

5 MVA TRANSFORMER SERVICE AND MAINTENANCE FOR TATA CHEMICALS MAGADI.

SAFETY MEASURES AND REQUIREMENTS

- i) A thorough site risk assessment to be done before commencement of work.
- ii) All personnel involved in the job to be safety inducted for familiarization with the scope of work and the risks involved.
- iii) A risk assessment board to be availed on site furnished with the permit to work, risk assessment form, hot work permit and job procedure.
- iv) Ensure all electrical connections have been isolated and lock out, try out and tag out procedures have to be followed before taking over the plant for the job.
- v) A tool box talk to be held before commencement of every shift to highlight on the new risks encountered or expected and how to mitigate them.
- vi) A person in charge of safety to be identified and be known to all the personnel during every shift.
- vii) A first aid kit to be availed on site at all times and a shift first aider identified.
- viii) All oxy-acetylene sets to be inspected and tested for leakages before use and hoses to be clear of falling hot material, sharp edges and dropping debris.
- ix) All personnel shall wear the mandatory PPE at all times and ensure use of other relevant PPE depending on the nature of work and condition of the work site.
- x) Housekeeping to be done at every stage of work and thoroughly at every close of shift.

TOOLS REQUIRED FOR SERVICE

N/B: Vendor to provide.

- i) Spanners
- ii) Pipe wrenches
- iii) Crimping tool
- iv) Ladders among others.

EQUIPMENTS

N/B Vendor to provide

- i) Filtration machine, measuring equipment and other related machinery

CONSUMABLES REQUIRED (TATA TO PROVIDE)

- i) Cotton rags
- ii) Transformer oil
- iii) Silica gel
- iv) Kerosene
- v) Petrol

TRANSFORMER LOCATION-POWER STATION**TRANSFORMER CAPACITY (MVA/ KVA)**

Total cost (ksh)	Number	Amount in Litres/Kgs	Location	Capacity in MVA/KVA	Cost of service (Ksh)
	1	7100Kgs	Powerhouse	5mva	
Total					

The following are the tasks that need to be carried out during the service.

DESCRIPTION	SCOPE	AMOUNT IN KSH
Cooling system	Inspect and clean cooling fins and seal leakages if any. Also clean the entire transformer	
Bushings	Inspect and clean bushings and repair where defective. Seal any leaks which may be noticed coming from the bushes	
Transformer oil	Test dielectric strength and dissolved gasses in the transformer oil then perform filtration of 130kg oil in the transformer tank online to required di-electric strength then perform final test the oil Di-electric strength and moisture	

	content & dissolved gases and issue certificate.	
Buchholz Relay	Do mechanical inspection, service and test the operation of the buchholz relays. Service and test for correct functionality of all protection system of the transformer	
Insulation & leak current test	carry out insulation resistance, dielectric absorption ration and polarization index using HV insulation resistance tester	
Conservator Tank	Inspect and service conservator tank. Seal any leakage if any in all the flanges	
Silica gel	Change silica gel	
Gauges	Service the oil temperature gauges and oil level gauges and change oil if necessary	
Marshalling boxes	Check all controls and relay terminations and tighten where necessary Check remote tap changer control panel, clean and tighten terminals where necessary	
Current Transformers	Inspect and service the CTs in the substation for proper functionality	
Voltage Transformers	Inspect and service all the VTs in the substation	
On-Load tap Changer	Service tap Changer and replace Oil	
Power Cables	Inspect power cables terminations to the copper tubes, clean and make proper tightening	

Transformer Cover and Joints	Inspect for any oil leak in the flanges and where necessary replace the gasket to seal all the leaks	
Conservator tank	Inspect and arrest any oil leak at the conservator tank. Replace silica gel	

MINIMUM REQUIREMENTS/ GENERAL TERMS AND CONDITIONS

- I. Site visit is a must to familiarize with the area and establish special requirement to execute the task provision of convenient means of mobilization of machine and personnel to site and to different areas where transformers are located
- II. Provision of correctly rated generator to run oil filtration machine and any other powered equipment
- III. Provision of own assorted fittings to be used on various transformers oil filtration
- IV. Provision of own testing equipment
- V. Provision of own oil filtration equipment
- VI. Gasket will be provided by Tata where need be
- VII. Silica gel will be provided by Tata where need be
- VIII. Provision of own working tools
- IX. Transformer Oil for top up will be provided by Tata
- X. Class A registration certificate by ERC
- XI. Previous experience in Transformer service and switch gear service
- XII. The contractor shall deploy sufficient man power tools and tackles, measuring instrument, etc. as required for the work
- XIII. The contractor shall remove the respective equipment, controls, & instruments the contractor will ensure that no damage is done to any other equipment /instruments / item

of the nearby area. Any loss of damage done to aforesaid items shall be recovered from contractor.

- XIV. The contractor shall take measurement and record operating values before stopping auxiliaries and start of disassembling such as winding resistance, insulation resistance, etc. Detailed and recorded. Matching, etc. including required consumables shall be done by contractor.
- XV. All parts shall be cleaned by using proper type of cleaner (kerosene, petrol) etc.
- XVI. Assembling should be started only after obtaining clearance/permission from site engineer in charge. All fitting and operating values/clearances/gaps must be achieved/maintained as per the recommendations should be done carefully/counter checked by the engineer in charge. Assembling should be done carefully and without damaging of parts.
- XVII. Contractor shall take measurement, set correctly as per recommendations and record final set values i.e. electrical parameters etc.
- XVIII. All safety, measures shall be taken during execution of work. TCML will be not be responsible for any accident occurs during the execution of work.
- XIX. All the work related to installation of C&I item and electric cable Re-termination shall be done and after completion of work trial taken in presence of Engineer-In-charge.
- XX. After completion of work equipment trial satisfactory work equipment and surrounding area shall be cleaned properly.
- XXI. Inspect and identify all the required spares and consumables in store in readiness for the service.
- XXII. Testing and Commissioning-Transformer should be left in its normal working condition.

		TECHNICAL ANALYSIS			
		Quantitative Technical Criteria Description	Tender Returnable Proof Format	Criteria Weighting	Criteria Sub Weighting
1 TECHNICAL CRITERIA				80%	
	1	The company MUST be certified and registered with class A certificate by ERC.	Attach current Certificate	20%	
	2	The vendor MUST have done similar jobs (Installation and servicing of transformers of the same class)	The bidder shall submit copy of completion certificates/ un-priced P.O. copies in support of above. If required purchaser may visit the client	30%	
	3	Site visit by vendor	Site visit is mandatory	10%	
	4	Show detailed preparation and execution work plan	Attach a detailed work schedule for the activities in scope with manning levels.	20%	
		SAFETY CRITERIA		10%	
	5	Does your company have competent, trained, safety conscious, and insured personnel	Attach a valid WIBA for your staff	20%	
		TOTAL		100%	

A minimum overall score of 70% will be used to deem the renderer technically acceptable and anything below 70% will deem the renderer technically unacceptable

FINANCIAL EVALUATION

DESCRIPTION	QTY	UNIT	PRICE (KES)@
Scope for 5mva Power House Transformer	1	LUMP SUM	
Mobilization and demobilization charges	1	LUMPSUM	
SUB TOTALS			
VAT			
TOTAL			
Payment Terms			

Mandatory Site Visit on 19th July, 2017