

	Scope of Work	Generation
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Title: **ESTHABLISHMNET OF AN
ACCREDITED WIND TRAINING
FACILITY**

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1. Introduction

Komati Power Station Plant is currently Renewable Energy station of Eskom situated in Mpumalanga, 40km west of Middelburg along the R35 Bethal road. Komati Power Station has undertaken to Repurpose the station towards the Production of Renewable Energy. The process in terms of transition further delves into the skilling/upskilling of employees and qualifying community members within the renewable technology sector. This led to the setting up of an accredited training facility, repurposing current facilities on the Power Station.

South Africa's Just Energy Transition (JET) is aimed at supporting the decarbonization of the minerals and energy sectors in a socially responsible manner while contributing to the economic development of the country. Komati Power Station has been decommissioned and, Repowering & Repurposing efforts have been identified at the site to realise this.

The skilling/upskilling of personnel is critical within this transition from Coal to Renewables, specifically directed towards construction of Wind Energy within Eskom.

1.1 Scope

1.1.1 Purpose

The purpose of this document is to outline the scope of work required to establish an accredited training facility, repurposing current facilities at the Power Station.

1.1.2 Applicability

This document shall apply to Komati Power Station only.

1.1.3 Effective date

The effective date will be from the authorisation date.

1.2 Normative/Informative References

1.2.1 Normative

[1] ISO 9001 Quality Management Systems

1.2.2 Informative

N/A

1.3 Definitions

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1.4 Abbreviations

Abbreviation	Explanation
ISO	International Standards Organisation
N/A	Not Applicable
QCP	Quality Control Plan
QIP	Quality Inspection Plan
SANS	South African National Standards

1.5 Roles and Responsibilities

1.5.1 Employer representative

- Responsible to coordinate the works, and for all contract management and liaising with the contractor.
- Responsible for managing and supervising the works being always executed.
- Compiles scope of work for the establishment of the training facility at Komati Power Station
- Conducts technical evaluation, as per the issued technical evaluation strategy.

1.5.2 Principal Contractor

- As per OHS Act (85/1993) executes scope of work issued by the Employer.

1.5.3 Komati Safety

- Ensures safety legislation and standards are adhered to, and that safety practices are always implemented during execution of the works.

1.6 Process for Monitoring

The tender committee will adjudicate the tender evaluation and contract appointment.

The Contractor will compile a QCP, which will ensure the works are executed within the relevant technical, and SHEQ requirements, as well as specified duration including a program/Gantt chart.

1.7 Related/Supporting Documents

- Eskom SHE specification for working on site.

2. Constraints

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2.1 General Constraints

- a) A compulsory site tender briefing session/scope clarification meeting to be conducted and if the Tenderer/Contractor does not attend or send a technical representative to the meeting, that Tenderer/ Contractor will be disqualified.
- b) All technical queries to be directed to Chemical Services.
- c) Contractor to provide returnable schedules in accordance with the technical evaluation strategy issued by the Employer.
- d) All works to be executed in accordance with standards referenced.
- e) Deliverables/objectives of this works includes but not limited to:
 - i. Submit detailed method statement and material and/or equipment and machinery data sheet for Employer to approve before commencement of the works.
 - ii. Submit detailed programme/plan including breakdown of tasks to be executed, date of completion for each task and amount of time needed to complete task for Employer to approve before commencement of the works.
 - iii. Submit detailed QCP, which ties in with the submitted method statement, signatories to be Contractor, Eskom Senior Technician.
 - iv. Conduct all necessary site investigation and assessments to enable effective execution of the scope of work.
 - v. Execute scope of work for the Establishing on an accredited Training Facility
 - vi. Submit thorough report detailing investigation and assessment findings, survey results reflecting actual dam capacity, volume of ash required to be removed, and restored dam capacity post completion of dredging works.
 - vii. Comply to all SHEQ requirements by ensuring safety of plant and personnel.

2.2 Site Constraints

- i. Contractor to provide all machinery, equipment, plant, materials, and skilled labour to execute the required works.
- ii. Contractor to provide and install necessary mechanism/s and/or equipment to execute the works safely.
- iii. Dredging, dewatering, handling, transportation, and disposing of sludge/ash must be conducted without inducing any spillages. All machine, equipment, infrastructure and systems must be regularly inspected and maintained to be in good working condition.
- iv. All SHEQ laws and regulations are to be adhered to during the execution of works.
- v. The refurbishment/establishment will be inside the Eskom Power Station premises and within the National Key Point regulated area.

3. Site Description

- a. Refurbish of existing five classrooms at old training facility.

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- b. Plater workshop: the workshop must be repurposed into a renewable energy specialised designed facility equipment and will require redesigning and repurposing.
- c. The old IBI training facility: existing structures may have to be redesigned/changes to meet requirements for training at heights, bolting/torquing, and alignment functions in addition to the existing structure for training purposes.

4. Scope of Work

The Komati Power Station site preparation and setup will comprise of:

- A. Komati Training Facility establishment and refurbishment:
 - a. Refurbish existing five classrooms.
 - b. Plater workshop: the workshop will have to be repurposed for renewable energy specialised designed facility equipment and will require redesigning and repurposing.
 - c. Additional structures may be required in addition to the existing structure for training purposes.
 - d. The focus of the refurbishment/establishment will be inside the Eskom Power Station premises and within the National Key Point regulated area.
- B. The Works consist of:
 - a. Design and Refurbish to the required state (including Facility Accreditation).
 - b. Procurement of plant & equipment required.
 - c. Installation and Commissioning of the plant and equipment
 - d. Operation and maintenance philosophy of equipment.
 - e. Training of Trainers

4.1 Komati Training Facility:

The Komati Training Facility should be designed, established, and constructed with the following features:

- 4.1.1 Simulation and Training Equipment:** incorporate advanced simulators and training equipment to provide hands-on experience in wind turbines. This should be inclusive of a wind turbine training tower designed to simulate the environment of a wind turbine, including a training nacelle and rotor blades. Simulators to include advanced simulation technology and virtual reality (VR) platforms for immersive training experiences. This will be to allow trainees to practice complex tasks, such as turbine blade repair or emergency rescue scenarios, in a safe and controlled virtual environment before applying their skills in real-world settings.

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- 4.1.2 Classrooms and Lecture Hall:** design modern classrooms and a lecture hall equipped with audio-visual technology to facilitate theoretical learning and interactive sessions as well as digital self-paced learning opportunities.
- 4.1.3 Practical Workshops:** include a dedicated workshop spaces with tools and machinery for practical training in installation, maintenance, and repairs of wind turbines; this should include but not be limited to mechanical, electrical and hydraulic equipment. Workshops should include mock-up components for hands on training in turbine maintenance, repair and troubleshooting. Trainees should be able to gain experience in tasks such as blade inspection, blade repair, gearbox servicing and electrical systems diagnostics.
- 4.1.4 Safety Training Zones:** Establish safety training zones where students can learn proper safety protocols and procedures for working in wind turbine environments, including: First Aid, Fire Awareness, Manual Handling and Working at Heights. Training scenarios should be inclusive of, but not limited to Advanced Rescue, Enhanced First Aid and Slinger Signaller. These zones should be equipped with safety harnesses, evacuation systems and first aid stations.
- 4.1.5 Outdoor Training Areas:** Utilize outdoor spaces for field training exercises, equipment demonstrations and real-world scenario simulations, allowing students to apply their knowledge in practical settings.
- 4.1.6 Environmental Condition Simulator:** Design facilities to simulate various weather conditions and environmental factors that wind turbine technicians may encounter in the field. This should include wind speed and direction simulation, temperature variations, and adverse weather scenarios to enhance trainees' readiness for challenging working conditions.
- 4.1.7 Laboratories:** Set-up specialized laboratories for research and development in renewable energy technologies, enabling students to conduct experiments and innovate solutions
- 4.1.8 Technical Laboratories:**
- Set-up specialized laboratories for training in electrical systems, hydraulic systems, and mechanical components and bolting.
 - Lift training, inclusive use of the service lift in the Wind Turbines, involved in any Installation and or repairs of the Lifts, allowing trainees to operate, inspect maintain and be safe while using any type of service lift and safe working procedures during emergency conditions and breakdowns.
 - Crane and Hoist training, consisting of crane and hoist basic operations, crane and hoist inspection and maintenance associated with wind turbines systems. The labs should feature equipment for testing and analyzing turbine components, conducting fault diagnostics, and learning about system integration. it is aimed to all those procedures.

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4.1.9 Multi-Purpose Facilities: Design multi-purpose spaces that can accommodate seminars, conferences, and industry events related to renewable energy training and education.

4.1.10 Resource Centre: Establish a resource Centre with a library, digital resources, and online learning platforms to support self-directed learning and research activities.

4.1.11 Industry Partnerships: Forge partnerships with renewable energy companies to provide internship opportunities, guest lectures, and access to real-world projects for students to gain practical experience and industry connections.

4.1.12 Sustainable Design: Ensure the facility itself embodies sustainable design principles, incorporating energy efficient systems, renewable energy generation, and environmentally friendly materials to minimize its carbon footprint.

4.1.13 Accessibility: Design the facility to be accessible to individuals of all abilities, with features such as ramps and accessible restrooms

4.1.14 Project timeline: Provide a high-level project plan indicating the duration for the project, from contract placement date till handover date (readiness for training)

By integrating these elements into the design, the Training Facility should serve as a premier institution for training the next generation of wind turbine professionals, equipping them with the skills and knowledge needed to drive the drive to a sustainable energy future.

It must be noted that the facility should be able to cater for conducting practical assessments and certification exams according to GWO and or EWSETA/QCTO standards.

5. Labour, Materials and Machine/Equipment

The Contractor shall be responsible for the supply and delivery of all materials, tools, equipment, tools, machinery, labour, approved machinery operators and specialist skills necessary to execute the required works. All equipment and machinery must be in working order. Contractor to conduct calibration tests on all tool's machinery, and equipment.

Contractor to provide their own resources to secure security of tools, materials, and machinery/equipment that will be stored on site. Employer will not be liable to account for any costs related to damages or theft of Contractor's tools, materials, and machinery and equipment.

Contractor to ensure that all machinery and equipment used on site will be replaced when damaged or scheduled for maintenance/service and ensure no delays due to unavailability of machinery.

6. Configuration Management

All documents supplied by the Contractor shall be subject to Eskom's approval. The language of all documentation shall be in English.

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All project documents must be submitted to the Employer's Representative with transmittal note. The Contractor is required to submit documents as electronic and hard copies and both copies must be delivered to the Eskom Representative with a transmittal note.

7. DOCUMENT RETURNABLES

The contractor shall produce and submit a project plan, project quality plan, organogram, detailed method statement, QCP, safety file for approval prior to the commencement of work. The Contractor to conduct induction and medicals prior to commencement of work.

8. Acceptance

This document has been seen and accepted by:

Name	Designation
Jurie Pieterse	Manager Maintenance (acting)
Jenny Prinsloo	Risk and Assurance Manager (acting)
Thevan Pillay	General Manager (acting)
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9. Revisions

Date	Rev.	Compiler	Remarks
03 October 2024	0	Jurie Pieterse	First issue

10. Development Team

The following people were involved in the development of this document:

- Jurie Pieterse

11. Acknowledgements

N/A

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