



## NEC3 Term Service Contract (TSC3)

Between **ESKOM HOLDINGS SOC Ltd**  
(Reg No. 2002/015527/30)

and [Insert at award stage]  
(Reg No. \_\_\_\_\_ )

for **GENERAL ELECTRICAL MAINTENANCE SERVICES AT  
GROOTVLEI POWER STATION, INCLUDING COMMON PLANT  
AND VAAL DAM**

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**Contents:**

**No of  
pages**

**Part C1 Agreements & Contract Data**

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**Part C2 Pricing Data**

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**Part C3 Scope of Work**

**[•]**

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**CONTRACT No. [Insert at award stage]**

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## PART C1: AGREEMENTS & CONTRACT DATA

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[to be inserted from Returnable Documents at award stage]	
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## C1.1 Form of Offer & Acceptance

### Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of:

#### **General electrical maintenance services at Grootvlei Power Station, including Common Plant and Vaal Dam**

The tenderer, identified in the Offer signature block, has examined the documents listed in the Tender Data and addenda thereto and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance the tenderer offers to perform all of the obligations and liabilities of the *Contractor* under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the *conditions of contract* identified in the Contract Data.

Options A or C	The offered total of the Prices exclusive of VAT is	R
Option E	The first forecast of the total Defined Cost plus the Fee exclusive of VAT is	R
	Sub total	R
	Value Added Tax @ 15% is	R
	The offered total of the amount due inclusive of VAT is <sup>1</sup>	R
	(in words)	

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s)

Name(s)

Capacity

**For the  
tenderer:**

(Insert name and address of organisation)

Name &  
signature of  
witness

Date

Tenderer's CIDB registration number:

<sup>1</sup> This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

## Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the *conditions of contract* identified in the Contract Data. Acceptance of the tenderer's Offer shall form an agreement between the Employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Service Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of receiving a completed copy of this agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed and signed original copy of this document, including the Schedule of Deviations (if any).

Signature(s)

Name(s)

Capacity

**for the  
Employer**

\_\_\_\_\_  
(Insert name and address of organisation)

Name &  
signature of  
witness

Date

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

## Schedule of Deviations to be completed by the *Employer* prior to contract award

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1	[•]	[•]
2	[•]	[•]
3	[•]	[•]
4	[•]	[•]
5	[•]	[•]
6	[•]	[•]
7	[•]	[•]

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the tenderer of a completed signed copy of this Form shall have any meaning or effect in the contract between the parties arising from this Agreement.

### For the tenderer:

### For the Employer

Signature \_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

\_\_\_\_\_

Capacity \_\_\_\_\_

\_\_\_\_\_

On behalf of \_\_\_\_\_  
(Insert name and address of organisation)

\_\_\_\_\_

(Insert name and address of organisation)

Name & signature of witness \_\_\_\_\_

\_\_\_\_\_

Date \_\_\_\_\_

\_\_\_\_\_

## C1.2 TSC3 Contract Data

### Part one - Data provided by the *Employer*

Clause	Statement	Data
1	<b>General</b>	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option:	
		<b>A: Priced contract with price list</b>
	dispute resolution Option	<b>W1: Dispute resolution procedure</b>
	and secondary Options	
		<b>X1: Price adjustment for inflation</b>
		<b>X2: Changes in the law</b>
		<b>X17: Low service damages</b>
		<b>X18: Limitation of liability</b>
		<b>X19: Task Order</b>
		<b>Z: Additional conditions of contract</b>
	of the NEC3 Term Service Contract April 2013 <sup>1</sup> (TSC3)	
10.1	The <i>Employer</i> is (name):	<b>Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state owned company incorporated in terms of the company laws of the Republic of South Africa</b>
	Address	<b>Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg</b>
	Tel No.	<b>[•]</b>
	Fax No.	<b>[•]</b>
10.1	The <i>Service Manager</i> is (name):	
	Address	
	Tel	<b>[•]</b>
	Fax	<b>[•]</b>
	e-mail	<b>[•]</b>
11.2(2)	The Affected Property is	<b>Grootvlei Power Station</b>

<sup>1</sup> Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902 [www.ecs.co.za](http://www.ecs.co.za)

11.2(13)	The <i>service</i> is	<b>Grootvlei Power Station generating plant and its auxiliary plant including Vaaldam</b> <del>Grootvlei Power Station-Additional Resources-Maintenance</del>
11.2(14)	The following matters will be included in the Risk Register	<ul style="list-style-type: none"> <li>Resignation of <i>Contractor</i> employees</li> <li>Qualifications and related experience of <i>Contractor</i> employees</li> </ul>
11.2(15)	The Service Information is in	<b>Part 3: Scope of Work and all documents and drawings to which it makes reference.</b>
12.2	The <i>law of the contract</i> is the law of	<b>the Republic of South Africa</b>
13.1	The <i>language of this contract</i> is	<b>English</b>
13.3	The <i>period for reply</i> is	<b>1 (one) day for the acknowledgement of receipt and 2 (two) days for a reply</b>
2	<b>The Contractor's main responsibilities</b>	Data required by this section of the core clauses is also provided by the <i>Contractor</i> in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data
21.1	The <i>Contractor</i> submits a first plan for acceptance within	<b>12 weeks of the Contract Date</b>
3	<b>Time</b>	
30.1	The <i>starting date</i> is.	
30.1	The <i>service period</i> is	<b>60 months</b>
4	<b>Testing and defects</b>	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data
5	<b>Payment</b>	
50.1	The <i>assessment interval</i> is	<b>between the 25th day of each successive month.</b>
51.1	The <i>currency of this contract</i> is the	<b>South African Rand</b>
51.2	The period within which payments are made is	<b>Payment occurs 30 days after assessment date</b>
51.4	The <i>interest rate</i> is	<p>the publicly quoted prime rate of interest (calculated on a 365 day year) charged by from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and</p> <p>(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if</p>

		no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted <i>mutatis mutandis</i> every 6 months thereafter (and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.
6	<b>Compensation events</b>	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data
7	<b>Use of Equipment Plant and Materials</b>	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data
8	<b>Risks and insurance</b>	
80.1	These are additional <i>Employer's</i> risks	<p>1. Risks will be discussed as they arise</p> <p>2. [•]</p> <p>3. [•]</p>
9	<b>Termination</b>	There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.
10	<b>Data for main Option clause</b>	
A	<b>Priced contract with price list</b>	
20.5	The <i>Contractor</i> prepares forecasts of the final total of the Prices for the whole of the service at intervals no longer than	[•] weeks.
11	<b>Data for Option W1</b>	
W1.1	The <i>Adjudicator</i>	<p>the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see <a href="http://www.ice-sa.org.za">www.ice-sa.org.za</a>). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).</p> <p>Address [•]</p> <p>Tel No. [•]</p>



Fax No. [•]

e-mail [•]

W1.2(3)	The <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the Institution of Civil Engineers (London) (see <a href="http://www.ice-sa.org.za">www.ice-sa.org.za</a> ) or its successor body.
W1.4(2)	The <i>tribunal</i> is:	arbitration
W1.4(5)	The <i>arbitration procedure</i> is	the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.
	The place where arbitration is to be held is	[•] South Africa
	The person or organisation who will choose an arbitrator	
	- if the Parties cannot agree a choice or	the Chairman for the time being or his nominee
	- if the arbitration procedure does not state who selects an arbitrator, is	of the Association of Arbitrators (Southern Africa) or its successor body.

## 12 Data for secondary Option clauses

X1	Price adjustment for inflation							
X1.1	The <i>base date</i> for indices is	[•].						
	The proportions used to calculate the Price Adjustment Factor are:	<table> <tr> <td>proportion</td><td>linked to index for</td><td>Index prepared by</td></tr> <tr> <td></td><td></td><td></td></tr> </table>	proportion	linked to index for	Index prepared by			
proportion	linked to index for	Index prepared by						
X2	Changes in the law	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.						
X17	Low service damages							
X17.1	The <i>service level table</i> is in	Annexure A						
X18	Limitation of liability							
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to	R0.0 (zero Rand)						
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to	the amount of the deductibles relevant to the event						
X18.3	The <i>Contractor's</i> liability for Defects due to his design of an item of Equipment is limited to	<p>The greater of</p> <ul style="list-style-type: none"> <li>the total of the Prices at the Contract Date</li> </ul>						

X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> , for all matters arising under or in connection with this contract, other than the excluded matters, is limited to	<p>and</p> <ul style="list-style-type: none"> <li>the amounts excluded and unrecoverable from the <i>Employer's</i> insurance (other than the resulting physical damage to the <i>Employer's</i> property which is not excluded) plus the applicable deductibles</li> </ul> <p>the total of the Prices other than for the additional excluded matters.</p> <p>The <i>Contractor's</i> total liability for the additional excluded matters is not limited.</p> <p>The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for</p> <ul style="list-style-type: none"> <li>Defects due to his design, plan and specification,</li> <li>Defects due to manufacture and fabrication outside the Affected Property,</li> <li>loss of or damage to property (other than the <i>Employer's</i> property, Plant and Materials),</li> <li>death of or injury to a person and</li> <li>infringement of an intellectual property right.</li> </ul>
X18.5	The <i>end of liability date</i> is	[•] months after the end of the <i>service period</i> .
<b>X19</b>	<b>Task Order</b>	
X19.5	The <i>Contractor</i> submits a Task Order programme to the <i>Service Manager</i> within	<b>[21 days of receiving the Task Order]</b>
<b>Z</b>	<b>The <i>additional conditions of contract</i> are</b>	<b>Z1 to Z14 always apply.</b>

## **Z1 Cession delegation and assignment**

- Z1.1 The *Contractor* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer*.
- Z1.2 Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry.

## **Z2 Joint ventures**

- Z2.1 If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract.
- Z2.2 Unless already notified to the *Employer*, the persons or organisations notify the *Service Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.
- Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium or other

unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

### **Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status**

- Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor's* B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.
- Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Service Manager* within thirty days of the notification or as otherwise instructed by the *Service Manager*.
- Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor's* obligation to Provide the Service.
- Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P4 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

### **Z4 Confidentiality**

- Z4.1 The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient.
- Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Service Manager*.
- Z4.3 In the event that the *Contractor* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed.
- Z4.4 The taking of images (whether photographs, video footage or otherwise) of the Affected Property or any portion thereof, in the course of Providing the Service and after the end of the *service period*, requires the prior written consent of the *Service Manager*. All rights in and to all such images vests exclusively in the *Employer*.
- Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

### **Z5 Waiver and estoppel: Add to core clause 12.3:**

- Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the *Service Manager* or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

**Z6 Health, safety and the environment: Add to core clause 27.4**

- Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *service*. Without limitation the *Contractor*:
- accepts that the *Employer* may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Affected Property;
  - warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of the *service*; and
  - undertakes, in and about the execution of the *service*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.
- Z6.2 The *Contractor*, in and about the execution of the *service*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

**Z7 Provision of a Tax Invoice and interest. Add to core clause 51**

- Z7.1 Within one week of receiving a payment certificate from the *Service Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer's* procedures stated in the Service Information, showing the amount due for payment equal to that stated in the payment certificate.
- Z7.2 If the *Contractor* does not provide a tax invoice in the form and by the time required by this contract, the time by when the *Employer* is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the *Employer* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.
- Z7.3 The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer's* VAT number 4740101508 on each invoice he submits for payment.

**Z8 Notifying compensation events**

- Z8.1 Delete the last paragraph of core clause 61.3 and replace with:
- If the *Contractor* does not notify a compensation event within eight weeks of becoming aware of the event, he is not entitled to a change in the Prices.

**Z9 Employer's limitation of liability**

- Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)
- Z9.2 The *Contractor's* entitlement under the indemnity in 82.1 is provided for in 60.1(12) and the *Employer's* liability under the indemnity is limited to compensation as provided for in core clause 63 and X19.11 if Option X19 Task Order applies to this contract.

**Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet**

**point, after the words "against it":**

Z10.1 or had a business rescue order granted against it.

## **Z11 Ethics**

For the purposes of this Z-clause, the following definitions apply:

<b>Affected Party</b>	means, as the context requires, any party, irrespective of whether it is the <i>Contractor</i> or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,
<b>Coercive Action</b>	means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,
<b>Collusive Action</b>	means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,
<b>Committing Party</b>	means, as the context requires, the <i>Contractor</i> , or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees,
<b>Corrupt Action</b>	means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,
<b>Fraudulent Action</b>	means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,
<b>Obstructive Action</b>	means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and
<b>Prohibited Action</b>	means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

- Z11.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.
- Z11.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor's* obligation to Provide the Services for this reason.
- Z11.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.
- Z11.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

## **Z12 Insurance**

**Z 12 .1 Replace core clause 83 with the following:**

**Insurance cover 83**

- 83.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.
- 83.2 The *Contractor* provides the insurances stated in the Insurance Table A from the *starting date* until the earlier of Completion and the date of the termination certificate.

**INSURANCE TABLE A**

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage caused by the <i>Contractor</i> to the <i>Employer's</i> property	The replacement cost where not covered by the <i>Employer's</i> insurance.  The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
Loss of or damage to Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance.  The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
Loss of or damage to Equipment	The replacement cost where not covered by the <i>Employer's</i> insurance.  The <i>Employer's</i> policy deductible as at Contract Date, where covered by the <i>Employer's</i> insurance.
The <i>Contractor's</i> liability for loss of or damage to property (except the <i>Employer's</i> property, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i> ) arising from or in connection with the <i>Contractor's</i> Providing the Service	<b><u>Loss of or damage to property</u></b> The replacement cost  <b><u>Bodily injury to or death of a person</u></b> The amount required by the applicable law.
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

**Z 12.2 Replace core clause 86 with the following:**

**Insurance by the** 86

**Employer**

86.1 The *Employer* provides the insurances stated in the Insurance Table B

**INSURANCE TABLE B**

<b>Insurance against or name of policy</b>	<b>Minimum amount of cover or minimum limit of indemnity</b>
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document
Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document
Nuclear Material Damage and Business Interruption	Per the insurance policy document
Nuclear Material Damage Terrorism	Per the insurance policy document

**Z13 Nuclear Liability**

- Z13.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.
- Z13.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z13.3 Subject to clause Z13.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.
- Z13.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.
- Z13.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

**Z14 Asbestos**

For the purposes of this Z-clause, the following definitions apply:

**AAIA** means approved asbestos inspection authority.

<b>ACM</b>	means asbestos containing materials.
<b>AL</b>	means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.
<b>Ambient Air</b>	means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.
<b>Compliance Monitoring</b>	means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
<b>OEL</b>	means occupational exposure limit.
<b>Parallel Measurements</b>	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
<b>Safe Levels</b>	means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
<b>Standard</b>	means the <i>Employer's</i> Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.
<b>SANAS</b>	means the South African National Accreditation System.
<b>TWA</b>	means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

Z14.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.

Z14.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor's* expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z14.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

Z14.3 The *Employer* manages asbestos and ACM according to the Standard.

Z14.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.

Z14.5 The *Contractor's* personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan,



if applicable.

- Z14.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.
- Z14.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer's* expense, and conducted in line with South African legislation.
- Z15.1 The *Employer* will review the contract as and when (in accordance with the business needs) required and reserve the right to reduce the number of people or to terminate the contract if the service is no longer required.
- Z15.2 The *Employer* reserves the right to terminate the contract when Grootvlei Power station stop operating before the contract expires.
- Z15.2 The *Employer* reserves the right to terminate the contract when the contract value is exhausted or finished before the end of the contract period.

## C1.2 Contract Data

### Part two - Data provided by the *Contractor*

#### Notes to a tendering contractor:

1. Please read both the both the NEC3 Term Service Contract April 2013 and the relevant parts of its Guidance Notes (TSC3-GN)<sup>1</sup> in order to understand the implications of this Data which the tenderer is required to complete.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data.
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field **once** and type in the data. Otherwise complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is The <i>subcontracted fee percentage</i> is	% 0%
11.2(14)	The following matters will be included in the Risk Register	
11.2(15)	The Service Information for the <i>Contractor's</i> plan is in:	
21.1	The plan identified in the Contract Data is contained in:	
24.1	The key people are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job: Responsibilities: Qualifications:	

<sup>1</sup> Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 5391902 or [www.ecs.co.za](http://www.ecs.co.za)

Experience:

CV's (and further key person's data including  
CVs) are in .

A	Priced contract with price list		
11.2(12)	The <i>price list</i> is in		
11.2(19)	The tendered total of the Prices is	R	

**PART 2: PRICING DATA**  
**TSC3 Option A**

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	2
C2.2	The <i>price list</i>	[•]

## C2.1 Pricing assumptions: Option A

### 1. How work is priced and assessed for payment

Clause 11 in NEC3 Term Service Contract (TSC3) core clauses and Option A states:

<b>Identified and defined terms</b>	11	
	11.2	(12) The Price List is the <i>price list</i> unless later changed in accordance with this contract.
		(17) The Price for Services Provided to Date is the total of <ul style="list-style-type: none"><li>the Price for each lump sum item in the Price List which the <i>Contractor</i> has completed and</li><li>where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the <i>Contractor</i> has completed by the rate.</li></ul>
		(19) The Prices are the amounts stated in the Price column of the Price List. Where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate.

This confirms that Option A is a priced contract where the Prices are derived from a list of items of service which can be priced as lump sums or as expected quantities of service multiplied by a rate or a mix of both.

### 2. Function of the Price List

Clause 54.1 in Option A states: "Information in the Price List is not Service Information". This confirms that instructions to do work or how it is to be done are not included in the Price List but in the Service Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Service in accordance with the Service Information". Hence the *Contractor* does **not** Provide the Service in accordance with the Price List. The Price List is only a pricing document.

### 3. Link to the *Contractor's* plan

Clause 21.4 states "The *Contractor* provides information which shows how each item description on the Price List relates to the operations on each plan which he submits for acceptance". Hence when compiling the *price list*, the tendering contractor needs to develop his first clause 21.2 plan in such a way that operations shown on it can be priced in the *price list* and result in a satisfactory cash flow in terms of clause 11.2(17).

### 4. Preparing the *price list*

Before preparing the *price list*, both the *Employer* and tendering contractors should read the TSC3 Guidance Notes pages 14 and 15. In an Option A contract, either Party may have entered items into the *price list* either as a process of offer and acceptance (tendering) or by negotiation depending on the nature of the service to be provided. Alternatively the *Employer*, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the *Contractor* to include in the *price list* to be prepared and priced by him.

It is assumed that in preparing or finalising the *price list* the *Contractor*:

- Has taken account of the guidance given in the TSC3 Guidance Notes relevant to Option A;
- Understands the function of the Price List and how work is priced and paid for;
- Is aware of the need to link operations shown in his plan to items shown in the Price List;
- Has listed and priced items in the *price list* which are inclusive of everything necessary and incidental to Providing the Service in accordance with the Service Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;
- Has priced work he decides not to show as a separate item within the Prices or rates of other listed items in order to fulfil the obligation to complete the *service* for the tendered total of the Prices.
- Understands there is no adjustment to items priced as lump sums if the amount, or quantity, of work within that item later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the (lump sum) Prices is as a result of a compensation event.

#### 4.1. Format of the *price list*

(From the example given in an Appendix within the TSC3 Guidance Notes)

Entries in the first four columns in the *price list* in section C2.2 are made either by the *Employer* or the tendering contractor.

If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tendering contractor enters the amount in the Price column only, the Unit, Expected Quantity and Rate columns being left blank.

If the *Contractor* is to be paid an amount for an item of work which is the rate for the work multiplied by the quantity completed, the tendering contractor enters the rate which is then multiplied by the Expected Quantity to produce the Price, which is also entered.

If the *Contractor* is to be paid a Price for an item proportional to the length of time for which a service is provided, a unit of time is stated in the Unit column and the expected length of time (as a quantity of the stated units of time) is stated in the Expected Quantity column.

## C2.2 the *price list*

<b>GROOTVLEI POWER STATION</b>								
<b>The provision of electrical maintenance services</b>								
Item	Description	Unit	Quantity	Estimated Hours	Rate	One Month	No of Months	Contract Total
	<b>Section 1</b>							
	<b><u>Preliminaries and General</u></b>							
	-							
	<b><u>Preliminaries and General: Establishment (once off)</u></b>							
	<b><u>Office Facilities</u></b>							
	-							
1	Establishment - Parkhomes eating area	Sum	1				1	
	<b><u>Preliminaries and General: SHEQ (Annually)</u></b>							
2	<u>SHEQ</u>						5	
3	Safety file	Sum	1				5	
4	Safety and medical induction	no.	35				5	
5	Standard personal protective equipment	no.	35				5	

6	Arc flash suits	no.	35				5	
	<b><u>Preliminaries and General:</u></b>							
	<b><u>General costs (Monthly)</u></b>							
	<b><u>Transport</u></b>							
7	LDV's Double Cab	Month	1					
8	LDV's Single Cab	Month	2					
	<b><u>Materials and Equipment</u></b>							
9	Consumables - Sugar and Tea- Eskom to provide	Month	1				60	
10	Consumables (sanitary and cleaning materials)	Month	1				60	
11	Stationery and office expenses	Month	1				60	
	<b><u>Communication</u></b>							
12	Cellphones allowance - Manager	Month	1				60	
13	Cellphones allowance - Supervisors	Month	3				60	
	<b><u>Sub total</u></b>							
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Estimated</b>	<b>Rate</b>	<b>One</b>	<b>No of Months</b>	<b>Total amount</b>



				hours		Month		
	<b><u>Section 2</u></b>	-	-	-	-			
	<b><u>Management and Labour</u></b>							
	<b><u>Maintenance Rates</u></b>	-	-	-	-			
1	Site Manager	hourly	1	173			60	
2	Supervisor	hourly	3	173			60	
3	Electrical Technician	hourly	3	173			60	
4	Safety Officer	hourly	1	8			60	
5	Electrical Artisans	hourly	10	173			60	
6	Planner	hourly	1	173			60	
7	Semi-skilled Workers	hourly	12	173			60	
8	Store man	hourly	1	173			60	
9	Admin Clerk	hourly	1	173			60	
10	Master Installation Electrician	hourly	1	40			60	
11	Installation Electrician	hourly	1	173			60	
	<b><u>Overtime- Weekly days</u></b>							
	<b><u>and Saturday @ 1.5 factor</u></b>	-	-	-	-			
12	Section Leaders/ Supervisor	Hourly	3	20			60	
13	Technician	Hourly	3	20			60	
14	Artisans	Hourly	10				60	
15	Safety Officer	Hourly	1	20			60	
16	Planners	Hourly	1	20			60	
17	Semi-skilled Workers	Hourly	12	20			60	
18	Storeman	Hourly	1	20			60	
19	Installation Electrician	Hourly	1	20			60	

	<b>Overtime- Sunday and Public Holidays @ 2 factor</b>							
20	Section Leaders	Hourly	3	20			60	
21	Technician	Hourly	3	20			60	
22	Artisans	Hourly	10	20			60	
23	Safety Officer	Hourly	1	20			60	
24	Planners	Hourly	1	20			60	
25	Semi-skilled Workers	Hourly	12	20			60	
26	Storeman	Hourly	1	20			60	
27	Installation Electrician	Hourly	1	20			60	
	<b>Overtime- Standby</b>							
28	Section Leaders/ Supervisor	Hourly	3	20			60	
29	Technician	Hourly	3	20			60	
30	Artisans	Hourly	10	20			60	
31	Safety Officer	Hourly	1				60	
32	Planners	Hourly	1	20			60	
33	Semi-skilled Workers	Hourly	12	20			60	
34	Storeman	Hourly	1	20			60	
35	Installation Electrician	Hourly	1	20			60	
	<b>Sub Total</b>							
	<b>Total (Section 1&amp;2)</b>							

<b>Document reference</b>	<b>Title</b>	<b>No of pages</b>
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C3.2	<i>Contractor's Service Information</i>	
	Total number of pages	

## C3.1: EMPLOYER'S SERVICE INFORMATION

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# 1 Description of the service

## 1.1 Executive overview

The scope described in this document is for general electrical maintenance services, to be carried out by the Electrical Maintenance Department at Grootvlei Power Station, including Common Plant and Vaal Dam. The services support the Strategic objectives of Electrical Maintenance, Support Services, Emergency Breakdown Services, and Electrical Outages for all areas of Grootvlei Power Station's Electrical Plant, as per the Service Information. Services rendered are for the duration of the contract, from start date to completion date.

## 1.2 Employer's requirements for the service

### General Maintenance Services

The contractor does first line investigation and services on electrical plant at Grootvlei Power Station. Services are for the entire Electrical Plant of Grootvlei Power Station and associated facilities. The service are for all current and future installations, which shall include all electrical outage work, project installations, routine maintenance, repairs, inspections, cleaning, support services, statutory inspections, emergency breakdown services and defect correction during normal and abnormal plant condition or operation, to ensure the integrity of the electrical plant at Grootvlei Power Station.

These will include services on: Transformers, MV motors, LV motors, cables, MV switchgear, LV switchgear, High Voltage (HV), Medium Voltage (MV), and Low Voltage (LV) Distribution networks for AC and DC systems, power station lighting, electrical actuators, switching devices, control circuits, heater circuits and small power supplies which are contained within, but not limited to, the premises of Grootvlei Power Station.

### Cable Services

Cable services include: Testing of LV cables, tracing, commissioning of Power and Control cables. The services also include installation, maintenance, and repairs on earthing systems, as well as emergency breakdown and repair services of cables and earthing systems at Grootvlei Power Station for Electrical Maintenance and Projects.

### EMPLOYER'S OBJECTIVES AND PURPOSE OF THE SERVICE

The services are for the entire electrical plant maintenance of Grootvlei Power Station and associated facilities. The services are for all current and future installations which shall include all related electrical project installations, outage work, routine maintenance, repairs, inspections & cleaning, support services, statutory inspections, emergency breakdown services, structural repairs and defect correction during normal

and abnormal plant condition or operation, to ensure the integrity of the electrical plant at Grootvlei Power Station within the boundaries of the site.

The Service Provider shall through execution of the services ensure that all electrical systems are safe and operational. These will include transformers, drive motors, actuators, limit switches, control circuits, heater circuits, supply cables, and small power supplies which are contained within but not limited to the Coal, Ash, Boiler, Water treatment, Coal offloading facility, Sewage infrastructure and Turbine plants and its sub systems.

This is an all-inclusive maintenance package for all Electrical Systems at Grootvlei Power Station. The contract will include provision of support and emergency breakdown services for Grootvlei Power Station plant as per the Service Information. Services rendered are for the duration of the contract, from the start date to the completion date.

At the start of the contract, the Service Provider commits to ensuring that 50% of technical staff shall be authorized in terms of PSR (Low Voltage) and ORHVS (High Voltage) to be able to perform the activities covered in this specification. Failing to do so will result in a 5% deduction on monthly Gross labour charged effective after three months when the contract is in place/signed. Continuous failure to comply will lead to NCRs and possible termination of contract as per KPI requirements. The objective is to ensure that all

electrical plant receives the highest degree of attention in quality engineering, operational and maintenance, in alignment to South Africa National Standards (SANS).

NOTE: Not being fully accredited and compliant to below ISO standards for the duration of contract will automatically disqualify the Supplier for further evaluation.

- ☐ ISO 9001: Quality Management System.
- ☐ ISO 14001: Environmental Management.
- ☐ ISO 18001: Documentation Control; Occupational Health and Safety Management.

The maintenance and management of Electrical installations is to ensure that they are maintained and inspected to the highest degree in accordance with the SANS standards and the OHS Act, and to ensure that no injury or fatality will occur in relation to such installations that could have been anticipated or foreseen. The Service Provider shall through execution of the services ensure that all systems are safe and operational.

## **INTERFACE REQUIREMENTS**

Electrical Maintenance will interface with other departments or service Providers, some of whom will require the isolation, disconnection, reconnection, cleaning, installation and/or removal of components, wiring, equipment, or safe access to electrical systems. These activities are not excluded from the scope of Electrical Maintenance services

## **OPERATING PHILOSOPHY**

Grootvlei Power Station operates on a 24-hour basis, 7 days per week in continuous load following mode or as the Employer may deem necessary to provide sustainable electrical supply to the electrical network

## **MAINTENANCE PHILOSOPHY**

The Service Provider provides all services, specialized tools and Equipment, specialist personnel, and all associated maintenance services to accomplish and execute the requirements of the Service Information. The Service Provider provides specialist technical consulting services, which support the optimum and continuous operation of the Employer's assets on an "as and when" required basis.

The services are performed on existing and new installations and comply with good engineering and maintenance practices and standards for fossil fuelled power plants and conforms to the Legal, Environmental, Health and Safety, Quality and other Eskom specifications, procedures, standards and conditions prevailing at the Site.

In these terms, the Service Provider shall maintain, issue all legal documentation, and requirements, and certification to ensure compliance. Maintenance will be carried out in the following categories and Grootvlei follows the SAP computerised business Planning and Execution for maintenance services:

### **Corrective Maintenance**

Corrective maintenance is carried out after a failure has occurred and is intended to restore an item to a state in which it can perform its required function

### **Preventive Maintenance**

Preventative maintenance is carried out at pre-determined intervals, or corresponding to prescribed criteria, and is intended to reduce the probability of failure, or the performance degradation of an item.

### **Planned Maintenance**

Planned maintenance is the work performed during a planned (scheduled) outage of the specific plant or generating unit in question.

### **Routine Maintenance**

Routine maintenance is time-based maintenance work, performed with the plant either ON or OFF load

### **General Overhaul**

A General Overhaul (GO) is a declared outage when a Generating unit is taken off-line. During this outage, all plant having no redundancy is overhauled to ensure reliable and safe operation.

### **Mini General Overhaul**

During a mini GO, the following interventions will be attended to:

- a) Plant items with no redundancy and which will not remain reliable up to the next GO.
- b) Inspections of suspect plant items.

### **Opportunity Maintenance and Repairs.**

These are short outages between General Outages to enable essential repairs and inspections to be executed. The Service Provider maintains a list of issues to be attended to and repaired during short outages, with this list issued to Engineering on a weekly basis for comment and approval.

### **PLANT SAFETY REGULATIONS (PSR) AND OPERATING REGULATIONS FOR HIGH VOLTAGE SYSTEMS (ORHVS)**

The Service Provider ensures that all employees (Supervisory and Responsible) under his/her control are authorised in terms of both Eskom PSR and ORHVS site specific regulations for the duration of the contract. The Service Provider's staff are authorised within 3 months from the start date of the Contract, with all supervisors and Electricians authorised in terms of PSR and ORHVS. There is no Cost Element in this regard, as the training is Site Specific and for the Employer cost.

The Service Provider oversees and manages the health and safety of his/her own employees, and gives access to other parties on plant and equipment under the Service Provider's control in terms of ORHVS.

The Service Provider ensures that responsible and supervisory personnel are available at planned time of commencement for all work to be performed in line with Eskom's Permit to Work system (PSR and ORHVS). On arrival at site, a Risk Assessment is performed by a Competent or Responsible person in order to determine the nature of the Permit To Work required, the risk to Trip or Load Loss, as well as any preventative measures required to safely execute the work. The Service Provider supervises and manages the health and safety, and gives access to other parties on plant and equipment under the Service Provider's control in terms of ORHVS.

The Service Provider manages and maintains authorisation of his/her employees, maintains records of authorised employees, manages re-authorisation and reports statistics in a monthly site report to the Employer.

The Regulations are continually audited, the Service Provider assists and conforms to these audit requirements, implementing and rectifying findings and shortfalls.

Any violation to these regulations shall be investigated, and immediate corrective action taken towards complying, and corrective action against defaulting/non-adhering individuals. The Service Provider to take note of and adherence to the Eskom's Cardinal "Life Saving Rules", which are non-negotiable

### **MAINTENANCE AND MODIFICATION REQUIREMENTS**

Any modification to a cable system or electrical installation is regarded as a modification by default, unless stated otherwise by Engineering. The Service Provider follows the appropriate requirements for the specific level of plant modification, highlighting any deviations from the established design base. All upgrades and modifications will be approved by a professional engineer registered with ECSA, with experience in the field.

All breakdowns and callouts to the service Provider are logged in a call-out register, at a manned control room (EOD), with a reference number, time, date and nature of defect for record purposes.

Where certain aspects of the maintenance, management, modification or upgrade of services are contracted out, verification by experienced staff is required to ensure full compliance to legislation and applicable standards.

In cases where doubt exists regarding the correct identification of plant to be worked on, such plant will be proven by all means, until it could be verified for repairs, with all local isolation procedures to be followed according to PSR and ORHVS.

The competent Service Provider shall have a formal risk assessment process, identifying risks associated with the Services rendered for every service provided. The Service Provider implements a QCP for all activities carried out by the competent Service Provider.

### **Maintenance**

The Service Provider manages and maintains the Plant by adhering to all Legal, Site Regulations, policies, standards, and procedures when executing work. All personnel, equipment, spares or any material used to perform functions as outlined in this document shall be approved for use by the Employer, including but not limited to certification, expiration and qualification.

The Service Provider:

- a) Disconnects and reconnects required power cables as per cable and load schedules.



- b) Inspects, tests and repairs Earthing on all the Units and Common Plant when required.
- c) Issues Certificate of Compliance for work done as per referenced standards.
- d) Provides knowledge and recommendations on other plant falling within his/her field of expertise.
- e) Investigates, identifies and reports potential plant failures as per Task order.
- f) Recommends actions and modifications, as well as system and process changes.
- g) Participates in investigations, and attend meetings as required.
- h) Ensure efficient overall organisation of personnel and services.

The Service Provider issues a monthly report to the Service Manager as agreed between both parties. This report includes all work done to date, work in progress (including the status) and future work if an order is already in place during the preparation of the report, as well as any other work that the Service Provider is busy with. The report also includes a copy of all the invoices issued during that month.

The Service Provider communicates the decommissioning and/or removal of any unused cable to the Service Manager or authorised delegate before storage and/or removal of that cable in the designated area.

### **Plant Labelling, Coding, Notices and Signage**

The Service Provider demonstrates familiarity and compliance to the standardised KKS plant labelling system. The Service Provider inspects and maintains on continuous basis, all labelling, notices and signs of electrical equipment and plant under his/her control. All non-labelled or defective labelling shall be reported to the Employer for replacement, to be done by engineering Support Services.

All Notices and signs shall be affixed to the Plant, any discrepancies shall be reported, and repairs/replacement brought in effect. Deviations from approved plant status quo are loaded as defects on SAP system for repair. In instances where the Employer cannot provide labelling, provisions shall be made by the Service Provider to provide labelling according to Eskom requirements and specifications.

### **Substations**

The Service Provider manages, inspects and maintains all Grootvlei Electrical substations, according to Maintenance philosophies to be submitted separately:

- a) Monthly inspections shall be carried by the Service Provider and report on the status of each and every Electrical substation at Grootvlei.
- b) The Service Provider shall have an approved "Substation Inspection Sheet" detailing the Interventions of the Inspection, with section for defects observed, and defect numbers generated. This sheet will be kept on file for the Report, and submitted to Service manager.
- c) The inspection report shall observe as a minimum the following: Notices and Signs to be replaced, the building walls, floors, windows, doors, roofs and ceilings, water leaks, small power and lighting, cleanliness, earth leakage reporting, tripped circuitry, condition of switchgears, Earthing and cabling installation, loss and damage due to theft, general notifications observed, and remedial action taken.
- d) The substation is cleaned, debris is removed, the floor is swept and wet mopped, with the Ops Support team, tasked with cleaning activities, granted access by an approved person.
- e) No defective equipment or defective apparatus shall remain in a substation. It shall be cleared and discarded or returned to, in the correct manner as per conditions prevailing at site. No electrical consumables shall be left in the substation after maintenance (defective fuses, cleaning materials, defective components, etc.)
- f) All lighting circuits shall be inspected and ensure all substation lighting is in working order and repaired where required. This will be executed with the monthly inspection works packages as planned in the SAP system.
- g) All small power socket outlets shall be in working condition, labelled, safe and securely installed, any defective circuit and equipment shall be immediately repaired.
- h) All small power distribution boards inspected, cleaned, maintained, labelled according to latest SANS standards, and/or prevailing site conditions. Every Distribution board for domestic, and power circuits shall be affixed with an inspection sheet on inner door, Labelled 'Earth leakage Register" and shall be current at all times as prescribed in SANS 10142- "wiring of premises".
- i) Ensure after all services has been executed, all access and emergency exit doors are locked and operation of such doors and locks is in safe, reliable working condition. If the doors' locking mechanism is defective, inform the Service manager immediately, and generate a notification at Works Management department on SAP system for civil repairs;
- j) Ensure that all access and emergency escape routes are clearly demarcated and kept clear of any obstruction, this shall be maintained, and rectified immediately
- k) All notifications on the electrical and civil infrastructure are created, scheduled on SAP, and work executed to ensure compliance;

- l) Maintain a durable, neat and professional appearance of doors, floors, walls, and ceilings by repairing and painting as and when required this is executed by Civils contract; where an instruction is issued by the Service manager to bring repairs into effect, it will form part of the price List
- m) Ensure demarcation of panels and electrical infrastructure and compliance to "Arc flash boundaries" as per site engineering specification. The Service Provider ensures the installation and upkeep of "back access barriers" to enforce limited access to back of Switchgear panels
- n) The Service Provider shall attach and maintain the "Arc Flash Boundary" stickers on all Switchgear panels. This sticker is obtained from Electrical Engineering Department, who has the correct designs. The Service Provider shall at request of the Service manager, have such labels made according to the design. This will form part of the Price List
- o) The Service Provider ensures and puts measures in to place, as to keep the area clean and free of dust;
- p) All repairs/alterations that involve modifications shall be approved through the Grootvlei Change Management process via the Electrical Engineering department to conform to latest Legal, and Eskom requirement and specifications prevailing at the site;
- q) Ensure that all required safety signs and notices is available, and are applied to substations and maintained to the requirements stated in this document;
- r) Standard Electrical Safety Signs and notices will form part of the Price List
- s) Notices and Signs shall at all times be affixed at Substations, any faded and missing Notices and Signs shall be replaced. The Service Provider shall note such a defect and replace it. Notices and signs shall form part of the Price List.
- t) Ensure that all safety equipment required (i.e. fire extinguishers) at the substation or in the substation are available or made available (by the employer) ,inspected at required intervals and placed in demarcated areas;
- u) Ensure and enforce the use of required safety equipment and personal protective equipment when entering the substations, as per Eskom minimum requirement;
- v) Arc Flash overalls are manufactured at a Specific Standard, and to ensure Compliance, the Employer shall provide such overall to the Service Provider. There is no cost element for Arc Flash overalls.

### **Low Voltage Power Systems and Distribution Cubicles**

The Service Provider manages, inspects and maintains on a monthly basis all Grootvlei electrical Distribution boards installed in the Plant, offices and buildings, and to ensure that all installations comply and conform to Legislation, and SANS wiring codes of practice, whether listed or not;

- a) All low Voltage distribution boards are inspected, cleaned, maintained, labelled according to latest SANS standards, and/or prevailing site conditions;
- b) A durable, neat and professional appearance of distribution boards and sub cubicles are maintained by replacing or repairing and painting as and when required; all face plates and black plates shall be available, and doors shall be lockable with the required hinges and locking mechanisms, conforming to SANS 10142 and SANS Switchgear installations up to including 10KA.
- c) IP Ratings as prescribed in SANS 10142 shall be maintained at all times, deficiencies shall be rectified.
- d) Demarcation and labelling of panels shall be done to ensure compliance to "Arc flash boundaries" as per site engineering specification.
- e) Ensuring all installations conform to requirements of hazardous zone classification "Electrical Installations in explosive Atmospheres".
- f) Ensuring that all safety covers and locking devices are affixed.
- g) Testing of all safety devices and Earth leakage units within or feeding from the Distribution boards with approved test equipment to the latest legal, and Eskom Standards.
- h) Ensures that the equipment is tested on regular intervals as legally specified in the Standards.
- i) Immediately replaces any circuit breaker or Earth leakage unit, with a comparable unit when it becomes apparent that such equipment is defective.
- j) Maintains a register of each Distribution board wherein all data of tested or replaced devices are tabled. The register will be affixed inside the panel door of the Distribution Board.
- k) All Low Voltage socket outlets are in working condition, labelled, safe and securely installed, robust and appropriate for the intended environment and application.
- l) All cabling, trunkings, cable racks and support systems are securely installed, earthed, bonded and supported to the required standards.

- m) Installed additions are as per engineering specification and engineering change process, and issue required Certification of Compliance (CoC).
- n) The Service Provider shall ensure that all Electrical Installations are audited for Compliance, rectify deficiencies, and issue Certification of Compliance (CoC).
- o) All defects noted on the electrical and civil infrastructures are reported, and notifications are created on SAP, scheduled and work executed to ensure compliance.

## Lighting

Only approved lighting fixtures and illuminates shall be installed and maintained at Grootvlei Power Station. The approval is done by the Research Testing Development Department (RT&D) of Eskom Holdings. Electrical Engineering Department will approve and have the approved lists of fixtures and illuminates.

It is to be noted that certain LED fixtures might interfere with control signals, and therefore approval shall be obtained for every change request or in a new installation. The Service Provider manages, inspects and maintains on a continuous basis all Grootvlei lighting systems in the Plant, Lifts/escalators and lift shafts, Pits, Offices, Buildings, Structures, Security fencing, Access Routes, and Substations to ensure that:

- a) All areas conform to illumination level requirement as per OHSACT, Act 85 of 1993, and Environmental legislation.
- b) All lights on Grootvlei Power Station in all areas are in good working condition, and fittings, fixtures, and lenses are cleaned on regular basis.
- c) All covers, fittings and fixtures are affixed and maintained in a professional appearance.
- d) All cabling, trunkings, cable racks and support systems are securely installed, earthed, bonded and supported to the required standards.
- e) Installed additions are as per engineering specification and engineering change process, and issue required Certification.
- f) Energy Saving is promoted through the use of Eskom approved energy efficient fittings and fixtures.
- g) day-night control, and or motion detection systems on substations and out buildings light circuits is installed and maintained without impairing on health and safety of people.
- h) All installations conform to requirements of "Electrical Installations in Explosive Atmospheres" and to the hazardous zone classification documentation for Grootvlei where so applicable.

### Lighting installations shall be taken to include but not limited to:

- i) Solar lighting systems.
- j) LED systems.
- k) High pressure sodium and mercury systems.
- l) Fluorescent lighting.
- m) Floodlighting systems.
- n) DC standby lighting systems.
- o) Battery back-up fixtures in AC systems.

## STATUTORY TESTING OF ASSETS, PLANT, EQUIPMENT AND EARTH LEAKAGE RELAYS

Statutory Plant and Equipment refers to any plant safety or protection device and any plant, structure, item or equipment referred to in the OHS Act "Regulations," and for which there is a specific technical action and/or inspection periodicity.

Wherever applicable to Electrical Plant, the relevant statutory regulations apply, based on the requirements of the Occupational Health and Safety Act No 85 of 1993. The Service Provider ensures that all the Statutory Maintenance requirements are being managed and maintained accordingly.

The Service Provider adheres to, maintains the assets, Plant, Equipment and registers for all portable electrical equipment of the Employer to ensure that:

- a) Statutory inspection and testing intervals of assets as per legal requirement is carried out.
- b) The asset registers are current.
- c) Repairing of defective equipment to its original designed state.
- d) Appointments of competent persons is in writing.
- e) Affected parties are notified before testing commences.
- f) Scrapping of unsafe equipment done through the Asset Management department.
- g) Replacing of any safety device, plant item, and circuit breaker or Earth leakage unit, or Safety device is with a comparable unit when it becomes apparent that such equipment is defective.

## Maintenance on 6,6kV Boards and Switchgear

The Service Provider inspects and maintains all Grootvlei Electrical Switchgear according to OEM specifications and documentation, and in line with all statutory regulations.

Maintenance of Switchgear will be executed during "Routine Maintenance", "Opportunity Maintenance", "General Outage", or where an Emergency Breakdown has occurred, and the total Electrical board requires shutting down and repairs under emergency circumstances.

**NOTE: The following conditions are NON-NEGOTIABLE:**

Under no circumstances will it be allowed by the Employer that, when work is executed, fixtures and fasteners are removed, panels opened, wires disconnected, without the Service Provider having met the following conditions, which are non-negotiable:

- a) Every panel's items will be bagged, tagged, and kept to the specific tier of the panel.
- b) No tier/panel equipment's, fasteners, bolts, and nuts will be mixed or interchanged with another tier on the same Switchgear panel.
- c) Every piece or item removed, replaced, or used will be accounted for. For this purpose the Service Provider shall have check sheets logging all items to the specific panel and tier.
- d) On completion of a task, no removed items shall not have been replaced, or be misplaced, or be unaccounted for.
- e) Good Housekeeping principles shall be observed at all times.
- f) The Service Provider shall have an up-to-date register of all tools used and available at the worksite.
- g) The tool register shall be monitored and continually updated by the person in charge of the worksite.
- h) All tools and equipment signed in to the workplace, shall at the completion of the work, be signed out and accounted for. Any tool not being accounted for shall require the works to be inspected, until such missing piece is accounted for.

**Routine Maintenance Requirements: Switchgear**

The Service Provider shall make use of the SAP system and attend to Notifications as per arrangement with Works Management process. The service Provider will carry out inspections on the externals of the Switchgear panels, and observe any defects visually, and execute repairs to these defects. The following is required, but not limited to:

- a) Ensure the Safety of personnel entering the Switchgear Substation.
- b) Wearing the correct Personal Protective Equipment (PPE).
- c) All surroundings to the Switchgear Panels and electrical equipment are kept clean, and dry.
- d) Ensuring that the Switchgear Substation is clean, and free from debris. Arrange and action the Cleaning interventions with others.
- e) All KKS coding and Labelling is according to drawings, and all items are labelled accordingly. Defects are noted, repaired with immediate effect.
- f) All indication LED's for circuit-breaker position is tested and replaced if defective.
- g) All panels and covers are inspected to ensure it's completely closed, fastened, secure, and locked to ensure "ARC flash" type testing compliance. Any defect will be logged into SAP and repaired.
- h) Replace any cracked or broken "Vision panels", and Relay covers.
- i) Ensure all Ammeters and Voltmeters are operative, notifications to be raised on SAP for investigation, testing and repair.
- j) Inspection of main station Earthing system on the Switchgear panels.
- k) All Safety Signs, Arc Flash Boundary Stickers, and Notices regarding the Switchgear are affixed to the boards as per Site requirement.
- l) Ensure that there is Barriers installed at the REAR of Switchgear in order to Limited access to this area;
- m) Investigate individual faulted circuits, on request of Grootvlei OPS department. Inspect and test individual Contactor and Circuit-breaker circuits when it fails to Rack in and Rack out, fails to Trip or Close a circuit, and take the necessary actions to rectify, abiding by the Site Regulations, especially the required Permit To Work (PTW) systems.
- n) Exchange individual Contactors, and Circuit-breakers which are proven to have failed. Follow Site process to withdraw and return failed and faulty items to the Eskom Warehouse/stores.
- o) Exchange auxiliary faulted equipment such as Fuses, Relays.
- p) Give access to others with regards to work to be executed in Switchgear Substation.
- q) Touch up of paintwork are done on panels with minimum thickness of 40-50µm;
- r) All routine inspection and repair will be executed in line with the OEM specifications.

**Opportunity maintenance Requirements: Switchgear**

The Service Provider shall make use of the SAP system, and attend to Notifications as per arrangement with Works Management process.

The Service Provider will carry out inspections on the internals and externals of the Switchgear panels, and observe any defects and execute repairs to these defects.

For executing Opportunity Repairs, the Service Provider shall prepare a "Program with a detailed Scope of Work", listing the observed Defects which require repair, and which could not have been legally executed on Routine repairs, due to limitations, or dangers involved with the Switchgear being ALIVE.

The Service Provider shall make a request for Switchgear Maintenance to the Employer, submitting the detailed Program, with interventions and durations for each Task.

The following is required, but not limited to:

- a) Repairs of main and control circuitry.
- b) Testing and repair of Breakers and Contactors.
- c) Testing of interlock positions on all breakers, Contactors, and Individual Tiers.
- d) Verifying the tightness of electrical connections on control wiring.
- e) Verifying the tightness of electrical connections of power circuit cables and verifying the torque settings.
- f) Faulty Breakers and Contactors are replaced. Exchange individual Contactors, and Circuit-breakers which are proven to have failed. Follow Site process to withdraw and return failed and faulty items to the Eskom Warehouse/stores.
- g) Inspection and repairs of Earth Switch devices are done.
- h) Lubrication of moveable parts as per OEM guidelines is executed.
- i) Replacement of any worn parts is done.
- j) Repairs to "Castle key" lock-out systems is done
- k) Cleaning of breaker compartment.
- l) Cleaning of Control Circuits (relay) compartment.
- m) Cleaning of Breakers and Contactors, and lubricating contact tulips.
- n) The repair of any other identified Defect that might impair the correct functioning of any component in connection with the Switchgear being worked on.
- o) On any Plant or item where the Service Provider fails to rectify or execute the services, the Service Provider shall arrange with the OEM (Equipment Manufacturer) to repair such deficiency. The Employer shall only assess the amounts the Employer directly acquired from the OEM. The Service Provider pays the Employer.

### **General Outage, Mini Outage (GO) Requirements: Switchgear**

The Service Provider shall make use of the SAP system, and attend to Notifications as per arrangement with Works Management process.

The Service Provider manages and maintains the Switchgear scheduled for the Outage by adhering to all Legal, Site Regulations, Policies, standards, and Procedures when executing work under Outages.

The Service Provider ensures that he/she does not unnecessarily keep Switchgear Plant on the PTW system, in order to assist in the prevention of Cable theft.

### **General requirements**

The following general requirements are adhered to:

- a) The Service Provider provides resources to the Employer's Outage department for execution of the Services.
- b) The Service Provider attends to all the Outage meetings as Scheduled by the Outage department, and represents the Employer.
- c) The Service Provider attends all scheduled Planning meetings and schedules the work according to the Outage Schedule.
- d) The Service Providers do not cause delays.
- e) The Service Provider follows the due processes to remove faulty equipment, and requests new equipment from the Outage department, which will be issued from Grootvlei stores.
- f) The Service Provider plans the services in such manner as to minimize any delays and overtime.
- g) The Service Provider submits the Outage Plan, with the detailed Engineering Scope of Work for the services to be executed.
- h) The Service Provider drafts an ITP (Inspection and Test Plan) for each Activity included in the Work, detailing the interventions or tasks, with the required signatories.
- i) The Service Provider gets Engineering ITP approval before Works commence.
- j) The Service Provider notifies the Quality department, the Employer, and the Client (Engineering) of all Witness, and Hold points that need to be signed off, before he carries on with the work.
- k) The Service Provider immediately rectifies all deficiencies and discrepancies noted in the ITP.
- l) The Service Provider executes all work as detailed in the Engineering Scope of Work.

- m) The Service Provider provides all means to execute the services.
- n) The Service Provider strips down electrical plant, cleans, inspects, repairs, replaces, and rebuilds the plant to its original state in which it can perform its designed functions.
- o) The Service Provider shall not interfere with, or make changes to any apparatus, unless specifically instructed to do so by the appointed Eskom representative, in writing.
- p) The Service Provider makes use of the OEM (Original Equipment Manufacturer) Specifications and Requirements to restore plant and equipment to its original state.
- q) As far as reasonably practicable, the Service Provider ensures that a "Clean Condition Area" is maintained during the execution of services, whereby he will be able to account at all times, for all equipment, and tools used in the area where the service is executed. Refer to the non-negotiable conditions for Switchgear maintenance in Section 4.4.1.
- r) No interchanging of panels, segregations, fixtures, or items stripped-down on Electrical Switchgear, unless specifically instructed to do so by the appointed Eskom representative, in writing. Wherever possible, items will be marked and replaced in their original positions. Every item or fixture removed will be kept in an allocated container for the panel.
- s) Any missing or stripped fixture or fitting will be replaced.
- t) The employees of the Service Provider shall not maliciously damage any part or component in the plant, and greatest care shall be exercised in the execution of their duties.
- u) All equipment, parts, or spares removed or stripped down from the works shall be counted, listed, bagged, tagged, stored, and signed into, and signed out of, a predetermined outage storage area. It will be the responsibility of the Service Provider to account for each item of the service. The Service Provider shall have check sheets, and registers updated at all times to assist in this regard. Refer to the non-negotiable conditions for Switchgear maintenance in Section 4.4.1.
- v) The Service Provider arranges with Works Management Department to supply him/her with the necessary SAP documentation (PM's and WO's). The Service Provider completes the service information in full, for historical and tracking purposes.
- w) The Service Provider signs off the Works Orders, detailing the condition of the Plant as found, the status after repairs, and the activities carried out to the plant to restore it to a state in which it can perform its required functions.
- x) The Service Provider compiles a detailed Outage report to the Employer, for all the activities covered in an outage and keep records (filed).
- y) The Service Provider keeps Certificates, test sheets, inspection reports available, and attached in the report.

## **Technical Requirements**

### **The Service Provider carries out the following:**

- a) Ensures the Safety of personnel entering the Switchgear Substation, wearing the correct Personal Protective Equipment (PPE), and cleaning all surroundings to the Switchgear Panels and electrical equipment, ensuring that Switchgear Rooms and Substations are clean, and free from debris, arranging and carrying out the cleaning interventions with others.
- b) All Safety Signs, Arc Flash Boundary Stickers, and Notices regarding the Switchgear are affixed to the boards as per Site requirement. Ensure that there is Barriers installed at the REAR of Switchgear in order to Limited access to this area.
- c) Ensures that all KKS coding and labelling is according to drawings, and that all items are labelled accordingly. Defects are noted and repaired with immediate effect.
- d) Inspection, testing of main station Earthing system on the Switchgear panels, repairing where necessary. Inspects and repairs Earth Switch devices.
- e) Verifying the tightness of electrical connections on control wiring, tightness of electrical connections of power circuit cables and verifying the torque settings.
- f) Indication LEDs for circuit-breaker positions are tested and replaced if defective. All panels and covers are inspected to ensure it can completely close, fastened, secure, and locked to ensure "ARC flash" type testing compliance. Ensures all Ammeters and Voltmeters are operative, tested and repaired where necessary, replacing any cracked or broken "Vision panels" and Relay covers.
- g) Investigate individual faulted circuits and give access to others with regards to work to be executed in Switchgear Substation. Testing of interlock positions on all breakers, Contactors, and Individual Tiers, repairs of

main and control circuitry, testing and repair of Breakers and Contactors. Faulty Breakers and Contactors are replaced. Exchange individual Contactors, and Circuit-breakers which are proven to have failed.

h) Removes all MV Breakers and Contactors during the start of the General Outage, assesses the condition, and determines whether it should be serviced only, and/or be repaired at the OEM factory, following due processes to remove faulty equipment, and requesting new equipment from the Outage Department, which will be issued from Grootvlei stores.

i) Follows Site process to withdraw and return failed and faulty items to the Eskom Warehouse/stores.

j) Cleaning of all Switchgear Panels, cleaning of Control Circuits (relay) compartments, cleaning of Breakers and Contactors and lubricating contact tulips..

k) Lubricates moveable parts as per OEM guidelines. Replaces any worn parts.

l) Repairs "Castle key" lock-out systems.

m) Repairs any other identified Defect that might impair the correct functioning of any component in connection with the Switchgear being worked on.

n) Touch up of paintwork are done on panels with minimum thickness of 40-50µm;

On any Plant or item where the Service Provider fails to rectify or execute the services, the Service Provider shall arrange with the OEM to repair such deficiency.

o) The Employer shall only assess the amounts the Employer directly acquired from the OEM.

p) The Service Provider pays the Employer.

q) The Service Provider manages the access and permits on behalf of the Employer on plant under his/her control.

r) The Service Provider hands over the Plant to the Employer, ensuring that the plant will function to its desired designed state.

#### Maintenance on 380V AC Boards and Switchgear

The Service Provider inspects and maintains all Grootvlei Electrical Switchgear according to OEM specifications and documentation, and in line with all statutory regulations. Service Provider attends to all protection equipment and relays in 380V AC boards excluding main incomer, which is done by others.

Maintenance of Switchgear will be executed during "Routine Maintenance", "Opportunity Maintenance", "General Outage", or where an Emergency Breakdown has occurred, and the total Electrical board requires shutting down and repairs under emergency circumstances.

While maintaining electrical Switchgear at Grootvlei, the Service Provider ensures that the following is done on a monthly basis:

a) All KKS coding and Labelling is according to drawings, and all items are labelled accordingly. Defects are noted, repaired with immediate effect.

b) All indication LED's for circuit-breaker position is tested and replaced if defective.

c) All panels and covers are inspected to ensure it can completely close, fastened, secure, and locked to ensure "ARC flash" type testing compliance. Any defect will be repaired.

d) Replace any cracked or broken "Vision panels", and Relay covers.

e) Ensure all Ammeters and Voltmeters are operative, test and repair.

f) Inspection, testing of main station Earthing system on the Switchgear panels, and repair.

g) All Safety Signs, Arc Flash Boundary Stickers, and Notices regarding the Switchgear are affixed to the boards as per Site requirement.

h) Repairs of main and control circuitry is done during breakdown.

i) Testing and repair of circuits is done during abnormal conditions.

j) Faulty components are replaced on one to one basis.

k) Lubrication of moveable parts are executed as per OEM guidelines.

l) Touch up of paintwork on panels is done.

m) Replacement of any worn and defective parts is done.

n) Planning and execution of maintenance on non-unitised boards are done.

o) All routine inspection and repair, carried out in line with OEM specifications.

## Outage Requirements

### General Requirements

During outages, the Service Provider carries out the following:

a) Manages and maintains the Switchgear scheduled for the Overhaul or Outage by adhering to all Legal, Site Regulations, Policies, standards, and Procedures when executing work under Outages.

b) Ensures that he/she does not unnecessarily keep Switchgear Plant on the PTW system, in order to assist in the prevention of cable theft.

c) Provides resources to the Employer's Outage department for execution of the Services.

- d) Attends all the Outage meetings as Scheduled by the Outage department, and represents the Employer.
  - e) Attends all scheduled Planning meetings, and schedules the work according to the Outage Schedule.
  - f) Does not cause delays.
  - g) Follows due processes to remove faulty equipment, and request new equipment from the Outage department, which will be issued from Grootvlei stores.
  - h) Plans the services in such manner as to minimize any delays and overtime.
  - i) Submits the Outage Plan, with the detailed Engineering Scope of Work for the services to be executed.
  - j) Drafts an ITP (Inspection and Test Plan) for each Activity, for the Work, detailing the interventions or tasks, with the required signatories.
  - k) Secures Engineering approval for all the ITPs before Works commence.
  - l) Notifies the Quality department, the Employer, and the Client (Engineering) of all Witness, and Hold points that needs to be signed off, before he/she carries on with the work.
  - m) Immediately rectifies all deficiencies and discrepancies noted in the ITP.
  - n) Executes all work as detailed in the Engineering Scope of Work.
  - o) Provides all means to execute the services.
  - p) Strips down plant, clean, inspects, repair, replace, and rebuild the plant to its original state to restore it to a state in which it can perform its designed functions.
  - q) Does not interfere with, or make changes to any apparatus.
  - r) Makes use of the OEM Specifications and Requirements to restore plant and equipment to its original state.
  - s) As far as reasonably practicable, the Service Provider ensures that a "Clean Condition Area" is maintained during the execution of services, whereby he will be able to account at all times, for all equipment, and tools used in the area where the service is executed.
  - t) No interchanging of panels, segregations, fixtures, or items stripped-down on Electrical Switchgear. Items will be marked and replaced in its original position. Every item or fixture removed will be kept in an allocated container for the panel. Any missing or stripped fixture or fitting are replaced.
  - u) The employees of the Service Provider shall not maliciously damage any part or component and greatest care shall be exercised in the execution of their duties.
  - v) All equipment, parts, or spares that are removed or stripped down from the works shall be counted, listed, bagged, tagged, stored, and signed into, and signed out of, a predetermined outage storage area. It will be the responsibility of the Service Provider to account for each item of the service. The Service Provider shall have check sheets, and registers updated at all times to assist in this regard. Refer to the non-negotiable conditions for Switchgear maintenance in Section 4.4.1.
  - w) The Service Provider arranges with Works Management Department to supply him/her with the necessary SAP documentation (PMs and WOs), and completes the service information in full, for historical and tracking purposes.
  - x) The Service Provider signs off the Works Orders, detailing the condition of the Plant as found, the status after repairs, and the activities carried out to the plant to restore it to a state in which it can perform its required functions.
  - y) The Service Provider compiles a detailed Outage report to the Employer, for all the activities covered in an outage and keeps records in an easily accessible hardcopy filing system, such as certificates, test sheets, inspection reports available, also attached in the Outage report.
- #### 4.4.6.2 Technical Requirements
- To fulfil the technical requirements, the Service Provider carries out the following:
- a) Removes all LV Breakers assess the condition, and determine whether it should be serviced only, and/or be repaired at the OEM factory.
  - b) Follows due processes to remove faulty equipment, and request new equipment from the Outage department, which will be issued from Grootvlei stores.
  - c) Ensures the Safety of personnel entering the Switchgear Substation, wearing the correct Personal Protective Equipment (PPE).
  - d) Ensures that the Switchgear Substation, all surroundings to the Switchgear Panels and electrical equipment, is clean, dry and free from debris. The Service Provider arranges and carries out the Cleaning interventions with others.
  - e) Ensures that all KKS coding and Labelling is according to drawings, and all items are labelled accordingly. Defects are noted, repaired with immediate effect.
  - f) All indication LEDs are tested and replaced if defective.
  - g) All panels and covers are inspected to ensure it can completely close, fastened, secure, and locked to ensure "ARC flash" type testing compliance. Any defect will be repaired.



- h) Replace any cracked or broken "Vision panels" and covers.
  - i) Ensure all Ammeters and Voltmeters are operative, tested and repaired where necessary.
  - j) Inspection, testing of main station Earthing system on the Switchgear panels, and repair.
  - k) All Safety Signs, Arc Flash Boundary Stickers, and Notices regarding the Switchgear are affixed to the boards as per Site requirement.
  - l) Investigate individual faulted circuits.
  - m) Give access to others with regards to work to be executed in Switchgear Substation.
- 
- n) Touch up of paintwork are done on panels with minimum thickness of 40-50µm;
  - o) Repairs of main and control circuitry is done.
  - p) Testing and repair of Breakers and individual circuits to motor feeders.
  - q) Verifying the tightness of electrical connections on control wiring.
  - r) Verifying the tightness of electrical connections of power circuit cables and verifying the torque settings on busbars.
  - s) Faulty Breakers and Contactors are replaced. Exchange individual Contactors, and Circuit-breakers which are proven to have failed.
  - t) Follows Site process to withdraw and return failed and faulty items to the Eskom Warehouse/stores.
  - u) Inspects and repairs Earth Switch devices.
  - v) Lubricates moveable parts as per OEM guidelines.
  - w) Replaces any worn parts.
  - x) Cleaning of all the Switchgear Panels.
  - y) The Service Provider manages the access and permits on behalf of the Employer on plant under his/her control.
  - z) The Service Provider hands over the Plant to the Employer, ensuring that the plant will function to its desired designed state.

#### **Maintenance on LV (DC) Switchgear (Unitised) and Diesel Generator**

The purpose of the existing 220VDC boards are only for DC back up when the AC power to the 380V Essential Board fails.

As per requirements stated in this document, the Service Provider carries out all maintenance as required for full functional operation as per OEM requirements, as and when outages allow.

The Service Provider also ensures that the diesel generator is fully functional, confirming this on a weekly basis with the Ops Department and immediately servicing the diesel generator when required, as per OEM requirements, with further details included in Section 4.4.15.

Maintenance on Transformers

#### **Large Power Transformer (≥ 2MVA)**

The Service Provider manages, inspects and maintains all large Grootvlei transformers on a monthly basis according to referenced standards and Grootvlei specific maintenance procedures. The Service Provider carries out the following:

- a) Arranges for, issues, and maintains PTW and supervises the operations executed on transformers, and gives access to others in connection with work on transformers.
  - b) Inspects for all the required Notices, safety signs, and required labels on the transformers, and bays, PCB labels, to be attached, visible, and in good order. Develops an Inspection sheet, to be used to inspect and note any deviations.
  - c) Transformer bays are inspected and maintained by ensuring a neat and professional appearance through cleaning and sweeping the bay areas, removing any vegetation growth. Enclosures, and wire fences of the bays are maintained, deviations observed must be logged and notifications must be raised on SAP system.
- 
- d) Inspection of oil levels in conservator tanks are done, deviations noted, arranging for oil top-up. Inspection for oil leaks and clean up leaks, arranging for repairs to be executed. Arranges access for oil top up on large transformers. Arranges access for oil samplers on all transformers.
  - e) Installs temporarily supplies, and temporarily lights to transformer bays, certifying the installations for the use of Mobile oil purification and outage work.
  - f) Inspects and maintains breathers, breather seals and gaskets, replaces silica gel when more than 30% discolouration is evident, using only Eskom approved type silica gel. Inspects oil level in breather oil seal bowl, topping up or replacing oil when required. Assists with oil sampling, arranging access for any other parties.
  - g) Inspects and cleans Bushings, noting all defects, and carrying out repairs as per maintenance strategy. Inspects Earthing, repairing Earthing defects and testing for Earthing continuity.

- h) Inspects transformer paintwork, maintaining or touching up.
- i) Inspects, tests and maintains electrical circuits of cooling fans and oil pumps. Inspects and maintains Oil Flow Indicators to cooler radiators. Maintains oil cooler radiators by ensuring free airflow, preventing blockages, removing and cleaning debris from the coolers.
- j) Removes and installs electrical motors which have failed. Visually inspects and maintains instrumentation, relays, wiring and looms for obvious damage and cleanliness.
- k) Inspects and maintains Marshalling kiosks and junction boxes to ensure that the door seals are intact, doors are fit for purpose, windows are clean, door locks are operative, Earthing is effective and enclosure stays vermin proof.
- l) Ensures kiosk lights are operative and limit switches working.
- m) Inspects all wiring of all Power and Control circuits, and ensures that tight and correct connections in marshalling kiosks are maintained for field instrumentation and equipment.

n) Ensures that Oil temperature and Winding temperature indicators are correctly labelled and operative. Ensures that Oil temperature and Winding temperature indicators are set to correct alarm and trip levels, as provided by Protection Service Provider onsite (currently PTM).

o) Inspects and maintains pipe work, valves, nozzles and rupturing bulbs on Fire deluge system, working with others so that system is maintained in good condition with no leaks.

p) Ensures that all valves on the transformer are in correct "In Service" operating positions, especially on oil breathers, Buchholtz relays and conservator tanks.

q) Replaces any defective or worn auxiliary equipment, such as contactors, overload relays, control and power wiring.

r) Disconnecting and reconnecting of all HV, MV, and LV, and Control cabling and wiring. Disconnecting and reconnecting main transformer busbar flexibles and connections. Maintaining busbar ducting cleanliness, connections, and air pressurization systems.

s) First line maintenance of external interfaces of Kelman/Serveron online transformer gas analysers, including supplies, loose connections and pipe work.

t) Reporting and repairing any other defects observed during routine maintenance.

This document will further prescribe what maintenance tasks need to be done based on the criticality of the equipment. The scope excludes fire protection system operating and maintenance and electrical protection engineering and design.

The Service Provider refers to the following documents when carrying out maintenance on transformers:

OEM maintenance manuals.

b) GGPP1344: Control of Works Performed on Transformers.

c) GGS0178: Maintenance of Power Transformers.

d) GGS0828: Clean Conditions for Power Transformers.

e) GGG0994: Transformers Hand Condition Monitoring Guideline.

f) GGS1026: Sampling and testing of mineral insulating oil.

g) 32-406: Mineral Insulating Oils (Uninhibited and Inhibited), Part 1

### **Small Power Transformers/Auxiliary transformers**

The Service Provider manages, inspects and maintains all small Grootvlei transformers according to referenced standards and maintenance procedures. The Service Provider carries out the following:

- a) Arranging for, issuing, and maintaining PTW and supervising the operations executed on transformers.
- b) Giving access to others in connection with work on transformers.
- c) Inspecting for all the required Notices, safety signs, and required labels on the transformers, and bays, PCB labels, to be attached, visible, and in good order.
- d) Inspection and maintenance of Transformer bays, ensuring a neat and professional appearance through cleaning and sweeping the bay areas, removing any vegetation growth.
- e) Maintenance of enclosures, and wire fences of the bays, with observed deviations logged and notifications raised on SAP system.
- f) Inspecting of oil levels in conservator tanks, with deviations noted, arranging for oil top-up when required.
- g) Do inspections for oil leaks and clean up leaks, arranging for repairs to be executed.
- h) Supply of top-up oil in 20 Litre containers, including certification, as per Eskom oil specification for top-up requirements on auxiliary transformers.

- i) Inspection and maintenance of breathers, breather seals and gaskets, replacing of silica gel when more than 30% discolouration is evident, using only Eskom approved type silica gel.
- j) Inspecting oil level in breather oil seal bowl, topping up or replacing oil as and when required.
- k) Inspecting and cleaning Bushings, noting all defects and repairing as per maintenance strategy.
- l) Inspecting Earthing, repairing Earthing defects and testing for Earthing continuity.
- m) Inspecting transformer paintwork and maintaining or touching-up.
- n) Assisting with oil sampling.
- o) Arranging access for any other parties.
- p) Disconnection and reconnection of all HV, MV, LV and Control cabling and wiring.

### **Earthing and Station Earth Mat**

The Employer submits drawings to Service Provider detailing earth mat reference points. These reference points are to be marked and clearly identified on the plant. The Service Provider manages, inspects and maintains on a monthly, quarterly and annual basis all Grootvlei Earthing to ensure that:

- a) Earthing complies with relevant Eskom and statutory standards.
- b) Visual inspections are carried out on all plant systems to ensure the integrity of the Earthing system.
- c) Visual inspections are carried out on cable racking to ensure the integrity of the earthing system.
- d) Correct bonding and earthing practices are maintained, and all bolted earthing systems are clean and making a tight connection.
- e) Reporting any defective earthing system, or missing earthing system to the Employer for immediate replacement.
- f) A detailed (including missing and/or loose connections etc.) quarterly visual inspection report is generated.
- g) Access is obtained to test integrity of the Earthing system as per Employer instructions and prevailing site regulations.

### **Hazardous Location (HAZLOC) Installations**

The Service Provider manages, inspects and maintains on a continuous basis all Grootvlei installations to ensure statutory compliance to the Occupational Health and Safety Act 85 of 1993, which requires that:

- a) All electrical equipment installed in hazardous (flammable liquid/gasses and dust) areas shall comply with the minimum requirements of the relevant standards.
- b) No person may use electrical machinery in locations where there is danger of a fire or explosion owing to the presence, manufacturing, occurrence, handling or storage of flammable gas, vapours or dust, unless the areas where the flammable gas, vapours or dust are classified in accordance with SANS 0108 and the electrical equipment installed in these areas complies with the classification of the areas.
- c) Every user referred to in the above paragraph will be in possession of a certificate by an approved inspection authority stating the classification of the electrical equipment or permanent markings/plates attached on the equipment can be accepted.
- d) This certificate states that the equipment has been manufactured and tested for the hazardous articles.
- e) Where diverse machinery such as motor control centres and control apparatus are used, the selection, arrangement, installation, protection, maintenance and working thereof results in no less a degree of safety as when the equipment was used separately.
- f) No adjustments shall be made to machinery in hazardous areas unless the equipment is rendered dead.
- g) Where there is a possibility of static built-up under working conditions, the user shall ensure that all electrical equipment and all metal parts are earthed in such a way that all static built-up will be conveyed to the earth mass effectively.

Annual inspections are carried out on all equipment operational in such areas, with evidence of such inspections used to confirm and support any plant CoCs. Where such certification is not available, the Service Provider ensures compliance and issues the required CoC certification.

The Service Provider employ a "Master Installation Electrician" on full-time basis to comply with and enforce the requirements of the Act. The Service Provider shall, in concurrence with Electrical Engineering, make assessments and determine classification or re-classification on behalf of the Employer. Only employees authorised and certified to work on equipment in hazardous areas shall be permitted to work on such installations.

### **Cabling**

The Service Provider manages, inspects and maintains on a continuous basis:

- a) All cabling with a voltage above and including 220V AC and 220V DC

- b) Testing of LV cabling.
- c) Disconnecting and reconnecting of cables on “dead-end feeders” on High Voltage and Low Voltage systems.
- d) Disconnecting and reconnecting Auxiliary Plant transformers.
- e) Disconnecting and reconnecting of general power cables.
- f) Confirmation of rotation direction on HV and LV motors, changing direction where required.
- g) Informing the Employer of cabling that is damaged beyond repair, which requires replacement.
- h) Inspection and repair of loose connections and torque checking, relative to approved tables.
- i) Inspecting and maintaining of cable number and identification tags.
- j) Installation and certification of temporary supplies on Low Voltage systems, as per instruction of the Employer

### **Medium Voltage and Direct Current Motors**

The Service Provider manages, inspects and maintains on a continuous basis all Grootvlei motor installations, to ensure compliance through:

- a) Electrical disconnection and reconnection of motors for testing and replacement.
- b) Unbolting of and removal of small motors from base or structure where no mechanical intervention is required to undo a coupling, i.e. small geared, flanged mounted and motors which do not require rigging, with a weight of 30kg and less.
- c) Direction testing of motors in concurrence with the Site regulations.
- d) Routine inspections on motor terminal boxes and star points where redundant systems are available.
- e) Routine inspections on the earthing of the motors, glanding, and cable connections and entry into the termination boxes.
- f) Routine inspections and reporting on motors installed in Hazardous areas, as per the Site Specific Instructions related to those areas.
- g) Opportunity based maintenance on electrical motors, including opening of terminal boxes, checking soundness of connections, and cleaning.
- h) Testing of Low Voltage, Medium Voltage and Direct Current motors and motor cabling.

**NOTE:** Each motor tested will be accompanied with a full “Motor Report and Test sheet”, outlining causes, modes of failure and test results. This is an electrical and mechanical overview of the mode of failure of the motor and findings related to the failure.

Such test report shall be submitted to:

- i) Employer during the same shift.
- j) First line investigation and reporting on motors, including electrical and mechanical motor failure.
- k) Inspection and maintenance of motor earthing systems.
- l) Motor space heater connections, maintenance, and testing.
- m) Periodical electrical testing of spare motors as per storage procedures.

### **Generator and Auxiliary Systems**

Using Grootvlei specific maintenance procedures as reference, the Service Provider manages, inspects and maintains on a continuous basis:

#### **Generator Brushgear and associated equipment**

- a) Brush gear on the generator slip ring, checking condition of brushes, brush holders and adheres to intervals at which brushes need to be replaced.
- b) Changing of slip ring brushes on load, in line with prevailing site conditions and requirements.
- c) Commutator rotor and stationary parts, power and control cabling of the Exciter system.
- d) Disconnection and reconnection of the system.
- e) Cleaning of oil contaminants on the brush gear system, generator gearbox, exciter pedestal and slip ring pedestal to prevent earth fault paths.
- f) Inspection and cleaning of stator choke chambers.

The Service Provider tests the earth insulation on the generator bearing pedestals, and gearboxes, as per the Engineering test sheets and specifications. Test reports shall be submitted to Engineering department for decision-making and investigation.

To this end, the Service Provider shall have the required Analogue testing equipment to measure Insulation and Voltage values for the following:

- g) Voltage and Current Monitoring system maintenance.
- h) Earth and voltage brush inspection and brush replacement.
- i) Replacements of worn parts i.e. filters, brushes, covers.
- j) Earthing inspection and maintenance.
- k) Cleaning, maintenance, and repairs of inline surge transformers.
- l) Cleaning of surge arrestor chamber and inspecting connections.
- m) Maintenance, inspection, testing and replacement of duct chokes.
- n) Cleaning, maintenance of Busbar ducts and its compressed air systems.
- o) Disconnecting, Testing, Repair and Reinstating Generator main Conductors, flexible Connectors, Insulators, Covers and respective rubber seals.

### **Static Excitation Transformers (OFF-LOAD ONLY)**

The Service Provider manages, inspects and maintains electrical installations to ensure compliance for the following:

- a) Cleaning of the transformer when the unit is off load.
- b) Inspection of earthing systems.
- c) Inspection and torque check of links and connection positions.
- d) Inspection and cleaning of transformer cubicle, signage, and other electrical devices.
- e) Changeover of bridge pieces from test supply to machine bar supply, as required.

### **Converter Panels**

The Service Provider carries out the following:

- a) Cleaning of the system panels.
- b) Inspection of earthing systems.
- c) Inspection and cleaning of cubicles, signage, and other electrical devices.
- d) Checking connections.
- e) Cleaning of Filters.

**NOTE: Unit will trip if converter panel doors are opened during machine on-load conditions.**

### **Air conditioner units**

The Service Provider inspects air conditioner units for excitation systems, with these systems repaired and maintained by others.

### **Generator Circuit Breaker**

The Service Provider carries out general maintenance on the Generator Circuit Breaker, under the guidance of Eskom Specialist services.

Generator Circuit Breaker protection functionality testing, including close coils and trips coils, are carried out by others.

### **Generator Isolated Phase busbar system**

The main Bus bars from the Main Generator are internally enclosed in metal ductings, with each phase individually enclosed in ducting, from the Main Machine terminals, up to the Main Generator Transformer Primary (LV) Connections.

These ductings are provided with Control Air, via an electrical control unit, which maintains a positive pressure (just above Atmospheric) inside the Ductings, to ensure that dust does not settle inside the ductings.

The busbar pressurisation system provides a continuous positive pressure to the three independent ducts that run from the Generator to the Generator transformer, controlled through an Electrical control panel. Flexible connections for the Generator Star point, Line side, and transformer flexible connections are situated inside the bushing chamber and busbar ducting, situated below the generator.

The Service Provider manages, inspects and maintains:

- a) Electrical control system associated with busbar pressurisation system.
- b) Ensures that the system maintains a positive pressure.
- c) Seals the ducting covers to prevent air leaks or dust ingress during unit outages.
- d) Searches for and repairs any air leaks on the ducting systems prior to the unit being on load.
- e) Disconnects and reconnects Line and Star point flexible links.
- f) Checks and maintains earthing of the generator and subsystems.
- g) Cleans the busbar ducting.
- h) Removes and replaces generator and transformer side ducting covers.
- i) Replaces any defective holding down bolts, clamps and damaged seals on ducting covers.

- j) Cleaning of busbar duct insulators
- k) Maintenance of busbar air pressurising system, and air supply lines.

### **VT room equipment**

The Service Provider manages, inspects, cleans and maintains:

- a) VT room, with cleaning of its cubicles and the VTs.
- b) Air lines for leaks within the VT cubicles.
- c) Loading resistor cubicles.
- d) Connections on main and control systems.

### **Diesel generators**

The Service Provider manages, inspects and maintains:

- a) Maintenance of electrical systems and components on diesel generators, excluding battery chargers, PLCs and batteries.
- b) Fault finding and replacement of electrical components on diesel generators.
- c) Maintenance, cleaning and testing of diesel generators.
- d) Disconnection and reconnections of diesel generators for testing or replacement purposes.
- e) Brush maintenance where applicable, as per OEM requirements.
- f) Maintenance of contactors and starter panels.

### **Motors**

The Service Provider manages, inspects and maintains all Grootvlei motors on a continuous basis:

- a) Disconnection and reconnection of motors for testing and replacement.
- b) Direction testing of motors in concurrence with the Site regulations.
- c) Routine inspections on motor terminal boxes.
- d) Opportunity based maintenance on electrical motors, including opening of terminal boxes, checking of connections, and cleaning.
- e) Brush inspection and replacement.
- f) First line fault finding and reporting on motors, including electrical and mechanical motor failure.
- g) Inspection and maintenance of motor earthing systems.

### **Electrical actuators**

The Service Provider manages, inspects and maintains on a continuous basis:

- a) Terminations on actuators situated inside the actuator termination box.
- b) Supply cabling and junction boxes.
- c) Connect and disconnect power to all actuators.
- d) Ensure supply and test direction of operation.
- e) Fault finding and repair of electrical actuators.

### **Electrical solenoids**

The Service Provider carries out disconnection and reconnection of electrical changeover solenoids of hydraulic dampers and valves, including power supply cable for 220 V AC, 220 VDC or above.

### **Coal plant, Conveyor Plant systems and Weighbridges**

The Service Provider manages, inspects and maintains the integrity of electrical equipment in the Coal Plant, as per prevailing site regulations and conditions:

- a) Sump pump motors.
- b) Coal stockyard drainage and collection dam.
- c) Coal Staithes.
- d) Under-Staithes reclaiming conveyors.
- e) Terrace coal handling conveyors.
- f) Conveyor Tipper car systems.
- g) Mass Meters and Sample Hammer.
- h) Magnet Separators and Metal Detectors.
- i) Emergency trip wires.
- j) Electromagnets
- k) Emergency trip switches.

- l) 220 VAC control circuits.
- m) Power supplies to weighbridge systems.

### **Ex Property maintenance**

#### **Electrical maintenance in immediate surrounds of the station**

In conjunction with others, the Service Provider manages, inspects and maintains installations to ensure compliance through:

- a) Streetlight maintenance on Power Station Road, directly outside Grootvlei Power Station.
- b) Permit applications, and supervision.
- c) Transformer maintenance as per transformer specifications.
- d) Any other Task Instruction of electrical nature as per Service Manager, by submitting quotations.

### **Vaal Dam Pumping Station**

Grootvlei Power Station receives its main supply of water from the nearby Vaal Dam, and the Service Provider ensures that all electrical plant at the Vaal Dam Pumping Station is available to provide the water required by Grootvlei.

Power supply to the Vaal Dam Pumping Station is received from the Distribution Network via two 88/3.3kV Transformers, namely Transformer 1 and 3. The electrical boundary for the Vaal Dam Pumping Station is from the 3.3kV Distribution isolator termination point on the primary plant, not including the isolator itself.

The Service Provider ensures that all electrical plant within the boundary of the Vaal Dam Pumping Station is maintained, including all cables, switchgear boards, transformers, motors, lights and plug points

### **Temporary Supplies and Installations**

The Service Provider manages, inspects and maintains temporary supplies and installations, in conjunction with others, to ensure compliance through:

- a) Ensuring the installations are safe, earthed and bonded.
- b) Certification of Compliance (SANS 10142 and 10108) from other parties during outages where required.
- c) Installation of temporary supplies as required by Outage Department for other Service Providers.
- d) Installation of temporary Supplies on Site as requested by the Employer.
- e) Submit quotations for works, other than on Grootvlei Site, based on Employer request for Community projects.

### **Electrical Drawings**

The Service Provider shall ensure that drawings are unit specific and available when fault finding and repairs are carried out on plant under his/her control.

The Service Provider maintains all Electrical Plant drawings under his/her control, as follows:

- a) Requests a "latest revision" set of drawings from Engineering department, for each plant system, during General Outage Periods.
- b) Updating of electrical wiring diagrams, Single Line Diagrams, cable block diagrams, schedules and schematic diagrams of Plant by "Red Lining" to "As Built" status of the Plant.
- c) Submission of "Red Line" drawings to Electrical Engineering department, whenever any changes or replacements are affected on Plant through an engineering instruction or modification request, specifically in cases where the equipment is not a "one-to-one" replacement.

In cases where drawings and documentation do not exist and/or do not accurately reflect the "As Built" status of the plant, the Service Provider shall develop and/or update drawings and documentation.

All drawings developed or modified by the Service Provider shall be developed on a professional CAD system according to Eskom drawing standard for submission and approval by Grootvlei Electrical Engineering Department.

### **COMMISSIONING**

The Service Provider draws up quality documentation and inspection sheets in order to safely commission plant under his/her control. The Service Provider carries out safety testing and commissions electrical plant as and when required.

### **WORKS MANAGEMENT AND CONTROL**

The Service Provider manages and maintains all Plant under his/her control by ensuring that:

- a) Work adheres to the Works Management procedures as provided.

- b) Notifications for each work activity that requires execution through the Works Management Planner is created on SAP or other recognised method such as Operations Suite.
- c) Notifications arising from continuous Plant inspections are created when necessary.
- d) Work is scheduled up to 4 weeks in advance, ensuring that the required equipment and spare parts are available for execution of the works.
- e) Works orders are signed off, detailing the condition as found, the status after repairs and the activities carried out to the plant to restore it to a state in which it can perform its required functions.

## **PLANNED MAINTENANCE**

The Service Provider manages and maintains the Plant scheduled for Planned Maintenance by adhering to all Legal, Site Regulations, Policies, Standards and Procedures when executing work under Planned Maintenance.

The Service Provider:

- a) Is familiar with the condition of the Plant under his/her control and submits the plan of required maintenance for approval, and arrangement for Plant to become available.
- b) Submits the plan and, in concurrence with the Employer, drafts a detailed Scope of Work for the services to be executed.
- c) Drafts an Inspection Test Plan (ITP) for each Critical activity to be executed on the plant, consulting to determine the necessity of each activity of the ITP.
- d) Notifies the Quality Control department, the Employer, and the Client (Engineering) of all Witness, and Hold points that needs to be signed off before he carries on with the work.
- e) Executes all work as detailed in the Scope of Work.
- f) Provides all means to execute the services as per the Scope of Work.
- g) Signs off the works orders, detailing the condition as found, the status after repairs, and the activities carried out to the plant to restore it to a state in which it can perform its required functions.
- h) Ensures that the requirements of Corrective, Routine and Preventative maintenance requirements, whichever part is applicable, are included in the Planned Maintenance works package and executed in line with the Detailed Scope of Work.

As shown in Drawing 0.19/16254, the following plant is usually not available during General Outages. As such, maintenance needs to be scheduled and carried out as per maintenance plans and strategies, as and when the plant becomes available:

- i) All HV and LV Substations, including HV Boards and Panels and LV Boards and Panels in these substations, on Common Plant.
- j) All Transformers on Common Plant.

## **MINI GENERAL OUTAGES AND GENERAL OUTAGES**

The Service Provider manages and maintains the Plant scheduled for the Outage by adhering to all Legal, Site Regulations, Policies, standards, and Procedures when executing work under Outages. To this end, the Service Provider ensures that:

- a) All high Voltage Breakers and Contactors are removed during the start of the General Outage, and the condition assessed, to determine whether it should be serviced and repaired.
- b) Quotations for any additional works are submitted, with task orders requested through Outage Department.
- c) Required testing certification of required items are provided.
- d) Full care and responsibility are taken for items removed from the Employer's Site.
- e) Services are planned in such manner as to minimize any delays and overtime.
- f) Plan is submitted and detailed Scope of Work for the services to be executed is drafted, in concurrence with the Employer.
- g) Inspection and Test Plan (ITP) is drafted for each Critical Activity, Plant and Level 1 Plant to be maintained, consulting with the Client (Engineering) to determine the necessity of each activity on the ITP.
- h) The Quality Control department, the Employer, and the Client (Engineering) are informed in advance of all Witness and Hold points that needs to be signed off, before carrying on with the work.
- i) Outage report is compiled for all the activities covered in an outage and keeps filed records with an additional copy made available to the Employer.



- j) Certificates, calibration and test reports are made available, with copies provided to the Employer upon request.
- k) All work is executed as detailed in the Engineering Scope of Work and all means are provided to execute the services.
- l) The Service Provider strips down plant, cleans, inspects, repairs, replaces and rebuilds the plant to its original state to restore it to a state in which it can perform its required functions.
- m) The Service Provider makes use of OEM Specifications and Requirements to restore plant and equipment to its original state.
- n) As far as reasonably practicable, the Service Provider shall ensure that a "Clean Condition Area" is maintained during the execution of services, whereby he will be able to account at all times, for all equipment, and tools used in the area where the service is executed.
- o) No interchanging of panels, segregations, fixtures, or items stripped-down on Electrical Switchgear. Items will be marked and replaced in its original position. Every item or fixture removed will be kept in an allocated container for the panel.
- p) Any missing or stripped fixture or fitting will be replaced.
- q) All equipment, parts, or spares that is removed or stripped down from the works shall be counted, listed, bagged, tagged, stored, and signed into, and signed out of, a predetermined outage storage area. It will be the responsibility of the Service Provider to account for each item of the service.
- r) The Service Provider shall have check sheets, and registers updated at all times to assist in this regard.
- s) The Service Provider signs off the works orders, detailing the condition as found, the status after repairs, and the activities carried out to the plant to restore it to a state in which it can perform its required functions.

### **ENGINEERING SERVICES AS REQUIRED BY ESKOM GENERATION**

The Service Provider responsible for engineering services, material and labour is required to:

- a) Verify the performance matching requirements of replacement equipment and parts.
- b) Inspect and test prior to and after repairs, recording, reporting and making recommendations and providing the necessary information where applicable.
- c) Provide detailed breakdown reports stating clearly the contributory and root causes of relevant failures.
- d) Evaluate parts for possible re-use, and/or select, design and procure new components, ensuring that replacement insulation systems and other materials are compatible with existing materials.

NOTE: If the replacements parts are not exactly as the originals, the Service Provider demonstrates that the replacement meets or exceeds the capability of the original in all essential requirements with approval from the Employer.

Furthermore, the Service Provider:

- e) Ensures that the employer and others required (as determined by the Employer) are present during dismantling, testing and assessment to inspect any evidence of failure or aspects of defective design or workmanship uncovered.
- f) Ensures that correct photographic records are made.
- g) Establishes the suitability of equipment to achieve the life extension required by the Employer.
- h) Performs all tests, investigations and calculations required for these purposes.
- i) Submits a written report recording any defects, and detailing the extent of repair and work required to achieve the life extension specified by the Employer.
- j) Produces details of design, working drawings, repair instructions and procedures, and obtains the Employer's prior agreement in writing for the extent of repair and work to be done.
- k) Produces agreed procedures for works inspection and tests, and site commissioning and testing, all with details of acceptance criteria to be attained, as well as reports and/or test certificates detailing actual results attained.
- l) Produces quality plans for the activities concerned before commencing work, together with progress reports as required periodically by the Employer.
- m) Submits details of any redesign, via drawings and documentation for the Employer for agreement.
- n) Produces a consolidated report on all aspects of the work, incorporating all reports, data, acceptance criteria, and quality assurance records.

### **TEST CERTIFICATES**

The Service Provider:

- a) Provides a data pack with complete tests and Certificates after completion of any major services as per Client's request and related standards.
- b) Keeps records of all certificates for tools and test equipment or as required by the Employer.

c) Ensures that test equipment calibration is valid for the period in which work is executed and that certificates are available upon request. All equipment calibration (or recalibration) to be executed by a SANAS approved test facility.

## HOUSE KEEPING

The Service Provider:

- a) Ensures that all workplaces are kept clean at all times and interfaces with other Service Providers to ensure compliance.
- b) Discards waste in correctly allocated coloured waste bins.
- c) Ensures that plant worked on is cleaned before clearance of any permit.

## TRAINING

The Service Provider arranges and facilitates training to his/her personnel in the maintenance of the plant. The Service Provider issues a list, as directed by the Service Manager, of recommended training activities including duration and location for acceptance by the Service Manager. All relevant courses must be attended as required, on the Service Provider's account.

Practical training is applicable to the activities required to execute all the functions related to electrical work at Grootvlei Power Station, focusing on relevant knowledge and skills, including but not limited to:

- a) Cable installation and racking.
- b) Cable termination, jointing and testing.
- c) Electrical fault location finding.
- d) Switchgear panel inspection and maintenance.
- e) Motor testing and maintenance.

The Employer shall be responsible for training courses as provided by the Employer's business unit, including but not limited to:

- f) PSR.
- g) FFFR.
- h) ORHVS.

The Service Provider compiles a required Training matrix for employees under his/her control, who attend required courses as stipulated by the Employer.

Table 2 shows the minimum training requirements in order for work to be executed without any special skills. It further highlights the responsible party who provides the training. Proof of training shall be provided as per the work being executed. The training and certification requirements shall be valid for the duration of the contract.

## PLANT SAFETY REGULATIONS

Before commencement of services, the Service Provider ensures that all their employees are familiar with relevant Eskom Grootvlei plant safety regulations applicable to contract services

## COMPLETION COMMUNICATION

Service Provider informs and gives daily feedback of progress on tasks or as requested by the Service Manager up to the point of completion or satisfaction of the Service Manager. All work done must be accompanied by ITPs, signed by the relevant people at Hold and Witness points.

The Service Provider submits reports on all work carried out during the week, with a list of completed tasks communicated to the Service Manager. Reports shall be handed in not later than close of work every Friday.

## MEETINGS

The Service Provider adheres to the requirements as stipulated and ensures that:

Service Provider representatives attend all relevant meetings, including but not limited to EMD Feedback, daily Plant Focus and Works Management meetings, as well as Outage meetings during Outages.

The Service Provider also interfaces with the Employer's internal organization and other Service Providers that may perform work for the Employer when required.

The Service Provider attends a Monthly scheduled contract meeting, and is given at least 1 day's notice period prior to commencement of meeting.

All meetings shall be recorded using minutes and a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or

instructions under the contract as these shall be done separately by the person identified in the conditions of contract to carry out such actions or instructions.

### **SPECIALIZED TOOLS AND TEST EQUIPMENT.**

Service Provider must provide all required tools to execute the requirements as is deemed necessary by regulation, standards or the Client.

- a) Service Provider must provide all required tools to execute the requirements.
- b) All tools that need certificates must have valid certificate to comply with safety requirements.
- c) Provide insulated tools as required.
- d) Warning lights x 2
- e) Reflective cones at least 05 meters to a meter length x 4
- f) Provide insulating mats as required of up to 16.5kv. dimensions 2 x 2 meters two pieces
- g) Blower single phase x 2
- h) Compressor single phase 600 litres
- i) Vacuum machines single phase @ 1.5 kW x 2
- j) Single phase extraction fan 2 kW x 2
- k) Service Provider hires any equipment (e.g Cherry Picker) not available by submitting quotations to the employer for approval.

### **INTEGRATION WITH THE EMPLOYER'S ORGANIZATION**

The Service Provider Provides the Services in an integrated manner with the Employer's organization at Grootvlei Power Station. To this end the Service Provider:

- a) Performs the day-to-day planning and scheduling of all activities required.
- b) Maintains all required SAP and other electrical maintenance procedures.
- c) Attends to plant breakdowns, until completed, unless otherwise agreed with the Service Manager.
- d) Provides personnel on standby on a 24-hour basis, in accordance with his/her conditions of service. The Service Provider ensures that there is an emergency Standby team. No employee will work more than the allowed overtime hours in any given time.
- e) Provide personnel as required (Planned or Emergent work) as stated in this document, in accordance with his/her conditions of service to perform required services.
- f) Provides personnel that will be authorised, by the Employer, in Plant Safety Regulations (PSR), ORHVS, FFFR or other as is relevant to perform duties required as deemed necessary by the Employer.
- g) Spares requisition from the Employer's main store, in liaison with the Service Manager.
- h) Supply of goods that are not available in the Employer's main store, as directed by the Service Manager when requested.
- i) Assist in the processes to identify goods/equipment/spares needed to effectively maintain/repair the electrical plant as to minimize downtime.
- j) Provide technical advice and component recommendations/specifications.

### **PROVIDING ACCESS TO AND INTERFACE WITH OTHERS**

Other Service Providers are working in the same area as the work of this contract. In this regard, the Service Provider co-ordinates his/her work with the Service Manager to maintain harmonious working conditions on Site.

During the progress of the works, the Service Provider grants access to others who also perform work in the same area, on an as and when required basis. The Service Provider makes his/her own assessment of the problems and difficulties which may be encountered for providing access to and interfacing with others. This includes access difficulties experienced during outages or commissioning phases.

### **Interpretation and terminology**

The following abbreviations are used in this Service Information:

<b>DEFINITIONS</b>	
<b>Definition</b>	<b>Description</b>
Comprehensive Report	means a certificate as contemplated in the relevant health and safety standard incorporated internal to these Regulations.
Modification	means any alteration to a plant system affecting the control, load, travel or safety thereof.
Operator	means a person who is selected, trained, assessed, and authorised in terms of legislation to operate specific equipment.

The following abbreviations are used in this Service Information:

<b>Abbreviation</b>	<b>Meaning given to the abbreviation</b>
HV	High Voltage
MV	Medium Voltage
LV	Low Voltage
AVR	Automatic Voltage Regulator
AC	Alternating Current
DC	Direct Current
OEM	Original Equipment Manufacturer
OBL	Outside battery limits
CoE	Centre of Excellence
ECSA	Engineering Council of South Africa
EOD	Electrical Operating Desk
GMR 2(7)	General Machinery Regulation 2(7)
LAR	Local Access Register
NEC	New Engineering Contract
OEM	Original Equipment Manufacturer
OHS	Act Occupational Health and Safety Act 85 of 1993
PSM	Power Station Manger
PSR	Plant Safety Regulations
QCP	Quality Control Plan
SANS	South African National Standards
SAP	Systems Application Processes
SMAT	Safety Management Auditing Technique

## 2 Management strategy and start up.

### 2.1 The Contractor's plan for the service

The *Contractor* to submit a high level plan whenever a need arises.

The *Contractor's* plan for the Services will address at the minimum the following aspects of the delivery of the contracted services:

- Environmental plan including implementation programme
- Safety plan including implementation programme.
- Team structure, staffing and mobilisation.
- Staff Qualifications and experience and/or period for appointment of staff.
- A programme and resource schedule for the service and for each Task Order. Bar charts or other reporting formats, as may be required by the *Employer*, are provided for all Task Orders indicating start, inspection and completion dates, resources and costs.
- Any staff replacement should meet the conditions stipulated above.

1. Transportation of spares to and from the store (or other suitable place) to the Contractor's works, will be the responsibility of the Contractor. The Contractor is required to adhere to the gate release procedures in effect at Grootvlei Power Station. These procedures may change from time to time and Contractor must accommodate such changes.

### 2.2 Management meetings

Regular meetings of a general nature may be convened and chaired by the *Service Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Monthly in the Monthly Meetings	Grootvlei Power Station	<i>Employer, Contractor and Quality Representative</i>
Overall contract progress and feedback	Monthly in the Monthly Meetings	Grootvlei Power Station	<i>Employer, Contractor and Quality Representative</i>
Maintenance and repairs undertaken	Daily in the Morning Meetings	Grootvlei Power Station	Eskom Employees and <i>Contractors</i>
Breakdowns	Daily in the Morning Meetings	Grootvlei Power Station	Eskom Employees and <i>Contractors</i>
Inspection findings	Daily in the Morning Meetings	Grootvlei Power Station	Eskom Employees and <i>Contractors</i>
Incidents	Daily in the Morning Meetings	Grootvlei Power Station	Eskom Employees and <i>Contractors</i>
Load tests completed	Daily in the Morning Meetings	Grootvlei Power Station	Eskom Employees and <i>Contractors</i>

Meetings of a specialist nature may be convened as specified elsewhere in this Service Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the service. Records of these meetings shall be submitted to the *Service Manager* by the person convening the meeting within five days of the meeting.

All meetings shall be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions.

All meetings held on MS Teams will also be recorded on MS Teams and the recording will be made available upon request.

## 2.3 Contractor's management, supervision and key people

The Contractor's representative will manage all contractors' Employees. The contractor's representative will ensure that the contractor's employees work in accordance to Employer's standards and regulations. The contractor's Representative will ensure that the contractor prepare and submit quotation for additional resources on time during breakdowns.

## 2.4 Documentation control

The *Contractor* shall provide the following documentation:

- Quality control plan
- Environmental plan
- Safety plan
- Training matrix

And all other related documents that may be required by the *Service Manager*.

## 2.5 Invoicing and payment

Within one week of receiving a payment certificate from the *Service Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the *Service Manager's* payment certificate.

The *Contractor* shall address the tax invoice to

\_\_\_\_\_ and include on each invoice the following information:

- Name and address of the *Contractor* and the *Service Manager*;
- The contract number and title;
- *Contractor's* VAT registration number;
- The *Employer's* VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- (add other as required)

Add procedures for invoice submission and payment (e. g. electronic payment instructions)

## 2.6 Contract change management

Proper change management process according to NEC3 TSC shall be followed whenever there is a change. Core Clause (Compensation Events) applies.

## 2.7 Records of Defined Cost to be kept by the *Contractor*

Not Applicable

## 2.8 Insurance provided by the *Employer*

As stated for "Format TSC3" available on  
[http://www.eskom.co.za/Tenders/InsurancePoliciesProcedures/Pages/EIMS\\_Policies\\_  
From\\_1\\_April\\_2014\\_To\\_31\\_March\\_2015.aspx](http://www.eskom.co.za/Tenders/InsurancePoliciesProcedures/Pages/EIMS_Policies_From_1_April_2014_To_31_March_2015.aspx)

## 2.9 Training workshops and technology transfer

The *Contractor* employees will be trained during the Job Specification Induction training that will be provided by the *Employer* at the beginning of the contract. The *Contractor* employees may also be trained during Work Stoppages and any other training as per *Employer's* requirements.

The following will be provided by the *Employer* to the *Contractor* employees and will be on the account of the *Employer* only on first attendance of which should the *Contractor* employees fail the training, the *Contractor* will be accountable and responsible for the account:

- Plant Safety Regulations, after 12 months of service

## 2.10 Supply of Equipment

The *Employer* will provide the Desktop for the *Contractor* employees, which remains the property of Eskom and cannot be removed from site.

Please note supplier need to supply their PPE and Groceries.

## 2.11 Things provided at the end of the *service period* for the *Employer's* use

### 2.11.1 Equipment

Not Applicable

### 2.11.2 Information and other things

Not Applicable

## 2.12 Management of work done by Task Order

- The *Employer* will issue a list of Task Orders (12) in writing at the beginning of each year before the first task is performed. Further Task Orders will be issued every 12 months
- The *Supplier* must accept the Task Orders by signing it and returning a copy thereof to the *Employer*.
- On the 25<sup>th</sup> of each month, an assessment will be carried out to verify the completion of the tasks as per the Task Order.
- The *Supplier* can then create an invoice to the *Employer* and send it directly to Finance Department - APS section, to facilitate payment.
- All work done is valued in accordance with the Price List unless otherwise specified.
- Actual quantities will be determined where applicable based on the requirements of each Task Order.

- The *Contractor* provides all necessary information required by the *Employer* to determine the cost at the assessment date for monthly costs and for each Task Order.



### 3 Health and safety, the environment and quality assurance

#### 3.1 Health and safety risk management

The *Contractor* shall at all times comply with the health and safety requirements prescribed by law as they may apply to the services.

The *Contractor* shall, when coming on site (Grootvlei Power Station), abide by the

- Cardinal Rules.
- Grootvlei Safety, Health and Environmental Specifications for *Contractors* Procedure, 240-30008949. Occupational Health and Safety Act (ACT 95 of 93)
- Eskom's Standard for Vehicle safety specification (Unique No: 32-4)
- Handling and transportation of injured Employees (GVLIR0044)

These will be provided by the *Employer* on the start of the contract.

The *Contractor* shall ensure that all the documents required by GVLIR0007 check list are in place on contract start date

The *Contractor* must submit a safety plan which complies to safe working procedures and it must be approved by the *Service Manager*.

The *Employer* follows an accident prevention policy that includes the investigation of all accidents involving personnel and property. This is done with the intention of introducing control measures to prevent a recurrence of the same incidents. The *Contractor* is expected to fully co-operate to achieve this objective. The *Contractor* will report any incident and accidents to Grootvlei Power Station within 24 hours. This report does not relieve the *Contractor* of his legal obligation to report certain incidents to the Department of Labour, or to keep records in terms of the Occupational Health and Safety Act, and Compensation for Occupational Injuries and Diseases Act.

The *Contractor* implements a safety plan and maintains the safety system until the completion of the whole of the works. The plan, will as a minimum, contain PPE information, written safe work procedures, job specific risk assessments, safety meetings, etc. The plan will be to the *Employer's* satisfaction and will be accepted prior to the commencement of any work.

The *Contractor* will be subject to periodic audits by the *Employer* in order to ensure compliance with the plan. Any deviations will be corrected to the *Employer's* satisfaction.

The *Service Manager* has the right to stop the *Contractor's* work activities which, in the opinion of *Service Manager*, is un-safe. The *Contractor* may only continue with work activities when all safety deficiencies have been corrected to the *Service Manager's* satisfaction. The *Contractor* shall have no claim against the *Employer* in respect of delay due to the above.

The *Contractor* employee is required to attend Access Control and LAR Course and be authorised in order to enter the restricted areas in the station and attend Plant Safety Regulations course and be authorised after 12 months that the employee has spent on site.

The *Contractor's* Employees shall be required to attend IBI training at *Employer's* cost. The *Contractor* is responsible for organising the access permit for *Contractor's* employees at *Contractor's* cost.

The *contractor's* shall be required to submit the Safety File on the contract start date

#### 3.2 Environmental constraints and management

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure \_\_\_\_\_

- The *Contractor* shall comply with Grootvlei Power Station environmental management system. This includes the identification, collection, storage, transportation and disposal of waste. Hazardous

waste shall be disposed off in line with the applicable environmental legislation. It is important to note that all spillages must be cleaned immediately and reported to the project manager as soon as possible. It is the responsibility of the polluter to clean all spillages and for the rehabilitation of the polluted land and the cost associated with that.

- The *Contractor* will be subject to periodic audits by the *Employer* in order to ensure compliance with the EMS. Any deviations will be corrected to the *Employer's* satisfaction.
- The *Contractor* shall, when coming on site (Grootvlei Power Station), abide by the  
Environmental Policy (GVLE 001)  
Environmental non-Conformances (GVLE 010)  
Environmental spillage management procedure (GVLE 002)

Furthermore, the *Contractor* will be familiar with and comply with Grootvlei Power Station's environmental management policies and procedures. In particular, attention is drawn to Grootvlei Power Station's environmental non-conformance procedure, waste management procedure and spill clean-up procedure

### 3.3 Quality assurance requirements

The *Contractor* shall be required to demonstrate by means of a Contract Quality Plan (CQP) that this organisation is so structured that all the requirements of the specification will be properly monitored and controlled. The Contract Quality Plan (CQP), which must include the Quality Control Plan (QCP), is to be drafted in accordance with GVL0390 and the Supplier Contract Quality Requirement Specification (2401-105658000). The Quality documents are to be submitted for approval to the *Employers* Representative within thirty (30) days after a contract has been awarded to the *Contractor*.

No work may commence unless the Contract Quality Plan and Quality Control Plan documents have been approved in writing and a copy submitted to the *Employers* Representative. The *Contractor*, in conjunction with the *Employers* Representative must sign off all Quality Control documents after completing all work as per the agreed scope. The *Contractor* to submit a copy of the final signed off documents/data packages to the *Employers* Representative within one (1) week after completion of work.

The *Contractor* shall be required to read and fully understand the contents of the Supplier Contract Quality Requirement Specification (2401-105658000) and a copy is to be kept in possession or on premises. The *Contractor* shall be subjected to scheduled assessments/audits if Eskom deems it necessary.

The Supplier Contract Quality Requirement Specification (2401-105658000) shall remain applicable in the event of the contract being extended or modified for reasons permitted.

By signature and acceptance of this contract the *Contractor* acknowledges and agrees to comply with and adhere to Eskom's policies and procedures (current and/or latest revisions) including the Supplier Contract Quality Requirement Specification (2401-105658000).

## 4 Procurement

### 4.1 People

No.	Mandatory Technical Criteria Description	Reference to Technical Specification/Tender Returnable
1	<p><u>Electrical installations in Explosive Atmospheres;</u></p> <p>All electricians and technicians working on Electrical Plant, to be trained on, and have certificates on: Electrical installations in Explosive Atmospheres (HAZLOC)</p> <p>Certificates will be valid at the start date of the Contract. 5 hazloc certificates for electricians and 2 hazloc certificate for technicians/Supervisors.</p> <p>All other electricians should have valid hazloc certificate in no more than 4 months after contract has started.</p>	<p>Requirement: proof of valid course certificates of number of electricians and technicians. Only persons employed by the Service provider/Company will be looked at.(in your employment at time of submission</p>
2	<p><u>Master Installation Electrician</u></p> <p>There shall be a Master Installation Electrician (MIE) employed as part of the Key people, and the person shall be registered with Department of labour, all registrations shall be current and valid. A minimum of 1 year experience (working as MEI) in the Industrial Field, Petro-Chemicals, or Power Generation field, only, which will be deemed as satisfactory</p>	<p>Requirement: attach certified registration with DoL, years working experience, registration as MIE, with registration number and licence. The registration with DoL must be valid</p>
3	<p><u>Electricians Qualifications</u></p> <p>Minimum N3 with trade test certificates plus 4 years power station experience</p>	<p>Requirement Attach all CV's and certified copies of qualifications (matric certificate, Trade test.</p>
4	<p><u>Site Manager</u></p> <p>Preferably BTech/ BSc Eng in Electrical Engineering Registered with ECSA as Professional Technologist or Engineer. Minimum Experience more than 5 years</p> <p>Or National Diploma in Electrical Engineering Min 7 Years' Experience.</p>	<p>Attach CV and certified copies of qualifications</p>

5	<u><i>SHEQ Officer</i></u>  Min Matric, Samtrac,,(ISO 14001 & PSR knowledge).	Attach CV and certified copies of qualifications
6	<u><i>Supervisors</i></u>  Min National Diploma / N6 (with supervisory course) or certificate.  Minimum 4 years' experience	Attach CV and certified copies of qualifications
7	<u><i>Semi-Skilled electrical assistance</i></u>  Min Grade 12, Minimum 4 years' experience. Preferably in power plant	Attach CV and certified copies of qualifications
8	<u><i>Installation Electrician</i></u>  Min N3 Electrical Trade test and Certified as an installation Electrician.	Requirement: attach certified registration with DoL, years working experience, registration as Installation Electrician

#### 4.1.1 Minimum requirements of people employed

#### 4.1.2 BBBEE and preferencing scheme

The minimum BBBEE status level of the contributor must be Level 1 or 2 with BBBEE category being EME/QSE

### 4.2 Subcontracting

#### 4.2.1 Preferred subcontractors

4.2.2 All Sub-contractors are to be Employer approved Contractors / vendors / suppliers. If the Contractor is uncertain of the approval status of the Contractors / vendors / suppliers the Contractor formally requests from the Service Manager confirmation of the status.

4.2.3 The Contractor does not procure the services of Contractors / vendors / suppliers without the prior approval of the Service Manager. Furthermore the contract between the Contractor and the subcontractor must be aligned with this contract.

#### **4.2.4 Subcontract documentation, and assessment of subcontract tenders**

Not Applicable

#### **4.2.5 Limitations on subcontracting**

Not Applicable

#### **4.2.6 Attendance on subcontractors**

Not Applicable

### **4.3 Plant and Materials**

#### **4.3.1 Specifications**

The Contractor will provide all relevant training records to the Employer to verify the competency of the staff e.g. professional registration with ECSA for the Professional Engineer.

All OEM standards are applicable and must be followed when performing any type of task on actuators at Grootvlei Power Station. Furthermore, where applicable, standards as listed below are also to be used. It is the responsibility of the Contractor to ensure that all work performed is according to applicable standards, including those that are not listed below.

The list below is a guideline of the minimum requirements:

<b>Description/Title</b>
240-50237155: New MV Motor Procurement Standard.
240-56176097: Electrical Cable Schedule Template.
240-56227443: Eskom Requirements for control and power cables for power stations.
240-56227516: LV Switchgear Control Gear Assembly Associated Equipment for Voltage 1000V AC and 1500V Standard.
240-56355815: Field Instrument Installation Standard - Junction Boxes and Cable Termination.
240-56360387: Storage of Power Station Electric Motors Standard.
240-56361435: Transport of Power Station Electric Motors Standard.
240-56536505: Hazardous Locations Standard.
240-57617975: Procurement of Power Station Low Voltage Electric Motors Specification Standard.
240-86239967: Management of Hazardous Locations.
36-943 Engineering drawing office and engineering document standard.
36-944 General drawing standard WI.
36-946 WI for electrical drawings and documentation.
474-11542 Generation Plant General Electrical Specification
ARP 0108: Regulatory requirements for explosion-protected apparatus.
Drawing 0.00/1310: Standard power and control cable code.

Eskom 0.54/393 Eskom Earthing Standard Drawings.
Eskom GGR0992 Plant Safety Regulations.
Eskom GGR0992 Plant Safety Regulations.
Eskom NWS 1007/P: The Management of Construction.
Eskom NWS 1058: Safety on Construction Sites: Requirements which Service Providers must comply with.
GGG0450 Guideline to acceptance of Service Provider drawings.
GGG0315 Standard drawing practise.
NWS 1220: Specification for cable junction and reduction boxes for power stations.
SANS 10086-1: The installation, inspection and maintenance of equipment used in explosive atmospheres Part 1: Installations including surface installations on mines.
SANS 10086-3: The installation, inspection and maintenance of equipment used in explosive atmospheres Part 3: Repair and overhaul of equipment.
SANS 10108: The classification of hazardous locations and the selection of equipment for use in such locations.
SANS 10119: Reduction of explosion hazards presented by electrical equipment - Segregation, ventilation and pressurization.
SANS 10123: The control of undesirable static electricity.
SANS 10142-1 SABS 0142-1 2009 1.07 The wiring of premises Part 1: Low-voltage installations.
SANS 10142-1: The wiring of premises Part 1: Low-voltage installations.
SANS 10142-2 2009 1 The wiring of premises Part 2: Mediumvoltage installations above 1 kV a.c. not exceeding 22 kV a.c. and up to and including 3 000 kW installed capacity.
SANS 10198 All parts selection and handling of cables.
SANS 10313: Protection against lightning - Physical damage to structures and life hazard.
SANS 1339 Electric cables - Cross-linked polyethylene (XLPE) insulated cables for rated voltages 3,8/6,6 kV to 19/33 kV.
SANS 1339 SABS 1339 2010 4 Electric cables - Cross-linked polyethylene (XLPE) insulated cables for rated voltages 3,8/6,6 kV to 19/33 kV.

#### **4.3.2 Correction of defects**

Defect should be corrected within 24 hours or as per Works management priority request.

#### **4.3.3 Contractor's procurement of Plant and Materials**

The Contractor shall submit the spares list to the Employer within the first month of the commencement date of the Contract. The Employer shall then procure the spares and keep them in the main store, if the spares are required by the Contractor for the use of the service; the Contractor shall draw the spares from the main stores through the work order process.

#### **4.3.4 Tests and inspections before delivery**

Not Applicable

#### **4.3.5 Plant & Materials provided "free issue" by the Employer**

Not Applicable

#### **4.3.6 Cataloguing requirements by the Contractor**

Not Applicable

## **5 Working on the Affected Property**

### **5.1 Employer's site entry and security control, permits, and site regulations**

The Contractor shall be required to undergo site induction in order to gain access to site. Valid medical records shall be produced to attend induction. The affected site is: Grootvlei Power Station

The contractor employees will be called out as and when required basis. The response time for callouts is 1 hour. The normal working hours are from 7h15 to 16h30 from Monday to Friday, and 7h15 to 12h15 on Fridays. The Contractor must ensure that there is a contingency plan during strikes to ensure that the services are not interrupted.

### **5.2 People restrictions, hours of work, conduct and records**

- The Contractor's employees shall abide and respect the Employer's rules, regulations and standards as set out in the contract. Records shall be kept by both parties.
- All work valued in accordance with the Price List unless otherwise specified. Actual quantities will be determined where applicable based on the requirements of each Task Order. The Contractor provides all necessary information required by the Employer to determine the cost at the assessment date for monthly costs and for each Task Order.
- Utmost care is taken not to damage any surroundings, Plants, roads or equipment in and around existing buildings. Any costs for damage done are for the account of the Contractor.
- The Contractor may use any equipment he sees fit for the purpose as long as the use thereof does not damage or interfere with any Plant, buildings or roads. All equipment used shall be in good order and comply with all the relevant safety rules and regulations.
- The Contractor and his employees are required to conduct themselves at all times in a proper and orderly manner while on the Employer's premises.
- The Contractor and his employees will, in particular, be required to refrain from spitting, smoking and cooking on open flames on the Employer's premises. It must be noted that the Employer will take immediate steps to institute criminal investigation in the event of any suspected criminal activity.

*Employer's Working Hours (For information only)*

The normal working hours are as follows:

Mondays – Thursdays:	07h15 – 16h30
Fridays:	07h15 – 12h15

Lunch breaks are 30 minutes from 12h15 – 12h45

### 5.3 Health and safety facilities on the Affected Property

- The *Contractor* provides, at his cost, a First Aid service to his employees. In the case where these prove to be inadequate, like in the event of a serious injury, the *Employer's* Medical Centre and facilities will be available.
- Outside the *Employer's* office hours, the *Employer's* First Aid Services will only be available for serious injuries and life threatening situations.
- The *Employer* will be entitled, however, to recover the costs incurred, for the use of the above *Employer's* facilities, from the *Contractor*.

### 5.4 Environmental controls, fauna & flora

The site is controlled in an environmentally responsible manner.

### 5.5 Cooperating with and obtaining acceptance of Others

The contract will be discussed with the *Employer* on the contract when issuing task orders and monthly contract meetings

### 5.6 Records of *Contractor's* Equipment

The *Contractor's* Site Representative should keep record of all the equipment used by the *Contractor*. The *Contractor* is responsible for the safe keeping of all their equipment.

All Plant and Materials, tools and equipment brought onto site by the *Contractor* are the responsibility of the *Contractor*, and shall comply with the *Employer's* policies and procedures. A proper system of recording these Plant and Materials, tools and equipment must be in place and submitted for approval by the *Service Manager*. Differentiation must be made between Plant and Materials, tools and equipment owned or hired by the *Contractor*.

### 5.7 Equipment provided by the *Employer*

The *Employer* will provide the Desktop for the *Contractor* employees, which remains the property of Eskom and cannot be removed from site.

Workshop  
Forklift  
Mobile Crane  
Cherry Pickers  
Elevated Platform  
Spares  
Lighting  
Toilet  
Road  
Overhead Cranes

### 5.8 Site services and facilities

#### 5.8.1 Provided by the *Employer*



The *Contractor* is supplied with an off-terrace site area for his yard, inside the Power Station security fence, for his use during the full period of the works.

The *Contractor's* yard is subject to periodic inspection by the *Service Manager*.

The location of the nearest sewer manhole, power distribution point, potable water connection, storm water channel and road access point is indicated by the *Employer*. Connections to the interface points supplied by the *Employer* are the responsibility of the *Contractor*.

The *Contractor* complies with the environmental policy given in the Site Regulations.

The *Contractor* provides, erects and maintains for his own use adequate size office accommodation and stores together with such drainage, lighting, heating, and hot and cold-water services as may be required. Provision is also made for adequate parking and a turning area adjacent to all the aforesaid structures. The *Employer*, prior to commencement of any work on site, accepts all designs and layouts for these provisions.

The *Contractor* includes in his establishment rates for all further treatment of the yard area that he considers necessary for the entire operation throughout the contract and under all weather conditions. The *Contractor* includes for all security fencing, security and access arrangements. Maintenance of the yard is the *Contractor's* responsibility and to the *Service Manager's* acceptance. Outfall drainage of all surface run-off drains is constructed by the *Contractor* to the acceptance of the *Service Manager* to minimise erosion and to effect control of contaminated water.

#### **Sitting facilities**

*Employer* provides an office with furniture and a landline telephone for internal calls only.

#### **Accommodation and transportation**

The *Contractor* provides his own accommodation and transport for all his employees engaged in the execution of the *service*. This includes the needs of his subcontractors. The cost for accommodation, as well as for transportation to and from site is included in the Prices. No accommodation is available at Grootvlei Power Station.

#### **Sanitary Facilities**

All the *Contractor's* personnel are expected to make use of the Station Terrace sanitary facilities. The *Contractor* provides additional facilities as required at own cost.

#### **Medical Facilities**

The *Contractor* provides, at his cost, a First Aid service to his employees. In the case where these prove to be inadequate, like in the event of a serious injury, the *Employer's* Medical Centre and facilities will be available.

Outside the *Employer's* office hours, the *Employer's* First Aid Services will only be available for serious injuries and life threatening situations.

The *Employer* will be entitled to recover the costs incurred, for the use of the above *Employer's* facilities, from the *Contractor*.

#### **Water**

The *Employer* provides a water connection point at the *Contractor's* off-terrace site yard. The *Contractor* provides, at his own cost, all connection fittings, pipe work, temporary plumbing and pumps necessary to lead the water from the *Employer's* points of supply to the various points where it is required. The *Contractor* is responsible to maintain these facilities and to remove it at completion of the whole of the works.

The *Service Manager* does not guarantee continuity of supply and the *Contractor* makes his own provision for standby supplies to maintain continuity of work. Claims of any nature relating to discontinuity of water supply are not considered.

#### **Electricity**

All points of supply requested by the *Contractor* are provided in terms of quantity and location at the discretion of the *Service Manager*.

No connection is made to the permanent installation at the Power Station without the prior acceptance of the *Service Manager*

The *Employer* guarantees power supply quality and reliability. No guarantees of power supply quality are given and power supply outages of some duration may occur without warning. Planned outages are also a possibility.

The *Contractor* makes arrangements at his own expense to improve continuity and quality of power where necessary for any reason and no claim of any nature relating to power failures is considered.

220V and 380V power source will be available near the off-terrace site area. It is the *Contractor's* responsibility to connect to this power source and obtain statutory Certificate of Compliance for such a connection or installation. The use of this power supply is used to cater for the *Contractor's* office requirements and is not to be used for any construction purpose. Construction power is available to the *Contractor* within the main turbine and boiler house.

All installations or equipment connected to a supply of electricity provided free of charge by the *Employer* shall comply with all relevant safety regulations and requirements. Failure to comply with the safety requirements may lead to immediate disconnection.

The *Contractor* shall provide, at his own expense, all temporary wiring and cabling to lead power from the point of supply or distribution boards, to the various points where it is required, maintain same and remove on completion.

#### **Safety and accident prevention**

The *Employer* follows an accident prevention policy that includes the investigation of all accidents involving personnel and property. This is done with the intention of introducing control measures to prevent a recurrence of the same incidents. The *Contractor* is expected to fully co-operate to achieve this objective. The *Contractor* will report any incident and accidents to Grootvlei Power Station within 24 hours

#### **Ventilation**

The *Contractor* shall make his own allowance for adequate ventilation of the *service*.

#### **Lighting**

Temporary local lighting in accordance with the requirements of the Factories Inspector shall be provided by the *Contractor* at his own expense. No local lighting will be provided by the *Employer*, with the exception of the lighting provided for sandblasting facilities. Area lighting immediately outside the boiler and turbine houses and stairway lighting is provided by the *Employer*.

#### **Compressed air**

Compressed air is available for the *service*. The variation of pressure in the air supply and or breakdown in the supply shall not be grounds for an extension of time or compensation if it causes a delay.

#### **Communication Infrastructure**

Enabling communication infrastructure will be provided by the *Employer* to assist the *Contractor* in delivering the Services. These include, but are not restricted to:

- two-way radios for communication with the *Employer*;
- an office landline for job-related calls; any outside calls will be for the *Contractor's* account.

#### **Equipment**

Any Equipment, or appliances, used by the *Contractor* conforms to the applicable OHS Act safety standards and is maintained in a safe and proper working condition. The *Service Manager* has the right

to stop the *Contractor's* use of any Equipment which, in the opinion of *Service Manager*, does not conform to the foregoing.

Off-loading and material-handling Equipment such as cranes and forklifts are not available on site and if required is to be provided by the *Employer*.

### **General**

The *Contractor* complies with the Grootvlei Site Regulations, a copy of which is available for perusal at the *Service Manager's* offices.

Any subject within the authority of the *Service Manager* may be addressed by a Site Regulation. Before work starts on Site, an inaugural meeting is held with the *Contractor* and the *Service Manager*, to explain in detail all requirements of the Site Regulations.

The *Contractor* is issued with a file of current Site Regulations on arrival. The file remains the property of the *Service Manager* and the *Contractor* is responsible for its maintenance and updating to include new or revised regulations as issued by the *Service Manager* during this contract.

### **Communication and correspondence**

All correspondence includes:

- Grootvlei Power Station
- *Employer's* Contract number
- Contract description
- Correspondence subject matter
- Service Manager's name and contact details
- *Contractor* contact details
- Date

Where appropriate the correspondence includes the *Service Manager's* reference and is delivered as a single package.

All communications from the *Contractor* are numbered sequentially with a prefix as advised by the *Service Manager*. The *Service Manager* responds in like manner. The prefix and numbering system is decided upon at the kick-off meeting

### **Accommodation and transportation**

The *Contractor* provides his own accommodation and transport for all his employees engaged in the execution of the works. The cost for transportation to and from Site is included in the Prices.

### **Medical Facilities**

Ambulance and first aid facilities are available on the Main Station Terrace

### **Safety and Accident Prevention**

The *Contractor* will be familiar with and comply with Grootvlei Power Station's safety policies and procedures. Furthermore, the *Contractor* will comply with the provisions of the Occupational Health and Safety Act and in particular, the provisions of the Construction Regulations.

The *Employer* follows an accident prevention policy that includes the investigation of all accidents involving personnel and property. This is done with the intention of introducing control measures to

prevent a recurrence of the same incidents. The *Contractor* is expected to fully co-operate to achieve this objective. The *Contractor* will report any incident and accidents to Grootvlei Power Station within 24 hours.

NOTE! This report does not relieve the *Contractor* of his legal obligation to report certain incidents to the Department of Labour, or to keep records in terms of the Occupational Health and Safety Act, and Compensation for Occupational Injuries and Diseases Act.

### **Confidentiality**

This document in its entirety is for the sole use of the *Employer*. No part of this document may be discussed, distributed, disseminated, copied or transmitted in any form to any third party without the prior consent of the *Employer*.

#### **5.8.2 Provided by the *Contractor***

The *Contractor* shall provide transportation for its employees

*Contractor* to provide accommodation, laboratories, storage, vehicles and office equipment for the Service Manager and Supervisors

### **5.9 Control of noise, dust, water and waste**

Noise and pollution levels for all construction equipment is monitored and managed. Equipment with oil leaks, excessive emission, or unacceptable noise levels are repaired or removed from site. Temporary services are maintained in a good and proper manner.

### **5.10 Hook ups to existing works**

*The Contractor* must ensure that his employees are trained for working at heights and use of safety harnesses

### **5.11 Tests and inspections**

#### **5.11.1 Description of tests and inspections**

N/A

#### **5.11.2 Materials facilities and samples for tests and inspections**

N/A

## **6 List of drawings**

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

NB: All our drawings are available on G-Drive.

Drawing number	Revision	Title

#### Annexure A

5% of the total task order	Focus Area	Expectation	Targets	Penalty per task order
	Plant	Rework	No rework	2%
		Callout response	2hrs	1%
	Safety incidents	LTI	No LTI per month	1%
	Production	Unit Trip	No Trip	1%