	Scope of work	Medupi Power Station
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Title: **Medupi Power Station Metering and Measurements Spares Procurement scope of work** Document Identifier: **240-86096949**

Alternative Reference
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Area of Applicability: **Medupi Power Station**





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1. Introduction

Medupi Power Station is designed to be a highly efficient and effective coal fired power station supplying power to the South African National Grid. The continuity of supply should be maintained by ensuring that the plant power output is not negatively impacted by unavailability, inefficiency and unreliability of plant equipment or components. The power station is designed with an UCLF capped at 2% and this can be achieved by, amongst others, ensuring that the time spent on maintenance is minimized. One of the ways to minimize the maintenance downtime is by ensuring the availability of necessary equipment or component spares.

The metering and measurements systems are used to not only monitor and control the generator and turbine but are also needed for legal output regulation purposes.

The purpose of this document is to provide a comprehensive list for all metering and measurement related spares required for the Medupi Power Station and will outline the works information for the procurement of spare components of the abovementioned metering and measurements systems. This will include, but not limited to, the scope for supplying spares technical information and supply of spares.

The process of procuring spares, while in compliance to Eskom's Procurement and Supply Chain Management Policy (32-1033), would include the requirements for the sourcing and supply of specified spares.

2. Supporting Clauses

2.1 SCOPE

This Works Information document serves to outline the requirements for the supply of maintenance spares and related documentation for the metering and measurements system for each unit used at Medupi Power Station for contract duration of 5 years.

The scope outlined in this document, shall not substitute nor supersede the Eskom procurement procedures that will be followed during the procurement process.

The scope is limited to the following specific Metering and measurement panels:

- Generator metering
- Transformer metering
- Unit Auxiliary metering
- Station Metering
- Countis Panel/Cubicle

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2.1.1 Purpose

The purpose of this document is to capture the requirements from all relevant stakeholders and to ensure that the deficiencies in the plant that may be caused by lack of maintenance spares are addressed adequately through procurement of spares. The works information (scope of work) for the procurement of the metering and measurement system spares will be discussed based on the requirements and guidelines incorporated in this document.

2.1.2 Applicability

This works information is only applicable to the maintenance spares procurement for the metering and measurement system at Medupi Power Station.

2.2 Normative/Informative References

The following standards, procedures and specifications contain provision that, through reference in the text, constitute requirements of this works information. At the time of approval the references were at latest revisions. All references are subject to revision and parties involved in the spares procurement processes based on this works information shall apply to the most recent revisions of the references below.

2.2.1 Normative

- [1] ISO 9001 Quality Management Systems.
- [2] 240-76960420 Guideline for Spares Procurement Technical Evaluation and Quality Inspection
- [3] 32-1033 Eskom Procurement and Supply Chain Management Policy
- [4] 32-1034 Eskom Procurement and Supply Chain Management Procedure
- [5] 474-132 GBE Plant Engineering Baseline Change Management
- [6] 240-95137280 Medupi Power Station Metering and Measurements Spares Strategy Rev 1

2.3 Definitions

Definitions	Description
Supplier	An enterprise that provides goods or services. For the purpose of this Works Information, the Supplier may refer to the OEM, OEM approved distributor or Supplier appointed to implement the works herein.
Employer	Company that is a recipient of a good or service provided by a Supplier under a purchase order or contract of sale. For the purpose of this Works Information, the Employer is Eskom Holdings SOC Medupi Power Station or representative thereof.

2.4 Abbreviations

Abbreviation	Description
DCF	Data Capture Form

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Abbreviation	Description
EMC	Electromagnetic Compatibility
KKS	Kraftwerk Kennzeichen System
OEM	Original Equipment Manufacturer
QC	Quality Control
UCLF	Unplanned Capability Loss Factor
WI	Works Information

2.5 Roles and Responsibilities

Supplier

- Supply procured spares as requested by the Employer.
- Confirm correctness of the supplied spares information
- Provide spares technical information in accordance with this Works Information
- Timeously inform the Employer of any delays or when outstanding or additional information from the Employer is required.
- Responsible to ensure that a quality product is delivered.
- Responsible to ensure that every effort is made to keep to the agreed program and plan.
- Provide all required technical datasheets and/or product brochures.
- Conform to all the other requirements stipulated in this document.
- Supply all the necessary test sheets/results, where applicable
- Invite the Employer or representative thereof three (3) working days in advance for witness/hold points, if applicable, as agreed

Medupi Power Station Electrical Engineering Metering and Measurement System Engineer

- Provide technical assistance to Materials Management and Procurement Departments during the execution of this Works Information
- Perform Quality Checks on procured spares and accompanying documentation.
- Verification and acceptance of all supplied documentation
- Responsible for QC at delivery of procured spares.

Medupi Power Station Materials Management Department

- Make provision for storage of procured and delivered spares.

Medupi Power Station Procurement Department

- Perform all procurement processes outlined in this Works Information
- Issue invitation to tender to the Supplier.
- Set up clarification meetings between Supplier and Employer

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- Act as communication link between Supplier and Employer
- Ensure all necessary payments are effected timeously and keep record thereof
- Arrange technical evaluation sessions.
- Compile and present mandate to negotiate and arrange negotiation meetings if and when required and give feedback to relevant tender committee.
- Keep record of all tender documentation

Medupi Power Station Electrical Maintenance Function

- Perform inspections and QC on spares upon delivery with engineering.
- Ensure spare items are stored properly by Materials Management as per relevant storage recommendations by the specific manufacturers.

3. DOCUMENT CONTENT

3.1 WORK TO BE PERFORMED BY SUPPLIER

The following are the Supplier's requirements:

- The Supplier will ensure that the correct spare is supplied and will replace or be liable for damage at his/her cost if the incorrect or defective spare/s is supplied. The costs may include, but not limited to, repairs and/or replacement of a defective or incorrect spare.
- The Employer's (i.e. Eskom Holdings SOC) acceptance of delivered spare/s does not absolve the Supplier of the liability to supply the correct and/or defect free spare.
- The Supplier may, at the Employer's discretion, be given access to the plant to verify the information of the installed spare.
- The spare must be exactly the same (e.g. same Part Number) as specified on this works information and the part number will also be used to perform quality control checks. Notwithstanding the stipulated condition that the Supplier is responsible for verifying the correctness of the spares information provided by the Employer in relation to the existing installed component. This may include the Supplier consulting the original Supplier of the spare to ensure correctness of information provided by the Employer.
- The Employer may at his/her discretion make the Employer's Engineer or employees or Others available to the Supplier for the purpose of soliciting additional information or verifying information as the need arises.
- The Supplier will supply any additional information such as brochure, general arrangement drawing, test certificates, detailed specification, etc.
- The Supplier shall supply preservation and storage procedure/s.
- "Estimated Spare Quantities to be Procured over Three Year Period", indicated by the Employer in the attached table as one of the subheadings, is the estimated number the Employer may require the Supplier to supply over the contract period. The Supplier may only supply the quantity as specified by the Employer in the individual order instruction.

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- If deemed necessary, the Employer may subject the Supplier to a quality assurance assessment at the Supplier's or sub-Supplier's premises as part of the technical evaluation or before the contract placement or at any time during the contract period.
- Where the spare requires testing, the Supplier will inform the Employer to invite or make available the Employer's System Engineer to witness the tests.
- Should the Employer be dissatisfied with all or certain aspects relating to a specific spare tests (including but not limited to suspected inferior quality or non-compliance) the Supplier will make good, rectify the faults or supply a new spare at his/her cost.
- Complete price breakdown must be supplied with the quotation and must include the cost of transport to Medupi Power Station. However, the Employer reserves the right to use the Employer's own transport.
- Spares will be opened for inspection, counting and quality control check at the Employer's stores.
- The Employer has provided the Bill of Material table and copies of individual spares DCF's in order to assist the Supplier to meet the requirements of the Work to be performed by the Supplier.
- The Employer may make clarification sessions available to either prospective Supplier/s in order to further assist the prospective Supplier's to meet the requirements of the Work to be performed by the Supplier.

Where the Employer has entered into a National Framework agreement for the supply of any listed items in Appendix A before this contract is in place, those items shall not form part of the contract.

3.2 SPECIFICATIONS OF THE SPARES

3.3 Related/Supporting Documents

237-165-C&IE-SG Medupi Power Station Metering and Measurements Spares Strategy Rev 1

3.3.1 Spares Identification

Appendix A lists all the spares to be procured under this works information. This list shall correspond to the provided hardcopy and/or electronic copy DCF's that will contain more information about required spares. Each spare is identifiable by means of a KKS number (as is used in the Power Station), part description, OEM and/or OEM part number. Where the information available on the spares list in Appendix A or that supplied by materials management as catalogued is not sufficient to positively identify the applicable spare, the Supplier shall notify the Employer such that the Employer can assist the Supplier in identifying the correct spare.

The Supplier shall be liable to replace a supplied spare that is found to be defective within the guarantee period.

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3.3.2 Information to be provided

Accompanying this Works Information is the DCF's with the information deemed enough to procure the correct spares as required. The DCF is required by the Employer's Material Management System to be able to book the item in the stores and the information should be sufficient to procure the goods in future. Where a field is populated, the Supplier needs to review and verify/correct the information against the OEM part number for correctness.

The following information to be provided with the spares:

- Documentation detailing the technical characteristics of the procured spare item. This may be in the form of data sheet or brochure. The Employer reserves the right to reject the documentation if it is not deemed sufficient.
- Any other additional information that has not been specified on the DCF / WI but necessary for storage, installation and utilisation of spares where applicable.
- Supply preservation and storage procedures of goods, where applicable
- Any spares information which has been omitted which is deemed relevant for spares identification, storage, maintenance, etc.
- In instances where the Supplier uses another company, other than the item OEM, to provide required information, this to be declared in advance to the Employer.
- Shelf life of all spares to be specified as part of provided information.

3.3.3 Spares Quantities

The estimated spares quantities to be provided as stipulated in APPENDIX A.

3.3.4 Design, Manufacturing and Testing

The required spares shall be the same, in all respects, as the original components. The spares shall also conform to the same specifications as the original components. This includes all aspects such as design, materials and material specifications, manufacturing and manufacturing processes, testing and operating and storage specifications.

3.3.5 Replacement Parts Upgraded/modified

Where equipment or spares, including the whole assembly, have been upgraded/ modified the Supplier shall indicate this to the Employer as part of the tender. The Employer shall be made aware immediately where the upgrade/modification to the component is only identified subsequent to the tender being issued. The detailed compatibility to the existing component shall be indicated. This includes hardware, firmware and software upgrade/modification.

If the components to be supplied will be obsolete, or envisaged to be obsolete, in the 5 years subsequent to tender being issued, the Supplier shall indicate this to the Employer and indicate viable alternatives thereof.

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3.3.6 Packaging

All supplied spares shall be packaged in such a manner that they may be transported and stored for an extended period without resulting in damage to the packaged components. This includes preventing damage due to moisture ingress, especially for electronic components. Where possible, silica gel/desiccant may be included to ensure protection against moisture for at least 3 months. However, this inclusion should not lead to damage to the component.

Modules / sensitive electronic components shall at all times be suitably packed in anti-static material and other protective packaging such that it is protected against static, EMC and handling hazards.

Different spare types shall be packaged separately such that each spare type can be stored separately. Packaging shall be such that the spare can be identified without opening the packaging. Packaging shall be of material that will not be damaged, to an extent possible, by harsh weather conditions during transportation. If that is not possible, then the packaging shall be protected against such conditions.

Where possible, packaging to be such that procured spares can be positively identified through the packaging. Where this is not possible, the packaging to be such that it allows opening and closing of packaging and still maintain the packaging integrity thereafter.

Delivery packaging to have the following details on it:

- Order number
- Physical address of Medupi Power Station
- Delivery note number.

3.3.7 Transportation

Transportation of all spares shall be conducted with due regard of the sensitivity of the units and in such a manner that spares are suitably protected. All possible care must be taken to ensure that the components are not subjected to undue rough handling, vibration, humidity, excessive temperatures or abuse. When courier service is used for transportation, the courier services service provider shall be alerted to the nature of the content of the packages and instructed to handle with care. Labels shall be used to indicate the fragile nature of the items.

3.3.8 Exclusions

The following shall be noted as exclusions as per this works information:

- The Supplier shall not supply offloading facilities during delivery of spares.
- The Supplier shall not be responsible for the storage of spares after acceptance at delivery by Employer.
- Subcontracting shall not be permitted, unless declared and accepted prior to contract placement.

3.3.9 Acceptance of Spares

- No incorrect, damaged or faulty spares will be accepted.
- All the spares will be inspected before payment could be processed.

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- Where applicable; test certificates, material certificate, manuals, data sheet and signature shall be provided as required.

3.4 Constraints on how the Supplier provides the goods

3.4.1 Work to be done by the Delivery Date

A clarification meeting to be held 3 weeks after the issuing of the enquiry to confirm the scope of the Works and to confirm spares identification. All questions can be forwarded to the Employer during this meeting. Where more than one Supplier is available, all responses from the Employer will be forwarded to all Suppliers, regardless of which Supplier required the clarification.

All required spares to be delivered to the Employer 4 weeks from the day the purchase order is placed by the Employer. The Employer may request, in writing, that a spare be expedited quicker if its delivery in 4 weeks may lead to a delay that may result in undesirable consequences (loss of production, loss of revenue and/or safety to personnel or environment) to the Employer.

3.4.2 Documentation Control

The information for spares to be provided will either be in electronic format and/or hard copy. Other information provided with each spare to be either in electronic format and/or hard copy. Information provided to be documented in such a manner that the information for each spare will be easily identifiable. All documentation supplied shall bear the OEM's official name and logo.

3.4.3 Quality Assurance Requirements

The spares to be provided shall conform to all quality assurance requirements that will be defined at contracting phase.

3.4.4 Program Constraints

The following shall be included in the Supplier's program:

- The delivery date as stipulated to be provisional. This date may change prior to delivery. The Supplier to indicate standing time and storage costs should the Employer delay the delivery date. Proof of actual costs to be provided.
- Provision to be made for delays that may be caused owing to items being sourced from outside The Republic of South Africa.

3.4.5 Guarantee of delivered spares.

All delivered spares shall come with a 12-months guarantee period starting from the delivery date.

3.4.6 Insurance of the Goods

Insurance to be the responsibility of the Supplier until delivery.

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4. Acceptance

The following persons have seen and accepted the original works information document that this document is based on:

Name	Designation
Lekatjile Segooa	PTM Manager Maintenance
Kevin Rabbolini	PTM Manager Maintenance
Frans Molebale	PTM Snr Advisor Maintenance
Gawie Pienaar	Snr Technologist Engineer
Sethabile Mthethwa	PTM Snr Advisor Maintenance
Pontsho Letsholonyane	Contract manager
Portia Lutumbu	EMD Manager
Khathu Mudzielwana	Turbine Engineering Manager
Nthabi Mashigo	C&I Engineering Manager
Lebo Pebane	Officer Inventory
Jappie Morudu	Manager Procurement

5. Revisions

Date	Rev.	Compiler	Remarks
October 2015	1	J.C. Pieterse	Rev 1
September 2019	2	JJ Bruwer	Rev 2
February 2025	3	NG Mbatha	Rev 3, update Section 3, 4 and BoM to include new transducer and missed Spares incl. countis cubicle spares.

6. Development team

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

- Johan Pieterse
- Johann Bruwer
- Ntando Mbatha

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Appendix A – Bill of Material

Item Nr	Plant System	Type Of Spare	Description	SAP Description	Quantity required	Material Number	OEM	OEM Part No
1	Measurement and metering	4-Quadrant Programmable Class 0.2S Meter	4-Quadrant Programmable Class 0.2s Meter: Programable 3-Phase,4-Wire Energy Meter Class 0.2s Within Rack	Meter, Electrical: Type: High Precision; Range: 0-230 Vdc; Readout: Lcd, Alarm, Serial; Style: Vertical Mount; Face Size: Sq 70 Mm; Accuracy: 0.2s; Specification: Iec62056-21; Manuf P/N: Zmq202c6r49f9; Storage Temp Range: -25 To 70deg C; Humidity: 75pct; Protection: Ip51; Operating Temp: -25 To 55deg C	8	575290	Landis + Gyr	Part No: ZMQ202C.6r4af9
2	Measurement and metering	4-Quadrant Programmable Class 0.5S Meter	Programmable 3-phase, 4-wire Energy meter (Class 0.5S) Within Rack	Meter, Electrical: Readout: Lcd, Serial; Accuracy: 0.5 S; Manuf P/N: Zmq205c6f4af9	15	575270	Landis + Gyr	Part No: ZMQ205C.6r4af9
3	Measurement and metering	Krone Module	Krone Disconnect Module: Instrumentation Module	Module: Type: Instr. Disconnect; Application: Metering; Manuf P/N: 6468 2 049-10.	6	0575253	KRONE SA	Part No: 6468 2049-10
4	Measurement and metering	Krone Module	Krone Disconnect Module	Module: Type: Disconnect; Application: Metering; Specification: IEC 11801; Manuf P/N: 6468 5050-10	6	575294	KRONE SA	Part No: 6368 5050-10
5	Measurement and metering	8-Port Ethernet Switch	Rack mounted Modular Ethernet Switch: MOXA 8-PORT 10/100 ETHERNET SWITCH (85-264Vac PSU)	Switch: Type: Ethernet 10/100; Potential: 220vdc; Action: 8p; Mount: Rack; Application: Metering and Measurement; Manuf P/N: PT7710-F-HV	6	575249	Moxa	Part No: PT7710-F-HV
6	Measurement and metering	K1 RELAY	8-Pin DIN Rail Mouted Relay and Base (230VAC Coil) with 2 x C/O Contacts	Relay: Type: 8 Pin; Coil Voltage: 230vac; Terminal: 2 Contacts; Mount: Rack.	10	575260	OMRON	Part No: MK2P

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Item Nr	Plant System	Type Of Spare	Description	SAP Description	Quantity required	Material Number	OEM	OEM Part No
7	Measurement and metering	2A HRC Fuse and Link	2A HRC Fuse and Link: Fuse Links Equipped With Either Fuses or Links	Fuse: Current: 6.3 A; Material: Polyamide 66; Potential: 800 V; Connection: Screw Clamp (2); Dimensions: Wd 58 X Ht 42.5 Thk 8 Mm; Specification: IEC 60947-1; Manuf P/N: KUDF4	20	575293	Actom/Elme x	Part No: KUDF4
8	Measurement and metering	WATTMETER	72mm sq. Wattmeter 0 - 1100 MW (4-20mA) 240 Degree Movement	METER, ELECTRICAL: TYPE: POWER; RANGE: 0-1100 MWH; READOUT: 240 DEG MOVEMENT; STYLE: SQUARE RACK MOUNT; FACE SIZE: SQ 72 MM; MANUF P/N: HAA72-240(MW)	10	575258	Pyramid Instrument	Part No: HAA72-240 (MW)
9	Measurement and metering	VARMETER	72mm sq. Varmeter -550...0...550 Mvars (4...12...20 mA) 240 Degree MVMT	METER, ELECTRICAL: TYPE: REACTIVE POWER; RANGE: -550-550MVARs; READOUT: 4-12-20MA; 248 MOVEMENT; STYLE: SQARE RACK MOUNT; FACE SIZE: SQ 72 MM; MANUF P/N: HAA72240(MVARs)	10	575287	Pyramid Instrument	Part No: HAA72-240 (MVars)
10	Measurement and metering	AMMETER	72mm sq. Ammeter 0 - 32400 A (4...12...20 mA) 240 Degree Movement	METER, ELECTRICAL: TYPE: CURRENT; RANGE: 0-32400A; READOUT: 4-20MA AND 240 DEG; STYLE: SQUARE RACK MOUNT; FACE SIZE: SQ 72 MM; MANUF P/N: HAA72-240(AMM)	10	575277	Pyramid Instrument	Part No: HAA72-240 (AMM)
11	Measurement and metering	VOLTMETER	72mm SQ Voltmeter 0 - 30 kV (4...22.18 mA) 240 Degree Movement	METER, ELECTRICAL: TYPE: VOLTAGE; RANGE: 0-30 KV; READOUT: 4-20MA AND 240 DEG MOVEMENT; STYLE: SQUARE RACK MOUNT; FACE SIZE: SQ 72 MM; MANUF P/N: HAA72240(VOLT)	10	575288	Pyramid Instrument	Part No: HAA72-240 (VOLT)

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Item Nr	Plant System	Type Of Spare	Description	SAP Description	Quantity required	Material Number	OEM	OEM Part No
12	Measurement and metering	Spring Loaded terminals	Spring Loaded terminals	Terminal: Type: Spring Loaded; Rating: 1 kV, 32 A; Specification: IEC 60947-7-1; Material: Polyamide 6/6; Suppl P/N: KULT 4; 0.5 Mm2 - 4 Mm2 Stranded Conductor And Solid 0.5 To 6 Mm2; Wire Stripping Length: 12 Mm; Connection Type: (2) Screw Clamp, (1) Tapped Hole For Cross Connection; Mount: Rail; Screw Type: M4.	5	575279/575159	Actom/Elme x	Part No: KULT4
13	Measurement and metering	Spring Loaded disconnenct terminals	Spring Loaded disconnenct terminals	TERMINAL: TYPE: DISCONNECTING; RATING: 800 V 20 A; SPECIFICATION: IEC60947-7-1; MANUF P/N: KULTD4WS; TYPE OF CONNECTION: 2 SCREW CLAMP; OVERALL DIMENSIONS: 51 X52 MM; TERMINAL PITCH: 6 MM.	5	575281	Actom/Elme x	Part No: KULTD 4WS

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Item Nr	Plant System	Type Of Spare	Description	SAP Description	Quantity required	Material Number	OEM	OEM Part No
14	Measurement and metering	Complete 2 X PM8000 Digital transducers and modules in 19" rack	Transducer 19" rack, 2 x PM8000 Digital Transducer, 6 analogue outputs, 1A, 90/415VAC 120/300 VDC, RS485 and 10/100 BASE-T-Ethernet (RJ45) ports, Modbus, DNP3 and IEC 61850 and 2 x PM8000 Remote Display, drawing no.: D-DT-9121	Transducer: Type: PM8000 19" Rack; 12 Analogues; Input: 1 A; Output: Analog And Digital; Power Source: 90/415 Vac; 120/300 Vdc; Specification: Eskom 240-51999977; Drawing No: D-DT-9121 Rev 0; Transducer Rack Consisting Of 2x Schneider PM8000 Series Transducers (2x METSEPM8243, 6X METSEPM89M0024) And 2x Schneider Pm8000 Series Remote Displays (2x METSEPM89RD96); Mounted In 19" Rack; Terminals Mounted On Rear Of The Rack; Communication Ports: 1x RS485 Port, 2x 10/100 Base-T-Ethernet (RJ45) Ports Per Transducer; 6 Programmable Analogue Outputs (4-20ma) Per Transducer, Modbus, DNP3, IEC 61850; Calibrated With Calibration Certificates Provided With The Transducers.	5	646765	Schneider	ser no.: 230700428
15	Measurement and metering	Fuse	FUSE CARTD:S500-10-R;10 A;250 V;ENDCAP	Fuse, Cartridge: Current: 10 A; Potential: 250 V; Connection Type: Endcap; Dimensions: Dia 5 X Lg 20 Mm; Type: Fast Acting; Case Material: Glass; Specification: IEC 60127-2; Manuf P/N: S500-10-R.	50	667281	Actom	S500-10-R
16	Measurement and metering	Fuse	FUSE CARTD:S500-5-R;5 A;250 V;ENDCAP	Fuse, Cartridge: Current: 5 A; Potential: 250 V; Connection Type: Endcap; Dimensions: Dia 5 X Lg 20 Mm; Type: Fast Acting; Case Material: Glass; Specification: IEC 60127-2; Manuf P/N: S500-5-R.	50	667285	Actom	

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Item Nr	Plant System	Type Of Spare	Description	SAP Description	Quantity required	Material Number	OEM	OEM Part No
17	Measurement and metering	HMI/Displays	Transducer: Type: PM8000; Remote Display; Input: RJ45; Output: Digital; Power Source: Transducer; Specification: Eskom: 240-51999977; Transducer Standalone Display Consisting Of A Schneider Pm8000 Series Remote Display (1x Metsepm89rd96); 3m Cable, Mounting Hardware For 30mm Hole (Nut And Centre Pin), Mounting Hardware For Din96 Cutout (92mm X 92mm) Adaptor Plate Eskom Drawing No. D-Dt-9121 *	Transducer: Type: Pm8000; Remote Display; Input: Rj45; Output: Digital; Power Source: Transducer; Specification: Eskom 240-51999977; Drawing No: D-Dt-9121 Rev 0; Transducer Standalone Display Consisting Of A Schneider PM8000 Series Remote Display (1X METSEPM89RD96); 3m Cable, Mounting Hardware For 30mm Hole (Nut And Centre Pin), Mounting Hardware For Din96 Cutout (92mm X 92mm) Adaptor Plate.	10	646774	IST	METSEPM89RD96
18	Measurement and metering	Transducer	SCHNEIDER PM8000 SERIES TRANSDUCERS (METSEPM8243) with SCHNEIDER PM8000 Analog output Card (METSEPM89M0024), 4-20mA , CALIBRATED WITH CALIBRATION CERTIFICATES PROVIDED WITH THE TRANSDUCERS;	Transducer: Type: PM8000; 6 Analog; Input: 1 A; Output: Analog And Digital; Power Source: 90/415 Vac; 120/300 Vdc; Specification: Eskom 240-51999977; Drawing No: D-Dt 9121 Rev 0; Transducer Standalone Consisting Of A Schneider PM8000 Series Transducer (1X METSEPM8243, 3X METSEPM89M0024); Communication Ports: 1x RS485 Port, 2x 10/100 Base-T-Ethernet (RJ45) Ports; 6 Programmable Analogue Outputs (4-20ma), Modbus, Dnp3, IEC 61850; Calibrated With Calibration Certificate Provided With The Transducer.	12	646771	IST	METSEPM8243
19	Measurement and metering	Ethernet Cable	RJ45 cable, 1m long cable, SFTP type, minimum CAT5e or above.		10		IST	

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**Medupi Power Station Metering and Measurements
Spares Procurement scope of work**

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Item Nr	Plant System	Type Of Spare	Description	SAP Description	Quantity required	Material Number	OEM	OEM Part No
20	Measurement and metering - Countis	energy pulse counter	Energy pulse COUNTIS ECix are multi-utility pulse concentrators communicating via an RS485 link on the MODBUS protocol, up to 7 multi-utility meters and 2 analogue sensors.		20		Socomec	Countis ECi3
21	Measurement and metering - Countis	ANYBUS	Anybus Modbus RTU to TCP Gateway, 9-24 V DC/AC, 70 mA@24 VDC (1.7 W), RS-232 via D-sub 9 Male, RS-485 via screw terminal, 1x RJ45, 70 x 86 x 57,7mm (LxWxH), 2x opto-isolated DI,		10		Industrial Data Xchange/HMS	AB7702
22	Measurement and metering - Countis	Circuit Breaker	Miniature Circuit Breaker - S200 - 1P+N - 0.5 A - C, S201-C0.5NA		25		ABB	2CDS281103R0984
23	Measurement and metering - Countis	thermostat	FLZ 530, 240V AC: 10 (2)A, N.O. with spring contact, -20 ... +60 °C		10		Pfannenbergl	17121000000
24	Measurement and metering - Countis	Switch	Bipolar Switch, ON-OFF Switch, 16 A, acc. to EN 250/400 V AC, 2NO, EI. Color: Grey, MW: 0.5.		10		ABB	E211-16-20

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Item Nr	Plant System	Type Of Spare	Description	SAP Description	Quantity required	Material Number	OEM	OEM Part No
25	Measurement and metering - Countis	Terminal block	Feed-through terminal block, nom. voltage: 800 V, nominal current: 41 A, number of connections: 2, connection method: Screw connection, Rated cross section: 6 mm ² , cross section: 0.2 mm ² - 10 mm ² , mounting type: NS 35/7,5, NS 35/15, NS 32, Colour: gray		100		Phoenix Contact	UK6N
26	Measurement and metering - Countis	Power Supply	TRIO-PS/1AC/24DC/10 - Power supply unit, input: 1-phase, output: 24 V DC/10 A		10		Phoenix Contact	2866323
27	Measurement and metering - Countis	Module	TRIO-DIODE/12-24DC/2X10/1X20 - Redundancy module, function monitoring, 12 ... 24 V DC, 2x 10 A, 1x 20 A		10			

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