Introduction

The preventative and corrective maintenance and continuous operating and monitoring of all heating, ventilation, air conditioning and Refrigeration (HVAC&R) systems.

Supporting Clauses

Scope

The scope is for the preventative and corrective maintenance and continuous operating and monitoring of all heating, ventilation, air conditioning and Refrigeration (HVAC&R) systems as well as installation of domestic and industrial air conditioning and refrigeration systems at Lethabo Power Station for the period of 5 years.

The following HVAC&R systems are included:

1 UNIT 1 – 6 MAIN PLANT

These areas consist of fans, Dx AHUs + Dx condensers, Fresh Air Units, ducts and split A/C units.

Unit 1	Unit 2	Unit 3
1. Equipment room 1 & 2 2. Unit Control room 3 & 4 3. MV/ LV Room 5 & 6 4. Station Control room 7 & 8 5. CPP 1 & 2 6. CPP Analyser & Equipment room 7. Auxiliary Services 8. Battery Room 9. C&I Workshop 10. Outage Management 11. Station Board	1. Electronic Workshop 2. Air Cond Workshop 3. MV/ LV Room 3 & 4 4. Tea & Change Room 5. CPP 1 & 2 6. CPP Analyser & Equipment room 7. Production Offices 8. Battery Room 9. Shift Man. Offices 10. C&I Workshop	1. Equipment room 1 & 2 2. Unit Control room 3 & 4 3. MV/ LV Room 5 & 6 4. C&I Workshop 5. CPP 1 & 2 6. CPP Analyser & Equipment room 7. EMS Support services 8. Battery Room 9. EMS Workshop 10. PTM Offices 11. EMS Training
Unit 4	**Unit 5**	**Unit 6**
1. EMS Offices 2. MMD Offices 3. MV/ LV Room 3 & 4 4. MMD Change Rooms 5. Production Offices 6. Battery Room 7. C&I Support Services 8. Perf Monitoring Offices	1. Equipment room 1 & 2 2. Unit Control room 3 & 4 3. MV/ LV Room 5 & 6 4. C&I Workshop 5. OPS Change room 6. Battery Room 7. Rotek Workshop 8. Performance Enhancement offices 9. MTW Kitchen	1. Equipment room 1 & 2 2. Station Cleaning 3. MV/ LV Room 3 & 4 4. OPS Training 5. OPS Production 6. Battery Room 7. DCC Archives 8. Open Offices

2.OUTSIDE PLANT

1. WATER TREATMENT PLANT

Equipment installed in this area consist of dx AHU and condenser, fans, domestic dx split A/C units.

2.MEDICAL CENTRE

Equipment installed in this area consist of dx AHU and condenser, fans, domestic dx split A/C units

3.OPCR BUILDING

Equipment installed in this area consist of dx AHU and condenser, fans, domestic dx split A/C units

4.MAIN ADMIN BUILDING.

Equipment installed in this area consist of a Chiller Plant, fans, domestic dx split A/C units.

5. **ADMIN 2 BUILDING**

Equipment installed in this area consist of Console units and domestic dx split A/C units

6. **ADMIN 3 BUILDING**

Equipment installed in this area consist of a Package plant, domestic dx split A/C units

7. SECURITY BUILDING

Equipment installed in this area consist of domestic dx split A/C units

8.COMMUNICATION BUILDING AND OFFICES

Equipment installed in this area consist of Package plants, fans, domestic dx split A/C units

9.MESS, COLD AND FREEZER ROOM

Equipment installed in this area consist of domestic dx split A/C units, Cold and freezer room

10..PROCUREMENT BUILDING AND OFFICES

Equipment installed in this area consist of dx AHU and condenser, fans, domestic dx split A/C units

11.MMD-, PLATER WORKSHOP,CIVIL AND COAL PLANT OFFICES

Equipment installed in this area consist of domestic dx split A/C units

12.VENNA VENTER BUILDING

Equipment installed in this area consist of dx AHU and condenser, fans, domestic dx split A/C units

13.ASH PLANT OFFICES

Equipment installed in this area consist of domestic dx split A/C units

14.EMS OUTSIDE PLANT

Equipment installed in this area consist of domestic dx split A/C units

15.HV YARD RELAY ROOM

Equipment installed in this area consist of dx AHU and condenser, fans, domestic dx split A/C units

16.CANTEEN

Equipment installed in this area consist of domestic dx split A/C units and extraction unit.

17.FIRE STATION

Equipment installed in this area consist of domestic dx split A/C units

18. CHEMICAL SERVICES AND LABORATORY

Equipment installed in this area consist of dx AHU and condenser, fans, domestic dx split A/C units

19.MAIN STORES

Equipment installed in this area consist of domestic dx split A/C units

20.DOMESTIC FRIDGES, FREEZER AND ICE MACHINES

The following is the proposed staff that will be needed for the maintenance of the HVAC&R systems

Staff Requirements

1 Site Manager/Supervisor

- Minimum Qualification: N6/National diploma and refrigeration/air conditioning trade test + supervisory experience on HVAC maintenance with at least six (5) years
- Quantity :1

2 Air Conditioning Artisans (5)

- x 5 Artisans: Minimum Qualification: N3 Electrical and Refrigeration/Air conditioning trade test + 3 years of experience.

Purpose

The services will be for the purposes of new installation, commissioning and maintenance of HVAC&R systems that will supplement the existing constrained capacity during outages and project related activities. This will afford us the flexibility to efficiently and effectively manage the pool of resources at our disposal, meeting Eskom line division requirements without the need to increase staff complement.

Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

Normative/Informative References

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

List the references under the following paragraphs, without indicating the date.

Normative

[1] ISO 9001 Quality Management Systems.

[2] Insert normative document references here.

These documents are indispensable for the application of this document, i.e. documents to be used together with this document.

Informative

STANDARDS

The tenderer complies to all standards governing the design and installation, commissioning, maintenance and operation of HVAC&R systems including however not limited to:

a) ISO 9001 Quality Management Systems.
b) OHS ACT Occupational Health and Safety Act, Number 85 of 1993,
c) SANS 10147:2014 – Refrigerating systems, including plants associated with air-conditioning systems
d) SANS 10173:2003 – The installation, testing and balancing of air-conditioning ductwork
e) SANS 1238:2005 – Air-conditioning ductwork
f) SANS 1125:2004 – Room air conditioners and heat pumps
g) 240-70164623 Design Guideline for HVAC in the Eskom Coal Fired Power Station
h) 240-102547991 Eskom General Technical Specification for HVAC Systems

Disclosure Classification

Public domain: *published in any public forum without constraints (either enforced by law, or discretionary).*

Controlled disclosure: *controlled disclosure to external parties (either enforced by law, or discretionary).*

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Abbreviations

Abbreviation	Description
AHU	Air Handling Units
A/C	Air Conditioning
AP	Appointed Person
dx	Direct Expansion
HVAC&R	Heating, Ventilation, Air Conditioning and Refrigeration
RP	Responsible Person
SANS	South African National Standards

Roles and Responsibilities

Employers' requirements for the service

- The Contractor is present and available on-site during the Employers working hours and suitable personnel perform standby as per an approved roster and report to site within 60 (sixty) minutes of a call out as and when required.
- The Contractor attends to plant breakdowns immediately and until these are fully rectified and completed, unless the Employer instructs otherwise, and both the Contractor and Employer agrees that the work may be re-planned for a later completion.
- The Contractor attends to complaints from clients regarding air-conditioning problems and keeps the clients informed of progress and completion.

- The Contractor provides all the necessary tools and equipment to provide the service.

This includes all hand tools such as spanners, screw drivers, pliers and electrical / electronic and measuring

tools / instruments including drilling machines drilling machines flukes and meggers etc.

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- The Contractor cleans and removes any spares, used parts, materials and debris, dust and rubble arising from work done to ensure that the Employers premises are left in a clean condition afterward. Waste disposal is done in accordance with the Employer's site regulations.

- The Contractor ensures that supervisors and artisans each become authorised as a responsible person (RP), and Appointed person (AP) to fulfil the Employer's safety requirements for permit to work applications on HVAC&R plant and also safely isolating the plant. The Contractor utilises the Employers computerized system for this purpose unless such system is off-line. The permit requirements are as per the Employer's plant safety regulation procedure and authorization of the Contractor personnel is required within 4 (four) months of the contract start date.
- The Contractor provides cell phones for Supervisor and Artisans to enable prompt communication with the Employer and workers without any delay.
- The Employer provides replacement plant components and spares for servicing and repairs, however the Contractor is responsible to inform the Employer of spares requirements (provides specifications and quantities for the Employer's stock holding requirements).
- The Contractor provides emergency replacement plant components and spares for servicing and repairs where the spares are not stock items. The Contractor supplies the Employer with a quotation, for acceptance, for emergency spares. Emergency spares will be purchased .

- The Contractor conforms to all prevailing legal requirements of the republic of South Africa, Eskom SOC Limited and Lethabo Power Station Site legal Requirements

- Any other act or procedure deemed necessary or applicable if the work includes some toxic and/or hazardous substances during normal and routine maintenance activities stipulated in this document. In this case the Contractor handles such hazardous substances in accordance with the applicable regulations and procedures and is disposed of by the Contractor in accordance with the applicable law.

The contractors plan for service

- The Contractor provides the service from the contract start date. Additionally, the Contractor analysis the Employers planned maintenance SAP scheduled and perform the activities accordingly.

- With respect to major breakdowns, the Contractor assesses the failure, prepares a program for repairs and submits to the Employer for approval. This contains the description of the task, milestones, starting and completion dates and resource requirements. Work is to commence

as per the agreed time and any problems which will affect the completion must be notified to the Employer as soon as possible.

- Reporting and feedback to the Employer takes place as per the Employer's instruction.
- The Contractor prepares the Eskom standard risk assessments for the services provided and submits them to the Employer for approval prior to undertaking work.

Contractors' management, supervision and key people

- The Contractor provides an organogram with full names and designations of personnel to be used for the service with the tender. Additionally, the Contractor submits curriculum vitaes with all details of the above personnel, including qualifications and a summary of work experience. The organogram also identifies personnel wherever applicable e.g., during absence of site manager or supervisor.
- The Contractor provides a site manager/supervisor to manage all contract related matters. Such persons are preferred to have prior experience in management and change of this person is communicated in writing, within 1 (one) week of such change, to the Employer.
- The contractor's supervisor shall be knowledgeable, competent and fully capable to perform supervisory duties without direct or continuous supervision by the Employer, to liaise and co-ordinate activities with various departments, including the Employer's personnel and others to fulfil all obligations. In the absence of the relevant site manager or supervisor, a replacement must be identified to take over the duties.
- Additionally, the supervisor must be able to communicate satisfactorily in English and have adequate experience and training in HVAC&R environment. If at any time, it is found that the supervisor's abilities to either supervise the workers, practice good communication skills (verbally or written) or exercise competency is lacking, the Employer may give an instruction for the removal of such a person.

  The Employer may at any time, without terminating the contract, instruct the removal of any of the contractor's personnel from site if the Employer finds such a person is counter-productive, incompetent or negligent in fulfilling the required duties. Furthermore, such persons shall be prevented from having any further dealings with the contract and service. The Contractor shall replace such a person or persons within 2 (two) weeks, while preventing disruption of the provision of the service

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Process for monitoring

- Contract site meetings will be held monthly between the Air Conditioning Supervisor, site maintenance manager or representative and the contractor's site manager/Supervisor. The frequency of such meetings may alter, be changed after re-evaluation based on the Employer's requirements.
- The Contractor attends the Employer's toolbox meetings, safety meetings (department as well as maintenance and station).
- The contractor's site manager or supervisor attends the Employers planning, scheduling meetings as arranged.
- The Contractor participates in reliability-based optimization (RBO) implementation workgroups sessions, as and when informed thereof.
- The Employer may also request the Contractor to attend or represent the Employer on certain other meetings whenever necessary.
- For the purpose of Plant Maintenance and Corrective Notifications, the SAP Workage Management system will be applicable.