)					
2.1.1	Onsite_Risk_assessment	Onsite risk and condition assessment	Each	1			
2.1.2	Hi_pressure_wash	High pressure wash the transformer to emove all oil and dirt from the transformer as well as the plinth	Each	1			
2.1.3	Regasket_main_tank	Re-gasketing of main tank	Each	1			
2.1.4	Regasket_bushings	Re-gasketing of bushings	Each	1			
2.1.5	Remove_install_new_bushings	Remove and Install new bushings where required	Each	1			
2.1.6	Regasket_tapchanger_chamber	Re-gasketing of tap changer chamber	Each	1			
2.1.7	Serive_tapchanger	Tap changer service/maintenance	Each	1			
2.1.8	oil_purification	Oil purification [regeneration],	Each	1			
2.1.9	Oil_top_up	Oil drainage and top up	Each	1			
2.1.10	Inspect_service_radiator_fins	Radiator fins inspection and maintenance	Each	1			
2.1.11	Inspect_service_breather	Dehydrating Breather Maintenance/Service	Each	1			

		Changing of Silica Gel Dessicant				
2.1.12	Change_silica_gel		Each	1		

		PHASE 3 : Transformer Service/Maintenance					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
2.1		Onsite maintenance/service/repairs (work to be done)					
2.1.13	Service_fans_motors_correct_ratation	Fans and fan motors service/maintenance and ensure correct rotation	Each	1			
2.1.14	Remove_install_new_fans	Remove old and install new fans where required	Each	1			
2.1.15	Remove_install_new_motors	Remove old and install new fan motors where required	Each	1			
2.1.16	Service_oil_circulation_pumps	Oil circulation pumps and motors service/maintenance	Each	1			
2.1.17	Remove_install_new_oil_pumps	Remove old and install new oil circulation pumps where required	Each	1			
2.1.18	Inpect_service_conservator	Conservator inspection and Service	Each	1			
2.1.19	Inpect_service_buchollz	Buchollz Inspection and Service	Each	1			
2.1.20	Service_test_carlibrate_WTI	Winding Temperature Indicator Service and test	Each	1			
2.1.21	Test_carlibrate_adjust_indicators	Test, calibrate and adjust the indicators	Each	1			
2.1.22	Service_test_carlibrate_OTI	Oil Temperature Indicator Test and Service	Each	1			
2.1.23	Spray_paint_transformer	Spray paint the whole transformer	Each	1			
2.1.24	Paint_bushing_phases	Paint the bushings to match the phases	Each	1			

		PHASE 3 : Transformer Service/Maintenance					
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost
2,00		Onsite maintenance/service/repairs (work to be done)					
2,25	Install_drain_valves	Installation of drain valves where required	Each	1			
2,26	Service_test_carlibrate_thermometers	Service, test and calibrate the thermometers	Each	1			
2,27	Service_test_carlibrate_thermometers	Service, test and calibrate winding temperature indicators	Each	1			
2,28	Remove_Replace_OTI	Remove old OTI and replace with new OTI where required	Each	1			
2,29	Remove_Replace_WTI	Remove old WTI and replace with new WTI where required	Each	1			
2,31	Remove_Replace_buchollz	Remove old bucholz and replace with new buchollz where required	Each	1			
2,33	Test_internal_neutral_CT	Test Internal neutral CT where applicable	Each	1			
2,34	Service_test_oil_level_gauge	Service and test magnetic type oil level gauge	Each	1			
2,35	Remove_replace_oil_level_gauge	Remove old and replace with new magnetic type oil gauge where required	Each	1			
2,36	Supply_install_HV_arrestor_bracket	Supply and install new HV surge arrestor brackets where required	Each	1			
2,37	Supply_install_MV_arrestor_bracket	Supply and install new MV surge arrestor brackets where required	Each	1			

		Supply and Install new HV surge				
2,38	HV_surge_arrestor	arrestors	Each	1		

		PHASE 3 : Transformer Service/Maintenance						
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost	
3.0		Onsite maintenance/service/repairs (work to be done						
2,39	MV _surge _arrestor	Supply and install new MV surge arrestors	Each	1				
2,39	Maintain,_Replace, filter_mobile_moisture	Maintain, service and replace filter of the mobile online moisture removal where required	Each	1				
2,40	Maintain_carlibrate_online_DGA	Maintain, service and calibrate online gas monitoring unit where required	Each	1				
2,41	Remove,_contam_crusher & _replace	Remove contaminated crusher stones and replace with new where required	Each	1				
2,42	Maintain_NEC/R/aux	Maintenance of the aux/NEC/NEC transformer	Each	1				

		PHASE 3 : Transformer Service/Maintenance						
Item	Short Description	Long Description	Unit	Qty	Supply Rate	Labour Rate	Total item cost	
3.0		On Site tests						
3,1.1	Wnd Res _On Site test	Winding Resistance Test	Each	1				
3,1.2	Tx Turns.Ratio _On Site test	Transformer Turns Ratio Test	Each	1				
3,1.3	Phse Displ _On Site test	Phase Displacement	Each	1				
3,1.4	Insul Res _On Site test	Insulation Resistance Test	Each	1				
3,1.5	Poral Indx _On Site test	Porality Index (PI)	Each	1				
3,1.6	No Load Loose _On Site test	No load losses test	Each	1				<u> </u>
3,1.7	Full Load Lse _On Site test	Full load losses	Each	1				<u> </u>
3,1.8	Z Seq Imp _On Site test	Zero sequence impedance	Each	1				
3,1.9	Ind OvrVtge inc Part dis _On Site test	Induced overvoltage with partial discharge	Each	1				
3,1.10	Tan Delta _On Site test	Tan Delta Test	Each	1				
3,1.11	Tx Oil Brk dwn _On Site test	Transformer Oil Break Down Test	Each	1				
3,1.12	Mag Balance _On Site test	Magnetic Balance Test	Each	1				
3,1.13	Routin Oil Sample _On Site test	Draw routine oil sample	Each	1				

3,1.14	DGA _Dissolved Gas _On Site test	Dissolve Gas Analysis (DGA)	Each	1		
3,1.15	full set of tests _on Site	full set of the above tests 3.1.1 to 3.1.14	set	1		