NEC3 Supply Contract (SC3)

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

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

for **Supply and delivery of Acc Fann Motors on an as and when required basis for a period of five years (5yrs).**

Contents:		**No of page**
Part C1	**Agreements & Contract Data**	**18**
art C2	**Pricing Data**	**4**
Part C3	**Scope of Work**	**35**

CONTRACT No.

PART C1: AGREEMENTS & CONTRACT DATA

Contents: **No of pages**

C1.1 Form of Offer & Acceptance

Offer

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

Supply and delivery of Acc Fan Motors on an as and when required basis for a period of five years (5yrs).

Title of the Contract

The tenderer, identified in the Offer signature block, has

either	examined the documents listed in the Tender Data and addenda thereto as listed in the Returnable Schedules, and by submitting this Offer has accepted the Conditions of Tender.
or	examined the draft contract as listed in the Acceptance section and agreed to provide this Offer.

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 *Supplier* 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.

	The offered total of the Prices exclusive of VAT is	**R**
	Value Added Tax @ 15% is	**R**
	The offered total of the amount due inclusive of VAT is[1]	**R**
	(in words)	

This Offer may be accepted by the Purchaser 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 *Supplier* 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

[1] This total is required by the *Purchaser* 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 Purchaser identified below accepts the tenderer's Offer. In consideration thereof, the Purchaser shall pay the Supplier 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 Purchaser 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: Goods Information including Supply Requirements

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 Purchaser 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 Purchaser's agent (whose details are given in the Contract Data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data at, or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

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

Signature(s)			
Name(s)			
Capacity			
for the Purchaser	**Eskom Holdings SOC Ltd, Megawatt Park, Maxwell Drive, Sandton, Johannesburg, 2199**		
	(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 *Purchaser* 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 Purchaser 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	N/A	N/A
2	N/A	N/A
3	N/A	N/A
4	N/A	N/A
5	N/A	N/A
6	N/A	N/A
7	N/A	N/A
	N/A	N/A

By the duly authorised representatives signing this Schedule of Deviations below, the Purchaser 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 Purchaser 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 Purchaser**
Signature		
Name		
Capacity		
On behalf of	*(Insert name and address of organisation)*	**Eskom Holdings SOC Ltd, Megawatt Park, Maxwell Drive, Sandton, Johannesburg, 2199**
Name & signature of witness		
Date		

C1.2 SC3 Contract Data

Part one - Data provided by the *Purchaser*

[Instructions to the contract compiler: (delete these two notes in the final draft of a contract)

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

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for Options	
		X1: Price adjustment for inflation
		X2: Changes in the law
		X7: Delay damages
		W1: Dispute resolution
		Z: Additional conditions of contract **All Z clauses as per NEC conditions of contract**
	of the NEC3 Supply Contract (April 2013) [2]	(If the December 2009 edition is to be used delete April 2013 and replace by December 2013)
10.1	The *Purchaser* 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
	Tel No.	
10.1	The *Supply Manager* is (name):	
	Address	**Matimba Power Station**
	Tel	
	Fax	**N/A**

[2] Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902, www.ecs.co.za.

e-mail

11.2(13)	The *goods* are	**Acc Fan Motors**
11.2(13)	The *services* are	**Supply and delivery of Acc Fan Motors on an as and when required basis for a period of five years (5yrs).**

11.2(14)
The following matters will be included in the Risk Register

1. Supplier failure to deliver
2. Labour Strike
3. Late deliveries
4. Compliance to SHEQ during execution

11.2(15)	The Goods Information is in	**Part 3: Scope of Work and all documents and drawings to which it makes reference.**
11.2(15)	The Supply Requirements as part of the Goods Information is in	**Annexure A to this Contract Data**
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	**5 working days**
2	**The *Supplier's* main responsibilities**	**Data required by this section of the core clauses is provided by the *Supplier* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.**
3	**Time**	
30.1	The *starting date* is.	**Will be indicated to the successful supplier during contract awarding stage.**
30.1	The *delivery date* of the *goods* and *service*s is:	***Goods and services*** / ***delivery date*** **1** / ***ACC FAN Motors*** / ***120 days after order placement***
30.2	The *Supplier* does not bring the *goods* to the Delivery Place more than one week before the Delivery Date.	**N/A**
31.1	The *Supplier* is to submit a first programme for acceptance within	**Yes (Within 2 weeks after contract placement)**
32.2	The *Supplier* submits revised programmes at intervals no longer than	**30 days**
4	**Testing and defects**	
42	The *defects date* is	**4 weeks after Delivery.**
42.2	The *defects access period* is	**4 weeks**

	except that the *defect access period* for and the *defect access period* for	
5	**Payment**	
50.1	The *assessment interval* is	**4 weeks after items are received at the warehouse.**
51.1	The *currency of this contract* is the	**South African Rand**
51.2	The period within which payments are made is	**Applicable as per Eskom payment terms as per Vendor registration**
51.4	The *interest rate* is	**i) zero percent above 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** **(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 *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.**
6	**Compensation events**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
7	**Title**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
8	**Risks, liabilities, indemnities and insurance**	**N/A**
80.1	These are additional *Purchaser's* risks	**n/a**
88.1	The *Supplier's* liability to the *Purchaser* for indirect or consequential loss, including loss of profit, revenue and goodwill is limited to	**R0.0 (zero Rand) (Put in Value)**

88.2	For any one event, the *Supplier's* liability to the *Purchaser* for loss of or damage to the *Purchaser's* property is limited to	**(1) for the *Purchaser's* existing and surrounding property in the care, custody and control of the *Supplier* the amount of the deductible (first amount payable) relevant to the event and** **(2) for all other existing *Purchaser's* property the applicable deductible as at contract date**
88.3	The *Supplier's* liability for Defects due to his design which are not notified before the last *defects date* is limited to:	**R0.0**
88.4	The *Supplier's* total liability to the *Purchaser*, for all matters arising under or in connection with this contract, other than the excluded matters, is limited to	**R0.0**
88.5	The *end of liability date* is	**Years after Delivery of the whole of the *goods* and *services*.**
9	**Termination and dispute resolution**	
94.1	The *Adjudicator* 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).**
	Address	**[●]**
	Tel No.	**[●]**
	Fax No.	**[●]**
	e-mail	**[●]**
94.2(3)	The *Adjudicator nominating body* is:	**the Chairman of ICE-SA, a Division of the South African Institution of Civil Engineering, or its successor body (See www.ice-sa.org.za)**
94.4(2)	The *tribunal* is:	**arbitration**
94.4(5)	The *arbitration procedure* is	**the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.**
94.4(5)	The place where arbitration is to be held is	**[Gauteng] South Africa**
	The person or organisation who will choose an arbitrator	

	- if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.**

10 Data for Option clauses

X1 Price adjustment for inflation

X1.1 CPA will be applicable from 16 months after the base date (one month prior to tender closing) and will be calculated on an annual basis.

Fixed Portion	15,00%	
Labour	10,00%	SEIFSA Table C-3 - Actual Labour
Consumer Price Index	8,00%	SEIFSA Table D-3
Production Price Index	8,00%	SEIFSA Table G-1 Electrical Engineering
Copper	24,00%	SEIFSA Table F - Metric Ton
Electrical Steel	15,00%	SEIFSA Table J4: Electrical Steel
Carbon Steel	10,00%	SEIFSA Table J4: Carbon Steel
Castings	10,00%	SEIFSA Table J4: Castings

X2	**Changes in the law**		
X2.1	A change in the law of South Africa	**is a compensation event if it occurs after the Contract Date**	
X3	**Multiple currencies**	**N/A**	
X4	**Parent company guarantee**	**N/A**	
X7	**Delay damages**		
X7.1	Delay damages for Delivery are	**Delivery of**	**amount per day**
		Acc Fan Motors	**1% per day up to 10% of the Purchase order affected**
Z	**The *additional conditions of contract* are**	**Z1 to Z15 always apply for Eskom**	

Z1 Cession delegation and assignment

Z1.1 The *Supplier* does not cede, delegate or assign any of its rights or obligations to any person without the written consent of the *Purchaser.*

Z1.2 Notwithstanding the above, the *Purchaser* may on written notice to the *Supplier* 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 *Supplier* 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 *Purchaser* for the performance of this contract.

Z2.2 Unless already notified to the *Purchaser*, the persons or organisations notify the *Supply Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Supplier* on their behalf.

Z2.3 The *Supplier* does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Purchaser* having been given to the *Supplier* in writing.

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

Z3.1 Where a change in the *Supplier's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Supplier*'s B-BBEE status, the *Supplier* notifies the *Purchaser* within seven days of the change.

Z3.2 The *Supplier* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Supply Manager* within thirty days of the notification or as otherwise instructed by the *Supply Manager*.

Z3.3 Where, as a result, the *Supplier's* B-BBEE status has decreased since the Contract Date the *Purchaser* may either re-negotiate this contract or alternatively, terminate the *Supplier*'s obligation to Provide the Goods and Services.

Z3.4 Failure by the *Supplier* to notify the *Purchaser* of a change in its B-BBEE status may constitute a reason for termination. If the *Purchaser* 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 *Supplier* 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 *Supplier*, enters the public domain or to information which was already in the possession of the *Supplier* at the time of disclosure (evidenced by written records in existence at that time). Should the *Supplier* disclose information to Others in terms of clause 23.1, the *Supplier* ensures that the provisions of this clause are complied with by the recipient.

Z4.2 If the *Supplier* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Supply Manager*.

Z4.3 In the event that the *Supplier* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Supplier*, to the extent permitted by law prior to disclosure, notifies the *Purchaser* 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 *Supplier* 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 *goods* or any portion thereof, in the course of Providing the Goods and Services and after Delivery, requires the prior written consent of the *Supply Manager*. All rights in and to all such images vests exclusively in the *Purchaser*.

Z4.5 The *Supplier* 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 *Supply Manager* or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

Z6 Health, safety and the environment: Add to core clause 25.4

Z6.1 The *Supplier* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the provision of the *goods* and execution of the *services*.

Without limitation the *Supplier*:

- warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with 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 supply and

undertakes, in and about the execution of the supply, to comply 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 *Supplier's* direction and control, likewise observe and comply with the foregoing.

Z6.2
- The *Supplier*, in and about the execution of the supply, 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 *Supplier'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 *Supply Manager* in terms of core clause 51.1, the *Supplier* provides the *Purchaser* with a tax invoice in accordance with the *Purchaser*'s procedures stated in the Goods Information, showing the amount due for payment equal to that stated in the payment certificate.

Z7.2 If the *Supplier* does not provide a tax invoice in the form and by the time required by this contract, the time by when the *Purchaser* 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 *Purchaser* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made.

Z7.3 The *Supplier* (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 *Purchaser*'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 the words, “unless the event arises from the *Supply Manager* giving an instruction, changing an earlier decision or correcting an assumption”.

Z9 *Purchaser’s* limitation of liability

Z9.1 The *Purchaser’s* liability to the *Supplier* for the *Supplier’s* indirect or consequential loss is limited to R0.00 (zero Rand)

Z9.2 The *Supplier*’s entitlement under the indemnity in 83.1 is provided for in 60.1(12) and the *Purchaser*’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 *Supplier*’s payment of delay damages reaches the limits stated in this Contract Data for Option X7, the *Purchaser* may terminate the *Supplier*’s obligation to Provide the Goods and Services 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 *Supplier* 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 *Supplier*, 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

Prohibited Action

Z12.1

Z12.2

Z12.3

Z12.4

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 *Supplier* provides the insurances stated in the Insurance Table A for events which are at the *Supplier*'s risk from the *starting date* until the last *defects date* or a termination certificate has been issued.

INSURANCE TABLE A

Insurance against	**Minimum amount of cover or minimum limit of indemnity**
Loss of or damage to the *goods*, plant and materials	The replacement cost where not covered by the *Purchaser*'s insurance. The *Purchaser*'s policy deductible as at Contract Date, where covered by the *Purchaser*'s insurance.
Liability for loss of or damage to property (except the *goods*, plant and materials and equipment) and liability for bodily injury to or death of a person (not an employee of the *Supplier*) caused by activity in connection with this contract	**Loss of or damage to property** *Purchaser*'s property The replacement cost where not covered by the *Purchaser*'s insurance. The *Purchaser*'s policy deductible as at Contract Date, where covered by the *Purchaser*'s insurance. Other property The replacement cost **Death of or bodily injury** The amount required by the applicable law.
Liability for death of or bodily injury to employees of the *Supplier* 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:

Insurance by the *Purchaser*

87

87.1 The *Purchaser* provides the insurances stated in the Insurance Table B

INSURANCE TABLE B

Insurance against or name of policy	**Minimum amount of cover or minimu 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 *Purchaser* 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 *Purchaser* is solely responsible for and indemnifies the *Supplier* or any other person against any and all liabilities which the *Supplier* 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 *Supplier* or any other person or the presence of the *Supplier* or that person or any property of the *Supplier* or such person at or in the KNPS or on the KNPS site, without the permission of the *Purchaser* or of a person acting on behalf of the *Purchaser*.

Z14.3 Subject to clause Z14.4 below, the *Purchaser* 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 *Supplier* or any other person, or the presence of the *Supplier* or that person or any property of the *Supplier* or such person at or in the KNPS or on the KNPS site, without the permission of the *Purchaser* or of a person acting on behalf of the *Purchaser*.

Z14.4 The *Purchaser* 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 *Purchaser*'s 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 *Purchaser* ensures that the Ambient Air in the area where the *Supplier* 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 *Supplier*, the *Purchaser* 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 *Supplier* may perform Parallel Measurements and related control measures at the *Supplier*'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 *Purchaser* 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 *Supplier*'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 *Supplier* 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.

Z15.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Purchaser* at the *Purchaser*'s expense, and conducted in line with South African legislation.

Annexure A: Supply Requirements

[Notes: The example given in the NEC3 Supply Contract Guidance Notes pages 15 to 20 inclusive is based on Incoterms 2000. However users will probably wish to use Incoterms 2010 which the details below are based on. Users may need to adjust the information to comply with actual requirements. First decide whether Incoterms will be used or not, then delete the arrangement below which does not apply and delete these notes]

The Supply Requirements for this contract are based on the use of INCOTERMS:

The *Supplier* supplies the *goods* in accordance with INCOTERMS 2010[3] as follows:

[Select the group and then term within the group which applies and state the applicable delivery place. Delete all the other groups and this note]

Group	Category	Term	Delivery Place
E	departure	EXW	
F	main carriage unpaid	FCA, FAS, FOB	
C	main carriage paid	CFR, CIF, CPT, CIP	
D	arrival	DAT, DAP, DDP	DDP

The Parties obligations described in Incoterms for the category and term selected are now incorporated into this contract as part of the Supply Requirements and hence the Goods Information.

The obligations of seller and buyer for the selected Incoterm determine each Party's costs, risks and insurance requirements incidental to the supply and transport of the *goods* from *Supplier* to *Purchaser*.

For each of the thirteen terms, Incoterms set out obligations of the seller (the *Supplier*) in ten paragraphs identified as A1 to A10 and the corresponding obligations of the buyer (the *Purchaser*) in paragraphs B1 to B10. These obligations cover the following subjects:

A	The *Supplier*'s obligations	B	The *Purchaser*'s obligations
A1	Provision of goods in conformity with contract	**B1**	Payment of the price
A2	Licences, authorisations and formalities	**B2**	Licences, authorisations and formalities
A3	Contracts of carriage and insurance	**B3**	Contracts of carriage and insurance
A4	Delivery	**B4**	Taking delivery
A5	Transfer of risks	**B5**	Transfer of risks
A6	Division of costs	**B6**	Division of costs
A7	Notice to the buyer	**B7**	Notice to the seller
A8	Proof of delivery, transport document or equivalent electronic message	**B8**	Proof of delivery, transport document or equivalent electronic message
A9	Checking - packing - marking	**B9**	Inspection of goods
A10	Other obligations	**B10**	Other obligations

[Should there be a need to amplify any of the published obligations listed above for the chosen INCOTERM, add them here.]

All other information NOT pertinent to the above is given in the balance of the Goods Information

[3] International Chamber of Commerce, Incoterms 2010, Paris, January 2011

The Supply Requirements for this contract are as follows:

[Use these when INCOTERMS do not apply].

1. The requirements for the supply are	[State the constraints on how the *Supplier* manufactures, prototypes, tests and stores the *goods* including order and timing]	
2. The requirements for transport are	[State the extent to which the *Supplier* transports the *goods* and the mode of transport]	
3. The delivery place is	[State the location where the *goods* are to be placed by the *Supplier,* such as whether it is a dispatch department at the *Supplier*'s premises, the *Purchaser* is to collect or other location the *Purchaser* may require. If the delivery place for the *services* is different to the *goods* state it here]	
4. Actions of the Parties during supply	**Action**	**Party which does it**
	Giving notice of Delivery	
	Checking packing and marking before dispatch	
	Contracting for transport	
	Pay costs of transport	
	Arrange access to delivery place	
	Loading the *goods*	
	Unloading the *goods*	
For international procurement	Undertake export requirements	
	Undertake import requirements	
5. Information to be provided by the *Supplier*	**Title of document**	
	Packing lists for cases and their contents	
	Copy of invoice for the *goods*	
	Delivery Note	
	Test results and maintenance manuals	
For international procurement	Licences, authorisations and other formalities associated with export of the *goods*	
	Air Waybill or Bill of Lading with associated landing, delivery and forwarding order	
	The Bill of Entry endorsed by the importation authority	
	Customs work sheets, showing tax, duties and surcharges which the law of the country into which the *goods* are being imported requires the importer to pay	
	Invoice from the importation clearing agent showing airline fees, landing charges, wharfage and dock dues as applicable	
	Specify other import documents required by authorised officials.	

All other information NOT pertinent to the above is given in the balance of the Goods Information

C1.2 Contract Data

Part two - Data provided by the *Supplier*

Notes to a tendering supplier:

1. Please read both the NEC3 Supply Contract (SC3)[4] and the relevant parts of its Guidance Notes (SC3-GN)[5] in order to understand the implications of this Data which the tenderer is required to complete.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field ***once*** and type in the data. Otherwise complete by hand and in ink.

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

Clause	Statement	Data		
10.1	The *Supplier* is (Name): Address Tel No. Fax No.			
11.2(8)	The Goods Information for the *Supplier's* design is in:			
11.2(11)	The tendered total of the Prices is	**R**		**(in words)**
11.2(12)	The *price schedule* is in:			
11.2(14)	The following matters will be included in the Risk Register			
25.2	The restrictions to access for the *Supply Manager* and Others to work being done for this contract are			
30.1	The *delivery date* of the *goods* and *service*s is:	***goods and services***		***delivery date***
		1	**[•]**	**[•]**
31.1	The programme identified in the Contract Data is contained in:			
63.2	The *percentage for overheads and profit* added to the Defined Cost is	**%**		

[4] Either April 2013 or December 2009 Edition as stated by *Purchaser* in Contract Data part 1.
[5] Available from Engineering Contract Strategies Tel 011 803 3008, Fax 086 539 1902, or www.ecs.co.za

PART 2: PRICING DATA

NEC3 Supply Contract

Document reference	Title	No of pages
	This cover page	1
C2.1	*Pricing assumptions*	2
C2.2	*The price schedule*	1

C2.1 Pricing assumptions

How *goods* and *service*s are priced and assessed for payment

Clause 11 in NEC3 Supply Contract, (SC3) core clauses states:

Identified and defined terms	11 11.2	(11) The Prices are the amounts stated in the price column of the Price Schedule. Where a quantity is stated for an item in the Price Schedule, the Price is calculated by multiplying the quantity by the rate. (12) The Price Schedule is the *price schedule* unless later changed in accordance with this contract.
Assessing the amount due	50.2	The amount due is • the Price for each lump sum item in the Price Schedule which the *Supplier* has completed, • where a quantity is stated for an item in the Price Schedule, an amount calculated by multiplying the quantity which the *Supplier* has completed by the rate, • plus other amounts to be paid to the *Supplier*, • less amounts to be paid by or retained from the *Supplier*. Any tax which the law requires the *Purchaser* to pay to the *Supplier* is included in the amount due.

This confirms that the Supply Contract is a priced contract where the Prices are derived from a list of items of *goods* and *service*s which can be priced as lump sums or as expected quantities of *goods* and *service*s multiplied by a rate, or a mix of both.

Function of the Price Schedule

Clause 53.1 states: “Information in the Price Schedule is not Goods Information”. This confirms that instructions to do work or how it is to be done are not included in the Price Schedule but in the Goods Information. This is further confirmed by Clause 20.1 which states, “The *Supplier* Provides the Goods and Services in accordance with the Goods Information”. Hence the *Supplier* does **not** Provide the Goods and Services in accordance with the Price Schedule. The Price Schedule is only a pricing document.

Preparing the *price schedule*

Items in the *price schedule* may have been inserted by the *Purchaser* and the tendering supplier should insert any additional items which he considers necessary. Whichever party provides the items in the *price schedule* the total of the Prices is assumed to be fully inclusive of everything necessary to Provide the Goods and Services as described at the time of entering into this contract.

It will be assumed that the tendering supplier has

- Read Pages 8, 11, 12 and Appendix 5 of the SC3 Guidance Notes before preparing the *price schedule;*
- Included in his Prices and rates for correction of Defects (core clause 43.1) as there is no

compensation event for this unless the Defect is due to a *Supplier's* risk;

- Spread the cost of doing work he chooses not to list as separate items in the *price schedule* across other Prices and rates in order to fulfil the obligation to Provide the Goods and Services for the tendered total of the Prices.
- Understood that there is no adjustment to lump sum prices in the *price schedule* if the amount, or quantity, of work within that lump sum item later turns out to be different to that which the *Supplier* estimated at time of tender. The only basis for a change to the Prices is as a result of a compensation event per clause 60.1.
- Understood that the *Supplier* does not have to allow in his Prices and rates for matters that may arise as a result of a compensation event.

Format of the *price schedule*

Entries in the first four columns in the *price schedule* in section C2.2 are made either by the *Purchaser* or the tendering supplier.

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

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

If the *Supplier* is to be paid an amount for an item proportional to the length of time for which the *goods* and *service*s are provided, a unit of time is stated in the Unit column and the length of time (as a quantity of the stated units of time) is stated in the Quantity column.

C2.2 the *price schedule*

Item nr	Material number	Material Description and Texts	QTY	UMC	Unit Price	Total price
0010	178979	MOTOR, ELECTRIC: POWER: 280 KW; SPEED: 1485 RPM; FRAME: D355LD; CURRENT: 365.3 A; POTENTIAL: 525 VAC; MOUNTING: B5 FLANGE VERTICAL; ENCLOSURE RATING: IP66; SHAFT SIZE: 110 MM; CONNECTION LOCATION: TOP; CLASSIFICATION: SAFE; POLES: 4; INSULATION CLASS: F; PHASE: 3; TEMPERATURE CLASS: B RISE; TYPE: DELTA; REFERENCE NO: 1; MUST HAVE LIFTING POINTS (EYE BOLTS) ON BOTH SIDES; 50 HZ; EFFICIENCY TO BE PREMIUM; CABLE ENTRY TO BE INTERCHANGEABLE ON BOTH SIDES OF TERMINAL BOX (LEFT & RIGHT) WITH BLANKING PLATE ON ONE SIDE & GLAND PLATE ON OTHER SIDE	300	EA		
Total Price						

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
C3.1	*Purchaser's Goods Information*	34
	Total number of pages	*35*

3.1: *PURCHASER'S* GOODS INFORMATION

1 Overview and purpose of the *goods* and *service*s

The intent is to place a contract to procure 300 ACC Motors. The Purchaser intends to procure a minimum of 48 Motors and a maximum of 300 Motors subject to plant requirements and compliance to the performance criteria as stipulated in this document.

1.1 Background

The figure below illustrates the basic working principle of the fan drive and heat transfer bundle. Forced airflow is responsible for heat transfer between the air and the steam. From the illustration below it is clear that if the fan's air flow is affected it will affect the heat transfer capabilities of the bundle and ultimately have a negative effect on the ACC's performance. The air-flow is severely affected if the motors fail. For this reason, a reliable motor, requiring minimum maintenance is required. This contract focuses on the supply of a minimum of 48 and a maximum of 300 ACC motors. The Purchaser reserves the right to procure motors outside of this contract should the Purchaser requires to do so for any reason mentioned in Section 2.24.

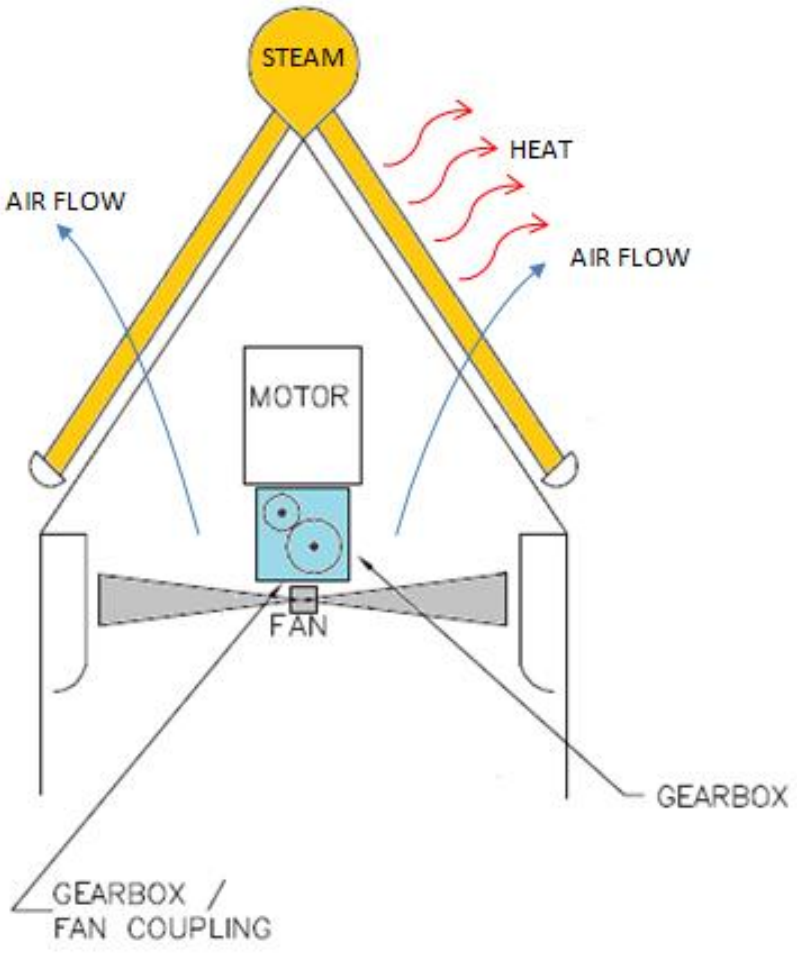


Figure 1: Basic working principle of an ACC module

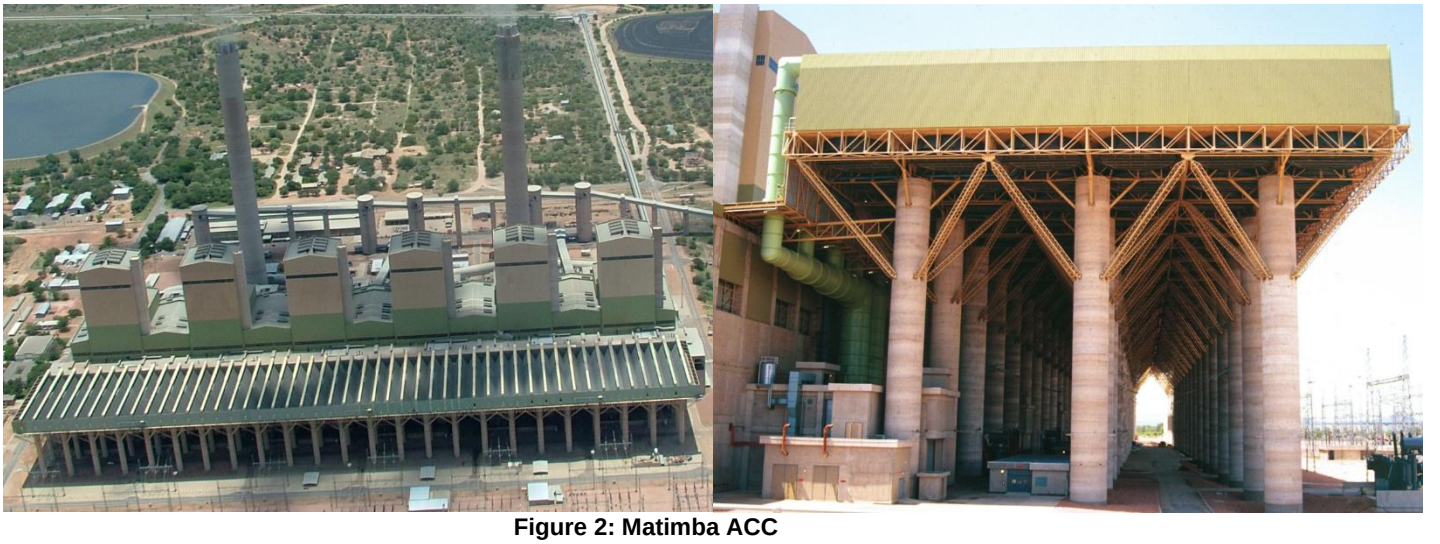


Figure 2: Matimba ACC

1.2 Definitions

Definition	Explanation
Supplier	The Supplier is the person receiving the order and will be responsible for the delivery, if different to the Manufacturer. The Manufacturer remains accountable for all technical aspects of this contract.
Purchaser	Eskom Matimba Power Station is the *Purchaser*
Manufacturer	The company responsible for the design and manufacturing of the motors, if different to the Supplier. The Manufacturer remains accountable for all technical aspects of this contract.
Fan Unit	Fan assembly consisting of a single axial fan with 8 fan blades, motor and gearbox.
Unit	Refers to one of the 6 generating units at Matimba each generating 665MW of electricity.
Fan bridge	The structure onto which the whole fan unit hangs.
Type 1 and Type 2 motors	Referred to as two types of motors installed at Matimba with only having different motor cabling access points. Other than the cable routing options, the two motors are identical.

1.3 Abbreviations

Abbreviation	Explanation
ACC	Air Cooled Condenser
AFC	Approved for construction
CAD	Computer-aided design
C&I	Control and Instrumentation
FAT	Factory Acceptance Test
LV	Low Voltage
IEC	International Electrotechnical Commission
SANS	South African National Standards
ISO	International Standards Organisation
SANS	South African National Standards
QTY	Quantity

1.4 Normative/Informative references

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

Normative

[1] Requirements in the new LV motor procurement standard (240-57617975)
[2] ISO 9001 Quality Management Systems.
[3] Safe Use of Lifting Machines and Lifting Tackles 39-98.
[4] Engineering Drawing Standard – Common Requirements (240-86973501).
[5] LV Motor Technical Schedule (240-77100923)
[6] Procurement Instruction Number 1 of 2018 – Incorporating Cataloguing into the Procurement Environment, Unique Identifier 240-1289988974.
[7] Electrical Motor Commissioning Work Instruction (240-100457684)

Informative

[8] Eskom 240-56361435:Rev. 0 2009, Transport of Power Station Electric Motors.
[9] Eskom 240-56360387: Storage of Power Station Electric Motors.

[10] SANS 1804-1:2007, IEC Requirements.
[11] SANS 1804-2:2007, Low voltage three-phase standard motors.
[12] SANS IEC 60034-1:2006, Rotating electrical machines. Part 1: Rating and performance.
[13] SANS IEC 60034-2-1:2008, Rotating electrical machines. Part 2: Standard methods of determining losses and efficiency from test (excluding machines for traction vehicles).
[14] SANS IEC 60034-5:2007, Rotating electrical machines. Part 5: Degrees of protection provided by the integral design of rotating electrical machines. (IP Code)- Classification.
[15] SANS IEC 60034-6:1991, Rotating electrical machines. Part 6: Methods of cooling. (IC code).
[16] SANS IEC 60034-7:2001, Rotating electrical machines. Part 7: Classification of types of construction, mounting arrangements and terminal box position. (IM Code).
[17] SANS IEC 60034-8:2007, Rotating electrical machines. Part 8: Terminal markings and direction of rotating of rotating machines.
[18] SANS IEC 60034-9: 2007, Rotating electrical machines. Part 9: Noise limits.
[19] SANS IEC 60034-11: 2005, Rotating electrical machines. Part 11: Thermal protection.
[20] SANS IEC 60034-12:2008, Rotating electrical machines. Part 12: Starting performance of single-speed three-phase cage induction motors.
[21] SANS IEC 60034-14:2007, Rotating electrical machines. Part 14: Mechanical vibration of certain machines with shaft heights 56mm and higher – Measurement, evaluation and limits of vibration severity.
[22] SANS IEC 60034-17:2006, Rotating electrical machines. Part 17: Cage Induction motors when fed from converters- Application guide.
[23] SANS IEC 60034-26: 2006, Rotating electrical machines. Part 26: Effects of unbalanced voltages on the performance of three-phase cage induction motors.
[24] SANS IEC 60034-28: 2007, Rotating electrical machines. Part 28: Test methods for determining quantities of equivalent circuit diagrams for three-phase low-voltage cage induction motors.
[25] SANS IEC 60034-30: 2008, Rotating electrical machines. Part 30 Efficiency classes of single-speed, three-phase, cage-induction motors (IE-code).
[26] SANS IEC 60072-1:1991, Dimensions and output series for rotating electrical machines. Part 1: Frame numbers 56 to 400 and flange numbers 55 to 1080.
[27] SANS IEC 60072-2:1990, Dimensions and output series for rotating electrical machines. Part 2: Frame numbers 355 to 1000 and flange numbers 1180 to 2360.
[28] SANS 1091:2004, National colour standards for paint.
[29] IEEE 112: 2004, IEEE standard test procedure for polyphase induction motors and generators
[30] The South African grid code –Network code Rev. 8.

2 Specification and description of the goods

Item nr	Material number	Material Description and Texts	Estimated QTY	UMC
0010	178979	MOTOR, ELECTRIC: POWER: 280 KW; SPEED: 1485 RPM; FRAME: D355LD; CURRENT: 365.3 A; POTENTIAL: 525 VAC; MOUNTING: B5 FLANGE VERTICAL; ENCLOSURE RATING: IP66; SHAFT SIZE: 110 MM; CONNECTION LOCATION: TOP; CLASSIFICATION: SAFE; POLES: 4; INSULATION CLASS: F; PHASE: 3; TEMPERATURE CLASS: B RISE; TYPE: DELTA; REFERENCE NO: 1; MUST HAVE LIFTING POINTS (EYE BOLTS) ON BOTH SIDES; 50 HZ; EFFICIENCY TO BE PREMIUM; CABLE ENTRY TO BE INTERCHANGEABLE ON BOTH SIDES OF TERMINAL BOX (LEFT & RIGHT) WITH BLANKING PLATE ON ONE SIDE & GLAND PLATE ON OTHER SIDE	300	EA

2.1 Purchaser's design

1. The ACC fans are used to cool the steam from the turbine so that the condensate can be reused as feedwater. The ACC fan motors forms part of the drive train that comprises of the motor, gearbox, and the fan.
2. Figure 3: Cross sectional view of the Matimba ACC fan unit of which there are 288 such fans. shows a cross-sectional view of the installation. The Supplier must note the cable rack and cable entry position. All necessary maintenance to be done on the motors shall be done from the walking platform around point A.

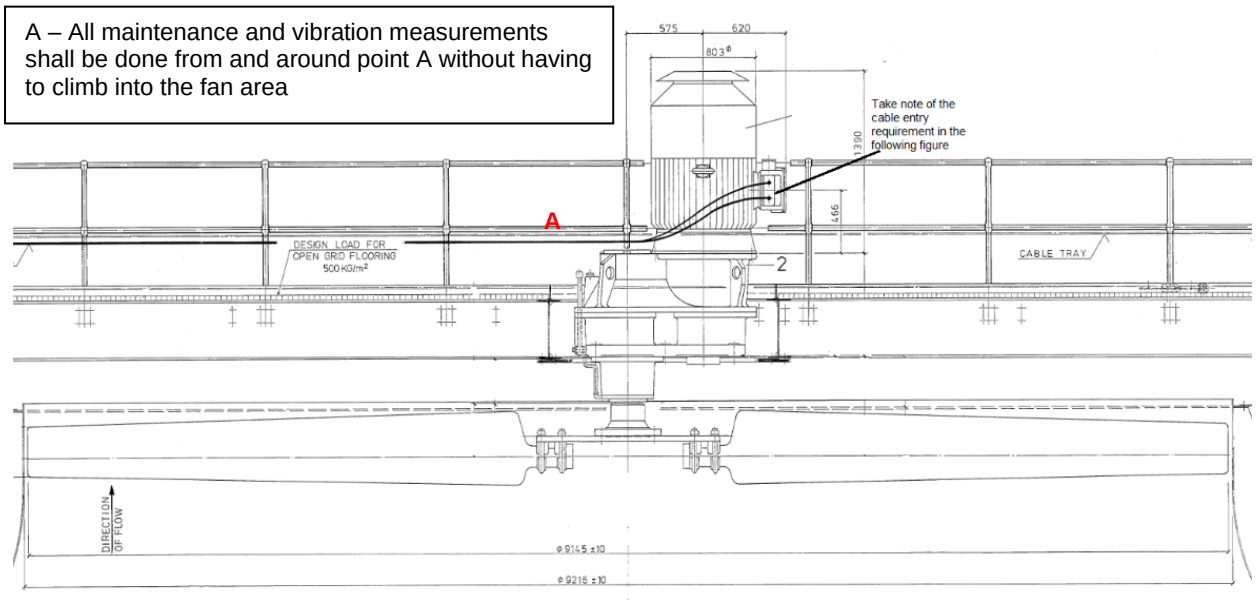


Figure 3: Cross sectional view of the Matimba ACC fan unit of which there are 288 such fans.

3. There were originally two types of motors installed on the ACCs with cable entry points either from the left or the right. It is a requirement that the new motor cable termination boxes allow for both termination from the left or from the right of the motor. The Figure below illustrates this concept.

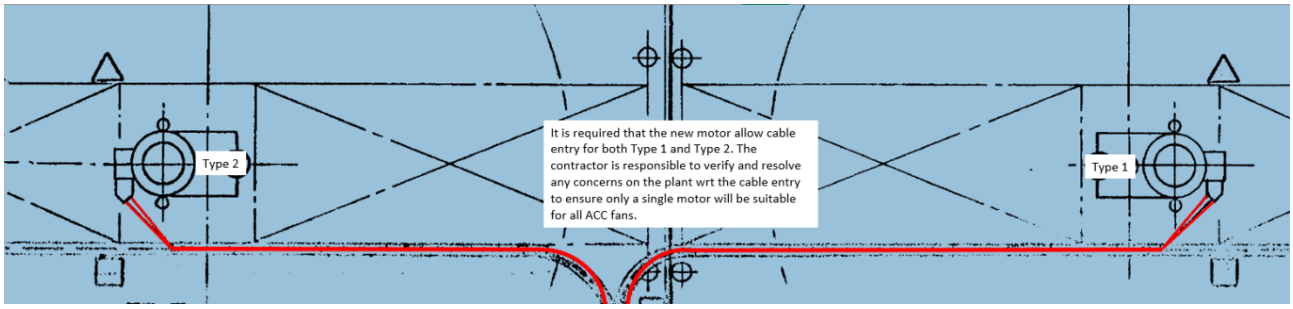


Figure 4: Shows the cable entry for the Matimba ACC, hence the Matimba has a Type 1 and a Type 2 motor. The new motor will accommodate both Type 1 and Type 2 design.

4. The philosophy is that the ACC fans are continuously running to condense steam. The motors are direct online (DoL) induction machines that can be started directly from the control room. High efficiency LV motors that can accommodate both Type 1 and Type 2 are required to simplify the issue of having different types of motors in different locations. The new motor must have supply cable and thermistor points cable entries on both the left- and right-hand sides without obstructing the walkway.

5. The designed motors should be mechanically and electrically interchangeable with what is currently installed in the plant. The new design must cater for both Type 1 and Type 2 motors without obstructing the walkway.
6. The following image is just as a reference to the current motors installed to verify the shaft size which must be the same. Note that dimension “Motor Height” below shall not exceed **1580mm**. This is to ensure the height of the motor does not obstruct the path to rig and install surrounding motors and gearboxes.

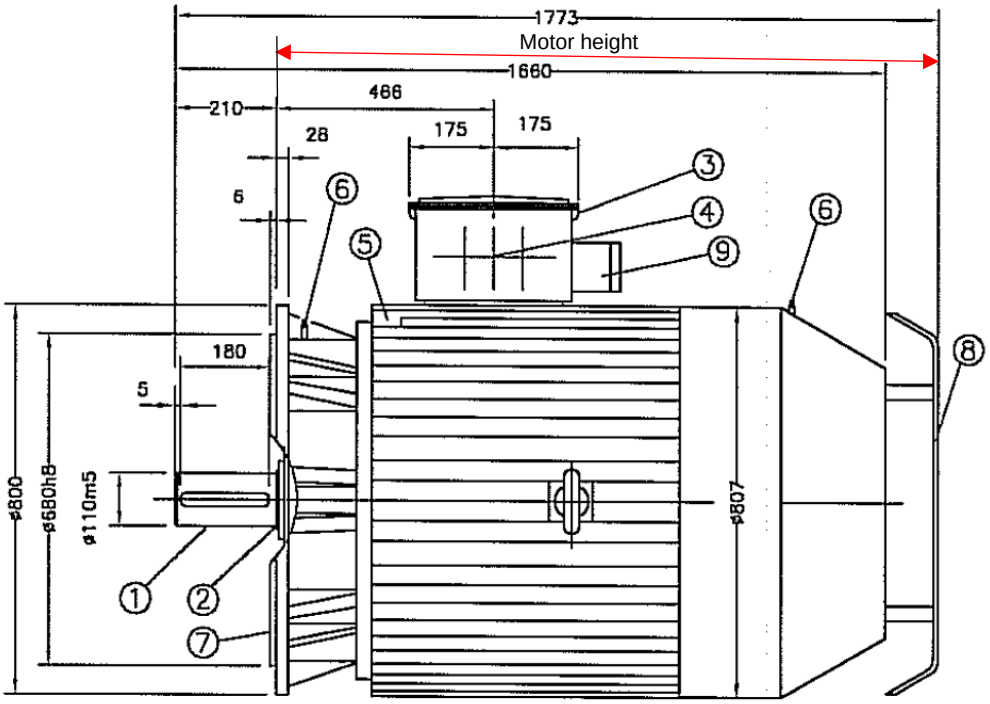


Figure 5: Current installed motors dimensions. The new motor shall have the same shaft and flange size to be interchanged with the current motors.

2.2 General requirements

1. All motors shall be designed, manufactured, tested and perform in accordance with the latest revision of SANS IEC 60034.
2. The Supplier shall take into consideration all technical characteristics as specified in this document. This shall include operating conditions pertaining to the driven machine and the motor environment and shall be responsible for designing or selecting from a standard range, a motor that will perform as required by the *Purchaser*.
3. The preference is for motors to be selected from a standard range. Where this is not possible, the *Purchaser* shall be notified for approval on non-standard motor design.
4. Only service proven designs (all components) shall be tendered. If a design has a component/s that has/ve not been proven for at least two years in service, the affected parts and the extent of their experience shall be declared in the tender/proposal.
5. Motors shall not be under-loaded (e.g. loading below 75%) unless otherwise specified in Technical Schedule – A&B and is required by the application. The loading of 75% of rated output power and above (75% - 90%) is required for better efficiency, power factor and power utilization. The design shall have reasonable design margin of at least 10% to accommodate power supply variations in Technical Schedule-A&B, reduced cooling and system inefficiency during the life of the plant.
6. A minimum efficiency class code of IE3 for S1 duty and intermittent duty with 80% or higher cyclic duration factor motors shall be supplied for new plants and replacements. Reliable motors with high

efficiency, high power factor and low input power consumption values are required to support the Eskom Energy Efficiency drive.

7. The new motors shall be designed to have a design life of at last 20 years.
8. The motors should be fully supported by resources within the Republic of South Africa. This is to ensure the following are easily accessible when needed:
   a. Technical service and support.
   b. Repairs of equipment.
   c. Purchasing and supply of spares.

2.3 Power Supply Variation

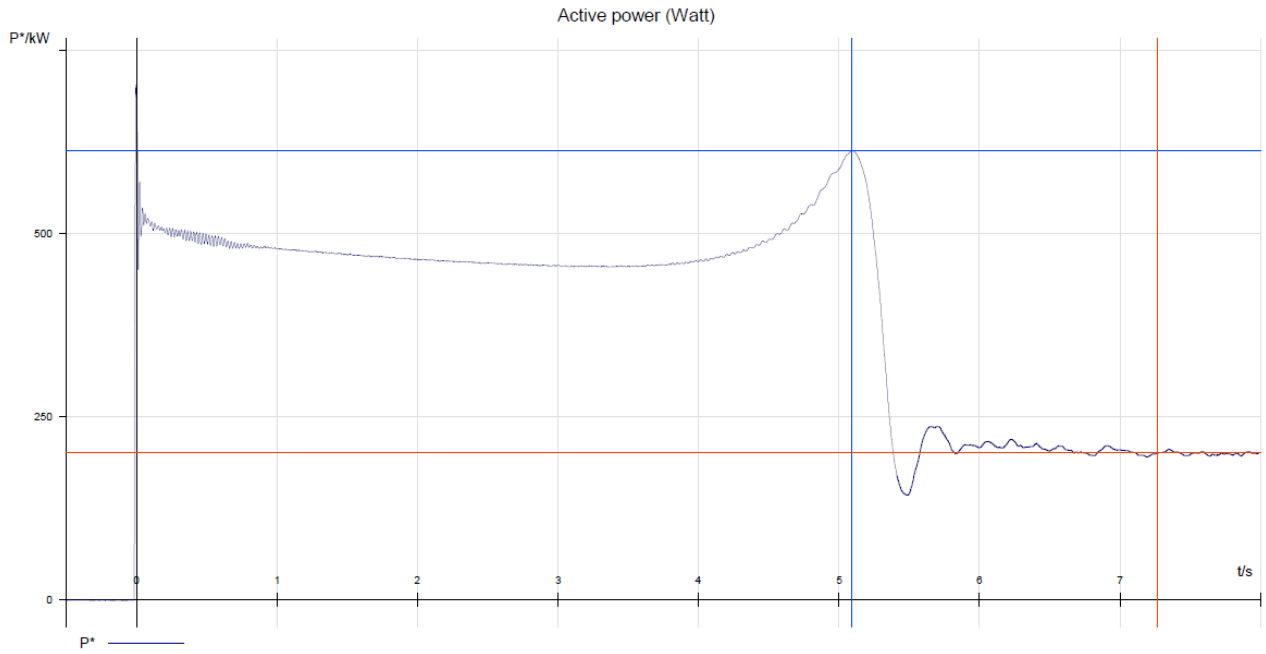
1. Under normal power supply conditions, the motors shall be capable of:
   a. Running continuously at rated output without exceeding the temperature rises permitted in 2.4.2 as per SANS IEC 60034-1
   b. The specified number of starts per hour and momentary overload in accordance with SANS IEC 60034-1 without exceeding the motor insulation class temperature rise.
2. Under sustained abnormal conditions specified the Technical Schedule A&B, motors shall be capable of starting and driving the driven equipment without exceeding the motor insulation class temperature rise.
3. Under transient abnormal conditions specified in Technical Schedule A&B, motors shall continue operating without damage and without exceeding the motor insulation class temperature rise.

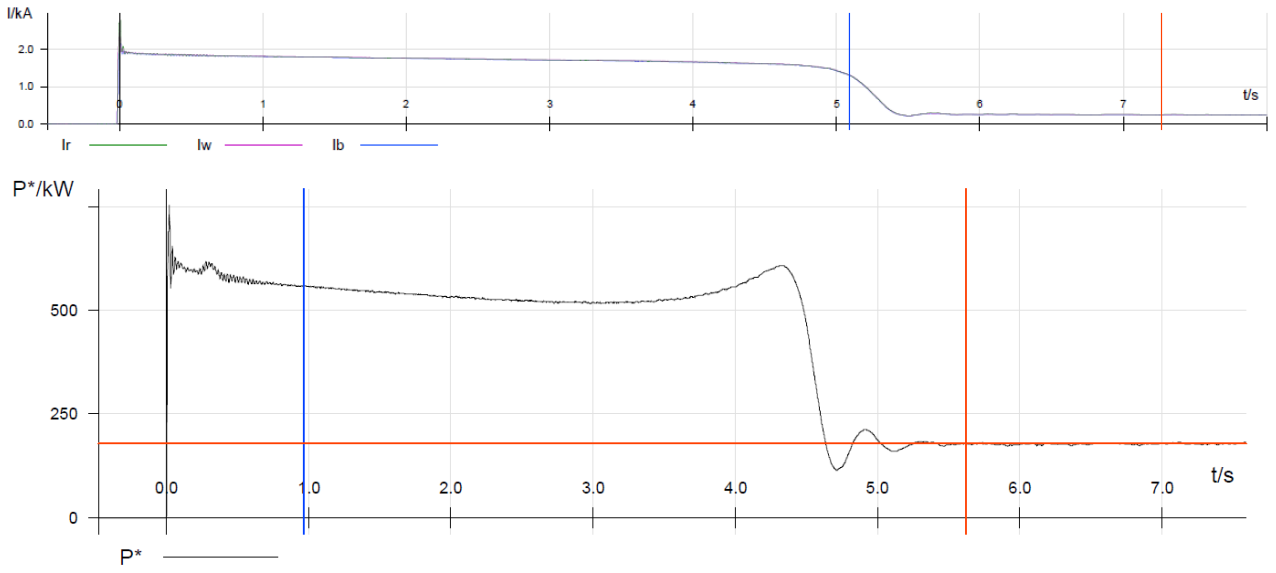
2.4 Temperature Class Limits

1. The stator windings shall be insulated with a Class H (180°C) or higher insulation system.
2. The winding temperature rise at rated output shall not exceed 80K above the maximum coolant/ambient temperature of 40ºC (Class B Insulation temperature rise) measured using the resistance method. This is applicable for both Direct-on-Line and converter-driven motors.

2.5 Starting Current Requirements

Motors shall be suitable for direct-on-line starting. The following Figures shows the typical start-up power/current for the ACC fans. **Ignore the settling power/current as the blade angles has since been increased to improve air flow. This does however not affect the start-up power/current. The motors must be designed to operate on 280kW continuously.**





2.6 Starting Torque Requirements

1. Motors shall be capable of accelerating the driven load from standstill to full speed and operate the driven equipment considering the load inertia, load torque, and power supply variations provided in this standard.
2. Unless otherwise specified in the Technical Schedule A&B, the pull-up torque and breakdown torque shall not be less than the values specified in SANS IEC 60034-12.
3. The minimum difference between the motor torque and load torque under normal supply condition shall not be less than 10% at any speed to avoid stalling during starting.

2.7 Inter-Changeability of Parts

All corresponding parts of all motors of the same type and size from the same manufacturer shall be interchangeable.

2.8 Stator Windings and Insulating System

1. Vacuum pressure impregnated (VPI) stator windings are preferred. The continuous resin flow process is also acceptable.
2. End-windings shall withstand direct-on-line starting under maximum voltage conditions.
3. The connections between the windings and terminals shall carry the maximum starting current for the worst-case run-up time without overheating and shall withstand the forces arising from the starting current without damage.

2.9 Stator Core and Winding

1. The stator core and winding shall be constructed as a separate entity thus allowing for easy repair and replacement of the winding if necessary.
2. The core laminations shall have no ragged edges before stacking.

2.10 Rotor, Shaft and Coupling

1. Die-cast aluminium, Die-cast copper and fabricated copper rotors are allowed.
2. For copper bar rotors, the laminations shall be fixed to the shaft so that the maximum torque is transmitted without distortion of, and without separation between, the rotor laminations.
3. For copper bar rotors, precautions shall be taken for the case where a rotor bar breaks that it will not come out of the rotor slot and damage the stator winding.

4. Unused shaft extensions shall be enclosed in robust metal covers.
5. Shaft ends shall be protected from corrosion.
6. Dimensions of shaft ends and keys shall comply with the relevant standards in Section 1.4. and Section 0 Figure 5.

2.11 Bearings

2.11.1 Design

1. The bearing type shall be anti-friction (ball or roller) bearing unless otherwise specified in the Technical Schedule A&B.
2. Ball and/or roller bearings shall be conservatively loaded.
3. Grease renewal periods shall be not less than 4000 hours.
4. Grease relief devices shall be provided to prevent over-greasing and shall discharge excess grease external to the motor from an easily accessible position. Grease shall escape to the outside of the motor frame as the motor frame fits into an open gearbox. The grease escape must not allow motor grease to enter the gearbox oil.
5. The greasing arrangements for ball and roller bearings shall be such that greasing can be carried out safely while the motor is running. Greasing facilities shall be easily accessible when the motor is in service.
6. The life of ball/roller bearings shall be calculated by an approved method. Air Cooled Condenser (ACC) motors shall have at least 100 000 hours (L10).
7. All grease points shall be accessible around point A of Figure 3.
8. The motor grease points shall be numbered and the grease type, QTY and intervals shall be specified on the name plate.

2.11 2 Lubrication

1. The Supplier is to note that the *Purchaser* has a national contract (Currently with Engen) for grease supply and can thus not procure grease from any other supplier. For this reason, it is clearly stated, that the Supplier will ensure that the supplied motors will safely operate on an approved Engen type grease. The Supplier shall engage with Engen and identify the most suitable Engen type grease that is supported by the motor manufacturer for the application. Currently Engen supplies Engen Resister Load plex grease.
2. To ensure that adequate grease is available, and the Purchaser has sufficient time to procure the new grease should it be necessary, the supplier shall supply sufficient grease for 100 motors for a period of 1 year at the specified lubricating intervals.
3. The Supplier shall supply the motors greased and ready to be connected and operated.
4. The Supplier shall supply the grease with the grease gun as specified in Section 0 with the appropriate grease filler unit to fill the grease gun cartridges.
5. Filling of the grease gun shall be done in a closed circuit to prevent contamination from entering the grease.
6. All motor bearings shall be inspected by the *Purchaser*'s representative on site. On motors fitted with ball/roller bearings, the grease shall be examined prior to commissioning to ensure that it is not hard. If no roughness is felt when the shaft is rotated by hand and if the motor runs without undue noise or vibration, the bearings will be considered acceptable. If the bearings fail or exhibit the symptoms of brinelling during the guarantee period they shall be replaced by the Supplier, free of charge and without delay.

2.11.3 Battery operated grease gun

To ensure that optimum greasing is performed, the Supplier shall supply two battery operated grease guns with the following specification. These shall be supplied during the first order:

1. One-handed battery-operated grease guns.
2. 500ml grease holding capacity tubes.
3. Applicable nozzle to fit the supplied gearbox grease nipples.
4. LED light.

5. 20V Li-Ion Battery with >1500 mAh capacity.
6. Supplied with appropriate filler pump and nipple. The filler pump shall fit onto the supplied grease drums.
7. Vent valve.
8. Spring guards to prevent kinks.
9. Battery charge display.
10. Grease discharge indicator/meter in gram.
11. Min of 900mm long discharge hose.
12. With carry case.
13. Supplied with 2 x 220VAC battery chargers.
14. Supplied with 4 x spare batteries.
15. Non disposable tube system to be used – Must use bulk filling device for re-filling (which must also be supplied).

2.12 Enclosure and Cooling

1. Motors shall be of standard dimensions as specified in relevant standards in Section 1.4.
2. The motor housings for power station motors shall be made of either cast iron or fabricated steel.
3. Vertical motors shall be provided with sturdy and solid steel cowls to prevent the accumulation of foreign matter and water on the motor.
4. The enclosures (IP code) shall be IP55 or more.
5. Cooling methods shall be IC41 with increased airflow as demonstrated during the site clarification meeting.

2.13 Terminal Boxes

1. Motors shall be provided with approved terminating fittings for the required cables.
2. Terminal boxes shall be provided complete with the internal parts. The cable glands plugs shall be fitted in the cable entries. Cable glands shall be supplied if requested in the enquiry document.
3. Terminal box lids shall be with “lips” over the terminal box flange, so that the gasket will not be exposed to water and dust.
4. Cable tail support bars within the terminal boxes shall be made from non-hygroscopic insulating material.
5. The dimensions of terminal boxes and cable boxes shall be adequate for accommodating the sizes and types of cable specified. The design of the terminal box shall permit the removal of the motor without the need to disturb the termination or bend the cable appreciably.
6. All auxiliary terminal boxes shall be clearly labelled to indicate the circuits for which they are provided.
7. Labels shall be as per Section 2.23 with permanent markings and shall be securely attached to the motor.
8. As stated in Section 0, the motors shall accommodate both Type 1 and Type 2 cable entry and termination without obstructing the walkway.

2.14 Motor Terminals, Connections and Rotation

1. Main terminals and motor leads shall be permanently marked with the letters U-V-W, reading from left to right, if horizontally arranged, or top to bottom, if vertically arranged, when facing the terminal box.
2. Internal leads to reverse the motor rotation shall be easily interchangeable.
3. Motors shall rotate in a clockwise direction when looking on the drive end, irrespective of the direction of rotation required on site, when the U-V-W supply leads of a phase rotation system rising in that order, are connected to the motor terminals U-V-W respectively.
4. Each motor shall be provided with an earth terminal mounted.

2.15 Rating Plate and Labels

1. The rating plate shall give the information specified in SANS 1804 and IEC 60034-30.
2. All information on the rating plate or any other plate detailing information shall be marked permanently on securely attached stainless steel plates
3. In addition to the information shown on the rating plate, the following information, if not included in the rating plate, shall be included separately on the motor casing,
   a. Make and type of bearings.
   b. Grade and type of lubricating oil/grease.

c. Recommended greasing intervals.
d. Bearing reference numbers for ball/roller bearings.
e. Permissible starting intervals.
f. The IE code and efficiency shall be durable marked on the rating plate.
g. The SABS mark.

2.16 Corrosion Protection and Paint Finishes

1. The internal surfaces of terminal boxes and motor frames shall be given an approved corrosion-proofing treatment to be approved by the *Purchaser*.
2. All external surfaces shall be finished with an outer coat of enamel of the colour specified in the Technical Schedule A&B.
3. Any standard painting procedure that differs from these requirements shall be submitted to the *Purchaser* for prior approval.

2.17 Noise and Vibration

1. The noise levels shall not exceed the levels given in SANS IEC 60034-9.
2. Levels of vibration generated within motors when running on their own shall not exceed the levels given in SANS IEC 60034-14.
3. The motors shall come with four flat face vibration target pads 90° apart. Two on the drive end and two on the non-drive end to measure radial vibration. The target pads shall be as close as possible to the bearings and shall have a good vibration path that shall first be reviewed and accepted by the *Purchaser* as part of the design reviews. The target pads shall accommodate a 30mm diameter magnetic vibration sensor. The supplier shall also specify the necessary information required to improve vibration analysis such as bearing numbers, Number of rotor bars etc.
4. As part of the tender, the Supplier shall indicate on the assembled drawing as per Section 2.22.1 where the target pads will be installed.
5. To determine a baseline vibration limit and trend, the *Purchaser* shall take vibration measurements on each supplied motor within 24 hours from installation and every month thereafter for the duration of the motors warranty as a minimum.

2.18 Installation

1. The Supplier shall supply ***four sets*** (4) of certified lifting lugs to hoist and rig the motors. All lifting lugs shall have a serial number tagged to the lifting lug traceable to the certificate. Lifting lugs shall not be painted. This shall conform to [3] and shall be delivered during the first delivery together with all the necessary documentations and certificates. (The motors shall not be supplied with lifting lugs installed).
2. Installation shall be done by the *Purchaser* as per the installation procedure to be supplied by the Supplier.
3. The supplier shall witness the installation of the first six (6) motors to ensure that the installation process (Rigging, transport, coupling etc) goes smoothly and if there are any concerns that the supplier gets to resolve and correct them.

2.19 Temperature Measuring Devices

The thermistors, ETD or thermocouples shall be fitted in a separate terminal box. Terminal boxes shall be clearly labelled to indicate the circuits for which they are provided. Labels shall be of stainless steel with permanent markings and shall be securely attached to the motor as per Section 2.23.

2.20 Quality Assurance and Testing

2.20.1 Quality of Material and Workmanship

1. All material shall be new and of the quality required. Unless otherwise specified or approved all material shall comply with the most recent South African Standards applicable or better.

2. No welding, burning in, filling, plugging up or metal deposition to correct defects in any component will be permitted unless agreed to by the *Purchaser* in writing, following an inspection of the defect by the *Purchaser* or its authorized representative.

2.20.2 Inspection and Witnessing of Tests

1. Before the contract placement the *Purchaser* can request to conduct a factory visit to the Suppliers workshop in order to monitor progress of the drive construction.
2. The Supplier shall give the *Purchaser* not less than seven days' notice of when the inspection may be undertaken. Motors despatched to site without the required inspection, may be returned at the Supplier's cost, at the *Purchaser*s discretion or as stated in the contract.
3. An inspection and test plan shall be submitted for approval.
4. Type tests shall be witnessed by the *Purchaser* and/or an authority, independent of the supplier or manufacturer as selected and approved by the Purchaser.

2.20.3 Type Tests

1. The first motor manufactured shall be performance tested to prove compliance with the quoted performance.
2. All performance tests shall be in accordance with SANS IEC 60034-1 and SANS 1804.
3. The temperature rise of the stator windings shall be measured by the winding resistance method.
4. The supplier shall use the Eskom template as prescribed.

2.20.4 Routine Tests

1. Each supplied motor shall be tested at the manufacturer's works for no load current, vibration, locked rotor, insulation resistance, high voltage and winding resistances.
2. All motors shall be subjected to a no-load bearing run for long enough to allow the bearing temperatures to reach equilibrium
3. All routine tests shall be in accordance with SANS IEC 60034-1 and SANS 1804.
4. The supplier shall use the Eskom template as per Appendix E of 240-57617975, New Low Voltage Induction Motors Procurement Standard.

2.20.5 Test Certificates

1. The routine and type test certificates shall be submitted to the *Purchaser* for approval 30 days before the delivery date of the motors.
2. Type test certificates shall show power factor and efficiency figures calculated from the test results for 100 %, 75 % and 50 % of full load conditions.
3. Motor test results shall be recorded on the Purchaser standard form as per Appendix D and Appendix E of 240-57617975, New Low Voltage Induction Motors Procurement Standard. The Supplier's template is acceptable if it is comprehensive and covers all the details required by the Purchaser.

2.21 Delivery

1. Motors shall not be delivered without agreement of readiness to receive them. Motors delivered without such approval may be returned at the Supplier's expense for later delivery at no extra cost to the *Purchaser*.
2. The motors must be isolated to prevent dust/moisture from entering the motor.
3. The rotor shall be locked or tensioned to prevent fretting or brinelling erosion.
4. All data sheets, material certificates and test certificates must be supplied on a hard copy as well as a digital, searchable colour soft copy of all documents, scanned and sent via Email to the *Purchaser*. Hard colour copies should all be packed in a plastic bag and secured to the motor. All documents shall be traceable to the motor serial number.
5. The motors will be removed at Matimba stores from a truck via a forklift and must be stored in the Horizontal position on a wooden structure/box/crate.

6. The motors will be wrapped in plastic and enclosed in a wooden crate.

2.22 Documentation

2.22.1 Motor Documentation Requirement at Tender Phase

Detailed information and drawings to enable the *Purchaser* to make a complete and fair technical analysis of the tender/s shall be supplied for the proposed motor design. The required details shall include but not limited to the following:

a. Preliminary outline drawing indicating motor mounting dimensions, shaft height, shaft diameter and coupling detail, maximum overall dimensions, weight for total motor, position of vibration pads. The vibration path must be seen through a sectional drawing.
b. A completed Technical Schedule-A&B.
c. Grid code compliance requirements in Technical Schedule A&B.

2.22.2 Motor Documentation Requirement After Contract Award.

1. The following information shall be provided by the Supplier within 60 days from the contract start date to the Purchaser for detailed design review, comment, and acceptance:
   a. Detail outline drawing indicating certified motor mounting dimensions, shaft height, shaft diameter and coupling detail, maximum overall dimensions, weight for total motor, interface location for terminal boxes (main power supply, auxiliary, and accessories). The rated kW output, speed, supply voltage, line current, frequency and phases shall be clearly shown.
   b. Power winding diagrams and connection diagrams for auxiliaries.
   c. A completed version of Technical Schedule-A&B that shall, where necessary, show revised data due to the motor detailed design.
   d. Torque and Current versus Speed Curves for the motor at 100% and 90% motor rated voltage for motor. The torque versus speed curves shall include the driven load torque versus speed curve to show accelerating torque margins.
   e. Efficiency and Power Factor versus Load Curves from 50% to 100% load, in 25% increments, at rated voltage.
   f. Thermal limit curves.
   g. Start-up times and stall times of the motor at 100% and 90% of the rated voltage.
   h. Nameplate drawing with all details to be contained therein.
   i. A Quality Control, Inspection and Test Plan for *Purchaser*s review, influence and approval.
   j. An equivalency/interchangeability review for the new versus existing motor designs.
2. No manufacturing or delivery of motors should be allowed before the designs are finalized and accepted by the *Purchaser*. The *Purchaser* has the right to reject any motor delivered to site without the signed documentation mentioned above at the Supplier ‘s cost

2.22.3 Motor Documentation Requirement prior to scheduled delivery

Information shall be submitted to the *Purchaser* for review and approval 90 days prior to the first motor delivered to site.

1. 5x Colour hard copies and 1x coloured, searchable soft copy of Installation, Operating and Maintenance Manuals. Information contained in this manual shall include but not limited to:
   a. Installation instructions.
   b. Operating instructions, including starting limitations.
   c. Maintenance requirements and data. The Supplier provides a maintenance strategy for the life expectancy of the new motors with a summary schedule. The Supplier provides the life expectancy of the equipment. The Supplier lists maintenance spares (with detailed specifications) for the life expectancy of the equipment.
   d. Instructions on how to completely disassemble and assemble the motor for major inspections, repairs, and overhauls.
   e. Replacement parts catalogue.
   f. Storage requirements.
   g. Trouble shooting guide.
2. Required Type test certificates and Routine certificates.

3. All signed drawings specified.
4. Signed Technical Schedule A&B.
5. Signed Torque vs. speed curves and current vs. speed curves. Signed Efficiency and Power factor vs. load curves. Signed Thermal limit curves.
6. Signed Quality control plan.

The *Purchaser* has the right to reject any motor delivered to site without the documentation mentioned above at the Supplier ‘s cost.

All the drawings shall be done according to Eskom Engineering Drawing Standard – Common Requirements in [4]. In the event that there is any discrepancy between the information in this document and that of the above-mentioned standard, the information in this document shall get preference:

1. Soft copies of the drawings should also be provided in PDF and CAD - Bentley View software.
2. Drawings shall be suitably prepared to facilitate electronic storage and incorporate a revision numbering and indication system provided by the *Purchaser*.
3. Dimensions on the drawings shall be in the SI system.
4. Levels shall be indicated in metres, all other dimensions in millimetres.
5. All text shall be in English.
6. Drawings shall be submitted together with the relevant complete calculations or performance curves.
7. Claim to all drawings prepared by the Supplier under any order placed by the *Purchaser* shall be vested in the *Purchaser*, and the latter shall have the right to use these drawings for any purpose without any obligation to the Supplier.
8. The Supplier shall not disclose or issue to third parties without written consent of the *Purchaser* any documents, drawings, etc., placed at his disposal by the *Purchaser* or any documents prepared by himself in connection with enquiries and orders for purposes other than the preparation of a quotation or carrying out these orders.
9. All drawings issued by the Supplier shall be signed by a professionally registered engineer; this signature shall be accompanied by the engineer’s professional registration number.
10. All drawings shall have Eskom numbers.

2.23 Labelling

1. All labels shall be in English, and the wording is subject to *Purchaser*’s approval.
2. Abbreviations to descriptions shall not be acceptable. Where abbreviations are unavoidable due to database field length limitations or limited number of characters available on labels, the abbreviations shall be in accordance with the *Purchaser*’s abbreviation standard.
3. Labels for removable items shall be mounted alongside the item and not fixed to the item itself.
4. The Supplier is to supply the following name plates/tags etc that shall be chemically resistant and thus made from stainless steel and shall be riveted onto the motor. The tags shall be at least 1mm thick and shall be etched and filled with a black colour that shall be corrosion resistant to oil cleaning solvents.
5. The following minimum information shall be displayed on the motor main name plate:
    a. Motor name.
    b. Motor type
    c. Serial number for the *Purchaser*s use. The following shall be used MACCM001 where 001 is the motor supplied for this contract. E.g. The 30th motor supplied shall be MACCM030.
    d. Motor mass [kg].
    e. Nominal power [kW].
    f. Motor speed [rpm].
    g. Grease grade.
    h. Greasing QTY [gm].
    i. Year of assembly
6. The motor shall also have a grease QTY tag at each grease nipple and frequency of greasing shall be indicated.

2.24 Warranty

1. The motors shall come standard with a 12 month or longer operating warranty. The Manufacturer (If different to the supplier) shall also be involved in all motor failure investigations during the contract period. The Manufacturer shall:
   a. All motors with a warranty claim shall be stripped and assessed locally within South Africa by the motor manufacturer or approved representative in the presence of the *Purchaser* or a representative such as a 3rd party inspector appointed by the *Purchaser*.
   b. For motors failing outside of the warranty period, but within this contract, supply a representative to inspect the motor once removed from the plant, and shall witness (At a site specified by the *Purchaser*) the disassembly of the motor and supply a failure report for review and acceptance by the *Purchaser* (after warranty, but during contract period).It is specifically stressed that the intent of this contract is to procure 300 new motors, but it should be clear that the *Purchaser* cannot procure 300 motor if there is any concern that there might be premature failures. For this reason, the following will be adhered to: As stated in Section 1.1 Background, the *Purchaser* shall procure a minimum of 48 motors and a maximum of 300 motors. If any of the following reasons, from Section 2.24.1 to Section 2.24.4 below are true, then the *Purchaser* reserves the right to not procure more motors and may procure other motors outside of this contract.
   c. As specified in Section 2.17, monthly vibration monitoring shall be done on the motor by the *Purchaser*. The vibration shall be trended and compared to one another. Should there be motors with vibration that is increasing and deviating significantly that can be concluded as motor defects, then investigation shall be done by the *Purchaser* and Manufacturer. If there is evidence that the defect is on the motor, then this shall be sufficient motivation for a warranty claim even if the motor has not failed but that latent defects can be seen through the vibration reports that premature failure is imminent.

2.24.1 Multiple motor failures within the warranty period

If for any reason there is more than five motors failing within the warranty period during this supply contract that is proven to not be the fault of the *Purchaser* and could point to inaccurate design/manufacturing requirements, then unless corrected (at the suppliers own cost), could allow the *Purchaser* to not procure further motors from the supplier.

2.24.2 Inadequate sealing on the drive end bearing

Should it be determined/identified that there is inadequate sealing on the motor drive end bearing/flange to prevent oil ingress into the drive end bearing that could wash out grease or enter the windings, then unless corrected (At the suppliers own cost), could allow the *Purchaser* to not procure further motors from the supplier.

2.24.3 Ineffective grease escape ports

Should it be determined or identified that the grease does not escape at the grease escape ports, but that the grease enters the motor windings/housing, then unless corrected (at the suppliers own cost), could allow the *Purchaser* to not procure further motors from the supplier.

2.24.4 Vibration reports

1. If there is high vibration on the motor that cannot be corrected (at the suppliers own cost) that could reduce motor bearing life, even if the motors have not failed within the warranty period, then the *Purchaser* reserves the right to put in a warranty claim for the supplier to refurbish the motor at the suppliers own cost. A typical example will be if the motor has high vibrations trends from an early stage where the vibration deviates from the other supplied motors where the root cause could be a defective bearing supplied during motor assembly.
2. It is clearly stated that the *Purchaser* reserves the right to a warranty claim if deteriorating conditions would lead to a functional failure even if the failure has not occurred within the warranty period.

2.25 Procedure for submission and acceptance of Supplier's design after contract placement

The project is subject to activities/stages described below to provide the works:

2.25.1 Production engineering stage

1. Production engineering is defined as the entire Supplier's detailed engineering and design activities that translate the requirements finalised at design freeze, into a fully functional system.
2. This stage includes the design, manufacture, testing (FAT) all documentation for erection and commissioning, preparation of testing, installation and commissioning procedures as well as operating, maintenance and training documentation. Included are all interfaces to other systems. Three colour copies of the engineering design documentation is prepared and issued by the Supplier to the Supplier's Agent for acceptance. The turn-around time for documentation review will be 14 days for both parties. This is required before manufacturing is due to commence, and by the dates shown in the Accepted Program.

2.25.2 Manufacturing stage

Work on the manufacturing of the motors will begin after the design has been accepted by the *Purchaser*. Should hold points be required in the manufacturing process, the *Purchaser* will give notice on the approved plan.

2.25.3 Acceptance tests stage

1. The completed motors will be tested at the Supplier's factory. After testing the motors will be stored until such time that they will be delivered to the *Purchaser*. The *Purchaser* is responsible for the installation and commissioning of the delivered motors.
2. The commissioning stage consists of Pre-commissioning checks and final commissioning. All commissioning is done as stipulates in the Electric motor commissioning work instruction 240-100457684, this will be the responsibility of the *Purchaser*.

2.25.4 Technical clarification

1. Technical clarification is where the Supplier undertakes engineering and design activities, to clarify with the Supplier's Agent all technical issues to permit the Supplier to undertake the production engineering phase. All equipment having long delivery times are planned and technically clarified early in the technical clarification stage to allow early production to commence. The technical clarification and design freeze activities are phased to accommodate the accepted programme. The technical clarification will be done within 1 month of the contract date.
2. After the Supplier concludes the necessary investigations and suitability of the plant as well as the verification of the design, the Supplier's Agent is presented with the conceptual designs for acceptance. The drafts of documentation prepared by the Supplier for the various technical clarification segments are to be provided to the Supplier's Agent five working days prior to the start of the respective technical clarification. In the technical clarification, the Supplier's Agent reviews the updated performance, functional, and equipment specifying documentation and the Supplier prepares formal documentation for design freeze. The Supplier provides a summary of the outcome of the technical clarification meeting discussions immediately after completion of the clarification meetings.
3. After the design and documentation is agreed to between the Supplier and the Supplier's Agent, it is formally signed off as accepted by the Supplier's Agent. These documents constitute the design freeze package. Design freeze is where the Supplier's Agent agrees and accepts the final performance, functional and equipment specifying documents and the Supplier is authorised to proceed with detailed engineering and design (production engineering).
4. The Supplier shall, at tender stage, provide details of the technical clarification process, providing typical information and documentation that forms part of the design freeze package, also providing what the *Purchaser* says forms part of the design freeze package as stipulated in the New LV motors procurement

standard 240-57617975, available from the Supplier's Agent, which will be used for the Supplier's Agent assessment for progress of design process.

2.26 As-built drawings, operating manuals, and maintenance schedules

1. Language: All documentation, including reports, manuals, etc. shall be in the English language.
2. Manuals: The technical, training, operating and maintenance manuals are provided for each type of a functional unit. Technical manuals include all technical data as well as the technical data and leaflets of each individual component provided. Where generic manuals are provided, an addendum is provided indicating the applicable project specific components.
3. Manuals are of a good quality and cover the following as a minimum:
   a. Technical descriptions of the equipment and component parts.
   b. General arrangement drawings.
   c. Installation instructions with drawings or pictures.
   d. Operating and maintenance instructions for all components.
   e. Detailed parts lists (accompanied by exploded view type drawings clearly detailing the part and uniquely identifying it).
   f. Spare part ordering instructions.
4. Any special instructions pertaining to storage of spare parts or their shelf life is included in the maintenance manual. All drawings requested for component location, dismantling and reassembly for maintenance are included in the maintenance manual. All special tools required for operating and maintenance of the equipment are presented in a form of a schedule in the operating and maintenance manual, respectively. The content of the training manual is based on the content of the technical, operating and maintenance manuals.
5. The documents are reviewed by the Supplier's Agent for correctness and conformance to the accepted design.
6. "As Built" documentation is deemed as a part of the works, hence Completion is not certified until such documentation is accepted by the Supplier's Agent.

2.26.1 Drawing Requirements

Drawing Numbering System

The *Purchaser* supplies the proposed *Supplier's Agent* drawing numbering system. The *Supplier* may assign his own drawing number as required to meet his document control system requirements.

As-built drawings and documents

All preliminary drawings developed and existing drawings that were changed to facilitate all the new equipment at the stage of completion or installation shall be available prior to the commencement of commissioning of the first drive.

It will be the responsibility of the *Supplier* to revise the drawings and to update all the existing documentation to reflect the "as built" status of the Matimba units and forwards these drawings to the *Supplier's Agent* 15 working days after the *Completion Date*. Following the successful completion of the first unit a full set of "as built" updated drawings will be available in each of the subsequent units prior to the start of commissioning.

The *Supplier's* documentation will include all program listings, a written philosophy for each system that will be upgraded and all manuals for the installed equipment.

Training and technology transfer

1. Maintenance and engineering personnel will be given training on the maintenance and commissioning of these new motors. They will also be trained on issues of fault finding and installation, with emphasis on alignment and vibration monitoring.
2. Training will consist of two x 1 day classroom training sessions using practical demonstrations as well as visual content (presentations and videos) scheduled as and when the *Purchaser* requires.
3. The training shall be done no later than 1 month before the delivery date.
4. It is advised that the supplier first engage with engineering and maintenance to discuss the training material required and the expectations thereof.
5. The classroom training shall also be in the form of video training with the same content (videos/animations etc) considering Covid-19 as well as future employees joining maintenance.
6. The training material shall first be reviewed by the *Purchaser* for acceptance before the training is presented.
7. Classroom training shall include the following topics:
    a. Design of the motors – basic design, manufacturing, and assembly of the purchased motors. Basic photos of the design and manufacturing phases shall be supplied.
    b. In depth training shall be given on the appropriate tools to be used for installation, termination, and commissioning. The supplier shall show the latest technology tools available for installation/termination that will ensure proper operation.
    c. In depth training shall be given on the importance of effective and efficient cable lug termination and connection to prevent hot connections and the results thereof.
    d. The importance of effective earthing of the motor.
    e. Fault finding on the supplied motors applicable to Matimba.
    f. Basic overview of vibration analysis for motors discussing the different types of vibration trends applicable to the supplied motors. This section shall be developed and presented by a recognised vibration analyst.
    g. Lubrication and the importance of clean, effective, and efficient lubrication. The supplied grease guns shall also be used as a demonstration.
    h. How both the Type and routine tests are conducted and the purpose thereof, with photos and videos of the actual tests performed and the results and interpretation thereof.

Plant and Materials

1. All motors are new. All New motors and Materials are free from defects. No refurbished motors and/or Materials are regarded as new under any circumstances.
2. It is the responsibility of the Supplier to ascertain the condition of any used equipment or materials, transport to site, corrosion protection, as well as any spares compatibility issues that may present itself in the future.
3. The Supplier does not use motors or Materials which are generally recognised as being unsuitable or otherwise to be avoided for the purpose for which they are intended.
4. Only components of high reliability are utilised, with a proven operating history, to enable the Plant to achieve required reliability and availability. Motors and Material design, engineering and manufacture accord with the best modern practice applicable to high-grade products of the type to be furnished, so as to ensure the efficiency and reliability of the works and the strength and suitability of the various parts for the works.
5. Motors and Materials withstand ambient conditions and the variations of temperature arising under working conditions without distortion, deterioration or undue strains in any part.
6. All parts are made accurately, and where practicable, to standard gauges so as to facilitate replacement and repairs. Like parts are interchangeable.
7. No repair of defective motors and/or Materials is permitted without the Supplier's Agent's acceptance and any such repair, if accepted, is carried out in accordance with the *Purchaser*'s requirements.
8. The Supplier ensures that co-ordinated and formally documented management system is in place for the assurance of quality as specified in ISO 9001, Quality management Systems – Requirements.
9. The Supplier's Agent is free to specify hold and witness points during the installation and on-site testing stages of the project. The Supplier issues preliminary notification of such hold and witness points by four days advance notice to the Supplier's Agent and confirms such hold and witness points at least four days prior to the activity.
10. Documentation regarding quality procedures is submitted within thirty days of Contract Award. The Supplier's Agent reviews and comments on the acceptability of these documents within the period for reply. If controlled copies of these documents have been submitted to the *Purchaser*, then the controlled copy numbers may be quoted in the submission.

3 Constraints on how the Supplier Provides the Goods

3.1 Management meetings

Meetings are held monthly between the Supplier's Agent and the Supplier (and any other co-opted members). The Supplier is represented, at each meeting, by the appropriate members of the staff.

The venue for these meetings is as determined by the Supplier's Agent. The Supplier's Agent writes the minutes of meetings.

Any action of the Supplier's Agent or Supplier implied in the minutes of meetings with contractual implications is confirmed by means of a separate communication given in accordance with this Works Information and NEC.

The Supplier reports the overall progress and as a minimum requirement, the following is addressed:

- Supplier's current activity progress and planned finish dates.
- Supplier's programme agenda compared for delays and milestone targets
- Health, safety and quality Management.
- The progress of any other relevant activities.
- To discuss any technical or commercial issues.
- Problem areas or concerns.

Regular meetings of a general nature may be convened and chaired by the *Supplier's Agent* as follows:

Title and purpose	**Approximate time & interval**	**Location**	**Attendance by:**
Project Kick-Off Meeting	Once, before contract start	Matimba Power Station	**Supplier's** Agent, Project Supervisor and other attendees at the discretion of the Supplier. **Purchaser's** Project Team
Progress Report and Assessment Meeting	Monthly	MS Teams	**Supplier's** Agent, Project Supervisor and other attendees at the discretion of the Supplier. **Purchaser's** Project Team
Risk Management Review	Monthly	Matimba Power Station	**Supplier's** Agent, Project Supervisor and other attendees at the discretion of the Supplier. **Purchaser's** Project Team

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*. Such meetings should not prejudice the Purchaser in terms of cost, quality and schedule. Records of these meetings shall be submitted to the *Supplier's Agent* 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.

3.2 Document Management

3.2.1 Document identification

The documentation requirements cover the various engineering stages, from the design stage through fabrication, installation, testing and commissioning and most importantly for the operating, maintenance and training stage of the project.

The Supplier is responsible for the compilation and the supply of the documentation during the various project stages and to provide the documentation programme to link with the milestone dates. Documentation and drawings are programmed for delivery to meet the milestone dates and in accordance with the agreed VDSS supplied Purchaser.

3.2.2 Documents Submission

In order to portray a consistent image, it is important that all documents used within the project follow the same standards of layout, style and formatting as described in the documents above. The Supplier is required to submit documents as electronic in .pdf format in a CD and hard copies and are delivered to the Supplier's Agent with a transmittal note.

The Supplier submits the Master Document List to the Purchaser on a monthly basis for tracking purposes irrespective of whether there are updates or not. The MDL includes list of drawings and documents and contains the following minimum information for each document:

- Date of submission
- Transmittal number
- Transmittal title
- Document description
- Document number
- Document Type
- Revision number
- Document Approval Status
- Document Authorisation Status (i.e. Accepted with Comments, Not Accepted with
- Comments, Accepted)

3.2.3 Documentation Review and Turn-around

The Purchaser has a period of 30 days to review and consolidate review comments for documentation submitted by the Supplier. The Supplier also has a minimum four working days to respond and / rectify as per the comments by the Purchaser. This excludes *Supplier*'s design documentation.

3.2.4 Drawings Format and Layout

The creation, issuing and control of all Engineering Drawings are in accordance to the latest revision of 240-86973501 (Engineering Drawing Office and Engineering Documentation Standard). Drawings issued to the Purchaser are a minimum of one hardcopy and an electronic copy. All Suppliers are required to submit electronic drawings in Micro Station (DGN) format, and scanned drawings in pdf format. No drawings in TIFF, AUTOCAD or any other electronic format are accepted. Drawings issued to the Purchaser may not be

"Right Protected" or encrypted. The Purchaser reserves the right to use these drawings to meets it other contractual obligations.

3.2.5 Plant Identification

Plant Coding

Coding of the design is based on the KKS coding system, and the Purchaser undertakes the coding in line with its standards. The KKS coding is applied during the design review stage(s) and cross referenced to all arrangement drawings, schematics, wiring diagrams, instructions and manuals and where practical to spare parts list/manuals. The Supplier is required to include allocated coding to the electronic design drawings.

The Supplier to use the KKS system for classifying and designating both plant and their associated documents. All technical documentation as per "Technical documentation classification and designation standard – 240-54179170" contain a KKS code as part of the documentation identification relevant to the plant equipment. All plant (Process, Mechanical, Electrical, C&I and Civil) to be coded to KKS breakdown level 3. The KKS code contains break down level 1, break down level 2 and breakdown level 3. Omission of any break down level is not permitted. The system is applied from the concept stage until project closeout.

Detailed nameplate or label list with the service legends and including the KKS Code to be prepared by the Supplier and submitted to the Supplier's Agent for review and comment before commencing manufacture of the labels. All maintainable plant equipment and components to be labelled including pipework. The rules for applying the KKS and the KKS codes are contained in the Purchaser's Standard 240-93576498: KKS Coding Standard and in the publication KKS power plant classification (B105e) 5th Edition 2003 published by Verlag VGB Powertech Service GmbH (Essen), and the KKS Applications: Guideline and explanations A, B1-4 (B106e).

The Supplier to code all plant within scope of supply according to the KKS Classification System to Breakdown Level 3 where possible. The relevant KKS codes thus allocated appear on all plant related documentation, drawings, lists and correspondence.

The Supplier is responsible for ensuring the accuracy, completeness and consistency of the designations in all documents. This applies both to designations within documents (plant designations) and of Documents (documents designations). The Supplier to submit these for the Supplier's Agent's acceptance.

A list of the KKS designations allocated is drawn up by the Supplier for each scope of delivery. Methods of KKS designation, list formulation and submission format to be proposed by the Supplier and agreed by the Supplier's Agent.

Plant Labelling

- The Supplier supplies the labelling for all plant, material and equipment provided as part of the works.
- It is the responsibility of the Supplier to manufacture and install labels according to 240-71432150: Plant Labelling Standard.
- Coding and labelling of components inside electrical and C&I panels are completed by the Supplier.
- The Supplier's Agent to facilitate baselining of all equipment lists from the Supplier, and only baseline equipment lists to be used as a basis for the production of labels.
- Abbreviations to descriptions on the labels are generally not acceptable. Where abbreviations are unavoidable, due to the limited number of characters that can be engraved/etched on labels, the abbreviations are submitted to the Supplier's Agent for acceptance. The Supplier makes use of the Purchaser's "Eskom Plant Labelling Abbreviation Standard; 240-109607332.
- The Supplier makes use of the KKS codes and descriptions provided by the Purchaser.
- The Supplier supplies to the Supplier's Agent, for verification and acceptance purposes, with a label list showing the text only. The Supplier's Agent's acceptance should be sought for the positioning and designation of labels.
- The KKS codes are used accordingly on documentation (e.g. drawings, manuals, equipment lists, cable schedules etc.) as a unique identification means. References to plant are accompanied by the relevant KKS code for that item of plant.

3.3 Health and safety risk management

3.3.1 General

In carrying out its obligations to the Purchaser in terms of this contract, which obligations include, amongst others, to Provide the Works; using Plant, Materials and Equipment; and whilst at the site for any reason, the Supplier is the "Purchaser" in terms of the Occupational Health and Safety Act, No. 85 of 1993, in respect of its activities and in relation to its employees, agents, and mandatories.

OHS Requirements

Contractual requirements means all suppliers must submit the OHS returnable on the tender closing date. OHS will evaluate the suppliers that have passed functionality and mandatory. The suppliers who have not submitted all the requirements or the compliance standards is not satisfactory, OHS will request the outstanding documents from the suppliers only once through the buyer. The suppliers will be given 7 working days to respond to the request. The suppliers that responded within the stipulated time will be re-evaluated, failure to submit the outstanding document will be rendered non-responsive. The evaluation report will be submitted to procurement.

The *Contractor* shall comply with the health and safety requirements contained below in this Service Information

- **Annexure B-** Is the acknowledgement of Eskom's OHS legal and other requirements form signed and submitted by the tenderer?
- **Health and Safety Plan- (**must address the project /scope of work OHS risk(s) and aligned with the health and safety specifications or requirements**)**
- **Costing for Health and Safety management-** Has the tenderer submitted detailed costing for OHS (the cost should be broken down not provided as a lump sum). The costing must be based on the overall scope of work/service to be performed. The scope of work and the risk assessment may serve as a guideline.
- **Baseline OHS Risk Assessment (BRA)-**Identification, assessment and management of OHS risks related to the scope of work. The methodology used for the risk assessment must be provided together with the BRA
- **Valid Letter of Good Standing** (COIDA or equivalent)
- **OHS policy signed by CEO-** The submitted policy must comply to OHS Act Section 7
- **OHS Competency-** (Consider scope of work, risks, OHS plan and applicability) CV,s and qualifications / certificates (List competencies required).

The Supplier does not consider itself under the supervision or management of the Purchaser with regard to compliance with the Safety Health and Environmental requirements.

Furthermore, the Supplier does not consider himself to be a subordinate or under the supervision of the Supplier's Agent in respect of these matters. The Supplier is responsible for the supervision of its employees, agents, and mandatories and takes full responsibility and accountability for ensuring that they are competent, aware of the Safety Health and Environmental requirements, whilst executing the works in accordance with the Safety Health and Environmental requirements.

The Supplier ensures compliance with, amongst others:

- The provisions of the Occupational Health and Safety Act, No. 85 of 1993 and all applicable regulations (as amended), binding in terms thereof.
- The latest versions of standards, procedures, specifications, rules, systems of work and requirements of the Purchaser, copies of which are provided to the Supplier on request.
- The Health and Safety Plan prepared by the Supplier in accordance with the Purchaser's Safety Health and Environmental Specification – 240-149136837 and requirements.
- The provisions of the National Environmental Management Act (as amended) and all regulations in force from time to time in terms of that Act,

The Supplier ensures that its employees, agents, and mandatories comply with the provisions of the Occupational Health and Safety Act, No. 85 of 1993, and all applicable regulations binding in terms thereof as well as the Purchaser's Safety Health and Environmental Specification - 240-149136837 whilst making use of plant, materials and equipment and whilst at the Site for any reason whatsoever.

The Supplier implements a comprehensive health and safety management system, based on the OHSAS 18001 requirements for utilisation at the project.

The Supplier appoints a person, qualified and competent in accordance with the safety health and environmental requirements, as the liaison with the Purchaser's Project Safety, Health and Environment Manager/Officer or delegated person for all such matters as pertaining related to safety, health and the environment. The Supplier ensures that such a person is contactable 24 hours a day, and is registered with a registered professional council approved by the Principal Director of the Department of Labour, as per the requirements of the latest Construction Regulations, inclusive of all exemptions and amendments pertaining thereto.

The Supplier hereby indemnifies the Purchaser and holds the Purchaser harmless in respect of any and all loss, costs, claims, demands, liabilities, damage, penalties or expenses that may be made against the Purchaser and/or suffered or incurred by the Purchaser (as the case may be) as a result of, any failure of the Supplier, its employees, agents, and mandatories to comply with their obligations, and/or the failure of the Purchaser to procure the compliance by the Supplier, its employees, agents, and/or mandatories with their responsibilities and/or obligations in terms of or arising from the Occupational Health and Safety Act, No. 85 of 1993.

The *Supplier* acknowledges that he is fully aware of the requirements of all requirements and undertakes to employ only people who have been duly authorised in terms thereof and who have received sufficient safety training to ensure that they can comply therewith.

The *Supplier* undertakes not to do, or not to allow anything to be done which will contravene any of the provisions of the Act, Regulations or Safety and Operating Procedures.

The *Supplier* shall appoint a person who will liaise with the *Purchaser* Safety Officer responsible for the premises relevant to this contract. The person so appointed shall on request:

- Supply the Purchaser Safety Officer with copies of minutes of all Health and Safety Committee meetings, whenever he is required to do so.
- Supply the Purchaser Safety Officer with copies of all appointments in respect of Employees employed on this contract, in terms of the Act and Regulations and shall advise the Purchaser Safety Officer of any changes thereto.

Purchaser may, at any stage during the currency of this agreement be entitled to:

- Do safety audits at the Supplier's premises, its workplaces and on its Employees.
- Refuse any Employees, or agent of the Supplier access to its premises if such person is found to commit any unlawful act or any unsafe working practice or is found to be not authorised or qualified in terms of the Act.
- Issue the Supplier with a work stop order or a compliance order should Purchaser become aware of any unsafe working procedures or conditions or any non-compliance with the Act, Regulations and Procedures by the Supplier or any of its Employees, or agents. Stoppages of this nature will not constitute a compensation event.

3.3.2 Mandatory Agreements

The Supplier confirms that:

- In terms of sections 37(1) and 37(2) of the OHSA, the Purchaser is relieved of any and all of its responsibilities and liabilities pertaining to the activities performed by the Supplier (and its employees, agents, and mandatories) relating to the works; the use of plant, materials and equipment; and whilst at the Site for whatsoever reason.

- b) The Supplier confirms that, in terms of the Construction Regulations, Regulation 6, it is hereby mandated as the designer and must perform all duties required of a designer. (This will be applicable only where the Supplier is required to do design work as part of their Scope).

The Supplier confirms that he has been provided with sufficient information regarding the health and safety arrangements applicable to the works, the use of Plant, Materials and Equipment, as well as at the Site.

In addition, the Supplier ensures that:

- Prior to the Supplier commencing with any operations/ activities relating to the works and/or prior to gaining access to the Site, the Supplier concludes a written mandatory agreement with the Purchaser in terms of Section 37(2) of the OHSA and 5(1)(k) under the construction regulations. The aforementioned agreement constitutes a record of the written arrangements and procedures between the Supplier and Purchaser regarding health and safety.
- As far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances is maintained.
- As far as is reasonably practicable, all hazards pertaining to the health and safety of persons and harm to the environment that are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in its business, is clearly identified and, as far as is reasonably practicable, further establishes what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons and or harm to the environment, and provides the necessary means to apply such precautionary measures;
- Such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of its employees, agents, and mandatories is provided.
- As far as is reasonably practicable, no employee, agent, and transports any article or substance or operates any plant or machinery, unless the precautionary measures contemplated in paragraph 2.3.3, or any other precautionary measures which may be prescribed have been taken.
- Such measures as may be necessary in the interest of health and safety and the environment are enforced.
- Work is performed and that plant, materials or equipment is used under the direct supervision of a person trained to understand the hazards associated with it and who has the authority to ensure that precautionary measures required by the Purchaser are implemented; and
- All employees are informed of the scope of their authority as contemplated in OHSA.

3.3.3 Health and Safety Obligations

In addition to the mandatory agreements, the Supplier:

- Ensures that all statutory appointments (as required in terms of the Occupational Health and Safety Act, No. 85 of 1993 and all applicable regulations binding in terms thereof, as amended) and other appointments required in terms of the Purchaser's Safety Health and Environmental Specification – 240-149136837 and SHE Requirements Procedure (32-726) are in place and that all appointees are cognisant of their duties and responsibilities in terms of such appointments;
- Ensures that such appointees execute their duties and responsibilities as required by such an appointment.
- Ensures that all personnel brought by itself onto site (including employees of Suppliers and) are suitably qualified and trained for the performance of the task, duties and functions, which are allocated to them;
- Immediately reports any occupational or other injuries, near miss events, property damage, environmental related incidents as well as any potential threat to the health and safety of individuals at the works or on the site, as soon as he becomes aware thereof, to the Supplier's Agent; Complies with the Purchaser's Occupational Health and Safety Incident Management Procedure – 32-95 and Environmental Incident Management Procedure – 240-133087117 relating to the reporting and investigation of incidents. The classification of incidents contained in such document are considered final and are applied by the Supplier relating to any incidents/ injuries relating to its employees, agents, Suppliers, and mandatories whilst on Site.
- Conducts a risk assessment regarding the utilisation of PPE and thereafter ensure that PPE of good quality is issued (at its own cost) to its employees, agents, Suppliers, and mandatories prior to such individuals accessing the site, alternatively performing activities related to the works at the site, as specified in the Eskom PPE Specification - 240-44175132.

3.3.4 Eskom Life Saving Rules (240-62196227)

RULE 1: OPEN, ISOLATE, TEST, EARTH, BOND, AND/OR INSULATE BEFORE TOUCH

With the aim to ensure a safe electrical work environment, no person may work/operate on, around or near any electrical network, line or apparatus, electrically connected to the power system and/or electrically charged and/or not electrically charged unless:

a) He/she is trained and authorised as competent for the task to be done.
b) There is a valid permit to work, where required.
c) A pre-task risk assessment to identify all risks and hazards has been conducted prior to any work commencing.
d) He/she follows the requirements on OPEN, ISOLATE, TEST, EARTH, BOND and/or INSULATE BEFORE TOUCH, correctly based on applicable/related standards, procedures and outcome of risk assessment fit for the type of work or task to be performed.
e) The authorised person (team leader) has certified and physically shown all team members that the apparatus is safe to work on.
f) He/she makes the specific electrical environment safe prior to performing the work; and
g) All the appropriate PPE (including face shield and insulated gloves for low voltage work) are worn.

RULE 2: HOOK UP AT HEIGHTS

Working at height is a significant part of work in Eskom Holdings and is regarded as a high-risk activity, and as a result all precautions must be taken to prevent incidents while working at height. Wherever reasonably practicable, preference must be given to the performance of work at ground level as opposed to work in an elevated position. Where work in an elevated position is necessary, the requirements in this document shall apply.

No person may work at height where there is a risk of falling unless:

a) He/she is medically fit to work at height.
b) A pre-task risk assessment to identify all risks and hazards has been conducted prior to commencing any work of this nature.
c) He/she is appropriately trained as determined by the risk assessment.
d) He/she is appropriately secured during ascending and descending; and
e) He/she is using an Eskom approved fall arrest system where applicable.

RULE 3: BUCKLE UP

Where required, the proper wearing of seat belts for any driver, operator and passenger is mandatory in all vehicles/equipment when driving and/or travelling for Eskom business purposes. The driver is obligated to ensure that he/she as well as all passengers are properly seated and wearing their seatbelts at all times while being transported in the vehicle, as per Eskom specifications.

Note: This rule is applicable on any road or parking lot, irrespective of the speed, and when the vehicle moves in a forward or backward direction.

RULE 4: BE SOBER

No person who is under the influence or who appears to be under the influence of intoxicating liquor or drugs will be permitted to enter or remain on an Eskom site or conduct Eskom business or drive/operate a vehicle/equipment for Eskom business purposes.

This includes any level of alcohol or the presence of any drugs, controlled substances, and/or illegal substances in the body that impairs or could impair mental and physical functioning, irrespective of when the substance was used.

RULE 5: ENSURE THAT YOU HAVE A PERMIT TO WORK

Where an authorisation limitation exists, no person shall work without the required Permit to Work (PTW), which is governed by for example the:

a) Plant Safety Regulations; or
b) Operating Regulations for High Voltage Systems (ORHVS); or
c) Any other activity where a permit is required.

No plant is to be returned to service without the cancellation of all permits on that plant in accordance with procedure, unless permission is granted for a particular plant to be returned to service with permits still open, like in the case of redundant systems.

NOTE: In the case of live work, a “live work declaration form” is to be completed by the authorised person, who is the person responsible for the safe execution of work according to relevant standards and procedures. Outline the key principles or rules to support the implementation of the standard statement.

3.3.5 Matimba Permit to Work System

The *Supplier* will ensure that he/she is informed of all the requirements of Eskom’s Plant Safety Regulations and ORHVS and that he/she at all times comply to the requirements of these Regulations.

The *Supplier* will ensure that all his supervisors who are directly involved with Eskom’s Permit to Work System, are trained and on successful completion of Matimba’s authorization / evaluation process will be authorized as “Responsible Persons”.
The Responsible Person shall ensure that:

- The conditions of permits and cautionary notices are strictly adhered to
- The lockout procedures, mechanical as well as electrical, are strictly adhered to and any deviations shall be corrected immediately
- The safe work procedures as laid down by Matimba Power Station and as determined by the Risk Assessment, shall be followed
- The workers register and cautionary notices are discussed daily with workers

3.3.6 Health and Safety Plan (Construction Regulations)

The following will be required after contract reward:

The Supplier shall compile a Health and Safety Plan, filed in a Health and Safety File, comprising of the following:

- Proof of the contracting company’s own Health and Safety Policy
- Proof of appointments, assignments and designations as required in terms of the Occupational Health and Safety Act, No 85 of 1993
- Proof of Risk Assessments regarding Hazards identified and proof of training of own employees regarding controls derived from the risk assessment
- Proof of Safe Work Procedures that derived out of the Risk Assessments
- Proof of the contracting company’s own Emergency Plan that will deal with their own emergencies on site
- Proof of a Fall Protection Plan, if required to perform work at elevated levels developed by a competent person appointed by the contracting company
- Proof of “Notification to perform Construction Work” – a copy of the notification addressed to the Department of Labour as required Regulation 3 of the Construction Regulations
- Proof of an Induction Program (it is advised that the Matimba SHE Rules as a Guide) and an attendance register signed by its employees prior the commencement of any construction work on site
- Proof of the contracting company’s employees Medical Fitness Certificate. (Must still be valid – one year. May only have been issued by an occupational health practitioner)
- Proof of Suppliers weekly Health and Safety Rep Inspections regarding its own site and where detached work is performed
- Proof of Personal Protective Equipment (PPE) issued to Supplier’s employees
- Proof of contracting company’s Accident/Incident Reporting and Investigation System

- Proof of checklists and where applicable test certificates, regarding Supplier's tools, equipment, machinery, mobile equipment, vessels under pressure and any other applicable checks required by the Act
- A "Section 37(2) Agreement with Mandatory" needs to be drawn up by the Purchaser and co-signed by the Supplier before work can commence
- The Safety Officer employed by Matimba Power Station will audit these Health and Safety Plans to ensure compliance with the provisions of the Act.
- In terms of Clause 4 (b) of the Construction Regulations, the Purchaser points out the hazards or risks that is associated with the works, as indicated in Appendix B, to the Supplier. The hazards or risks it are however not limited to this list.

3.4 Environmental constraints and management

The Supplier shall adhere to all requirements as set out in 240-146112716: Environmental management requirements for Suppliers. The Contractor shall comply with the environmental criteria and constraints stated below:

Environmental Policy
the policy statement should commit to:
- (Environmental compliance and
- duty of care or pollution prevention commitments

Aspects and Impacts Register
- Provide Aspects and Impacts register related to the scope of work.

Method Statement (MS)
Adequate understanding of the project as a whole, and methodology reflect this. Does it give an indication that the scope of work has been catered for appropriately?

The Supplier provides an Environmental Management Plan applicable during the execution of the Works. The plan provides a guideline on the environmental management of the handling of the works. All waste is handled in an environmentally friendly manner. The Supplier conforms to the "polluter pays principle", duty of care and other NEMA principles.

The Supplier conforms to all requirements dictated in the document as well as the National Environmental Management Act (NEMA, Act No. 107 of 1998) and the National Environmental Management Waste Act (NEMWA, Act No. 59 of 2008). This is achieved by undertaking inspections, audits, monitoring and reviews, conducted internally by the Supplier and externally by the Supplier's Agent.

The Supplier ensures that all environmental authorization obligations, applicable legislative requirements and Purchaser's specific requirements are fulfilled. This includes all national, provincial and local environmental legislation and requirements.

The Supplier issues on a monthly basis, Environmental Management Performance and Expenditure Reports to the Supplier's Agent.

The Supplier conducts their environmental management based on the ISO 14001 requirements and implement their environmental management practices accordingly.

The Supplier develops and implements as a minimum the following procedures:
- Environmental Management Plan,
- Waste Management Work Instruction,
- Spill Management Procedure,
- Hazardous Chemical Substances Management and Storage Procedure,
- Stockpile and Erosion Management Procedure,
- Clear-and-Grub Procedure,
- Environmental Rehabilitation Procedure.

All environmental procedures, as listed above, are site-specific and submitted to the Purchaser for acceptance by the Supplier's Agent before the commencement of construction activities. The Purchaser

provides a copy of the environmental authorisation and Environmental Management Plan to the Supplier for the drafting of the above procedures.

3.4.1 Waste Management

All waste management activities, which includes procurement of control measures, handling and disposal or processing of all waste forms generated on the Supplier's site, are conducted according to Matimba Power Station Waste Management Procedure – PS/244/001, and all requirements of the Purchaser as per the Environmental Management Programme All costs associated with waste management are the responsibility of the Supplier.

Provide sufficient storage containers, labelled depicting general or hazardous waste and store in a designated storage area

3.4.2 Rehabilitation

The Supplier rehabilitates both its lay-down and construction site including all disturbed areas under their jurisdiction and or as directed by Supervisor at the end of the project. The Supplier submits to the Supplier's Agent a rehabilitation plan and schedule at least 2 weeks before finalisation of the works for acceptance by the Supplier's Agent. All rehabilitation costs are the responsibility of the Supplier.

3.4.3 Hazardous Waste

All waste introduced to and/or produced on *Purchaser*'s Premises by the *Supplier* for this order, must be handled in accordance with the minimum requirements for the Handling and Disposal of hazardous waste in terms of Government Legislation as proclaimed by the Department of Water Affairs and Forestry 1994 Ref.: BN0621-16296-5. (A copy of this document is available at the Power Station for reference purposes).

No hazardous waste may be stored for a period of more than 90 days on the Matimba premises.
Ensure that all hazardous waste is disposed of at a licensed Class H disposal site. A copy of the hazardous waste disposal certificate is submitted to the Supplier's Agent.

3.4.4 Environmental Management

Matimba has an Environmental Policy, PP/240/001, to which the *Supplier* and his employees must adhere. It is the responsibility of the *Supplier* to ensure that he obtains copies of the Matimba Environmental Policy, the legal register applicable to his area of responsibility, the aspect register and the Matimba procedures (applicable to the *Supplier's* area of responsibility) and to familiarize themselves on such procedures, within 30 days from the date of commencement of work at Matimba, to assist the *Supplier* and his/her employees to prevent pollution and to comply with legislative requirements. Copies of the above-mentioned documents shall be obtained from the *Supplier's Agent* or Environmental Officer on the first day prior to commencement of work at Matimba. The *Supplier* shall submit proof to the Environmental Officer of Matimba that he and his employees has done all the necessary training on procedures and Policies supplied to them and that they do understand the contents of the procedures, registers and policies and will adhere to them at all times.

The non-adherence to the Matimba Environmental policy and rules could result in the termination of this contract.

3.5 Quality assurance requirements

3.5.1 Quality Management System

The *Supplier* shall implement and maintain a quality management system that as a minimum meets the requirements of 240-105658000 - Supplier Quality Management: Specification. If the *Supplier* is registered, the appropriate ISO 9001:2000 Registration certificate of compliance must be supplied with the tender.

The Contractor shall comply with the quality criteria and constraints stated below:

Quality Requirements: Category 2

SECTION A: Quality Management System Requirements ISO 9001 **(Option 1)** Valid certification of Quality Management System by an ISO accredited body	A.1 Product / Service Scoping on ISO 9001 certificate is defined and relevant A.2 Certificate by Approved and Authorized certification authority A.3 Certification Authority has Recognized International Accreditation A.4 Validity (expiry date) of certificate
SECTION A: Quality Management System Requirements ISO 9001 **(Option 2)** Objective evidence of documented QMS that is not certified but complies with ISO 9001	A.1 QMS Manual or a document that defines and describes the QMS and its scope A.2 Quality Policy Approved by top management. A.3 Quality Objectives Approved by top management. A.4 Control of documented information (i.e., document and record control) Clause 7.5 of ISO 9001:2015 A.5 Documented information for Control of nonconforming outputs Clause 8.7 of ISO 9001:2015 A.6 Documented information for Nonconformity and Corrective action Clause 10.2 of ISO 9001:2015 A.7 Documented information for Internal audit Clause 9.2 of ISO 9001:2015
SECTION B : Evidence of QMS in operation (Tender Quality Requirements -Ref 240-105658000)	B.1 Documented information for defined roles, responsibilities, and authorities - Organization chart and Responsibility matrix (must include but not limited to quality management function/role) (Clause 5.3 of ISO 9001:2015) B.2 Documented information for Control of Externally Provided Processes, Products and Services - Must include criteria for evaluation, selection, monitoring of performance, and re-evaluation of external providers (Provide a copy of process/procedure regarding the assessment, selection, management and auditing of suppliers and subcontractors with supporting evidence (reports or records of how his process was implemented) (Clause 8.4 of ISO 9001:2015) B.3 Latest copy of an internal management system audit report (with Nonconformity, Correction and/ or Corrective Action Reports) - Report must include but not limited to Objective, Scope, Criteria and outcomes of the audit. (Clause 9.2 of ISO 9001:2015) B.5 Records of Management Review meetings (minutes, attendance registers e.t.c)
SECTION C: Contract Quality Plan Requirements (Ref 240-105658000 and 240-109253698). Draft Contract Quality Plan specific to the scope of work as described in the tender documents (Ref ISO 10005)	NB! Draft Contract Quality Plan has important Quality Assurance deliverables.
SECTION E: User defined additional Requirements & miscellaneous (Ref 240-105658000) Customer specific requirements & other standards and required can be listed and evaluated here	E.1 Form A is completed and signed. E.2 Add other requirements (if applicable) as per the scope of work and/ or specification E.2 Supplier to provide preservation procedure and example of preservation records. E.3 Indicate in Quality Plan how product will be transported to avoid damages during transportation

The *Supplier* notifies the *Supplier's Agent* of any changes to the Quality System and obtains agreement prior to implementation on existing orders and contracts, or sub orders and subcontracts.

3.5.2 Quality Documents Submitted with the Tender

The Supplier submits a copy of his quality policy and quality system procedures relevant to the Works.

The Supplier also submits a typical quality control plan.

The Supplier's Agent evaluates the Supplier's capabilities with regards to quality assurance and quality control based on these submissions and the performance history of the Supplier. The Supplier's Agent performs pre-award assessments where necessary, giving further information to aid the selection process.

3.5.3 Quality Documents Submitted after the Contract Date

Supplier submits a fully detailed Quality Assurance Programme (QAP) for acceptance by the Supplier's Agent within four weeks of the Contract Date.

The documents submitted by the Supplier shall include the following:

- Copy of the Quality Manual
- Copy of the Quality System Procedure
- Copy of the Contract Quality Management Plan
- Copy of Quality Control Plans
- Copy of the proposed index of the QA/QC, inspection and test records

The Supplier will further submit the following documents during the course of the contract:

- Non-conformance reports (NCR's) raised by the Supplier
- Notification of any planned changes to the Supplier's quality manual, quality system procedures, contract quality management plan or quality plan for acceptance by the Supplier's Agent prior to implementation
- Concession/production permit applications and supporting documentation
- Data books and/or data packages

3.5.4 Contract Quality Management Plan Requirement

The Supplier prepares a contract quality management plan that, where appropriate, indicates the following:

- Indicates the interface with the Suppliers quality system and applicable documents such as procedures and work instructions
- Establishes communication channels between the Supplier and the Supplier's Agent in respect of quality and the integration of such with prescribed contract communication channels
- Identifies items or activities for which quality control plans will be prepared
- Identifies the specifications, drawings and acceptance criteria for material for which quality control plans are not required
- Identifies the areas or processes requiring special controls
- Identifies the Supplier's Management Representative and personnel responsible for the control of quality activities and their relationship to the Supplier's management structure
- Identifies the documents which are to be submitted to the Supplier's Agent
- Identifies the Supplier's quality monitoring programme

The Supplier periodically updates the contract quality management plan to reflect changes in any of the above details. The frequency of such updates is determined by the Supplier's Agent but will not be greater than one year.

3.5.5 Quality Control Plan

The Supplier quality control plans cover inspection and test proposals for items or activities to be supplied as part of the works.

The quality control plan indicates the following as appropriate:

- The identification of the item
- The material
- A list of the sequence of operations including inspections and tests
- The identification of the specification, drawings or procedures for each operation
- The acceptance criteria with reference to the appropriate technical specification, in-house, national or international standard and relevant clause number
- The inspections and tests the Supplier has nominated for hold and witness points
- Provision for inspections and tests nominated by the Supplier's Agent
- Provision for inspection status indication
- Inspection and test records that are generated by the Supplier

The quality control plans are reviewed by the Supplier's Agent to allow for insertion of his specific requirements, including hold and witness points, prior to commencement of work. The Supplier does not commence work until the Supplier's Agent accepts.

3.5.6 Inspection and Testing

All Plant and Materials are comprehensively tested in accordance with the agreed QCPs prior to commencement of work. The Purchaser reserves the right to appoint others to inspect all parts during manufacturing, erection and commissioning to be present at any of the tests specified. The witnessing of tests by the Supervisor or Others, and if the Supervisor chooses to waive the witnessing of any tests, it does not relieve the Supplier of his responsibilities to Provide the Works.

All tests which the Purchaser requires are carried out by the Supplier during manufacturing, erection and commissioning to prove compliance with the specification independently of any tests which may have been carried out at the Supplier's premises.
The Supervisor inspects parts of the Plant at his discretion during manufacturing stages and before shipment as per the agreed QCP.

- The Supplier is responsible for the inspection of all the works performed and the Supervisor only verifies that such work is conducted as per the Works Information.
- The Supplier conducts all inspections in accordance with the accepted QCP.
- The Supplier provides suitably qualified personnel to conduct on-and-off site inspections.
- The Supplier ensures that all parts of the works are inspected and accepted before the
- Supervisor is invited for verification.
- The Supplier allows for a minimum of five (5) working days' notice for local off-site inspections, 24 hours for local on-site inspection, and 21 working days' notice for foreign inspections. The notice strictly contains copies of the Supplier's inspection reports and particulars of work which the inspection notice/request entail.

3.5.7 Quality Records

The Supplier prepares and submits to the Supplier's Agent an Index of QA/QC and inspection and test records prior to the commencement of work.

The Supplier's Agent determines which documents are to be submitted during the performance of work and reviews the index and request changes if required. The Supplier conforms to the Index approved by the Supplier's Agent

The Supplier ensures all records identify the items, equipment and/or activities to which they pertain and collates indexes and securely stores the records in such a manner that they are readily retrievable.

The Supplier implements appropriate administrative controls to limit access to prevent inadvertent loss of or damage to records.

The Supplier stores all quality records. The Supplier only destroys or discards quality records with the approval of the Supplier's Agent.

The Supplier presents on completion of the works all quality records in the form of a data package. The package is indexed and shows the entire contents.

3.5.8 Quality Reporting

The Supplier submits monthly quality reports, on the last working day of the month. The report includes, but is not limited to the following:

- A register of NCRs and defects
- Updated QCP / ITP register
- QA monthly report summary
- Planned and completed local and foreign inspection dates
- Completed and outstanding Inspections
- Audit findings report
- Risks with Mitigation plan

3.5.9 Preservation, shipping and transportation

The Supplier develops and implements a comprehensive preservation, shipping and transportation programme consisting of plans, processes, procedures, and actions undertaken for the purpose of planning for, and maintenance of, material deliverables quality. The Supplier complies with the Purchaser's Quality Requirements: Specifications 240-105658000.

3.6 Programming constraints

3.6.1 General

The Supplier submits a single integrated Level 3 programme that incorporates all the work to be performed. Project key dates are incorporated into the programme.

3.6.2 Computerised Planning

MS Projects is the only planning tool which the Purchaser accepts for this project; therefore, the plan submitted to the Purchaser must be converted or submitted in this format. The Supplier's Agent does not intend duplicating the Supplier's planning and scheduling; however, the Accepted Programme is used in the Purchaser's internal integrated and Master project programmes for project control purposes, updating and monitoring. The Supplier's Agent requires one project programme to be used and updated during the execution of the Works This ensures that any changes, deviations to the Programme can be carried out on the agreed programme and monitored. The initial programme supplied to the Purchaser after Contract award is fully resource loaded.

Any changes that are required to be made to the Project/Programme i.e. scope changes, delays and the like, are recorded through the Purchaser's change process and documentation, where all parties agree to the changes and sign.

The Supplier and Supplier's Agent agree on the format of how the updates are done, and the frequency of the updates i.e. such as on a weekly basis, or at any other time as required by the Supplier, or as instructed by the Supplier's Agent.

3.6.3 Planning and Scheduling Levels

All planning and scheduling is done based on the Critical Path Method (CPM). The Supplier uses activity codes to define interfaces to be agreed upon between Supplier's Agent and Supplier. The Supplier's programme shows the actual critical path clearly.

The schedule layout takes into account the accepted WBS, reflecting the manner the works are to be performed as per the Supplier's Method Statement and how activities are to be summarised, reported and monitored.

The programme includes:
a) Major milestones, interface dates, access dates and key dates
b) The duration of major activities and their relationship to one another.
c) Identified long-lead material items.
d) Responsibility assignments for accomplishing project objectives end product is a time scaled bar-chart programme developed using logic network.

This programme is separated by unit, by plant area, by phase, by WBS. The work within each plant area is broken down by engineering discipline, procurement, delivery, construction by the Supplier, start-up and commissioning. The programme is resource-loaded, and it forms the basis for progress measurement, progress curves and histograms for each discipline within a plant area. This is used for Evaluations and for the accepted programme after contract award. This is saved and used as the original.

The Supplier's Forecasted Rate of Invoicing (FRI) also aligns with the resource loading on the programme.

3.6.4 Planning Programmes

The Supplier develops a contract programme which includes a bar chart conforming to the project master programme dates included and sufficient detail to indicate the Supplier's intention for executing the works. This programme covers major items relating to design, procurement, manufacture, delivery, erection, start-up and commissioning. The critical path is clearly shown.

Key milestones, access dates, interface dates and commissioning key dates are clearly identified in the contract programme, including access dates and release of terminal points that involve the Purchaser or Others.

The programme makes provision for site related preparation such as site establishment, safety induction and medical clearance of the entire Supplier's staff that will be working on site.

3.7 Invoicing and payment

There are no additional requirements to the invoicing and payment clauses in Section 5 of the core clauses.

At each assessment interval, the Supplier submits to the Supplier's Agent a forecast rate of invoicing that includes all the expected payments by the Purchaser to the Supplier on a month-by-month basis.

The Supplier addresses the tax invoice to Eskom Holdings SOC Ltd and include on each invoice the following information:

- The registered name of the Supplier
- The VAT registration number of the Supplier
- The address of the Supplier
- The Purchaser's contract number
- The VAT registration number of the Purchaser
- The value of the invoice split into payments as per the activity schedule as indicated in the Price Lists.
- Any retention monies to be deducted from the invoice
- Any interest payable
- Escalation formula used where applicable

All invoices in PDF format are emailed straight from your system to an Eskom email address.

- Email addresses for invoice submission: Invoiceseskomlocal@eskom.co.za. The Supplier's Agent is copied when submitting invoices.
- All queries and follow up on invoice payments are made by contacting the FSS Contact Centre: Tel: 011 800 5060 or e-mail: fss@eskom.co.za
- For Foreign invoices, the Supplier is required to physically deliver hard copies of original documents to the Supplier's Agent even though the Supplier has e-mailed those invoices.
- The Supplier ensures compliance with the tax Requirement for submitting invoices electronically.

- If there is Cost Price Adjustment (CPA) on your invoice, the Purchaser recommends that the Supplier issue a separate invoice for CPA so that if there are any issues on the CPA the rest of the invoice can be paid while resolving CPA issues.
- The base invoice number needs to be mentioned on the CPA invoice.
- Electronic invoicing does not guarantee payment but ensures visibility of all invoices and ensures that no invoices get lost. If the Goods Receipt (GR) is not done the invoice is parked and the system automatically sends an e-mail to the Supplier's Agent to do the goods receipt. This is also tracked by the Purchaser through the parked invoice report.
- The Supplier can request a parked invoice report from the Finance Shared Services (FSS) Contact Centre which can then be followed up and corrected. The Supplier is allowed to forward the details of invoices corrected to the FSS Contact Centre.

3.8 Insurance provided by the Purchaser

There are no additional requirements to the risk and insurance clause in Section 8 of the core clauses and Z13 of the A*dditional conditions of contract*.

3.9 Contract change management

There are no additional requirements to the compensation event clauses in Section 6 of the core clauses.

4 Procurement

4.1 Subcontracting

N/A

4.2 SD&L Requirements

Skills Development

- ✓ Successful tenderers will be obligated to **skill one** candidate for every **R30 Million** spend cumulatively through purchase orders/instructions awarded to the supplier; The supplier will be required to implement this requirement a month after the threshold is reached.
- ✓ This obligation will be for the duration of the contract however the supplier needs to demonstrate positive progress monthly.
- ✓ Candidates shall be sourced from the Lephalale Municipality area.
- ✓ Bursaries should be for a minimum of 24 months

Skill type / Occupation	Entry Level	Output
Bursaries (Local learners)	**1st or 2nd or 3rd year**	**National Diploma or B-Tech or Degree**