



NEC3 Engineering & Construction Contract

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

and **[Insert at award stage]**
(Reg No. _____)

for **[•]**

Contents:	No of pages
Part C1 Agreements & Contract Data	2
Part C2 Pricing Data	3
Part C3 Scope of Work	
Part C4 Site Information	

CONTRACT No. [Insert at award stage]

Part C1: Agreements & Contract Data

Contents:	No of pages
C1.1 Form of Offer and Acceptance	3
C1.2a Contract Data provided by the <i>Employer</i>	17
C1.2b Contract Data provided by the <i>Contractor</i>	5
C1.3 Proforma Guarantees	11

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:

Gourikwa Major Inspection Services and Spares

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 B, C or D	The offered total of the Prices exclusive of VAT is	R [●]
Option E or F	The first forecast of the total Defined Cost plus the Fee exclusive of VAT is	R [●]
	Sub total	R [●]
	Value Added Tax @ 14% is	R [●]
	The offered total of the amount due inclusive of VAT is ¹	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 (if applicable)

¹ 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: Works Information
Part C4	Site 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 original copy signed between them of this document, including the Schedule of Deviations (if any).

Unless the tenderer (now *Contractor*) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

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)

Name & signature of witness _____

Date _____

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Cla use	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
		B: Priced contract with bill of quantities
	dispute resolution Option	W1: Dispute resolution procedure
	and secondary Options	
		X1: Price adjustment for inflation
		X2: Changes in the law
		X3: Multiple currencies
		X4: Parent company guarantee
		X5: Sectional Completion
		X13: Performance Bond
		X16: Retention
		X17: Low performance damages
		X18: Limitation of liability
		Z: <i>Additional conditions of contract</i>
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> is (Name):	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
	Address	Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg
10.1	The <i>Project Manager</i> is: (Name)	Jabulani Tswayi
	Address	No. 1 Maxwell drive Sunninghill Sandton

Tel [011 516 7305
e-mail TswayiJS@eskom.coz.a

10.1 The *Supervisor* is: (Name) TBC
Address
Tel No.
Fax No.
e-mail

11.2(The *works* are Inspection, provision of capital spares and
13) refurbishment of five (5) Peaking Generation
open cycle gas turbines (OCGT) at Gourikwa
Power Station.

11.2(The following matters will be included in the
14) Risk Register Risk register as submitted with the tender

11.2(The *boundaries of the site* are Gourikwa Power Station
15)

11.2(The Site Information is in Part 4: Site Information
16)

11.2(The Works Information is in Part 3: Scope of Work and all documents and
19) drawings to which it makes reference.

12.2 The *law of the contract* is the law of the Republic of South Africa

13.1 The *language of this contract* is English

13.3 The *period for reply* is 2 days for pre implementation and
• 24 hours during implementation

2 The Contractor's main responsibilities Refer to Clause 2 of the NEC ECC April 2013

3 Time

11.2(The *completion date* for the whole of the *works*
3) is September 2028

11.2(The *key dates* and the *conditions* to be met
9) are: Condition to be met key date

1 To be agreed to by both
parties

30.1 The *access dates* are: Part of the Site Date
1 GRK 21 TBC
2 GRK 12 TBC

		3	GRK 11	TBC
		4	GRK 22	TBC
		5	GRK 13	TBC
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	Two(2) weeks of the Contract Date.		
31.2	The <i>starting date</i> is	TBC		
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	as soon as a deviation from program occurs		
35.1	The <i>Employer</i> is not willing to take over the works before the Completion Date.			

4 Testing and Defects

42.2	The <i>defects date</i> is	52 weeks after Completion of the whole of the works per section, 360 starts or 7200 EOH of such section. • One (1) year for components upon delivery		
43.2	The <i>defect correction period</i> is	to be determined by the nature of the defect and such period is as reasonable as possible and agreed between the two parties		

5 Payment

50.1	The <i>assessment interval</i> is	between the 25 th day of each successive month.		
51.1	The <i>currency of this contract</i> is the	South African Rand.		
51.2	The period within which payments are made is	30 days after receipt of an invoice		
51.4	The <i>interest rate</i> is	<p>the publicly quoted prime rate of interest (calculated on a 365 day year) charged 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 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</p>		

the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.

6 Compensation events

60.1(13)	The place where weather is to be recorded is:	Mossel Bay
	The <i>weather measurements</i> to be recorded for each calendar month are,	the cumulative rainfall (mm) the number of days with rainfall more than 10 mm the number of days with minimum air temperature less than 0 degrees Celsius the number of days with snow lying at 09:00 hours South African Time and these measurements:
	The <i>weather measurements</i> are supplied by	Employer
	The <i>weather data</i> are the records of past <i>weather measurements</i> for each calendar month which were recorded at:	Mossel Bay
	and which are available from:	the South African Weather Bureau and included in Annexure A to this Contract Data provided by the Employer
60.1(13)	Assumed values for the ten year return <i>weather data</i> for each <i>weather measurement</i> for each calendar month are:	As stated in Annexure A to this Contract Data provided by the Employer.

7	Title	Refer to Clause 7 of the NEC ECC April 2013
----------	--------------	--

8 Risks and insurance

80.1	These are additional <i>Employer's</i> risks	
84.1	The <i>Employer</i> provides these insurances from the Insurance Table	Refer to Z13
84.1	The <i>Employer</i> provides these additional insurances	Refer to Z13
84.1	The <i>Contractor</i> provides these additional insurances:	refer to Z13
84.2	The insurance against loss of or damage to the <i>works</i> , Plant and Materials is to include cover for Plant and Materials provided by the <i>Employer</i> for an amount of	Refer to Z13
84.2	The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the <i>works</i> , Plant, Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection	refer to Z13

with this contract for any one event is

84.2	The minimum limit of indemnity for insurance in respect of 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 for any one event is	As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 and the <i>Contractor's</i> common law liability for people falling outside the scope of the Act with a limit of Indemnity of not less than R500 000 (Five hundred thousand Rands).
------	---	---

9	Termination	Refer to Clause 9 of the NEC ECC April 2013
----------	--------------------	---

10 Data for main Option clause

B	Priced contract with bill of quantities	
60.6	The <i>method of measurement</i> is	as stated in Part C2.1, Pricing Assumptions.

11 Data for Option W1

W1.1	The <i>Adjudicator</i> is	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 www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).		
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 London Institution of Civil Engineers. (See www.ice-sa.org.za) 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	the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.		
	- if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is			

12 Data for secondary Option clauses

X1	Price adjustment for inflation			
X1.1(a)	The <i>base date</i> for indices is	[•].		
X1.1(c)	The proportions used to calculate the Price Adjustment Factor are:	proportion	linked to index for	Index prepared by
		0. [•]	[•]	[•]

		0. [•]	[•]	[•]
		0. [•]	[•]	[•]
		0. [•]	[•]	[•]
		0. [•]	[•]	[•]
		[•]	non-adjustable	
	Total	1.00		
X2	Changes in the law	Refer to Secondary Option Clause X2 in the NEC ECC, April 2013		
X3	Multiple currencies			
X3.1	The <i>Employer</i> will pay for these items or activities in the currencies stated	Items & activities	Other currency	Maximum payment in other currency
		[•]	[•]	[•]
		[•]	[•]	[•]
		[•]	[•]	[•]
		[•]	[•]	[•]
X3.1	The <i>exchange rates</i> are those published in	[•] on [•] (date)		
		<p>The items & activities will be paid in the other currency</p> <p>- to a foreign Bank account nominated by the <i>Contractor</i></p> <p>- to a valid SARB approved CFC account in South Africa</p> <p>- in accordance with an alternative payment method agreed with the <i>Employer</i> before the Contract Date.</p> <p>(select one of the three methods as agreed with successful tenderer and delete the others and this note)</p>		
X4	Parent company guarantee	Refer to C1.3 Forms of Securities		
X5	Sectional Completion			
X5.1	The <i>completion date</i> for each <i>section</i> of the works is:	Section	Description	Completion date
		1	GRK 21	TBC
		2	GRK 12	TBC
		3	GRK 11	TBC
		4	GRK 22	TBC
		5	GRK 13	TBC
X13	Performance bond			
X13.	The amount of the performance bond is	10% of the contract value		

1			
X16	Retention (not used with Option F)		
X16.1	The <i>retention free amount</i> is	R0	
	The <i>retention percentage</i> is	10%	
X17	Low performance damages		
X17.1	The amounts for low performance damages are:	Amount	Performance level
		R [●]	for [●]
		R [●]	for [●]
		R [●]	for [●]
		R [●]	for [●]
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 described in the insurance policy format selected in the data for clause 84.1 above, which policy is available on http://www.eskom.co.za/Tenders/InsurancePolicies/Procedures/Pages/EIMS_Policies_From_1_April_2014_To_31_March_2015.aspx	
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to	The greater of <ul style="list-style-type: none"> the total of the Prices at the Contract Date and the amounts excluded and unrecoverable from the <i>Employer's</i> assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus R15M first amount payable in terms of the <i>Employer's</i> assets policy. 	
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 excluded matters, is limited to:	the total of the Prices other than for the additional excluded matters. The <i>Contractor's</i> total liability for the additional excluded matters is not limited. The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for <ul style="list-style-type: none"> Defects due to his design which arise before the Defects Certificate is issued, Defects due to manufacture and fabrication outside the Site, loss of or damage to property (other than the <i>works</i>, Plant and Materials), death of or injury to a person and 	

		<ul style="list-style-type: none"> • infringement of an intellectual property right.
X18.5	The <i>end of liability date</i> is	<p>5 years after the <i>defects date</i> for latent Defects and</p> <p>(ii) the date on which the liability in question prescribes in accordance with the Prescription Act No. 68 of 1969 (as amended or in terms of any replacement legislation) for any other matter.</p> <p>A latent Defect is a Defect which would not have been discovered on reasonable inspection by the <i>Employer</i> or the <i>Supervisor</i> before the <i>defects date</i>, without requiring any inspection not ordinarily carried out by the <i>Employer</i> or the <i>Supervisor</i> during that period. If the <i>Employer</i> or the <i>Supervisor</i> do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the <i>Employer</i> or the <i>Supervisor</i> to have discovered the Defect.</p>
Z	The <i>Additional conditions of contract</i> are	Z1 to Z15 always apply.

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 *Project 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 *Project Manager* within thirty days of the notification or as otherwise instructed by the *Project 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 Works.
- 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 P3 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 *Project 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 *works* or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the *Project 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 *Project Manager*, the *Supervisor*, 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 *works*. 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 Site;
 - 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 *works*; and

- undertakes, in and about the execution of the *works*, 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 *works*, 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 *Project 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 Works 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 from the last sentence in core clause 61.3, "unless the *Project Manager* should have notified the event to the *Contractor* but did not".

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 83.1 is provided for in 60.1(14) and the *Employer's* liability under the indemnity is limited.

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 Addition to secondary Option X7 Delay damages (if applicable in this contract)

Z11.1 If the amount due for the *Contractor's* payment of delay damages reaches the limits stated in this Contract Data for Option X7 or Options X5 and X7 used together, the *Employer* may terminate the *Contractor's* obligation to Provide the Works using the same procedures and payment on termination as those applied for reasons R1 to R15 or R18 stated in the Termination Table.

Z12 Ethics

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

Affected Party	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,
Coercive Action	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,
Collusive Action	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,
Committing Party	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,
Corrupt Action	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,
Fraudulent Action	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,
Obstructive Action	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
Prohibited Action	means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

Z 12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z 12.2 The *Employer* may terminate the *Contractor's* obligation to Provide the Works 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 Works for this reason.

Z 12.3 If the *Employer* terminates the *Contractor's* obligation to Provide the Works for this reason, the procedures and amounts due on termination are respectively P1, P2 and P3, and A1 and A3.

Z 12.4 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.

Z13 Insurance

Z 13.1 Replace core clause 84 with the following:

Insurance cover 84

- 84.1** 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.
- 84.2** The *Contractor* provides the insurances stated in the Insurance Table A.
- 84.3** The insurances provide cover for events which are at the *Contractor's* risk 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 to the works, Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as Contract Date, where covered by the <i>Employer's</i> insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this contract	<u>Loss of or damage to property</u> <u>Employer's property</u> The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as Contract Date, where covered by the <i>Employer's</i> insurance <u>Other property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by 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 13.2

Replace core clause 87 with the following:

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

INSURANCE TABLE B

Insurance against or name of policy	Minimum amount of cover or minimum limit of indemnity
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

Z14 Nuclear Liability

- Z14.1 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.
- Z14.2 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*.
- Z14.3 Subject to clause Z14.4 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*.
- Z14.4 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.
- Z14.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z15 Asbestos

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

- AAIA** means approved asbestos inspection authority.
- ACM** means asbestos containing materials.
- AL** 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.
- Ambient Air** 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.

Compliance Monitoring	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.
OEL	means occupational exposure limit.
Parallel Measurements	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
Safe Levels	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.
Standard	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.
SANAS	means the South African National Accreditation System.
TWA	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.

- Z15.1 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.
- Z15.2 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 Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.
- Z15.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z15.4 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.
- Z15.5 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.
- Z15.6 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.
- Z15.7 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.

Annexure A: One-in-ten-year-return *weather data* obtained from SA Weather Bureau for [weather station]

If any one of these *weather measurements* recorded within a calendar month, before the Completion Date for the whole of the *works* and at the place stated in this Contract Data is shown to be more adverse than the amount stated below then the *Contractor* may notify a compensation event.

	<i>Weather measurement</i>				
Month	Cumulative rainfall (mm)	Number of days with rain more than 10mm	Number of days with min air temp < 0 deg.C	Number of days with snow lying at 08:00 CAT	[Other measurements if applicable]
January	[•]	[•]	[•]	[•]	
February	[•]	[•]	[•]	[•]	
March	[•]	[•]	[•]	[•]	
April	[•]	[•]	[•]	[•]	
May	[•]	[•]	[•]	[•]	
June	[•]	[•]	[•]	[•]	
July	[•]	[•]	[•]	[•]	
August	[•]	[•]	[•]	[•]	
September	[•]	[•]	[•]	[•]	
October	[•]	[•]	[•]	[•]	
November	[•]	[•]	[•]	[•]	
December	[•]	[•]	[•]	[•]	

Only the difference between the more adverse recorded weather and the equivalent measurement given above is taken into account in assessing a compensation event.

Annexure B: Insurance provided by the Employer

These notes are provided as guidance to tendering contractors and the Contractor about the insurance provided by the Employer. The Contractor must obtain its own advice. Details of the insurance itself are available from the internet web link given below.

1. For the purpose of works contracts, insurance provided by Eskom (the *Employer*) has been arranged on the basis of "project" or "contract" value, where the value is the total of the Prices at Completion of the whole of the works including VAT.

A "project" is a collection of contracts or work packages to be undertaken as part of a single identified capital expansion or refurbishment of a particular asset or facility.

A "contract" is a single contract not linked to or being part of a "project".

2. For ECC3 there are three main "formats" of cover and deductible structure; Format A, Format B and Format Dx.

Format A is for a project or contract value less than or equal to R350M (three hundred and fifty million Rand) inclusive of VAT.

Format B is for a project or contract value greater than R350M (three hundred and fifty million Rand) inclusive of VAT.

In the case of contracts / packages within a project:

- For a contract / package of R50M which is part of a R400M project, Format B will apply
- For a contract / package of R250M which is part of a R6 billion project, Format B will apply;
- For a contract / package of R120M which is part of a R350M project Format A will apply;

For a contract which is not part of a project the same limits apply:

- For a contract of R50M, Format A will apply
- For a contract of R355M, Format B will apply.

Format Dx applies only to Distribution Division projects and contracts. If a Distribution Division project or contract exceeds the Format A limit, the Eskom Insurance Management Services [EIMS] need to be contacted for advice on how to formulate the insurance cover. Cover and deductibles for Distribution Division are per the relevant policy available on the internet web link given below.

Format A generally applies to Transmission Division projects and contracts. If a Transmission Division project or contract exceeds the Format A limit, the Eskom Insurance Management Services [EIMS] need to be contacted for advice on how to formulate the insurance cover.

3. Tendering contractors should note that cover provided by the *Employer* is only per the policies available on the internet web link listed below and may not be the cover required by the tendering contractor or as intended by each of the listed insurances in the left hand column of the Insurance Table in clause 84.2. In terms of clause 84.1 "the *Contractor* provides the insurances stated in the Insurance Table except any insurance which the *Employer* is to provide". Hence the *Contractor* provides insurance which the *Employer* does not provide and in cases where the *Employer* does provide insurance the *Contractor* insures for the difference between what the Insurance Table requires and what the *Employer* provides.
4. When the Marine Insurance is required the *Contractor* needs to obtain a copy of the latest edition of Eskom's Marine Policies Procedures found at internet website given below.
5. Further information and full details of all Eskom provided policies and procedures may be obtained from:

http://www.eskom.co.za/live/content.php?Item_ID=9248

C1.2 Contract Data

Part two - Data provided by the *Contractor*

[Instructions to the contract compiler: (delete this notes before issue to tenderers with an enquiry)

Whenever a cell is shaded in the left hand column it denotes this data is optional. If not required select and delete the whole row, otherwise insert the required Data.]

Notes to a tendering contractor:

1. Please read both the NEC3 Engineering and Construction Contract (April 2013) and the relevant parts of its Guidance Notes (ECC3-GN)² in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 (April 2013) Guidance Notes.
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	% %
11.2(18)	The <i>working areas</i> are the Site and	
24.1	The <i>Contractor's</i> key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job Responsibilities: Qualifications: Experience:	

² Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled _____.		
11.2(3)	The <i>completion date</i> for the whole of the works is			
11.2(14)	The following matters will be included in the Risk Register			
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:			
31.1	The programme identified in the Contract Data is			
B	Priced contract with bill of quantities			
11.2(21)	The <i>bill of quantities</i> is in	(in figures) (in words), excluding VAT		
11.2(31)	The tendered total of the Prices is			
	Data for Schedules of Cost Components	<i>Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).</i>		
B	Priced contract with bill of quantities	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:	%		
21 in SSCC	The published list of Equipment is the last edition of the list published by The percentage for adjustment for Equipment in the published list is	Minus %		
22 in SSCC	The rates of other Equipment are:	Equipment	Size or capacity	Rate
61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates. Please insert another schedule if foreign resources may also be used	Category of employee		Hourly rate

62 in SSCC	The percentage for design overheads is	%
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:	

C1.3 Forms of Securities

Pro formas for Bonds & Guarantees

For use with the NEC3 Engineering & Construction Contract (June 2005)

[Note to contract compiler:

Once it has been decided which securities are required for this contract delete from this file the ones not required, revise the notes below accordingly and delete this note.]

The *conditions of contract* stated in the Contract Data Part 1 include the following Secondary Options:

Option X4: Parent company guarantee
Option X13: Performance Bond
Option X14: Advanced payment to the *Contractor*

Each of these secondary Options requires a bond or guarantee "in the form set out in the Works Information". Pro forma documents for these bonds and guarantees are provided here for convenience but are to be treated as part of the Works Information.

Option X16: Retention (not used with Option F)

The *Contractor* may provide a Retention Money Guarantee in the form stated here. When the *Employer* receives and accepts a Retention Money Guarantee exactly in the form stated he will instruct the *Project Manager* not to assess any amount be retained in terms of secondary Option X16.

The *Contractor* shall guarantee his ASGI-SA Obligations by providing the *Employer* with an ASGI-SA Guarantee in the form provided here.

[Note to contract compiler: If there are no ASGI-SA Obligations in this contract, delete the above statement]

The organisation providing the bond / guarantee does so by copying the pro forma document onto his letterhead without any change to the text or format and completing the required details. The completed document is then given to the *Employer* within the time stated in the contract.

Pro forma Parent Company Guarantee

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

**Eskom Holdings SOC Ltd
Megawatt Park
Maxwell Drive
Sandton
Johannesburg**

Date:

Dear Sirs,

Parent Company Guarantee for Contract No

With reference to the above numbered contract made or to be made between

Eskom Holdings SOC Ltd (the *Employer*) and

{Insert registered name and address of the Contractor} (the *Contractor*), for

{Insert details of the works from the Contract Data} (the *works*).

I/We the undersigned

on behalf of the *Contractor's*
parent company

of physical address

and duly authorised thereto do hereby unconditionally guarantee to the *Employer* that the *Contractor* shall Provide the Works in accordance with the above numbered Contract.

1. If for any reason the *Contractor* fails to Provide the Works, we hereby agree to cause to Provide the Works at no additional cost to the *Employer*.
2. If we fail to comply with the terms of this Deed of Guarantee, the *Employer* may itself procure such performance (whether or not the Agreement be formally determined). The *Employer* is to notify us and we shall indemnify the *Employer* for any additional cost or expense it incurs.
3. Our liability shall be as primary obligor and not merely as surety and shall not be impaired or discharged by reason of any arrangement or change in relationship made between the *Contractor* and the *Employer* and/or between us and *Contractor*; nor any alteration in the obligations undertaken by the *Contractor* or in the terms of the Agreement; nor any indulgence, failure, delay by you as to any matter; nor any dissolution or liquidation or such other analogous event of the *Contractor*.
4. The *Employer* shall not be obliged before taking steps to enforce the terms of this Deed of Guarantee to obtain judgement against the *Contractor* in any court or other tribunal, to make or file any claim in liquidation (or analogous proceedings) or to seek any remedy or proceed first against the *Contractor*.
5. This Deed of Guarantee shall be governed by and construed in accordance with the laws of the Republic of South Africa and we hereby submit to the non-exclusive jurisdiction of the High Court of South Africa.

Signed at _____ on this _____ day of _____ 200_

Signature(s)

Name(s) (printed)

Position in parent company

Signature of Witness(s)

Name(s) (printed)

Pro forma Performance Bond – Demand Guarantee

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Eskom Holdings SOC Ltd
Megawatt Park
Maxwell Drive
Sandton
Johannesburg

Date:

Dear Sirs

Reference No. [●] [Drafting Note: Bank reference number to be inserted]

Performance Bond – Demand Guarantee: [Drafting Note: Name of Contractor to be inserted]

Project [] Contract Reference: [Drafting Note: Contractor contract reference number to be inserted]

1. In this Guarantee the following words and expressions shall have the following meanings:-
 - 1.1 “Bank” - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]
 - 1.2 “Bank’s Address” - means [●]; [Drafting Note: Bank’s physical address to be inserted]
 - 1.3 “Contract” – means the written agreement relating to the Project, entered into between Eskom and the Contractor, on or about the [●] day of [●] 200[●] (Contract Reference No. [.]as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted])
 - 1.4 “Contractor” – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of Contractor to be inserted]
 - 1.5 “Eskom” - means Eskom Holdings SOC Ltd, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/30].
 - 1.6 “Expiry Date” - means the date on which the Defects Certificate is issued in terms of the Contract.
 - 1.7 “Guaranteed Sum” - means the sum of R [●] ([●] Rand);
 - 1.8 “Project” - means [insert if applicable.].
2. At the instance of the Contractor, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.
3. A demand for payment under this guarantee shall be made in writing at the Bank’s address and shall:
 - 3.1 be signed on behalf of Eskom by a Group Executive, Divisional Executive, Senior General Manager, General Manager or its delegate;
 - 3.2 state the amount claimed (“the Demand Amount”);
 - 3.3 state that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.

4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:
 - 4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and
 - 4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.
5. The Bank's obligations in terms of this Guarantee:
 - 5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and
 - 5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed, by the fact that a dispute may exist between Eskom and the Contractor.
6. Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the Contractor or any variation under or to the Contract.
7. Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.
8. This Guarantee:
 - 8.1 shall expire on the Expiry Date until which time it is irrevocable;
 - 8.2 is, save as provided for in 7 above, personal to Eskom and is neither negotiable nor transferable;
 - 8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;
 - 8.4 shall be regarded as a liquid document for the purpose of obtaining a court order; and
 - 8.5 shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the Courts of the Republic of South Africa.
 - 8.6 Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.
9. The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____

Date _____

For and behalf of the Bank

Bank Signatory: _____

Bank Signatory: _____

Witness: _____

Witness: _____

Bank's seal or stamp

Pro forma Retention Money Guarantee

(to be reproduced exactly as shown below on the letterhead of the Bank providing the Guarantee)

Eskom Holdings SOC Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg

Date:

Dear Sirs

Reference No. [●] [Drafting Note: Bank reference number to be inserted]

Retention Money Guarantee: [Drafting Note: Name of Contractor to be inserted]

Project [] : Contract Reference: [Drafting Note: Contractor contract reference number to be inserted]

1. In this Guarantee the following words and expressions shall have the following meanings:-
 - 1.1 "Bank" - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]
 - 1.2 "Bank's Address" - means [●]; [Drafting Note: Bank's physical address to be inserted]
 - 1.3 "Contract" – means the written agreement relating to the Project, entered into between Eskom and the Contractor, on or about the [●] day of [●] 200[●] (Contract Reference No. as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted])
 - 1.4 "Contractor" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of Contractor to be inserted]
 - 1.5 "Eskom" - means Eskom Holdings SOC Limited, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/30
 - 1.6 "Expiry Date" - means the date on which the Defects Certificate is issued in terms of the Contract.
 - 1.7 "Guaranteed Sum" - means the sum of R [●] ([●] Rand); [Drafting Note: Insert amount of Retention Money Guarantee.].
 - 1.8 "Project" - means the.....
2. At the instance of the Contractor, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.
3. A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:
 - 3.1 be signed on behalf of Eskom by a director of Eskom or his authorised delegate.
 - 3.2 state the amount claimed ("the Demand Amount");
 - 3.3 state that the Contractor has failed to carry out his obligation(s) to rectify certain defect(s) for

which he is responsible under the Contract (and the nature of such defect(s)) alternatively that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.

4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:
 - 4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and
 - 4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.
5. The Bank's obligations in terms of this Guarantee:
 - 5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and
 - 5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed by the fact that a dispute may exist between Eskom and the Contractor.
6. Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the Contractor or any variation under or to the Contract.
7. Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.
8. This Guarantee:
 - 8.1 shall expire on the Expiry Date until which time it is irrevocable;
 - 8.2 is, save as provided for in 7 above, personal to Eskom and is neither negotiable nor transferable;
 - 8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;
 - 8.4 shall be regarded as a liquid document for the purpose of obtaining a court order; and
 - 8.5 shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the Courts of the Republic of South Africa.
 - 8.6 Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.
9. The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____

Date _____ Bank's seal or stamp

For and behalf of the Bank

Bank Signatory: _____

Bank Signatory: _____

Witness: _____

Witness: _____

Pro forma ASGI-SA Guarantee

(to be reproduced exactly as shown below on the letterhead of the Bank providing the Guarantee)

Eskom Holdings Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg

Date: _____

Dear Sirs

Reference No. [●] [Drafting Note: Bank reference number to be inserted]

Pro-Forma ASGI-SA Guarantee: [Drafting Note: Name of Contractor to be inserted]

Project [] Contract Reference: [●] [Drafting Note: Contractor contract reference number to be inserted]

1. In this Guarantee the following words and expressions shall have the following meanings:-
 - 1.1 "Bank" - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]
 - 1.2 "Bank's Address" - means [●]; [Drafting Note: Bank's physical address to be inserted]
 - 1.3 "Contract" – means the written agreement relating to the Project, entered into between the *Employer* and the *Contractor*, on or about the [●] day of [●] 200[●] (Contract Reference No. [●] as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted])
 - 1.4 "*Contractor*" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of Contractor to be inserted]
 - 1.5 "*Contractor's ASGI-SA Obligations*" – means the *Contractor's ASGI-SA Obligations* under and as defined in the Contract.
 - 1.6 "*Employer*" - means Eskom Holdings Limited, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/06.
 - 1.7 "Expiry Date" - means the [●] day of [●] 200[●]; [Drafting Note: anticipated date of issue of ASGI-SA Performance Certificate to be inserted.]
 - 1.8 "Guaranteed Sum" - means the sum of R [●] ([●] Rand);
 - 1.9 "Project" – means the
2. At the instance of the *Contractor*, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of the *Employer*, as security for the proper performance by the *Contractor* of the *Contractor's ASGI-SA Obligations* and hereby undertake to pay to the *Employer*, on written demand from the *Employer* received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.
3. A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:
 - 3.1 state the amount claimed ("the Demand Amount");
 - 3.2 state that the Demand Amount is payable to the *Employer* in the circumstances contemplated in the Contract.

4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:
- 4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and
- 4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.
5. The Bank's obligations in terms of this Guarantee:
- 5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and
- 5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed, by the fact that a dispute may exist between the *Employer* and the *Contractor*.
6. The *Employer* shall be entitled to arrange its affairs with the *Contractor* in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the *Contractor* or any variation under or to the Contract.
7. Should the *Employer* cede its rights against the *Contractor* to a third party where such cession is permitted under the Contract, then the *Employer* shall be entitled to cede to such third party the rights of the *Employer* under this Guarantee on written notification to the Bank of such cession.
8. This Guarantee:
- 8.1 shall expire on the Expiry Date until which time it is irrevocable;
- 8.2 is, save as provided for in 7 above, personal to the *Employer* and is neither negotiable nor transferable;
- 8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;
- 8.4 shall be regarded as a liquid document for the purpose of obtaining a court order; and
- 8.5 shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the courts of the Republic of South Africa.
- 8.6 Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.
9. The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____

Date _____

For and behalf of the Bank

Bank Signatory: _____

Bank Signatory: _____

Witness: _____

Witness: _____

Bank's seal or stamp

PART 2: PRICING DATA
ECC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	
C2.2	The <i>activity schedule</i>	

C2.1 Pricing assumptions: Option A

1. How work is priced and assessed for payment

Clause 11 in NEC3 Engineering and Construction Contract, (ECC3) Option A states:

Identified and defined terms	11	
	11.2	(20) The Activity Schedule is the <i>activity schedule</i> unless later changed in accordance with this contract.

(27) The Price for Work Done to Date is the total of the Prices for

- each group of completed activities and
- each completed activity which is not in a group.

A completed activity is one which is without Defects which would either delay or be covered by immediately following work.

(30) The Prices are the lump sum prices for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

This confirms that Option A is a lump sum form of contract where the work is broken down into activities, each of which is priced by the tendering contractor as a lump sum. Only completed activities are assessed for payment at each assessment date; no part payment is made if the activity is not completed by the assessment date.

2. Function of the Activity Schedule

Clause 54.1 in Option A states: "Information in the Activity Schedule is not Works Information or Site Information". This confirms that specifications and descriptions of the work or any constraints on how it is to be done are not included in the Activity Schedule but in the Works Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Works in accordance with the Works Information". Hence the *Contractor* does **not** Provide the Works in accordance with the Activity Schedule. The Activity Schedule is only a pricing document.

3. Link to the programme

Clause 31.4 states that "The *Contractor* provides information which shows how each activity on the Activity Schedule relates to the operations on each programme which he submits for acceptance". Ideally the tendering contractor will develop a high level programme first then resource each activity and thus arrive at the lump sum price for that activity both of which can be entered into the *activity schedule*.

4. Preparing the *activity schedule*

Generally it is the tendering contractor who prepares the *activity schedule* by breaking down the work described within the Works Information into suitable activities which can be well defined, shown on a programme and priced as a lump sum.

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 his *activity schedule* and be priced accordingly.

It is assumed that in preparing his *activity schedule* the *Contractor*:

- Has taken account of the guidance given in the ECC3 Guidance Notes pages 19 and 20;
- Understands the function of the Activity Schedule and how work is priced and paid for;
- Is aware of the need to link the Activity Schedule to activities shown on his programme;
- Has listed and priced activities in the *activity schedule* which are inclusive of everything necessary and incidental to Providing the Works in accordance with the Works 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 activity within the Prices of other listed activities in order to fulfil the obligation to complete the *works* for the tendered total of the Prices.
- Understands there is no adjustment to the lump sum Activity Schedule price if the amount, or quantity, of work within that activity later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the Prices is as a result of a compensation event.

An activity schedule could have the following format:

Item No.	Programme Reference	Activity description	Price

C2.2 the *activity schedule*

Use this page as a cover page to the *Contractor's activity schedule*.

Document reference	Title	No of pages
C3.1	This cover page <i>Employer's works</i> Information	1
C3.2	<i>Contractor's works</i> Information	
	Total number of pages	

C3.1: *EMPLOYER'S WORKS* INFORMATION

Contents

Part 3: Scope of Work	2
C3.1: <i>Employer's works</i> Information	1
1 Description of the <i>works</i>	3
1.1 Executive overview	3
1.2 <i>Employer's</i> objectives and purpose of the <i>works</i>	3
1.3 Interpretation and terminology	3
2 Management and start up.	4
2.1 Management meetings	4
2.2 Documentation control	4
2.3 Health and safety risk management	4
2.4 Environmental constraints and management	4
2.5 Quality assurance requirements	4
2.6 Programming constraints	5
2.7 <i>Contractor's</i> management, supervision and key people	5
2.8 Invoicing and payment	5
2.9 Insurance provided by the <i>Employer</i>	6
2.10 Contract change management	6
2.11 Provision of bonds and guarantees	6
2.12 Records of Defined Cost, payments & assessments of compensation events to be kept by the <i>Contractor</i>	6
2.13 Training workshops and technology transfer	6
2.13.1 Classroom Training Requirements	6
2.13.2 On the Job Training requirements	6
3 Engineering and the <i>Contractor's</i> design	6
3.1 <i>Employer's</i> design	6
3.2 Parts of the <i>works</i> which the <i>Contractor</i> is to design	6
3.3 Procedure for submission and acceptance of <i>Contractor's</i> design	6
3.4 Other requirements of the <i>Contractor's</i> design	6
3.5 Use of <i>Contractor's</i> design	7
3.6 Design of Equipment	7
3.7 Equipment required to be included in the <i>works</i>	7
3.8 As-built drawings, operating manuals and maintenance schedules	7
4 Procurement	7
4.1 People	7
4.1.1 Minimum requirements of people employed on the Site	7
4.1.2 BBBEE and preferencing scheme	7
4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)	7
4.2 Subcontracting	7
4.2.1 Preferred sub <i>Contractors</i>	7
4.2.2 Subcontract documentation, and assessment of subcontract tenders	7
4.2.3 Limitations on subcontracting	7
4.2.4 Attendance on sub <i>Contractors</i>	7
4.3 Plant and Materials	7
4.3.1 Quality	7
4.3.2 Plant & Materials provided “free issue” by the <i>Employer</i>	7
4.3.3 <i>Contractor's</i> procurement of Plant and Materials	7
4.3.4 Spares and consumables	7
4.4 Tests and inspections before delivery	7
4.5 Marking Plant and Materials outside the Working Areas	7
4.6 <i>Contractor's</i> Equipment (including temporary <i>works</i>).	7
5 Construction	8

5.1	Temporary <i>works</i> , Site services & construction constraints	8
5.1.1	<i>Employer's</i> Site entry and security control, permits, and Site regulations	8
5.1.2	Restrictions to access on Site, roads, walkways and barricades	8
5.1.3	People restrictions on Site; hours of work, conduct and records	8
5.1.4	Health and safety facilities on Site	8
5.1.5	Environmental controls, fauna & flora, dealing with objects of historical interest	8
5.1.6	Title to materials from demolition and excavation	8
5.1.7	Cooperating with and obtaining acceptance of Others	8
5.1.8	Publicity and progress photographs	8
5.1.9	<i>Contractor's</i> Equipment	8
5.1.10	Equipment provided by the <i>Employer</i>	8
5.1.11	Site services and facilities	8
5.1.12	Facilities provided by the <i>Contractor</i>	9
5.1.13	Existing premises, inspection of adjoining properties and checking work of Others	9
5.1.14	Survey control and setting out of the <i>works</i>	9
5.1.15	Excavations and associated water control	9
5.1.16	Underground services, other existing services, cable and pipe trenches and covers	9
5.1.17	Control of noise, dust, water and waste	9
5.1.18	Sequences of construction or installation	9
5.1.19	Giving notice of work to be covered up	9
5.1.20	Hook ups to existing <i>works</i>	9
5.2	Completion, testing, commissioning and correction of Defects	9
5.2.1	Work to be done by the Completion Date	9
5.2.2	Use of the <i>works</i> before Completion has been certified	10
5.2.3	Materials facilities and samples for tests and inspections	10
5.2.4	Commissioning	10
5.2.5	Start-up procedures required to put the <i>works</i> into operation	10
5.2.6	Take over procedures	10
5.2.7	Access given by the <i>Employer</i> for correction of Defects	10
5.2.8	Performance tests after Completion	10
5.2.9	Training and technology transfer	10
5.2.10	Operational maintenance after Completion	10
6	Plant and Materials standards and workmanship	10
6.1	Investigation, survey and Site clearance	10
6.2	Building <i>works</i>	10
6.3	Civil engineering and structural <i>works</i>	Error! Bookmark not defined.
6.4	Electrical & mechanical engineering <i>works</i>	11
6.4.1	Provision of Engineering Services to Perform Major Inspections	11
6.4.2	Provision for the inspection and repair of capital spares components	13
6.4.3	Supply Of Standards And Procedures	17
6.4.4	SSS Clutch Service	17
6.4.5	Siemens SGen5-100A-2P	18
6.5	Capital Spares	18
6.6	Consumable Spares	19
6.7	Special Tools	19
6.8	Quality Requirements	19
6.8.1	General Quality Requirements:	19
6.8.2	Capital Spares Quality Requirements:	21
6.8.3	Consumable Spares Quality Requirements:	21
6.8.4	Special Tools Quality Requirements:	21
6.8.5	Process control and IT works	22
6.9	Other [as required]	22
6.9.1	Welding Requirements	22
6.9.2	NDE Requirements	22
7	List of drawings	22
7.1	Drawings issued by the <i>Employer</i>	22
C3.2	<i>Contractor's</i> <i>works</i> Information	Error! Bookmark not defined.

1 Description of the works

2 Executive overview

Provision of V94.2 version 6 refurbishment, capital spares, special tools and resources for the five (5) Peaking Generation Open Cycle Gas Turbines (OCGT) units at Gourikwa Power Station.

3 Employer's objectives and purpose of the works

the *Employer* owns and operates 5 'Open Cycle' Gas Turbines (OCGT's), at Gourikwa (Mossel Bay, Western Cape). These units (OEM designation V94.2 or also known as SGT5-2000E (6)) are within the *Employer's* Peaking Generation fleet of 14 similar units and are used for emergency peak load generation. The 5 units at Gourikwa are almost identical in design and were commissioned over a period of two years from March 2007.

The first phase of units at Gourikwa have unit designations 11,12, 13, the second phase of units built are designated unit 21 and 22. In accordance with Original Equipment Manufacturer (OEM) recommendations, the units are required to undergo a fully intrusive 'Major Inspection' at intervals of either 1500 starts or 33'000 Equivalent Operating Hours (EOH), whichever comes sooner. The first major inspections were performed in 2016/17 on all five gas turbines at Gourikwa power station. Major inspections were performed by Siemens AG.

4 Interpretation and terminology

The following abbreviations are used in this *works* Information:

Abbreviation	Meaning given to the abbreviation
AFC	Approved for construction
COC	Certificate of Compliance
EC&I	Electrical, Control and Instrumentation
EOH	Equivalent Operating Hours
IGV	Inlet Guide Vane
ITP	Inspection and Test Plan
LTE	Life Time Extension
NDE	Non-destructive Examination
OBL	Outside battery limits
OCGT	Open Cycle Gas Turbine
OEM	Original Equipment Manufacturer
PT	Penetrant Testing
QST	Quality System Toolbox
SABS	South African Bureau of Standards
SEM	Scanning Electron Microscopy
SSS	Synchronous Self Shifting
TLe	Turbine Vanes
UT	Ultrasonic Testing

5 Management and start up.

6 Management meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Outage Execution Progress Meeting	Daily	Gourikwa	Project Manager, Project Leaders, Contractor, Supervisor, Safety Rep.

Meetings of a specialist nature may be convened as specified elsewhere in this *works* Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the *works*. Records of these meetings shall be submitted to the *Project 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.

7 Documentation control

- A documentation control and record keeping process must be adhered to
- A technical report is required from the *Contractor* within 2 months after each major inspection which as a minimum will include (but not limited to) the following:
 - Pre-inspection operating data
 - Fact Finding report
 - List of work performed and technical findings, supported by photographic evidence
 - Records and Measurements taken
 - Signed off quality control plans /Inspection & Test Plans
 - NDE Reports
 - Spares used
 - Post inspection operating data
 - Summary
 - Conclusions
 - Engineering recommendations on maintenance considerations, and any additional scope or spares required for the next major inspection.

8 Health and safety risk management

- The *Employer* specific Permit to work system training will be provided to the *Contractor* by the *Employer* that will enable the *Contractor* to execute the *works*.
- Be familiar with and comply with all the relevant laws of land which apply within South Africa. This includes (but is not limited to) the Occupational Health and Safety Act and Regulations 93 of 1993

9 Environmental constraints and management

No additional environmental constraints

10 Quality assurance requirements

- Have NDE and Welding Procedures in place for every associated activity. These procedures must be reviewed and *accepted* by the *Employer*.

- Have working procedures in place for every activity & task. The procedure must have the check sheets at the back and all the check sheets must be referenced in the procedure. The Quality Plan should then be compiled using the procedure.
- Carry ISO 9001:2008 certification covering the intended scope of supply or objective evidence of a Quality Management System.
- Provide a sample of a completed Non-conformance report (NCR), corrective action (CA), Preventative action (PA).
- The following acceptance criteria will be used following each Major Inspection
 - Vibration levels must be below the Zone B boundaries as defined in ISO 20816-2 "Mechanical vibration — Measurement and evaluation of machine vibration — Part 2: Land-based gas turbines, steam turbines and generators in excess of 40 MW, with fluid-film bearings and rated speeds of 1 500 r/min, 1 800 r/min, 3 000 r/min and 3 600 r/min"
 - Exhaust temperature spread limit settings to remain the same as before the major inspection.
 - Turbine Exhaust Temperature set point (OTC setting) limit not to be increased above pre major outage set point.
 - No permanent alarms and warnings to exist on Turbine Control System after recommissioning is completed.
 - Emission values to be not worse than before the major inspection. The following components are measured: CO, NOx, SO2 and PM (particulate matter).

11 Programming constraints

- The outage schedule can be changed based on the capacity constraints, but the *Contractor* will be notified when these changes happen.
- Each 'Major inspection' is required to be completed within a duration of 42 days from breaker-open to breaker closed. The "Project Management Risk Assessment" defines possible increases in scope that may extend the Project beyond this 42 day duration. The *Contractor* shall submit a program for the execution of each outage for review and acceptance by the *Employer*
- All outage schedules must comply to the following:
 - Be resource loaded
 - Have 1 Shift sensitivity – no activities are to have a duration greater than 1 shift
 - Have no open logic ties (predecessors & successors must be linked)
 - Include all pre and post outage activities
 - During execution phase, the *Contractor* must provide a Project Manager to liaise directly with the *Employer's* Project Manager.
 - Prior to the execution phase, and ahead of the outage, any known risks, scope deviations, extensions or impacts to the agreed program are to be efficiently communicated to the *Employer*.
 - Close communication is required between the *Contractor* and *Employer* during project execution.
 - During the execution phase, electronic daily updates of the project must be provided to the *Employer* using Primavera P6 or MS Project. This daily update must show planned vs actual progress

12 Contractor's management, supervision and key people

The *Contractor* will ensure that sufficient Authorised Supervisors, in terms of the *Employer's* Plant Safety Regulations is available to execute the *works*.

13 Invoicing and payment

Within one week of receiving a payment certificate from the *Project 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 *Project Manager's* payment certificate.

The *Contractor* shall address the tax invoice to Eskom Holdings SOC Ltd and include on each invoice the following information:

- Name and address of the *Contractor* and the *Project 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)

14 Insurance provided by the *Employer*

Refer to contract data

15 Contract change management

The *Contractor* Procurement shall cooperate with the *Employer* internal SHEQ processes as required. This for example includes those processes related to Non-Conforming Product / Service delivery, Engineering/ Technical Notifications, incident reporting and incident investigation

16 Provision of bonds and guarantees

The form in which a bond or guarantee required by the *conditions of contract* (if any) is to be provided by the *Contractor*, is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.

The *Employer* may withhold payment of amounts due to the *Contractor* until the bond or guarantee required in terms of this contract has been received and accepted by the person notified to the *Contractor* by the *Project Manager* to receive and accept such bond or guarantee. Such withholding of payment due to the *Contractor* does not affect the *Employer's* right to termination stated in this contract.

17 Records of Defined Cost, payments & assessments of compensation events to be kept by the *Contractor*

Procurement to populate this section.

18 Training workshops and technology transfer

19 Classroom Training Requirements

The *Contractor* is to:

- Provide classroom training sessions based on all the aspects related to V94.2 turbine overhaul, maintenance and repair. These training sessions shall be aimed at a range of skill levels, from those of basic artisans to those of skilled Engineers.
- Provide course material related to the course to all attendees
- Provide a theory training and assessment plan to determine and measure the level of competency of the gas turbine trainees.
- Issue certificates of competency based on the established theory training program

20 On the Job Training requirements

The *Contractor* is to:

- Provide 'on the job' practical hands-on training to the *Employer's* personnel that will enable the *Employer* to be self-sustaining in terms of future maintenance on the *Employer's* fleet of V94.2 SGT5-2000E (6) units.
- The on the job training will take place over the course of the unit overhauls, and thereby utilise the existing skills of the *Employer's* staff. The training shall be aimed at a range of skill levels from those of basic artisans to those of skilled engineers.
- Provide a practical training and assessment plan to determine and measure the level of competency of the gas turbine trainees.
- Issue certificates of competency based on the established hands-on training program.
- 4 x Artisans, 2 x Technicians and 5 x Engineers

21 Engineering and the *Contractor's* design

Contractor shall inform employer of any obsolete/ replacement parts by referencing to the existing part number.

22 *Employer's* design

Not Applicable

23 Parts of the works which the *Contractor* is to design

Not Applicable

24 Procedure for submission and acceptance of *Contractor's* design

Not Applicable

25 Other requirements of the *Contractor's* design

Not Applicable

26 Use of *Contractor's* design

Not Applicable

27 Design of Equipment

Not Applicable

28 Equipment required to be included in the *works*

None

29 As-built drawings, operating manuals and maintenance schedules

All relevant documentation will be made available to the *Contractor* by the *Employer* on request.

30 Procurement

Refer to contract data

31 People

32 Minimum requirements of people employed on the Site

None

33 BBBEE and preferencing scheme

Refer to contract data

34 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)

Not Applicable

35 Subcontracting

36 Preferred sub*Contractors*

None

37 Subcontract documentation, and assessment of subcontract tenders

None

38 Limitations on subcontracting

None

39 Attendance on sub*Contractors*

None

40 Plant and Materials

41 Quality

None

42 Plant & Materials provided “free issue” by the *Employer*

None

43 *Contractor's* procurement of Plant and Materials

None

44 Spares and consumables

None

45 Tests and inspections before delivery

All test and inspection will be defined in the approved ITPs and must be adhered to.

46 Marking Plant and Materials outside the Working Areas

None

47 *Contractor's* Equipment (including temporary *works*).

None

48 Construction

49 Temporary works, Site services & construction constraints

50 Employer's Site entry and security control, permits, and Site regulations

- Compulsory Alcohol Breathalysing will be done to all staff upon entrance to the site.
- All computer equipment must be accompanied by an approved permit for access to the site.

51 Restrictions to access on Site, roads, walkways and barricades

None

52 People restrictions on Site; hours of work, conduct and records

None

53 Health and safety facilities on Site

- Gourikwa site is connected to the municipality sewage system and there are toilets available on site.

54 Environmental controls, fauna & flora, dealing with objects of historical interest

None

55 Title to materials from demolition and excavation

Not Applicable

56 Cooperating with and obtaining acceptance of Others

None

57 Publicity and progress photographs

Photographs of the *works* will only be allowed subject to obtaining approval in writing from the Project Manager.

58 Contractor's Equipment

- All electrical distribution boards must have a valid Certificate of Compliance to SABS
- Provision of the following:
 - Mobile Cranes
 - Trucks
 - Trailers For Transportation of Turbine Components,
 - Fork Lifters
 - Etc

59 Equipment provided by the Employer

- All special tools in possession of the *Employer* will be made available to the *Contractor* in a serviceable condition by the *Employer*. *Contractor* to inspect, accept and review employer's special tools.
- A register of the special tools must be kept by both the *Employer* and the *Contractor*
- The *Contractor* to return all the special tools to the *Employer* after the completion of the *works*. Allocating the ground areas for site establishment and storage as per *Contractor* requirements (size in m³ and load bearing capacity)
- Providing point of supply for power and water as per the *Contractor's* requirements. Distribution boards will not be provided by the *Employer*
-

60 Site services and facilities

- Gourikwa site is connected to the the conservancy tanks sewage system that are routinely emptied., and there are toilets available on site. The *Contractor* advises on and provide for adequate sanitation requirements over and above those available on site.
- Single phase 50Hz 220V and three phase 50Hz 380V power is available on site.
- The *Contractor* provides everything else necessary for Providing the *works*.

- The details of unit's maintenance history.

Unit	Serial No	Commission Date	Date 1 st Major	No of Starts	EOH	Current No of Starts	EOH
Gop GT11	800620	29-Feb-2008	2016/10/03	1569	25184	2625	44749
Gop GT 12	800632	30-Mar-2007	2017/01/16	1562	24594	2604	43168
Gop GT 13	800624	31-Mar-2007	2017/03/03	1576	25560	2585	43935
Gop GT 21	800635	21-Nov-2008	2017/06/29	1463	24434	2532	44408
Gop GT 22	800621	21-Nov-2008	2017/05/03	1439	23979	2457	42720

61 Facilities provided by the *Contractor*

- The following are erected by the *Contractor* in the areas approved by the *Employer*.
 - Temporary workshop structures
 - Temporary Offices
 - Temporary Storage structures
 - Temporary sand blasting structure
- The temporary structures are removed by the *Contractor* from the site after the completion of the works.
- Provide full details to the *Employer* regarding any power and water supply requirements
- Provide the *Employer* with the full details (MSDS) of all waste generated by them during the outage for the purpose of waste disposal
- Provide full details to the *Employer* regarding the requirements for any additional laydown areas (size in m3 and load bearing capacity)
- Provide full details of all requirements to the *Employer* regarding any additional civil work requirements that are required prior to commencement of the Major Inspection Work
- Demarcate areas allocated by the *Employer*, and provide for any specific storage / furniture within these areas (tables/ chairs/ racking / shelving etc.)
- Provide requirements to the *Employer* of all waste generated during the outage.
-

62 Existing premises, inspection of adjoining properties and checking work of Others

None

63 Survey control and setting out of the works

None

64 Excavations and associated water control

Not Applicable

65 Underground services, other existing services, cable and pipe trenches and covers

Drawings of the underground services will be provided by the Project Manager on request by the *Contractor*.

66 Control of noise, dust, water and waste

None

67 Sequences of construction or installation

None

68 Giving notice of work to be covered up

None

69 Hook ups to existing works

None

70 Completion, testing, commissioning and correction of Defects

71 Work to be done by the Completion Date

On or before the Completion Date the *Contractor* shall have done everything required to Provide the *works* except for the work listed below which may be done after the Completion Date but in any case before the dates stated. The *Project Manager* cannot certify Completion until all the work except that listed below has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *works* and Others from doing their work.

	Item of work	To be completed by
	<p>Technical report is required from the <i>Contractor</i> after each major inspection which as a minimum will include (but not limited to) the following:</p> <ul style="list-style-type: none"> - Pre-inspection operating data - Fact finding report - List of work performed and technical findings, supported by photographic evidence - Records and Measurements taken - Signed off quality control plans /Inspection & Test Plans - NDE Reports - Spares used - Post inspection operating data - Summary - Conclusions - Engineering recommendations on maintenance considerations, and any additional scope or spares required for the next major inspection 	Within 2 Months after Completion

72 Use of the *works* before Completion has been certified

Not Applicable

73 Materials facilities and samples for tests and inspections

None

74 Commissioning

Commissioning will be done after the completion of the mechanical barring milestone.

75 Start-up procedures required to put the *works* into operation

The *Contractor* must be in attendance during the start-up process of the unit.

76 Take over procedures

- Take-over is after or at the same time as Completion

77 Access given by the *Employer* for correction of Defects

Access will be given by the *Employer* to correct defects by mutual agreement.

78 Performance tests after Completion

All the required performance test will be detailed in the approved commissioning procedure

79 Training and technology transfer

None

80 Operational maintenance after Completion

None

81 Plant and Materials standards and workmanship

82 Investigation, survey and Site clearance

Drawings of the underground services will be provided by the Project Manager on request by the *Contractor*. The *Contractor* is to note Underground services, other existing services, cable and pipe trenches and covers for transportation of the rotor and heavy equipment and materials.

83 Building *works*

84 Visually inspect, assess and provide a technical proposal and quotation to replace the unit roof and enclosure panels with new.

- The proposal to indicate as a minimum replacement of severely corroded panels and complete replacement with new. The *Contractor* to consider the extreme environmental conditions at Gourikwa for improved corrosion resistance to the panels. This is to include repairs/replacement of corroded and damaged steelwork supports.
- Dismantling of any roof structures, enclosures and any structures to execute the outage work and reinstate to its original design and construction.
- Reinstall all waterproofing to roof structures, enclosures and structures that have been disturbed.
- Report any defects, make engineering recommendations via the formalised Technical Notification system, and repair /replace components as agreed between Supplier and Employer.
- Mechanically clean and corrosion proof steel roof supporting structures and roof, enclosure panels displaying corrosion.
- Transport of rotor to upending device—*Contractor* to assess transport route on existing roads, ground slabs, culvert crossings, cable/pipe trenches and covers, etc for safe transport of rotor.
- Any obstacles, structures removed on transport route to be reinstated.

85 Electrical & mechanical engineering works

The minimum scope of work for the outage (known as a “major inspection”), as listed below is performed by the *Contractor*.

86 Provision of Engineering Services to Perform Major Inspections

87 General Requirements

- The *Contractor* provides all the necessary manpower required for engineering and other technical manpower resources required to execute 5 Major Inspections on the V94.2 SGT5-2000E (6) units at the *Employer's* Gourikwa Power Station. This will include (but is not limited to) the provision of back-office project management and all the technical support necessary to achieve on time outage delivery.
- The *Contractor* provides all manpower resource requirements to execute the major inspections. This will include manpower for Project Management, technical supervision, on site administration, and any required specialists for welding, NDE, On Site machining, commissioning, vibration, EC&I, and fitters / mechanics.

88 Unit Access:

- The *Contractor* obtains full crane access to the unit by dismantling any required roof structure, ventilation and fire protection systems and any other affected equipment to ensure that all rigging activities are conducted safely and timeously.
- The *Contractor* provides necessary craneage on site required to execute all the work
- Following completion of the Major Inspection activities, the *Contractor* will be required to reassemble and reinstate as per original condition all disassembled systems.

89 IGV System:

- Replace IGV position transmitter
- Strip and inspect Inlet Guide Vane system as per standard protocols.
- Inspect the condition for the IGV Actuator Gearbox
- Inspect IGV actuating connection rods and linkages, check for play
- Inspect and replace IGV Actuator (380V) motor
- Optimise the IGV Position fast control parameters in the control system
- Evaluate functional checks of IGV system and conduct blade angle measurements.
- Strip and Inspect IGV system, including IGV support roller, linkages, actuator rod according to standards protocol.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair /replace components as agreed between *Contractor* and *Employer*
- Subsequent reassembly according to standard protocols.

90 Compressor Washing System:

- Conduct inspection of Compressor offline washing / cleaning system.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair /replace components as agreed between *Contractor* and *Employer*
- Subsequent reassembly according to standard protocols.

91 Centre (Outer) Casing:

- Remove and visually inspect the upper half of the Centre (Outer) Casing as per standard protocols.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair /replace components as agreed between *Contractor* and *Employer*
- Subsequent reassembly according to standard protocols.

92 Exhaust Casing:

- Conduct inspection of the Turbine Exhaust casing as per Standard protocols.
- Disassemble and inspect turbine bearing housing as per Standard protocols
- Conduct visual, dimensional, and NDE (PT & UT of Babbitt bond) inspection of Turbine bearing as per Standard protocols.
- Visual inspect turbine end shaft sealing system as per standard protocols.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair /replace components as agreed between *Contractor* and *Employer*.
- Subsequent reassembly according to approved standard protocols.

93 Exhaust Gas Diffuser:

- Inspect and repair 1st and 2nd expansion joint bellows, weld repair if required
- Replace any damaged lagging cushions
- Conduct inspection of the exhaust gas diffuser as per Standard Protocols
- NDE inspect all welds for cracks.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Subsequent reassembly according to approved standard protocols.

94 Air Inlet Casing:

- Remove and conduct visual inspection of upper half compressor bearing housing.
- Conduct visual, dimensional, and NDE (PT & UT of Babbitt bond) inspection of compressor radial / axial thrust bearing.
- Visual inspect compressor end shaft sealing system as per standard protocols
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Subsequent reassembly according to approved standard protocols.

95 Compressor:

- Inspection of shaft gland labyrinth seals, seal rings and oil box seals as per Standard protocols.
- Document all opening clearances, and the location of any defects, wear and tear.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Subsequent reassembly of shaft sealing components according to recommended procedures.
- Opening of the stator blade carriers 1-3.
- Inspection of stator blade carriers as per standard protocols
- Inspection of compressor exhaust gas diffuser as per standard protocols
- Remove compressor stator blade inner ring segments, blades and rings, including IGV's.
- Visual Inspection of all IGV's, compressor stator blades and associated components.
- Clean and NDE inspect blade carrier critical areas, including (but not limited to) blade and vane carrier grooves and blade carrier supports
- NDE (PT) inspect all compressor blades & double hooks.
- Dimensional inspect double hooks for wear
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Subsequent reassembly of all stator blade carrier components and compressor exhaust gas diffuser according to approved standard protocols

96 Combustion Chambers

- Removal of all burner pipework
- Removal of burners, domes and flame cylinders
- Removal of mixing casings
- Remove combustion chambers left and right-hand side from the turbine.
- Remove Burners and associated pipework
- Replace all dual fuel premix burners with new.

- Inspect all combustion system components, including bolting, ceramic tiles, flame cylinder, tile support ring, mixing chamber, Inner casing, burners, and pressure jackets for defects as per standard protocols
- Remove mixing casing cooling ring and replace with new.
- Weld repair of mixing casing transition to tile support F-ring.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Reassembly of entire combustion chambers including bolting, ceramic tiles, flame cylinder, tile support ring, mixing chamber, Inner casing, and pressure jackets for defects as per standard protocols.

97 Turbine Stationary Blade Carrier

- Remove and inspect top and bottom half of turbine stationary blade carrier as per standard protocols
- Remove stationary vane (TLe) stages 1 – 4.
- Clean and inspect stationary vane stages 1 – 4 as per standard protocols
- Clean and Visually Inspect Segmented seal rings stages 2-4 as per standard protocols
- All parts identification and serial numbers must be clearly documented and recorded as several parts will likely be sent for evaluation & repair.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Replace stage 1,2 and 3 vanes.
- Reassembly and alignment of the top and bottom half of turbine stationary blade carrier according to Standard protocols.

98 Turbine Rotor:

- Inspect and Split coupling to intermediate shaft as per standard protocols.
- Measure and record runouts prior to rotor removal as per standard protocols.
- Remove rotor and perform rotor inspections as per standard protocols.
- Transport rotor to upending device
- De-stack rotor as per standard protocols.
- Blast clean, Visual and NDE inspect rotor components including central tie rod, shaft nut thread, front, central and rear hollow shafts, compressor and turbine wheels, X-ring, damping cones and cooling air tube, all as per standard protocols.
- Remove Inner Casing
- Remove, hand clean & visually inspect Blade rows 1-4.
- Record all removed blade rows 1-4 part and serial numbers.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Replace stage 1,2 and 3 blades.
- Record all installed blade rows 1-4 part and serial numbers.
- Reassemble / restack rotor as per standard protocols
- Reassembly of the Rotor into the unit.

99 Inner Casing:

- Conduct visual inspection of the inner casing and all associated components including support paws, centre guides, "K" Seal ring, TLe1 seal rings, Protective shell and liner, air baffles, and Inner casing hub, all as per standard protocols.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Subsequent reassembly of Inner Casing according to standard protocols.

100 Turning Gear Device

- Visually inspect oil supply system and turning gear casing.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- Subsequent reassembly as per standard protocols

101 Alignment

The whole train alignment check required in all couplings including generator to SSS clutch.

102 Provision for the inspection and repair of capital spares components

103 General Requirements in Relation to Capital Parts Repair

- The *Contractor* provides capital parts inspection and repair services for all the Hot Gas Path Capital parts removed during the inspection. These parts are expected to include (but not limited too) all blades and vanes of Stages 1 to 4, bearings, burner assemblies, and Inner casings. Minimum scopes of work and required lead times for each component are provided.
- Should any ancillary spare parts require to be replaced during the repair, their condition must be suitably evaluated and a technical motivation made to replace them in the incoming report. All ancillary spare parts that may be required during the repair should be listed and quoted by the *Contractor*. Cooling tubes are expected to be repaired and reused unless they are heavily damaged.
- During outage execution, the *Contractor* and *Employer* sign off a record of all the identification markings (Serial and Part numbers) of all the capital components removed from each inspection.
- The *Contractor* maintains electronic records of all the *Employer* capital gas turbine components that are rotated between units and outages and record their accumulated running hours and starts.
- Components are to be sent for workshop inspection & repair only after approval from the *Employer*. This may involve some on-site inspections of the components as per Engineering requirements, prior to approval.
- The *Contractor* is to provide suitably constructed transportation & storage boxes/ crates for all components that are removed from the unit and sent for repair. The box/ crate design must be approved by the *Employer*, and should last for the project duration.
- NOTE: Transportation and delivery to the *Contractor's* stated destination will be arranged and covered by the *Employer's* account.

104 Incoming Inspection Report Requirements

- Following receipt of components for incoming inspection at the *Contractor's* facility, the *Contractor* submits an incoming inspection report within 1 month of the receipt of components at the *Contractors* repair facility.
- NOTE: The incoming report will be evaluated by the *Employer* to agree on the repair category specified by the *Contractor*.
- The repair category shall be determined for each blade or vane within the set, not a single category for the whole set. Repair prices must therefore be based on unit quantities not set quantities.
- The incoming inspection report shall be emailed in full colour pdf format, and include as a minimum the following content:
 - A description of all the inspection work performed.
 - A comprehensive list of all the component identification numbers received
 - Results of a Positive Material Analysis test
 - Results of the incoming inspection, presented with digital photographs of the typical damages found. Inspection reports should also include the SEM analysis results (for Nickel based blades and vanes), Optical microscopy results (for Cobalt based alloys), NDT reports and a defect overview / summary table for all the components.
 - A summary of the findings presented in a way to justify the required repair category, coating type and any spares requirements for each component received.
 - A recommended comprehensive work scope for the set parts received.
 - A list of any replacement ancillary or Capital parts that are required to complete the repair.
 - The confirmed completion date for the repair
- The incoming inspection report must include details of any replacement Capital Parts required. Provision of the resultant component shortfalls are to be covered in section 1.3.2: "Acquisition and Supply of Spare Parts and Tooling necessary to perform Major Inspections". The *Contractor* is to perform repair work to the components in accordance with the agreed work scope and following acceptance from the *Employer*.

105 Rotating Blade and Stationary Vane Repairs

- The minimum incoming inspection activities on all stages of rotating blades and stationary vanes are given (but are not limited to the) below. Incoming inspection is expected to take place and a report sent to the *Employer* within 4 weeks of component receipt. A technical argument shall be presented to the *Employer* by the *Contractor* in the case of the *Contractor* having the opinion that any of these activities are not required.
 - Unpacking, photographing and Identification and checking of all received parts against delivery note
 - Taking of laboratory samples for SEM analysis of base material and coating

- Material identification (if required)
- Measurement of incoming air or fluid flow for baseline testing purposes (air cooled stages only).
- Coating removal via masking, acid stripping, blast cleaning & heat tinting (as required)
- Visual inspection (taking of photographs) and defect identification on all parts.
- NDE inspection for defects. (Note that the *Employer* require to review and approve all NDE procedures upfront on all components).
- Solution / rejuvenation heat treatment under vacuum
- Taking of laboratory samples for SEM analysis
- Dimensional assessment of critical dimensions (e.g. wall thicknesses, blade tip heights, measurement of axial & radial clearances using jigs & fixtures)
- Provision of recommended repair scope of work and disposition against each received component (i.e. light/medium/heavy/scrap & replace)
- Repairs to individual components are to be differentiated from each other as either Light, Medium or Heavy, and prices are given in the pricing schedule.
- Light Repair - Requires only dressing, blending & polishing work to remove 'minor' defects to blades/ vanes.
- Medium Repair. Requires Vacuum Brazing to restore wall thicknesses affected by erosion/ corrosion/ oxidation, OR Welding to correct for localised defects.
- Heavy Repair - Requires Vacuum Brazing to restore wall thicknesses affected by erosion/ corrosion/ oxidation, AND Welding to correct for localised defects.
- Coupon Replacement – the requirement for executing a coupon replacement for vane or blade aerofoils must be treated on a case-by-case basis and supported by a suitable technical motivation, and agreed with the *Employer*
- Additional Work - the requirement for executing additional work on vanes or blades must be treated on a case-by-case basis and supported by a suitable technical motivation, and agreed with the *Employer*.
- Blades and vanes are expected to be re-coated with the same coating as that received (coated stages only). As a result, an incoming metallographic analysis of the coating is expected to have been performed to determine the coating type and specification. This will be expected as standard on all turbine Stages 1 to 3. The same (or at least a non-inferior equivalent) coating is expected to be applied. As specifications vary widely, the coating specs that to be used require to be reviewed and approved by the *Employer* in advance, prior to their application.

106 White Metal Bearing Inspection and Repairs

- The minimum incoming inspection activities on bearings are given, but are not limited to the below. A technical motivation shall be presented to the *Employer* for consideration in the case of the *Contractor* having the opinion that any of these activities are not required.
 - Unpacking, photographing and Identification and checking of all received parts against delivery note
 - Disassembly of Bearing as required
 - Visual inspection (taking of photographs) and defect mapping of all parts
 - Dimensional inspection of all critical dimensions such as ID, OD, oil ways & oil pockets etc.
 - Run-out inspection of Bore and OD to determine concentricity and machining requirements.
 - Material identification of White metal
 - Removal of White metal.
 - NDE inspect bearing shell for defects. (Note that the *Employer* require to review and approve all NDE procedures upfront on components).
 - Provision of recommended repair scope of work and disposition against each received component (i.e. Repair bearing or scrap & replace)
 - Replacing all bearing lift oil piping
- The repair activities on white metal bearings shall be performed by the *Contractor* and shall be presented to the *Employer* for consideration and acceptance.
- Any new spares that are required to execute the repair must be justified with a suitable technical motivation and quoted for with the repair. New thermocouples (where fitted integral with the bearing) are expected to be replaced and then calibrated as standard.

107 Burner Assembly Inspection & Repairs

- The minimum incoming inspection activities on burner assemblies are given (but are not limited to the) below. A sound technical argument shall be presented to the *Employer* for consideration in the case of the *Contractor* having the opinion that any of these activities are not required.
 - Unpacking, photographing and Identification and checking of all received parts against delivery note
 - Disassembly of burner assemblies as required
 - Visual inspection (taking of photographs) and defect mapping of all parts
 - Dimensional inspection of all critical dimensions on the relevant component parts.
 - Careful cleaning of all components to remove combustion deposits. Cleaning may be performed by agitated chemical baths, ultrasonics, hand cleaning and by Blast cleaning (in the last resort only).
 - Material identification
 - NDE inspect for defects. (Note that *Employer* require to review and approve all NDE procedures upfront on components).
 - Flow testing of Premix and Diffusion nozzles with Distillate fuel or other suitable fluid. Measurement of flow number (flow rate) and determination of % flow deviations between nozzles.
 - Determine the condition and disposition of each received component in each received burner assembly (i.e. repair or replace).
- The repair activities on burner assemblies shall be performed by the *Contractor* and shall include (but are not limited to the) below. A sound technical argument shall be presented to the *Employer* for consideration in the case of the *Contractor* specifying any additional or fewer activities.
 - Weld Repair of worn / cracked areas (if technically feasible and as required).
 - Vacuum Braze Repair of worn / cracked areas (if technically applicable and as required).
 - Final Machining/ dressing
 - NDE inspection
 - Final Assembly using replacement / repaired parts as per agreed scope of work. Re-assembly must be with all new disposable items (such as spiral wound gaskets, O-rings seals, locking rings etc).
 - Final Flow testing of Premix and Diffusion Nozzles with Distillate fuel or other suitable fluid. Measurement of flow number (flow rate) and determination of % flow deviations between nozzles.
 - Reassembly of components to recommended specifications.
- Any new spares that are required to execute the repair must be justified with a suitable technical argument and quoted for with the repair.
- Repair recommendations are expected to consider and detail any known available upgrades / design changes as required.
- Any new spares that are required to execute the repair must be justified with a suitable technical argument and quoted for with the repair.
- Supply and replace all burner thermocouples, compression glands and heads

108 Inner Casing Inspection & Repairs

- The inspection activities on Inner casings shall be performed by the *Contractor* and shall include (but are not limited to the) below. A sound technical argument shall be presented to the *Employer* for consideration in the case of the *Contractor* specifying any additional or fewer activities.
 - Unpacking, photographing and Identification and checking of all received parts against delivery note
 - Disassembly of Inner casing as required
 - Visual inspection (taking of photographs) and defect mapping of all parts
 - Dimensional inspection of all critical dimensions on the relevant component parts.
 - Blast cleaning of all components
 - Material identification
 - NDE inspect for defects. (Note that the *Employer* require to review and approve all NDE procedures upfront on components).
 - Determine the condition and disposition of each received component (i.e. repair or replace).
- Repair classification criteria (e.g. Light, Medium and Heavy) are to be agreed with the *Contractor* up front and prior to inspection of the first casing. The repair activities on Inner casing assemblies shall be performed by the *Contractor* and shall include (but are not limited to the) below. A sound

technical argument shall be presented to the *Employer* for consideration in the case of the *Contractor* specifying any additional or fewer activities.

- Weld Repair of worn / cracked areas (if technically feasible and as required).
- Vacuum Braze Repair of worn / cracked areas (if technically applicable and as required).
- Repairs shall include the options for patch repairs and fitment of new hub
- Post weld / stress relieve heat treatment
- Final Machining and hand dressing & polishing as per standard protocols
- NDE inspection
- Final Assembly using replacement / repaired parts as per agreed scope of work.
- Application of TBC Coating as per standard protocols
- Final QC Visual and Dimensional inspection as per standard protocols.
- Any new spares that are required to execute the repair must be justified with a suitable technical argument and quoted for with the repair.
- Repair recommendations are expected to consider and detail any known available upgrades / design changes as required.
- Any new spares that are required to execute the repair must be justified with a suitable technical argument. The use of free issue spares from the *Employer* stock must be first considered by the *Contractor*.

109 Supply Of Standards and Procedures

- The *Contractor* is required to package and transfer all existing technical information that is related to the expected future maintenance of the *Employer's* fleet of V94.2 SGT5-2000E (6) units. This technical information is required so that - the *Employer* can be self-sustaining in terms of performing future Minor Inspections, Major Inspections and Life Time Extensions, Capital Parts Inspection and Refurbishment.
- The *Contractor* provides the *Employer* with the following types of technical information related to Gas Turbine Overhaul for review and acceptance:
 - Detailed written method statements/ work instructions for each of the activities involved in the Overhaul. These instructions should be detailed and in the form of controlled documents, with colour photographs referring to the text, references to inspection check sheets and acceptance criteria.
 - Inspection check sheets and acceptance criteria for all inspection activities on the Turbine.
 - All related Field Technical Instructions or equivalent related to the overhaul activities on the turbine
 - Work Procedures & Specifications related to all overhaul activities, including de-blading & blading, NDE, Cleaning, degreasing, disassembly, assembly, alignment, IGV testing and adjustment etc.
 - Quality Control Plans
 - All welding & brazing procedures related to all overhaul and component repair activities
 - Rigging & lifting plans for lifting, and turning of casings, Rotor etc.
 - Rotor Assembly drawings including critical assembly sizes, dimensions and acceptance criteria.
 - All machining/fabrication drawings that may be required for the refurbishment of the turbine components over and above those existing on site.
 - Rotor dynamic balancing criteria & design critical speeds.
- To ensure that *Employer* can execute the work going forward, the *Contractor* will combine the training together with the relevant drawings to enhance *Employer's* knowledge on the overhaul of the units. The *Employer* can then develop the method statement and work instruction based on the training and will have access to the *Contractor's* field personnel to ask as many questions as possible relevant to on job training. The *Employer* can also take as many as possible photos during overhaul stages to incorporate in their work instruction. This excludes taking photos of not supplied drawings. However, access to these drawings and explanation on the drawings during overhaul will be allowed and be accessible to look at but not taken away in any format whatsoever.
- The tolerance information required by the *Employer* will be made available by the *Contractor* to update the acceptance criteria on the QCP's.

110 SSS Clutch Service

- SSS Clutch to be removed and install dummy clutch prior to generator rotor pull work.
- Service SSS Clutch model: C10273 - Size 280T SSS Clutch.

- Inspect brake shoe and replace if required
- Inspect servo's and limit switches, replace if required
- Inspect thermos couples and replace if required
- Inspect flexible jacking oil piping and replace if required

111 Siemens SGen5-100A-2P (Generator Rotor Pull, under Clean Conditions environment)

The *Contractor* removes and replaces the generator rotor to allow inspections.

- All electrical and mechanical tests and inspections on the rotor and stator will be performed in-house
- All required QCP's and checklists for disassembly and assembly of the generator rotor pull must be submitted to the *Employer* for acceptance.
- Please Note! Do not drop rotor or store rotor on its coil retaining rings
- Capture and record all disassembly clearances and dimensional checks including shaft glands, fan blades-to-shrouds and rotor-to-stator air gap.
- Do not damage fan blades during removal and installation of the rotor
- Use appropriate rotor ropes as loop eye slings
- Rotor removal is possible with the crane or installation of the carnage is also a possibility
- Disconnect exciter cables
- Winding shields, shaft glands and brushgear dismounted
- Bearing covers, top bearing shells and bearing seal rings removed
- On Exciter End, lift up the rotor, roll out bottom bearing shell, intermediate frame and the bearing pedestal
- Arrange wooden assembly supports below EE bearing journal
- Insert pasted slide plate and the EE sliding pad into the rotor bore
- Place down the rotor with the EE bearing journal on the wooden assembly supports
- On the TE lift up the rotor, roll out the bottom bearing shell, intermediate frame and the bearing pedestal
- Insert TE sliding pad
- Place down rotor on the TE sliding pad
- On EE side, lift up the rotor, remove the wooden assembly supports
- Place down rotor on EE sliding pad
- Attach sliding pedestal
- Fasten crane wire/ sling to the EE bearing journal using copper plate, if required
- While following with crane wire/ sling accordingly move out the rotor horizontally until the rotor centre of gravity is located outside the slide plate.
- Remove the sliding plate pads as soon as possible
- Place down the rotor on the support block
- Fasten crane wire/ sling to the rotor on the support block
- Fasten crane wire/ sling to the rotor center of gravity using rubber shims
- Remove support block and the remaining assembly aids and pull out the rotor completely
- Remove slide plate, disassemble the sliding pedestal
- Place the rotor on a suitable support frame, outside generator building, inside dedicated clean conditions tent.
- Rotor reinstallation in reverse order, once all required maintenance work has been completed in-house
- Estimated duration for the in-house maintenance scope of work is 10 working days, double shift

112 Capital Spares

113 The *Contractor* provides all the required catalogue information for all the capital spares to the *Employer*, such that the *Employer* can order the required parts from the *Contractor*.

114 The *Contractor* provides capital spares listed in the pricing schedule as per the delivery schedule to be mutually agreed.

115 The *Contractor* provides suitable packaging for the safe transportation of all capital spares from source of supply to Gourikwa Power Station.

116 All components must be adequately preserved against atmospheric corrosion, protection against solid particles and water ingress for a period no shorter than the agreed defect period. As a guideline, packaging should have an Ingress Protection rating (IEC

standard 60529) of IP52 or better, and all exterior metal surfaces be protected with a proprietary long term oil/wax based hydrophobic preservative.

117 Consumable Spares

118 The *Contractor* provides the *Employer* with all the required catalogue information for all the consumable spares listed in the pricing schedule, to the *Employer*, such that the *Employer* can order the required parts from the *Contractor*.

119 The *Contractor* provides the consumable spares listed in pricing schedule as per the delivery schedule to be mutually agreed.

120 All components must be adequately preserved against atmospheric corrosion, protection against solid particles and water ingress for a period no shorter than the agreed defect period. As a guideline, packaging should have an Ingress Protection rating (IEC standard 60529) of IP52 or better, and all exterior metal surfaces be protected with a proprietary long-term oil/wax based hydrophobic preservative.

121 Special Tools

122 The *Contractor* provides the *Employer* with all the required catalogue information for all the special tools listed in the pricing schedule, such that the *Employer* can order the required tools from the *Contractor*.

123 The *Contractor* provides the special tools required for the execution of a Major Inspection listed in pricing schedule as per the delivery schedule to be mutually agreed.

124 The *Contractor* provides the special tools required for the execution of a Generator rotor pul listed in pricing schedule as per the delivery schedule to be mutually agreed.

125 The *Contractor* provides the special tools required for the execution of an LTE Inspection listed in pricing schedule as per the delivery schedule to be mutually agreed.

126 The *Contractor* provides the special tools required for the execution of a Minor Inspection listed in pricing schedule as per the delivery schedule to be mutually agreed.

127 All components must be adequately preserved against atmospheric corrosion, protection against solid particles and water ingress for a period no shorter than the agreed defect period. As a guideline, packaging should have an Ingress Protection rating (IEC standard 60529) of IP52 or better, and all exterior metal surfaces be protected with a proprietary long term oil/wax based hydrophobic preservative.

128 Quality Requirements

129 General Quality Requirements:

- 130 The Quality Management System is the system of processes by which the *Contractor* provides assurance to the *Employer* that deliverables, including that of its sub-*Contractors* or sub- *Contractors* are in conformance with contract specifications.
- 131 The *Contractor* implements and maintains a quality management system that, meets the requirements of ISO 9001:2008, and ISO 10005:2005 Quality Management Systems – Guidelines for quality plans
- 132 The *Contractor* ensures that the ISO9001:2008 certification is maintained for full duration of the contract.
- 133 The *Contractor* operates a systemic design process which controls basic designs, specifications containing the necessary quality requirements. Identifies interfaces in disciplines, structures, *Contractors*, where applicable modules, operations, and projects. The object of this approach is to eliminate or minimise errors caused by miss-matches between different elements of the work
- 134 The *Employer* reserves the right to appoint resident quality inspectors that can be based at the *Contractor* or sub- *Contractor's* premises and on site where the work is being performed.
- 135 In the event of the *Employer* appointing resident quality inspectors, the *Employer* or its appointed third-party inspector shall be notified as agreed and given access at all reasonable times before, during and after manufacture and before delivery to measure, test and inspect the products and workmanship as necessary on the *Contractor's* premises. Any Hold, inspection points performed by a third party must be documented in the delivered QST/ ITP by the *Employer*
- 136 The *Employer* reserves the right to conduct independent 2x quality audits and the *Contractor* provides all resources to support these activities.
- 137 The *Employer* reserves the right to obtain access to any *Contractor* audit reports performed by the *Contractor* reflected in the audit program.
- 138 The Quality requirements are in addition to all Code, legal and government regulations.
- 139 The *Contractor* must develop and utilise an Inspection and Test Plan (ITP) in accordance with ISO 10005:2005 Quality Management Systems – Guidelines for quality plans, or other suitably agreed alternative standard. The ITP must reference specific procedures from the quality management system of the *Contractor* as pro-active processes to manage defects and non-conformity to specifications, allocate resources for quality management, assign authority and responsibilities, arrange document management and record keeping and other quality control measures.
- 140 Personnel required to perform Special Processes such as inspections and tests, shall be certified competent through a Certificate of Competency in accordance with the *Contractor's* internal training management and competency control procedures, or an external certification body also meeting the requirements of works information.
- 141 All applicable codes, standards and relevant acceptance criteria documents referenced on QST's, shall be available at the work location of the *Contractor* / Sub-*Contractor*.
- 142 Where activities subject to Inspection and Test protocols are to be undertaken by a sub- *Contractor*, the QST shall make reference of this fact and shall include descriptive details of the sub-/sub-*Contractors Contractor's* involvement
- 143 The *Contractor* shall ensure that the sub- *Contractors* are provided with comprehensive, clearly written and unambiguous inspection and test protocols including processes, procedures and methods.
- 144 The *Contractor* shall be required to maintain a detailed record on all levels of non-

conformance issues related to the components and provide this information to the *Employer* when the parts are accepted by the *Contractor*.

145 Capital Spares Quality Requirements:

146 For each set of capital parts supplied, the *Contractor* provides to the *Employer* a soft and a hard copy of traceable quality documentation (termed a “datapack”). This quality documentation shall include as a minimum the following:

- List of component identification markings including component serial number
- Material Test Certificate of the casting alloy
- Non-Destructive Test certificates of the casting
- Blade moment weight chart (relevant to rotating components only)
- A copy of the completed Inspection and Test plan for the set of components, traceable to the component identification markings.
- Final Quality Assurance Acceptance Certificate, traceable to the component identification markings, and referring to the principal manufacturing process and product specifications that are relevant to the specific part/assembly, including but not limited to for example casting, heat treatment, NDT, welding, coating, machining, flow testing, and finishing. The Quality Assurance certificate must also detail the equivalent OEM part number for reference purposes.
- NOTE: Details of the manufacturing process and product specifications, and acceptance criteria are not required by the *Employer* as they are considered the sole intellectual property of the *Contractor*.
- The *Contractor* must hold manufacturing records relating to the component for a minimum of 10 years. Such records must be made available by the *Contractor* to the manufacturer for review if and as required in the event of a defect or latent being identified following installation.

147 Consumable Spares Quality Requirements:

148 For each delivery of consumable parts supplied, the *Contractor* provides to the *Employer* a soft and a hard copy of a quality assurance certificate, or delivery note that details the quantity, description, *Employers* part number, *Contractor's* part number, and component serial numbers (where applicable) of all the parts supplied. This document must also detail the equivalent OEM part number (where applicable) for reference purposes.

149 The *Contractor* must hold manufacturing records relating to each component for a minimum of 10 years. Such records must be made available by the *Contractor* to the manufacturer for review if and as required in the event of a defect or latent being identified following installation.

150 Special Tools Quality Requirements:

151 For each special tool supplied, the *Contractor* provides to the *Employer* a soft and a hard copy of traceable quality documentation (termed a “datapack”). This quality documentation shall include as a minimum the following:

- Serial number, drawing number and tool description.
- Material Test Certificate(s) of the material(s) used
- Non-Destructive Test certificates
- Final Quality Assurance Acceptance Certificate, traceable to the component identification markings, and referring to the manufacturing process and product specifications relevant to the specific part/assembly.
- A brief manual detailing the operating and maintenance instructions for the special tool, including any safe working requirements and considerations.

152 NOTE: Details of the manufacturing process and product specifications and acceptance criteria are not required by the *Employer* as they are considered the sole intellectual property of the *Contractor*.

153 All special tools provided by the **Contractor** under the terms of this contract shall be supplied complete with any certification deemed necessary by law (for example load test certification of lifting equipment)

154 Process control and IT works

- Perform visual inspection, testing, adjustment and calibration of Instrumentation, Control & Protection components on the Gas Turbine which must be removed in the process to gain access to the gas turbine stator and rotor assembly.
- Inspect and recommend the supply and replacement of the Generator faulty winding temperature probes.
- Report any defects, make Engineering recommendations via the formalised Technical Notification system, and repair / replace components as agreed between *Contractor* and *Employer*.
- This will include but is not limited to the following components: Fire detection and protection components, vibration and expansion measurement devices, temperature measurement devices, pressure measurement devices, combustion chamber flame monitoring devices, burner temperature measurement devices, combustion chamber dynamic pressure measurement, combustion chamber ignition systems, ignition gas pressure measurement and regulating equipment.
- Perform a functional test of all the fuel system valves.
- Remove, open, strip down, visually inspect and reassemble the emergency shut off valves, control valves and associated actuators for the fuel system, compressor blow off valves, IGV system, safety and other control valves of the gas turbine.
- Supply and replace all premix and diffusion ball valve actuators, inspect respective ball valve assemblies, make recommendation and replace as agreed with the *Employer*
- Perform a visual inspection and functionality test of all unloading valves, hydraulic controllers, shaft encoders, end switches and torque moment switches
- Supply and replace all turbine outlet temperature thermocouples and supply 2 spares per unit
- Supply and replace compressor outlet temperature thermocouples
- Inspect, remove and send all Diffusion and Premix fuel oil Flow Meters away for calibration and verification
- Supply and replace all Coax valves

155 Other [as required]

156 Welding Requirements

All welding must be in accordance with ASME IX or equivalent, and welding procedures must be reviewed and accepted by the *Employer* prior to use.

157 NDE Requirements

All NDE must be according to a defined procedure and this procedure must be reviewed and accepted by the *Employer* prior to use.

158 List of drawings

159 Drawings issued by the *Employer*

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

Note: Some drawings may contain both *works* Information and Site Information.

Drawing number	Revision	Title