



Scope of work

Generation

Title: **Scope of work for Bulk Purchasing of T2000 DCS Spares Modules for Majuba, Camden and Hendrina**

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1. INTRODUCTION

The Gx C&I fraternity is besieged by high levels of electronic control system obsolescence. This has prompted Gx to review the C&I Life Cycle Management approach strategy. Part of the Strategy is to sustain the existing obsolete systems longer (life extension plans) by seeking spares and mitigate against impact of obsolescence. The T2000 control system is already declared obsolete by the OEM, Siemens, and is no longer supported in terms of system failures, spares and module repairs. The T2000 was first installed at Majuba units 4 to 6 during the initial construction and commissioning of the power station in the mid 1990's. This control system was also purchased in Hendrina during the control system refurbishment in 1995. The last unit to employ the system was Camden Power station during the RTS of 2006. After that the T2000 system was replaced by the T3000 system which has been Siemens current Power Generation control system since it was first installed in Kriel in 2007. Siemens announced obsolescence of the T2000 system in 2015 and for the next 5 years continued to support the system with technical knowhow, spares and repairs. Since 2021, all support for the system has stopped and dependence on third party market was order of the operations. The T2000 control system is used for safe and reliable operation of a full coal fired units, coordinating all control loops to achieve optimum runup, operation, monitoring and safe shutdown of the unit. The control system also provides Operators, Engineers and Managers with process information to be able to conduct incident investigations and improve plant performance. The provision of spares to these Power Station's with old T2000 DCS will be such that the plant can be safely and reliably operated until its end of life.

1.1 APPLICABILITY

This project is applicable to Majuba, Hendrina and Camden Power Plants.

1.2 NORMATIVE/INFORMATIVE REFERENCES

1.2.1 Normative

- [1] ISO 9001 Quality Management Systems.
- [2] ISO 14001 Environmental Standard
- [3] ISO 45001 Safety Standard
- [4] 240-53114002 Engineering Change Management Procedure

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1.2.2 Informative

[1] 559-123589005 Eskom Generation Control and Instrumentation Refurbishment Execution Strategy

1.3 RELATED/SUPPORTING DOCUMENTS

[1] 559-123589005 Eskom Generation Control and Instrumentation Refurbishment Execution Strategy

1.4 DISCLOSURE CLASSIFICATION

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

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2. ABBREVIATIONS & ACRONYMS

Abbreviation & Acronyms	Descriptions
C&I	Control and Instrumentation
DCS	Distributed Control System
Gx	Eskom Generation Division
OEM	Original Equipment Manufacturer
SOW	Scope of Work

3. ROLES AND RESPONSIBILITIES

This document will be used to guide the Requirements Engineering Design Work Leads in the definition of design related requirements.

Central Stakeholders: The role of the Lead Discipline Engineer is to manage the technical integrity of the design and be accountable for the management of the interfaces within their specific engineering domain.

Site Stakeholders: The role of the site stakeholders is to review the technical integrity of the design and be accountable for the maintaining and use of the spares within their specific sites

4. PROCESS FOR MONITORING

The document shall be utilized as a baseline document during the verification and validation of design documentation during the various, subsequent design phases. Should the document require modification, the appropriate Engineering Change Procedure should be adhered to.

5. SCOPE OF WORK

5.1 SUPPLY AND DELIVERY OF BULK SIEMENS T2000 DCS SPARES MODULES FOR MAJUBA, CAMDEN AND HENDRINA

- The scope of works is for supply and delivery of bulk T2000 DCS spares attached in Appendix A to Camden Power Station site, Hendrina and Majuba will collect at Camden Power Station.

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The following as a minimum to be covered on the scope

- Supply, Deliver all spares in Appendix A to Camden site
- Warranties and guarantees to be provided and included
- All quality Certificates to be part of the Delivery to prove material tested
- Delivery of the modules to be from the point of supplier to the Station Camden site
- At least 30 perc of the bulk spares list to be provided
- Sources of the spares to be proven to show that it is legit
- Modules can be fetched from anywhere in the country provided they meet specifications
- Lead time of the spares to be confirmed prior to the supply and delivery of spares
- All terms and Conditions of the spares to be confirmed prior the supply and delivery

5.2 MATERIAL CONDITION REQUIREMENTS

The Employer's preference is for the supply of new materials and equipment that fully comply with the technical specifications and applicable industry standards.

Tenderers shall therefore submit pricing based on the supply of new materials as the primary offering. Where new materials are unavailable due to manufacturing constraints, obsolescence, excessive lead times, or market shortages, the Employer may consider the use of second-hand, refurbished, or reconditioned materials on an exception basis of functioning well within the warranty periods provided and guarantees when connected at site. ***N.B If modules are found not to be working by Eskom when connected at site the Bidder will be liable to re-imburse Eskom***

Any proposal for second-hand, refurbished, or reconditioned materials shall:

- Be clearly identified in the tender submission.
- Demonstrate that equivalent performance, reliability, and functionality will be achieved.
- Include details of the material age, condition, refurbishment process, and remaining service life.
- Be supported by applicable warranties, guarantees and quality assurance documentation.
- Be subject to the Employer's review and written approval prior to award.

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For evaluation purposes, compliant tenders offering new materials will be given first preference. Proposals including second-hand or refurbished materials will only be considered where the tenderer demonstrates that new materials are unavailable and bidders successfully demonstrate via guarantees and warranties that they are in working condition or where significant value-for-money benefits can be achieved without compromising safety, quality, reliability, or operational performance.

6. AUTHORISATION

This document has been seen and accepted by:

Name & Surname	Designation
Khaya Sobuwa	Gx C&I Corporate Specialist
Ntombifuthi Ngcobo	Portfolio Middle Manager
Mehendra Maharaj	Middle Manager Projects

7. REVISIONS

Date	Rev.	Compiler	Remarks
April 2026	0	N. Gantsho	Report
July 2025	1	N. Gantsho	Final Document

8. DEVELOPMENT TEAM

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

- Khaya Sobuwa
- Mehendra Maharaj
- Thokozani Msibi
- Nomatshawe Gantsho

9. ACKNOWLEDGEMENTS

- Khaya Sobuwa
- Mehendra Maharaj
- Thokozani Msibi

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Appendix A: Spares List

Serial Number	Description of Goods	Quantity
6ES5304-3UB11	IM304 INTERFACE MODULE. 6ES5304-3UB11	5
6DP1900-8AA	SYS 900 MONITORING MODULE. 6DP1900-8AA	4
6ES5324-3UR11	IM324R INTERFACE MODULE. 6ES5324-3UR11	5
06ES5482-4UA20	DEDA DIGITAL INPUT/OUTPUT MODULE. 6ES5482-4UA20	5
6ES5948-3UR23	CPU 948R. 6ES5948-3UR23	10
6GK1143-0TB01	CP1430 TF - COMMUNICATIONS PROCESSOR. 6GK1143-0TB01	10
6DP1120-8BA	COUPLING PROCESSOR FPR APF120 6DP1120-8BA	10
6DP1641-8AA	IM 641 INTERFACE MODULE 6DP1641-8AA	10
6GK1143-0TB01	CP1430 TF - COMMUNICATIONS PROCESSOR 6GK1143-0TB01	10
6DP3501-8AA	SPM501 TXP MEMORY MODULE FPR APF 120	7
6ES5304-3UB11	IM304 INTERFACE MODULE	10
6DD 1607-OAA1	SIMATIC S7-400	5

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	FM458-1 DP (module)	
6ES5308-3UC21	SIMATIC S5, IM308-C INTERFACE MODULE FOR PROFIBUS-DP	5
6ES5374-1KH21	SIMATIC S5 MEMORY CARD, SHORT TYPE, 5V ONLY FLASH-EPROM	5
6GK7343-1EX11- 0XE0	SIMATIC NET, CP 343-1 COMMUNICATION PROCESSOR	10
6GK7443-1EX11- 0XE0	SIMATIC NET, CP 443-1 COMMUNICATIONS PROCESSOR	11
6DP1614-8BB	IM 614 INTERFACE MODULE	10
6DP1120-8BA	COUPLING PROCESSOR FPR APF120	8
6DP1641-8AA	IM 641 INTERFACE MODULE	5
6DP1661-8AA	IM 661 INTERFACE MODULE	5
6DL3100-8AA	ADDFEM, FRONT END MODULE	5
6DP1210-8BC	FUM 210, BINARY SIGNAL CONDITIONING MODULE	5
6DP1230-8CC	FUM 230, ANALOGUE CONDITIONING MODULE	5
6DP1280-8AB	FUM 280, CONTINUOUS CONTROL MODULE, 2 CHANNEL	5
6DP1310-8AA	FUM310, FAIL SAFE BINARY SIGNAL MODULE	3
6DP1360-8BA	FUM360, 24V/120mA OUTPUT	3
6DP3400-8AA	TXP BUS TERMINATOR	5

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Spares Modules for Majuba, Camden and Hendrina**

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6DP1631-8AA	IM 631 INTERFACE MODULE	5
6DP1900-8AA	SYS 900 MONITORING MODULE	5
6ES5324-3UR11	IM324R INTERFACE MODULE	6
6ES5482-4UA20	DEDA DIGITAL INPUT/OUTPUT MODULE	6
6ES5760-0KA11	TERMINATION RESISTER FOR IM614	5
6ES5948-3UR23	CPU 948R	5
6ES5955-7NC11	POWER SUPPLY FOR CC - 24V 14A	
6GK1105-2AA10	SIMATIC NET, OSM ITP62 OPTICAL SWITCH MODULE	5

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