	Scope of work	Matimba Power Station
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plant maintenance

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1. Introduction

1.1 Matimba Power Station.

Matimba Power Station is in Lephalale, in South Africa's Limpopo Province. Designed to generate 4000 MW, Matimba - the Tsonga word for "Power" – was once the largest direct dry-cooled Power Station in the world, with six 665MW turbo-generator units. Coal reserved guarantees Matimba a minimum lifespan of 35 years, extending to a possible 50 years at 2100 - 2130 tons of coal per hour. The annual send-out power from Matimba amounts to approximately 24,000GWh. Matimba is the holder of the world record of 80 days for six units on load.

Technical details:

- Six 665 MW units
- Installed capacity: 3 990MW
- 2001 capacity: 3 690 MW
- Design efficiency at rated turbine MCR (%): 35.60%
- Ramp rate: 28.57% per hour
- Average availability over last 3 years: 93.67%
- Average production over last 3 years: 23 789GWh

2. Supporting clauses

2.1 Scope

2.1.1 Purpose

The purpose of this scope is for maintenance of DHP; Ash Conditioners and Precips plants at Matimba Power Station.

2.1.2 Applicability

This scope is applicable for Matimba Power Station and adjacent Eskom power stations (as per when required)

2.1.3 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs.

2.1.4 Normative

- Occupational Health and Safety Act, 85 of 1993
- Supplier Contract Quality Requirements Specification
- SABS Quality Standards
- Occupational Hygiene
- Quality Programme ISO9000/1/2
- Construction Regulations 2014
- SABS 0162 – Structural Use of Steel
- SABS 767 – Condition of steel and cleanliness achieves

2.1.5 Informative

Contractor employees shall comply with Eskom's policies and site regulations, including non- use of cell phones in restricted areas, adherence to Eskom's cardinal rules, adherence to Generation Occurrence Management Procedure, no smoking policy, Maintenance URS, etc. These requirements will be detailed during the induction training process and are stipulated in the referenced documents and their references.

- a) Plant Safety Regulations
- b) Programming and Progress Monitoring Services-Equipment Supply Contractor
- c) Accident Prevention Activity Report
- d) Eskom Environmental Practices and Standards
- e) Eskom vehicle and driver safety management
- f) Eskom Standard NWS 1454 Specification for Thermal Insulation

2.2 Definitions

Definitions	Explanations
Base/ Core crew	A complement of the Contractor's personnel based on site for the duration of at least one year and detailed in the Site Addendum
Outage	A planned or unplanned shutdown project related to one or more of the <i>Employer's</i> Power Station units
Regular site maintenance and repair work	Work that does not form part of an outage scope of service. This could include opportunity maintenance performed while a unit is on <i>outage</i>
Contract services	The services specified in this contract including civil maintenance services that complies with all the requirements stated in the Service Information.

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Contractor	Service provider contracted for supply specific service to ESKOM Matimba power station.
Employer	Eskom or Eskom Matimba power station representative appointed in writing.
Emergency vehicle	An emergency vehicle is any vehicle that is designated and authorized to respond to an emergency in a life-threatening situation. These vehicles are usually operated by designated agencies, often part of the government, but also run by charities, non-governmental organizations and some commercial companies

2.3 Abbreviations

Abbreviation	Meaning given to the abbreviation
OHSA	Occupational Health and Safety Act
SABS	South African Bureau of Standards
SANS	South African National Standards
PPPFA	Preferential Procurement Policy Framework Act
CPA	Cost Price Adjustment
AP	Accounts Payable
OHSACT	Occupational Health and Safety Act 85 of 1993
SOW	Scope of Work
PPE	Personal Protection Equipment
SAP	System Application Products
PSR	Plant Safety Regulations
HV	High Voltage
LV	Low Voltage
RP	Responsible Person
LAR	Local Access Register
QCP	Quality Control Plan
ISO	International Organization for Standardization
QMS	Quality Management Systems
SAMTRAC	Safety Management Training Course
SACPCMP	South African Council for the Project and Construction Management Professions

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2.4 Roles and Responsibilities**2.4.1 Contract Manager:**

- Co-ordinating and manage contract budget and expenses
- Ensure that the contractor operates within the budget
- Holds monthly meeting with the contractor
- Communicate technical interface between Eskom and the contractor
- Ensure that all work performed complies with the OHS act regulation and quality requirements
- Review, verify, and approve receipt of services/deliverables from the contractor
- Manage and maintain an contract records and correspondence between the employer and the contractor
- Ensure that the contractor compliance with the conditions of contract.
- Resolving any deviations and breaches in relation to the agreed conditions of the contract
- Contracts manager must keep the original copy to file for history purposes

2.4.2 Contract Supervisor:

- Assign works order as per maintenance schedule issued by the planner at pre-determined interval
- Assist contract manager with contract management administration
- Assess any work completed and align it to the scope of work and task order.

2.4.3 Contractor:

- Ensure that the all(employees, equipment and materials) comply with the statutory and environmental requirements
- The Contractor to provide technical support and advice on constant failure trends of the equipment
- Provide consistent and cost effective maintenance strategy as part of continuous improvement
- Ensure that the application and implementation of appropriate maintenance tools and innovative techniques
- Develop Key performance Indicator (KPI), objectives and targets which support and which in line with the Employer's objectives
- The contractor to adhere to all Employer's health and safety requirements and procedures on site

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- The contractor to provide relevant documentation caters for the employer's equipment. This will include all records keeping of all activities, plant conditions and quality control and safety documentation
- The contractor shall record and report to the Employer the following
- The contractor submits to the Employer, a fully substantiated written damage report specifying the nature, scope and cost of rectification work required including a programme for execution.

2.5 Process for Monitoring

2.5.1 Technical KPIs

Item	KPI	Targets
1	No. of PM's due	0
2	No. of P1-P3 Overdue	0
3	Manpower Utilisation	> 63%
4	No. of rework	0
5	Total hours overtime	BCEA
6	Safety finding	1/M
7	Assessment > 25th of Month	0
8	No. of NCR's	< 2
9	SD & L	100%
10	PSR authorisation	100%

3. Site Visit

- Clarification meeting and site visit is compulsory for all contractors.
- Procurement officer to form part of the site visit team.
- Invited contractors to bring own PPE during site visits.
- All official communication will be in the form of writing.
- A register will be signed by all in attendance and kept as record
- Contractor who do not attend and goes to site visit won't be considered
- List the contact information of the end users

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4. Technical scope

The Scope of work is not limited to normal, preventative (PM) and Corrective (CM) maintenance and emergency work. The scope of service includes amongst others the management, supervision, labour, material supply, installation, consumable supply, provision of Equipment, administration, warehousing and storage related to the service Furthermore, the service required include the following activities:

4.1.1 Scope Inclusion

4.1.1.1 Dust handling plant monthly maintenance

- EP conveyor inspections, maintenance and repairs.
- Collector conveyor 100 inspections, maintenance and repairs.
- Collector conveyor 200 inspections, maintenance and repairs.
- Bucket elevator route inspections, gearboxes, fluid drive and motor replacements and repairs.
- Bunker top conveyor maintenance.
- Lubrication, all points on DHP (greasing, oil change and oil top-ups).
- Remove and replace bucket elevator.
- Refurbish bucket elevator (as per when required).
- Maintain hopper levels.
- Repair ash leak (note: any ash leak is an emergency)

Note: submit maintenance report once every week.

4.1.1.2 Ash conditioners maintenance

- Repairs seals, doors, spray nozzles and hinges.
- Bearing replacement
- Water valves replacements
- Aeration solenoid valves and diaphragm replacement
- Ash flow control valves replacement and repairs.
- Ash conditioners lubrication.
- Auto lubrication greasing system maintenance.
- Maintenance of spillage chute.
- Do alignment on drives.
- Maintain ash compartment/bunkers (as per when required)

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- Refurbish ash conditioners (as per when required)
- Refurbish bucket elevator e.g. replace buckets and belts (as per when required).

Note: submit maintenance report once every week.

4.1.1.3 Precipitator plant maintenance

- Repair hopper hammers.
- Maintain gearboxes
- Maintain lubrication system
- Maintain field transformers and short circuit

4.1.2 Inspections

- Damaged spares should be inspected by Eskom representative and reflect on the report.
- Inspection on live rapper
- Do visual inspection in all plant areas governed by this scope.
- Record all defects found during inspection.

4.1.3 As per when required services

- Replace precept transformers
- Thyristor pack assembly
- Still and moving air test
- Changing rectifier
- Open and short circuit test
- Assist with water ingress in to the house
- replacement of controllers and IPROM IC
- Setting of castle controllers when rapping.
- replacement of hopper heaters
- replacement of insulator heater
- Replacement of switchblade and conductor jaw.
- Outage/project/opportunity maintenance (as per scope).

Note: all outage/project/opportunity maintenance must be of a fixed rate per weekly.

5. Continuous Improvement

- The Contractor shall implement continuous improvement program to optimize performance and reduce failure rates.
- The Contractor will be responsible for participating in root cause failure investigations as required by the Client representative.

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- Develop failure trends, record and submit reports.
- Ensure that the plant is running effectively and efficiently.
- Assist with recommendations to better the reliability of plant and system.

Note: Contractor Performance Target: **100% reliability** and is **non-negotiable**, specifically because of the safety risk involved in use of the equipment.

6. Non Exclusive Scope

6.1 Contract performance

- Optimisation of the system and equipment to reduce costs, maintain and enhance the condition of the equipment
- Maintain the equipment according to best practice and Eskom Computerised Maintenance Management System
- Conduct inspection and testing of all equipment to assess and monitor equipment condition.
- Perform maintenance work in accordance of specified standard procedures and check sheet as agreed between the contractor and employer.
- All work performed within the parameter of the scope of work and act
- To keep all instructions/ procedures on hand and supply Eskom power station with reference to be included in this document and supply record and history requirements.
- Ensure that the work is performed to the highest standard and safety standards and regulations

6.2 Critical spares and Equipment

- The contractor will be required to provide all non-stock items spares for the replacement and maintenance as per when required (the request must be from Eskom representative).
- The contractor will only use spares that are approved by Eskom.
- The management and safe keeping of the critical spares resides with the contractor.
- The contractor will be required to hire equipment at the market rate as when required.
- No spares/material/equipment should be purchase by a contractor without the employer's approval.
- The contractor shall timeously identifying delays and adjust plans accordingly
- The Contractor will be required to supply spares in which all claims will be supported by substantiating documentation.

6.3 Warranty, insurance and Guarantee on repairs

- The employer requires a twelve months guarantee on work done.
- The contractor shall take fully cost responsibility of any damage that occurs during transportation of Eskom equipment.

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6.4 SHEQ

Each location where the service is carried out has a health and safety specification or procedure and safety risk management requirements relevant to that location (the *Employer's* site Health and Safety Plan). The CSM shall ensure that he is a registered recipient of such documentation at each location where work is carried out, and is always in possession of the current version of such documentation before any work in this contract is undertaken at that location.

The *Contractor* shall comply with the requirements imposed on a contractor / Contractor stated in the current version of such documentation at each location where work in this contract is carried out and shall identify to the relevant SM the name of the *Contractor's* person responsible for monitoring such compliance.

The *Contractor* shall ensure that he is in possession of documentation relevant to protection of the environment at each location where work in this contract is carried out and shall comply with the requirements imposed on a contractor / Contractor stated therein. The Contractor shall keep records which demonstrate compliance with all health, safety and environmental requirements whether statutory or otherwise and shall allow the SM or relevant SM to inspect them at any time within working hours Employer's Health and Safety Requirements.

In carrying out its obligations to the *Employer* in terms of this contract; in providing the Services; in using Plant, Materials and Equipment; and while at the Site for any reason, the *Contractor* complies and procures and ensures the compliance by its employees, agents, Subcontractors and mandataries with:

The provisions of the Occupational Health and Safety Act 85 of 1993 (as amended) and all regulations in force from time to time in terms of that Act ("the Occupational Health and Safety Act, ACT 85, OF 1993"); and The Eskom "Safety, Health and Environmental Requirements for Contractors" document (as amended from time to time) and such other Eskom Safety Regulations as are applicable to the Services and are provided in writing to the *Contractor* (collectively "the Eskom Regulations"). The Eskom Regulations may be amended from time to time by the *Employer* and all amendments will be provided in writing to the *Contractor*. The *Contractor* complies with the provisions of the latest written version of the Eskom Regulations with which it has been provided; and the health and safety plan prepared by the *Contractor* in accordance with the SHEQ Requirements.

The *Contractor*, at all times, considers itself to be the "Employer" for the purposes of the Health and Safety Act, Act 85, OF 1993 and shall not consider itself under the supervision or management of the *Employer* with regard to compliance with the SHEQ Requirements, the *Contractor* shall furthermore not consider itself to be a subordinate or under the supervision of the *Employer* in respect of these matters. The *Contractor* is at all times responsible for the supervision of its employees, agents, Subcontractors and mandataries and takes full responsibility and accountability for ensuring they are competent, aware of the SHEQ Requirements and execute the Services in accordance with the SHEQ Requirements

The contractor shall follow all Eskom's safety requirements including all lifesaving rules and regulations required to perform the work. No work will be performed without a permit to work being issued; therefore the contractor must be authorised to take permit within six months from the award of the contract or contract start.

6.5 Data Pack

After failure, an investigation must be conducted. The following shall be submitted to the employer:

- Failure analysis report with pictures
- Detailed service report specifying the work to be done
- All reports to be signed and submitted to the contract manager within 1 week after service

6.6 Quality control standards:

Quality control plan shall be produced, maintained and implemented per task as agreed by the employer. The QCP must be discussed with the employer for approval. This QCP shall comply with ISO 9001:2015 standards. Any amendments to the QCP shall be discussed with the employer for approval.

6.7 Eskom Policies

The contractor's employees shall comply with Eskom's policies and site regulations, including but not limited to the use of cell phone while driving, in restricted areas, adherence to Eskom's lifesaving rules, smoking policy, zero tolerance on alcohol usage, etc. these requirements will be discussed in details during induction training process.

6.8 Emergency

The contractor will be required to attend to emergencies at no extra cost.

6.9 Pricing/Cost Breakdown

As per scope

7. Technical evaluation

- Technical evaluation will be based on the technical evaluation criteria
- Valuation report should be signed by Maintenance Manager
- Commercial documents should be signed by Commercial Manager.

8. Records

- Every official meeting will have an attendance register and meeting minutes recorded and kept in a file.
- Minutes of the meeting shall be signed by all parties
- All communications must be recorded in an email and kept in a file.

9. General:

- Housekeeping must always be good and follow proper stacking standards
- Contractor will provide own PPE, branded with contractors name.

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- No contractor is allowed to use Eskom's PPE.
- Ensure that the plant is running effectively and efficiently.
- Develop failure trends, record and submit reports.