

 Eskom National Transmission Company South Africa TM	Scope of Work	Eskom Telecomms NMC
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Title: Scope of Work for the establishment of a Support Contract for the Eskom Telecomms BME Equipment install base, spares holding and Network Management System.

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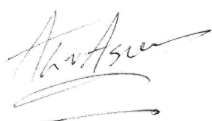
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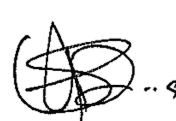
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1. Introduction

Alcatel stopped supporting the Bandwidth Management Equipment (BME) product after it reached the end-of-life and end-of-support dates. As a result, BME equipment is no longer supported by the OEM and equipment can no longer be repaired through the normal OEM supply channels. Support for the BME 5620 NMS Server farm is also no longer available from the OEM.

The Eskom BME platform carries Eskom mission critical services. Specialized equipment and NMS support is also hard to come by. This document defines the scope for the BME Network Support and equipment repair to ensure that NTCSA Telecomms can maintain the BME network at the required high level of availability.

2. Supporting Clauses

2.1 Scope

2.1.1 Purpose

The purpose of this document is to specify the scope for BME Network Support and BME Equipment Repair contract, based on the various types of number and types of BME equipment and modules that is deployed in the Eskom BME network. This document will be used to guide supplier's expectations as to the scope requirements for support of the BME network.

2.1.2 Applicability

This document shall apply throughout Eskom Holdings Limited Divisions.

2.1.3 Effective date

1 April 2025

2.2 Normative/Informative References

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

2.2.1 Normative

- [1] ISO 9001 Quality Management Systems
- [2] ISO 14001 Environmental Management
- [3] ISO 45001: 2018 Occupational Health and Safety Management System
- [4] 32-726: SHE Requirements for the Eskom Commercial Process

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2.2.2 Informative

- [5] 32-123 Contractor Health and Safety Requirements.
- [6] 32-1034: Eskom's Procurement and Supply Chain Management Procedure.
- [7] Equipment specific technical specifications.

2.3 Definitions

2.3.1 Table 1

Definition	Explanation
Telecomms	A business unit in National Transmission Company South Africa SOC Ltd.
Service Provider	External party responsible for the repair of the hardware equipment that is described in the Scope of work
Simulator	Alcatel 5620 Network Simulation Tool
Go-Global	Network Management Graphical User Interface Extender
5620NM	Alcatel BME 5620 Network Management Platform
5620 AIM	Alcatel 5620 Network Analyst (Analysis and Inventory Manager)
Remedy	A proposed solution or temporal relief for a logged request.
Restoration	Permanent restoration of service to normal state.
Supplier	External party responsible for the support and maintenance of the Eskom Telecommunications' BME Network as described in this document and also in the Appendices.
BME System	The software, hardware, firmware, operating system, databases, and licenses jointly constituting the Telecomms' BME network.

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Definition	Explanation
2nd line support	Technical support for issues (configuration, faults, etc.) that cannot be resolved by Telecomms' Network Management Centre
3rd line support	Technical support for issues (configuration, faults, design, engineering, etc.) that cannot be resolved by Eskom's technical and engineering personnel

2.3.2 P1 – Emergency

Service affecting incidents that impact business critical processes and/or systems will be recorded as an emergency, i.e. the Eskom's business suffers significantly in the case of a fault/incident. The following situations are classified as severity level emergency:

- a. A complete system failure which affects services/operations (catastrophic event)
- b. A malfunction in the system's functionality which affects services/operations in a catastrophic manner
- c. A complete loss or disturbance of the network management system or no visibility to the network/ systems
- d. Loss of redundancy on Business-critical systems

2.3.3 P2 – High / Critical Incident

System/Network conditions that severely affect service, capacity/traffic, billing and maintenance capabilities and require immediate corrective action, regardless of time of day or day of the week, as viewed by the customer after discussion with the supplier.

2.3.4 P3 – Medium / Major Incident

System/Network conditions that seriously affect system operation, maintenance and administration, etc. and require immediate attention as viewed by the customer after discussion with the supplier. The urgency is less than in a critical situation because of a lesser immediate or impending effect on system performance, customers and the customer's operation and revenue.

2.3.5 P4 – Low / Minor Incident

System/Network conditions that do not significantly impair the functioning of the system and do not significantly affect service to customers. These problems are not traffic-affecting.

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2.4 Abbreviations

Table 2

Abbreviation	Explanation
NMC	Network Management Centre
SLA	Service Level Agreement
BME	Bandwidth Management Equipment. A device used to provision and groom analogue and digital circuits into 64 kbit/s channels that can be collectively aggregated onto an E1 frame. It includes: Alcatel 3630, 3600 and 3645 Series Bandwidth Management Equipment
OT IP/MPLS	An IP/MPLS network which will be a final Telecomms data network providing OT services
DCN	Data Communication Network (for Network management)
NMS	Network Management System
DMM	Downloadable Memory Module
NSVRAM	Non-Volatile Static RAM
OH&S	Occupational Health and Safety

2.5 Roles and Responsibilities

As defined in the document content (statement of work).

2.6 Process for Monitoring

Implementation of the scope will be monitored throughout the contract process. It will include reports on all activities, faults and requests logged with the supplier.

2.7 Related/Supporting Documents

[8] None

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3. Statement of Work

Telecomms require 2nd and 3rd line support on the BME NMS, DCN and associated server farms. Telecomms also requires technical support for BME equipment deployed in the Telecomms network, hardware equipment repair for the entire NMS as well as all the BME node and Card types used in the Telecomms Network.

All NMS and DCN support to be On-Site at one of the following premises:

- Simmerpan Network Management Centre, Matumi Building, Germiston.
- East London Network Management Centre, Beacon Bay, East London.
- Megawatt Park Phase 2 Server Room, Johannesburg

3.1 Scope of Work

3.1.1 NMS and BME Network Equipment Related Technical Support

- a. Provider shall render up to twenty (20) hours of on-site technical support per calendar month, on an as-needed basis as defined in **3.1.3 NMS System Maintenance**.
- b. Full 24x7x365 standby technical assistance for any service affecting faults. Response time to be SLA based depending on criticality of fault.
- c. Full technical support of the Alcatel-Lucent 5620 Network Manager, inclusive of the Solaris operating system, Informix, Master & Standby workstations, delegates, X-terminals, CPSS routers, Simulators, as well as AIM Servers, Go-Global PCs and all other related NMS hardware.
- d. Full technical support of all BME nodes in the network via NMS.
- e. Full technical assistance and support for any local maintenance issues and supervision of BME installations as-and-when required, up to a maximum of 24 trips per annum, thereafter on a time & material basis.
- f. 2nd and 3rd Tier System Admin on NM and servers.
- g. Resolution of client PC connectivity and admin issues
- h. Supplier to provide quotation of rates to be used for any work, including time, travel and materials, that falls outside the scope of the above. These rates will be part of the support contract.

3.1.2 NMS and BME Network Equipment Hardware Repairs

- a. Supplier to keep fully configured & loaded off-site hot-standby Network Management Server hardware for immediate replacement in the event of any NMS hardware failure.
- b. Supplier to keep sufficient stock to cater for faulty items sent in for repair.
- c. Supplier to provide advanced replacement of all faulty BME Systems and components (chassis, cards, modules etc.) as sent in for repair by Telecomms Spares management Centre. Items damaged by insurable events are excluded from this.
- d. Maximum turn-around time for all repairs will be six weeks from date of receipt of faulty items.

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- e. Vendor to determine, in conjunction with Telecomms, a list of strategic BME spares and provision these in the event of emergencies.
- f. Monthly formal reporting on repair status and statistics, the details of which are to be determined by Telecomms.

3.1.3 NMS System Maintenance

- a. Weekly creation and maintenance of off-site backups of the BME Network 5620NM Database for Disaster recovery (DR).
- b. Bi-weekly activity switching between Active and Standby machines, to verify System redundancy and DR integrity.
- c. Monthly reporting on NMS Preventative Maintenance and health checks performed, including the following:
 - 1. Off-site backups for DR etc.
 - 2. Status checking of alarms
 - 3. Memory & disk space
 - 4. Power interruptions or fluctuations
 - 5. Environmental factors (CPU temp etc.)
 - 6. Database integrity
 - 7. Release control events & System redundancy status
- d. Annual network audits. This includes Node Inventory, Historical Alarm, CPSS, Synchronization and NMS analysis. A complete report will be provided, including recommendations for Network improvement.
- e. Annual DR testing and reporting of CPSS
- f. Special reporting as-and-when required, at the discretion of Eskom.
- g. CPSS Network design & optimization. This typically follows the Network Audit.
- h. Special investigations.
- i. System management documentation and operating procedures.

3.1.4 System and Equipment Upgrades

The 5620 BME NMS and the BME3630/3600 range of equipment are no longer supported by the OEM. It is therefore not foreseen that any system upgrades or patches should be included in the inclusive monthly charges of the support contract. It is therefore required that this is quoted for specifically to be included as specific line items in the support contract to be purchased on as and when required basis.

- a) Upgrade of DMM batteries **per node**, estimated forecast not exceeding 250 units per annum.
- b) Upgrade of 3630 BME NVSRAM chips **per node**, estimated forecast not exceeding 250 units per annum.

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- c) Server and NMS hardware upgrades, where available. (Active, Standby and off-site NMS's).

3.2 Equipment List

This support contract will be based on the following list of BME products in the Telecomms network based on an audit done in March 2025. No further network growth is foreseen.

3.2.1 BME Node Types:

Table 3

<u>Equipment Description</u>	<u>Number of Units in the Eskom Network</u>
1) 3630/UK Multiplexer	598
2) 3600 Multiplexer	624
3) 3600 MMS SU (3645 Multiplexer Switching Unit)	32
4) 3600 MMS PU (3645 Multiplexer Peripheral Unit)	87
5) 5620 NM Active and Standby Servers	2
6) 5620 NM AIM Servers	2
7) 5620 NM Delegate Servers	2
8) 5620 NM CPSS Router Servers	2
9) Associated peripherals for all the BME equipment in the ET network	All
10) TDM Node and 5620 NM & 5620 AIM Software	All

3.2.2 BME Node Software Version:

Support required for BME's with the following software/firmware versions. This includes upgrading all BME nodes to a specific Software Generic Version as indicated below.

- a) BME 3630
- 1) 9125-H3-40
- b) BME 3600

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- 2) 1119-H0-25
- 3) 1119-H0-30

3.2.3 BME Card / Module Types:

Table 4:

Card Type Mnemonic	BME P/N	BME Description	2025
28LC	90-4927-01	28LC LINE CARD 6PT	1
28LC2_12	90-9553-01	GSLC-12 TDM SHDSL LINE CARD	1
2B1Q / 27LC2	90-1184-05	2B1Q-27LC2 LINE CARD (6 CCT)	1
36120	90-1637-01	FASTBUS INTERCONN PANEL	19
36SM_2B1Q	90-2892-01	36SM 2B1Q MODULE	17
BAM	90-1638-03	FRAME RELAY ENGINE F1	22
CEPT	90-0423-01	3630 WM E1 CTL CARD	1382
CEPT2_CRC	90-0371-02	SINGLE E1 CARD	284
CLOCK	90-0641-01	CLOCK CARD	67
CONTROL	90-0423-01	3630 WM E1 CTL CARD	691
CONTROL3	90-0667-01	SYS CTL CARD 3	1154
DCC_RS232	90-0043-03	RS232 SYNC/ASYNC DCC(6)	278
DCC_X21_6	90-0031-04	X.21 DCC (6 CCT)	1025
DCP	90-0670-01	DCP CARD	56
DDBW	90-0661-01	DOUBLE BANDWIDTH MODULE	186
DNIC12	90-0041-01	DNIC LINE CARD (12 CCT)	4
DNIC24	90-0158-01	DNIC MODULE	15
DNIC3	90-0041-03	DNIC LINE CARD (3 CCT)	2
DNIC6	90-0041-02	DNIC LINE CARD (6CCT)	3
DPM2	90-0616-01	DPM2 MODULE	2
DSP	90-0038-09	DSP-3 CARD (6 DSP)	46
DSP3	90-0038-10	DSP-3 CARD (2 DSP)	118
DSP5	90-0038-19	DSP-5 CARD HCV	1
DUAL_E1	90-0565-01	DUAL E1 CARD (75/120 OHM)	2627
DUAL_E1_2	90-1626-02	DUAL E1 CARD-2 (75/120 OHM)	72
DX	90-0667-05	SYS CTL CARD 3 (8+)	542
EM_UK	90-0079-03	E&M (6) ZCO (8-7/1-14)A-LAW	713
EM24_UK1	90-0157-04	E&M MODULE (TYPE 5)	2

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EM24_UK2	90-0426-01	E&M MODULE (UK)	736
EXP	90-0035-01	EXP CARD (6+6)	418
EXP_16	90-0075-02	3600 EXPANDER MODULE (16+)	386
EXP_6_2	90-0074-01	3600 EXPANDER MODULE (6+2)	9
EXP_8_8	90-0075-01	3600 EXPANDER MODULE (8+8)	9
G703	90-1043-01	64K CO-DIR MOD G.703 CO-DIREC	7
GFC_UK	90-0077-04	GFC-2 CARD (UK)	712
GFC3	90-3085-05	GFC-3 TEP-1 (ROHS COMPLIANT)	23
HSM	90-0639-03	SWITCH I/F CARD (PMX)	186
LGE_NA6	90-0343-06	FXO (LGE) (6) PROG (3-4/2-13)U-LAW	8
LGE_UK6	90-0343-03	FXO (LGE) (6) PROG (3-4/2-13)A-LAW	286
LGE24_UK1	90-0526-02	FXO (LGE) MODULE (A-LAW)	24
LGE24_UK3	90-0602-01	FXO (LGE) MODULE (UK)	20
LGS_UK	90-0029-01	FXS (LGS) (12) ZCO (4-3/1-6)A-LAW	106
LGS_UK10	90-0029-02	FXS (LGS) (10) ZCO (4-3/1-6)A-LAW	4
LGS24_NA2	90-0156-06	FXS (LGS) MODULE (+4/-10DB)	1
LGS24_UK3	90-0156-05	FXS (LGS) MODULE (A-LAW)	246
LGS24_UK6	90-0425-01	FXS (LGS) MODULE (UK)	458
PTE	90-1638-03	FRAME RELAY ENGINE F1	22
RS232_DCM	90-0611-01	RS232/V.24 MODULE	177
SUP_MOD	90-1579-01	3630 SUPER-RATE RES MOD	196
TONE_GEN	90-0512-01	TONE MODULE	92
X21_DCM	90-0432-01	X.21 MODULE	1019
X21_PRI2	90-0569-03	X.21 PRI-2 CARD	14

3.2.4 Contract Price Alignment for the number of BME Nodes.

The value of the support contract to be based on the number of ACTIVE BME nodes in the network and be adjusted annually to reflect the active nodes as reported by the NMS. (BME equipment will only be removed from the network when all services terminating and traversing a node has been removed from the network.)

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3.3 SLA Response Times

3.3.1 Expected Response Times

Table 5:

<u>Classification</u>	<u>Severity</u>	<u>Reported to</u>	<u>Remedy</u>	<u>Restoration</u>
P1	Emergency	Service Manager	Within 4 hours	8 Hours
P2	High	Service Manager	8 Hours	24 hours
P3	Medium	Helpdesk/Service Desk	Next business day.	72 hours
P4	Low	Helpdesk/Service Desk	1 Week	4 weeks

4. Acceptance

This document has been seen and accepted by:

Name & Surname	Designation
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5. Revisions

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Date	Rev.	Compiler	Remarks
March 2025	3	Wicus van Aswegen	Updated SOW with new template and based on additional requirements, updated equipment install base and aligned with new Generic Scope for Support contracts. New document number 559-763382269 issued to align to OpenText documentation management.
August 2019	2	Wicus van Aswegen	Updated SOW with new template and based on additional requirements. Also considered spares requirements due to the ETFS implementation.
August 2016	1	Wicus van Aswegen	Updated SOW with new template and based on additional requirements and to cater for network growth
Month 2003	0	Wicus van Aswegen	Created SOW for BME support contract.

6. Development Team

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

- Wicus van Aswegen
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7. Acknowledgements

- Zwelandile Mbebe
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