SECTION 2.1 SPECIFICATIONS (SCOPE OF WORKS) / PRICING SCHEDULE

TERMS OF REFERENCE

This tender is for the appointment of a Panel of 10 Service Providers for the Supply and Delivery of Electrical Equipment for a Period of Three Years as and when needed.

A. Background

The Moqhaka Local Municipality requires the Supply and Delivery of Electrical Equipment as and when needed.

B. Scope of Work / Terms of Reference

Bill of Quantities / Pricing Schedule.

Tender prices to be fixed for the first twelve (12) months and only annual escalation will be provided for as per the Service Level Agreement (SLA).

C. Panel

In this panel, the municipality will appoint a maximum of **10** service providers who scored the highest points scored in terms of the Preferential Procurement Policy of Moqhaka Local Municipality.

D. Sourcing of Quotations

Quotations will be requested only from the service providers appointed on the panel to ensure all service providers appointed on the panel have an opportunity of being selected during the contract period.

Should the service providers on the panel not be in a position to supply the required product within the desired timeframes, the municipality will deem it necessary to invite quotations outside the appointed panel. Prior written consent from the Municipal Manager will need to be obtained before proceeding with such a deviation.

The municipality will derive a flat rate from the prices submitted by the successful bidders. This flat rate will be offered to the bidders through a negotiation process. This will assist the municipality with a fair and equitable process of rotation. This will also prohibit the municipality from paying more for the same product between service providers on the panel.

E. Performance Management

In terms of Section 116 (2) of the MFMA, the municipality is required by Law to monitor the performance of service providers on a monthly basis in line with the performance areas as stipulated in the Service Level Agreement (SLA). The monitoring of panels will be done as and when their services are utilised.

F. Preferential Points System

Indicate whether the tender will be evaluated in terms of 80/20 below a 50 million and 90/10 above 50 million.

80/20

A maximum of 20 points (80/20 preference points system), will be allocated for specific goals. The maximum points for these goals are as follows:

- Locality of Supplier – 15 Points
- Youth Ownership of Company **(Youth is 35 years and younger)** - 5 Points

These goals are specified in MBD6.1 in terms of the PPR2022.

Initials of Service Provider's Authority: ……..

G. Duration of the Contract

State how long the contract will take
3 Years

H. Functional or Technical Evaluation Criteria (If Applicable)

See examples of Functional Evaluation Criteria below in Annexure A

ANNEXURE ''A''
Technical or Functional Evaluation Criteria and Functional Evaluation Report Guideline

Only those tenderers who score the minimum of 75 points in respect of the following criteria are eligible for further evaluation.

Criteria	Weight	Points	Documents to be submitted as proof to score points
Demonstrate the company experience in similar projects.		**50**	For the Bidder(s) to be considered, the bidder(s) must provide **signed** appointment letters from clients. Appointment letters of similar projects (Supply & Delivery of any items) with contact details that can be contacted by the Municipality to confirm that appointment letter is valid. Or Reference letter with a valid purchase order from client of similar projects with contact details that can be contacted by the Municipality to confirm that appointment letter is valid.
• 5 or more Appointment letters or Refereence letters	5		
• 4 Appointment letters or Reference letters	4		
• 3 Appointment letters or Reference letters	3		
• 2 Appointment letters or Reference letters	2		
• 1 Appointment letter or Reference letter	1		
• No Appointment letter or Refernece letter	0		
Delivery Lead Time for GENERAL ITEMS <u>excluding</u> cables, transformers, ring main units, mini-substations		**15**	Delivery lead-time from receipt of the Purchase Order to be indicated in the form of the **guarantee letter**, signed by the company's director or authorised person.
• Delivery lead time of 1-5 business days	5		
• Delivery lead time of 6-10 business days	4		
• Delivery lead time of 11-15 business days	3		
• Delivery lead time of 16-20 business days	2		
• Delivery lead time of 21-30 business days	1		
• Delivery lead time of more than 30 business days / no guarantee letter submitted	0		
Delivery for long Lead Time : cables, transformers, ring main units, mini-substations		**15**	Delivery lead-time from receipt of the Purchase Order to be indicated in the form of the **guarantee letter**, signed by the company's director or authorised person.
• Delivery lead time of 31-90 business days	5		
• Delivery lead time of 91-120 business days	3		
• Delivery lead time of 121-180 business days	1		
• Delivery lead time of more than 180 business days / no guarantee letter submitted	0		
Percentage of of items priced on the bill of quantities (BOQ)		**20**	Based on the items priced in the bill of quantities
• 80-100% items priced	5		

• 60-79% items priced	3		
• 40-69% items priced	1		
• Less than 39% items priced	0		
MAX POSSIBLE SCORE		**100**	

ITEM NO	DESCRIPTION / CODE NAME / SIZE	Size	ORDER QUANTITY	UNIT OF MEASURE	UNIT PRICE	TOTAL PRICE (EXCLUSIVE VAT)	DELIVERY PERIOD	Comments

ALUMINIUM CONDUCTOR - STEEL REINFORCED

Bare

The conductor shall be stranded aluminium with steel reinforcing to comply with S A B S 182/1975, supplied in continuous lengths on non-returnable drums. Each drum shall be clearly marked with the size of the conductor, length of conductor and this contract reference number. All conductors shall bear the SABS mark.

1	Squirrel - 6/1 x 2,11		1000m	1000m	1000m			
2	Mink - 6/1 x 3,66		1000m	1000m	1000m			
3	Dog - 6/4,72 + 7/1,57		1000m	1000m	1000m			
4	Fox - 6/1/2,79		1000m	1000m	1000m			

ALUMINIUM CONDUCTOR - INSULATED BUNDLED

Cross-linked polyethylene insulated, bundled aluminum low voltage conductors, manufactured in accordance with the French system and SABS 1418 - 1986.
Medium voltage, stranded aluminum conductors, XLPE insulated and individually screened,]laid up with a galvanized steel, P.V.C. sheathed suspension cable.
Price bases and adjustment formulae shall be stated. Full details to be supplied with tender.

Mains: Low voltage (600 - 1000V)

Phase conductors to be marked "1", "2" and "3"
Neutral conductors to be marked "0"
Earth conductors where applicable to be marked "5"

5	2 x 25 mm² + 1 x 54,6 mm² + 1 x 25 mm²		1000m	1000m	1000m			
6	3 x 35 mm² + 1 x 54,6 mm² + 1 x 25 mm²		1000m	1000m	1000m			
7	3 x 50 mm² + 1 x 54,6 mm² + 1 x 25 mm²		1000m	1000m	1000m			
8	3 x 70 mm² + 1 x 54,6 mm² + 1 x 25 mm²		1000m	1000m	1000m			
9	3 x 95 mm² + 1 x 54,6 mm² + 1 x 25 mm²		1000m	1000m	1000m			
10	3 x 120 mm² + 1 x 70 mm² + 1 x 25 mm²		1000m	1000m	1000m			

Mains: Medium voltage (6,35/11 kV)

11	3 x 70 mm²		1000m	1000m	1000m			
12	3 x 95 mm²		1000m	1000m	1000m			
13	3 x 120 mm²		1000m	1000m	1000m			

Service connections (600 - 1000V)

2-Core to be marked "0" and "1"

3-Core to be marked "0", "1" and "5"

5-Core to be marked "0", "1", "2", "3" and "5"

14	3 x 25 mm²		1000m	1000m	1000m			
15	3 x 16 mm²		1000m	1000m	1000m			
16	5 x 16 mm²		1000m	1000m	1000m			

AERIAL CONCENTRIC HOUSE SERVICE CABLE

Single phase Service cable with XLPE insulated hard drawn copper conductors, with insulated neutral and bare earth conductors laid up concentrically and polyethylene sheathed, equipped with ripcord. **Technical details of the cable offered shall be submitted with the tender.** Cable to be used for overhead and underground.

17	10 mm²		1000m	1000m	1000m			
18	16 mm²		1000m	1000m	1000m			

Single phase service cable for service connection split concentric conductors complete with communication cores to NRS 017 Draft 3 1997 Specification (i.e Live, Neutral, Earth & Coms).

19	10 mm²		1000m	1000m	1000m			
20	16 mm²		1000m	1000m	1000m			

CABLES - UNDERGROUND

All cables shall bear the SABS mark, and be dispatched on non-returnable wooden drums which shall, in addition to the markings prescribed by the SABS specification, also be marked with the KE reference of the tender.

LOW VOLTAGE CABLES

The cables will operate on a three phase four wire system with 400 volts between phases and the neutral solidly earthed.

PVC insulated cables shall be 600/1000 volt grade stranded copper or solid sector shaped aluminium as stipulated, PVC bedded, steel wire armoured and PVC sheathed, manufactured to SABS 150.

21	10 mm² x 4 core Cu PVC		500m	500m	500m			
22	16 mm² x 2 core Cu PVC		500m	500m	500m			
23	16 mm² x 4 core Cu PVC		500m	500m	500m			
24	25 mm² x 4 core Cu PVC		500m	500m	500m			
25	35 mm² x 4 core Cu PVC		300m	300m	300m			
26	70 mm² x 4 core Cu PVC		300m	300m	300m			
27	95 mm² x 4 core Cu PVC		300m	300m	300m			
28	95 mm² x 4 core Al SAC PVC		300m	300m	300m			
29	150 mm² x 4 core Cu PVC		300m	300m	300m			
30	150 mm² x 4 core Al SAC PVC		300m	300m	300m			

6,6 / 11 kV CABLES

The cables will operate on a three phase three wire system with 6 600 / 11 000 volt between phases, and the neutral earthed.

The cables shall be 6 600 / 11 000 volt grade, 3 core stranded copper or aluminum conductor, paper insulated, impregnated, lead sheathed, double steel tape armoured and jute served, manufactured to SABS 97 - 1970, Table JJ (Table 17 or 18) for heavy duty.

The bedding over the lead sheath shall be of the impermeable anti-electrolysis type.

31	35 mm² x 3 core Cu	11 kV	300 m	300 m	300 m			
32	70 mm² x 3 core Cu	11 kV	300 m	300 m	300 m			
33	95 mm² x 3 core Cu	11 kV	300 m	300 m	300 m			
34	95 mm² x 3 core Al	11 kV	300 m	300 m	300 m			
35	120 mm² x 3 core Al	11 kV	300 m	300 m	300 m			
36	150 mm² x 3 core Cu	11 kV	300 m	300 m	300 m			
37	185 mm² x 3 core Al	11 kV	300 m	300 m	300 m			
38	185 mm² x 3 core Cu	11 kV	300 m	300 m	300 m			
39	300 mm² x 3 core Al	11 kV	300 m	300 m	300 m			

CIRCUIT BREAKERS

CIRCUIT BREAKERS - SMALL FRAME

Moulded case, free handle automatic air break circuit breakers with front connections and bearing the SABS mark. Locally manufactured circuit breakers only will be considered. Circuit breakers shall be suitable for mounting in 'Heinemann' clip trays.

Single phase curve 2

Single pole units with a rupturing capacity of 6 kA at 220 volts.

Single phase curve 1

Single pole units with a rupturing capacity of 6 kA at 220 volts.

		Specify Make and Type						
40	60 Amp - Curve 2		100	Each	Each			
41	60 Amp - Curve 1		100	Each	Each			
42	80 Amp - Curve 1		100	Each	Each			
43	100 Amp - Curve 1		20	Each	Each		_	

CIRCUIT BREAKER COVERS - SMALL FRAME

44	Molded covers for the single phase curve 2 circuit breakers called for under item above. The molded covers shall be **BLACK** in colour, with a rupturing capacity of 6 kA at 220 volts.		50	Each	Each			

CIRCUIT BREAKERS - LARGE FRAME

Large frame moulded case triple pole circuit breakers with rupturing capacity of 25 kA at 415 volt ac and a rated voltage of 600 volt. The frame size, mounting and connecting positions shall be the same as that of the "**FUCHS** type **K25D**" circuit breaker.

45	100 amp		10	Each	Each			
46	150 amp		10	Each	Each			
47	200 amp		10	Each	Each			
48	250 amp		10	Each	Each			
49	300 amp		10	Each	Each			
50	400 amp		10	Each	Each			

INSULATORS

INSULATORS - PORCELAIN - MEDIUM VOLTAGE DISC TYPE

51	Brown glazed porcelain strain disc insulators ELC type H T 1010 or similar. (11 kV)		12	Each	Each			

INSULATORS - CYCLOALIPHATIC RESIN - MEDIUM VOLTAGE STRAIN TYPE

52	Cycloaliphatic resin strain insulators for 11kV overhead lines, with tongue and clevis coupling.		12	Each	Each			

INSULATORS - PORCELAIN - MEDIUM VOLTAGE PIN TYPE

53	Brown glazed and skirted porcelain pin insulators ELC type HT 1014/40 or similar. (11 kV)		10	Each	Each			

Locally manufactured insulators only will be considered.

INSULATORS - CYCLOALIPHATIC RESIN - MEDIUM VOLTAGE PIN TYPE

54	Cycloaliphatic resin skirted pin insulators threaded for "M2" spindle for 11kV overhead lines.		10	Each	Each			

Locally manufactured insulators only will be considered.

JOINTS

JOINT BOXES - LOW VOLTAGE RESIN TYPE

Low voltage (600/1000 volt) cable joint kits, complete with two-part room temperature curing epoxy and polyurethane resins and torpedo shaped pressure infected transparent molds for the jointing of armored cables.

		Brand name						
55	P1 - 4-10 mm²		50	Each	Each			
56	P2 - 10-16 mm²		50	Each	Each			
57	P3 - 35-50 mm²		30	Each	Each			
58	P4 - 95-150 mm²		30	Each	Each			
59	P5 - 150-240 mm²		20	Each	Each			

HEAT SHRINK JOINTS 6.6/11KV

SABS approved 6.6/11kV

		Brand name						
60	25-50mm		6	Each	Each			
61	70-150mm		8	Each	Each			
62	185-300mm		8	Each	Each			

CAST-IRON JOINTS 6.6/11KV

Units similar or equal to old Henly joints

63	1001		6	Each	Each			
64	1002		8	Each	Each			
65	1003		8	Each	Each			

LIGHTNING ARRESTERS

Heavy duty distribution valve type arresters, 5 kA class rated for 6.6 kV / 11 kV maximum RMS line to earth, for use on a 6,6 kV / 11 kV 3 phase system with earthed neutral. Arresters shall be complete with mounting brackets, fully insulated incoming connections and graded disconnect device in ground lead automatically isolating the arrester in case of persistent power follow through currents. **Technical information to be supplied.**

Spark over voltage - 50 c p s RMS kV .....

Spark over voltage - front of wave - crest kV .....

Discharge voltage for 10/20 microsec. current wave - crest kV .....

66			3	Each	Each			

METERS

METERS - KILOWATTHOUR

Three phase kilowatthour meters shall be rated for 60 – 100 Amps and 400/231 volts 3 phase unbalanced 4 wire systems, with front connections and fitted with direct reading dials registering up to 99999 and preferably not fitted with a decimal digit. Short type terminal covers shall be separately sealed and preference will be given to meters with non-metallic moulded cases and an overload rating of at least 80 amps based on thermal limits.

Electronic meters may also be offered.

Full technical details of the meters offered shall be submitted with the tender.

67	Three phase - 60 -100 Amp		20	Each	Each			
68	Three phase - 5 Amp programmable		20	Each	Each			

METERS - KILOWATTHOUR PREPAYMENT

Single phase and three phase prepayment kilowatt-hour meters with the following minimum specification and complying to the relevant SABS specification may be offered:

Current rating - 80 amp

Voltage limits - 230 + 15% - 20 %

Current limit - Programmable from 10 to 80 amp

Accuracy - Class 2

60 amp double pole isolating switch for single phase meters
Rate of power consumption indication
Tamper switch and indication
Indication of code acceptance
And/or a split unit prepayment meter

69	1.Single phase (with base)	200	200	Each	Each			
70	2.Three phase (with base)	130	130	Each	Each			
71	3.Single phase split unit	200	200	Each	Each			
	(Pole mounted) (KEYPAD INCLUDED)			Each	Each			
72	4.Single phase split unit	200	200	Each	Each			
	(Pole mounted) (KEYPAD INCLUDED)(Wireless)(Smart-meter)			Each	Each			
73	5.Single phase split unit (with base)	200	200	Each	Each			
	(KEYPAD INCLUDED) (Wireless) (Smart-meter)			Each	Each			
74	6.Three phase split unit	130	130	Each	Each			
	(KEYPAD INCLUDED)			Each	Each			
75	7.Three phase split unit (with base where required)	200	200	Each	Each			
	(KEYPAD INCLUDED) (Wireless) (Smart-meter)			Each	Each			

MAXIMUM DEMAND METERS

Features

- CT & CT/VT operated
- Comprehensive tariff structure
- 2 line dot matrix multilingual display
- Instantaneous instrumentation values
- Communications via optical port or communications module
- 2 module slots for extended functionality
- 450 days of load profile data
- Internal clock and calendar with battery back-up
- Concealed utility/reset pushbutton
- 2 or 3 element availability
- Accuracy Class 0.2s, 0.5s, 1 or 2
- High security design

Options

- 4 relay outputs
- Range of interchangeable input/output and communications modules

• 900 days load profile data
• Data stream mode communications
• ANSI communications port
• Short terminal

Units similar or equal to Elster A1700 (software and training included)

76	Three phase - 5 Amp programmable		20	Each	Each			

READY - BOARDS

The ready-boards shall preferably be manufactured from glass reinforced plastic material, fitted with rail similar or equal to Heinemann rail and the minimum equipment shall consist of the following:

1 x 60 A Earth leakage relay wired as main switch.

1 x 20 A 6 kA circuit breaker.

3 x 15 A Socket outlets.

1 x 60 W Bulkhead fitting mounted on board or a separate light fitting that can be plugged in and hooked to the roof.

1 x 5 A Light switch.

All installation material shall bear the SABS mark.

Each board shall be mounted on a molded GRP base, at least 35mm deep at the back, with seven 5mm tapped brass inserts molded in positions corresponding with the mounting holes of a "Plessey Econ" or similar type single phase prepayment meter. The successful tenderer will be advised after the closing date which type of meter to provide for.

A 32mm diameter hole, corresponding with the position of the bottom knock-out in the meter base, shall be provided.

The complete unit shall be wired with 10mm¨ PVC insulated phase and neutral conductors from the ready board protruding at least 350mm through the 32mm hole in the moulded base, and a 10mm¨ bare copper earth conductor protruding at least 150mm.

Two projecting moulded mounting sockets shall be provided at the back of the base. These sockets shall project to the same level as the sides of the base, and be tapped 10mm standard thread to accept mounting bolts.

Manufacturers are free to submit tenders on their own designs and layouts, provided that the above minimum requirements are met.

Each tender shall be accompanied by a detailed description and an illustration of the board offered.

77			50	Each	Each			

RING MAIN UNITS, NON - EXTENSIBLE

Free standing outdoor units with two fault make load break three phase oil switches and one three phase oil fuse switch with striker pin tripping, for use on 6 600 / 11 000 volt system with a 250 MVA fault level.

Main switch rating 400 A minimum and fuse switch suitable for transformers up to 1000 kVA at 6 600 / 11 000 volt.

Full particulars and test certificates to be submitted with tender.

78			2	Each	Each			

LAMPS DISCHARGE

PLEASE NOTE THAT LAMPS TENDERED MUST HAVE A GAURANTEED LIFETIME OF AT LEAST 3 YEARS

	Watts Cap.	Type		Order Qty.	Unit Price	Delivery period	Local Content	
79	57 ES - PL-T		40	Each	Each			
80	50 ES - HPS		40	Each	Each			
81	70 ES - HPS		40	Each	Each			
82	70 - Robot lamps		100	Each	Each			
83	125 ES - Colour corrected fluorescent mercury		40	Each	Each			
84	150 ES - HPS Tubular		40	Each	Each			
85	150 GES - High pressure sodium tubular		40	Each	Each			
86	25 SONT - HPS		40	Each	Each			
87	55 H3 - 12V Robot lamp		100	Each	Each			
88	100W High mast - HPS		40	Each	Each			

LAMPS LED

PLEASE NOTE THAT LAMPS TENDERED MUST HAVE A GAURANTEED LIFETIME OF AT LEAST 3 YEARS

	Watts Cap.	Type		Order Qty.	Unit Price	Delivery period	Local Content	
89	LED Traffic lights - RED		40	Each	Each			
90	LED Traffic lights - Green		40	Each	Each			
91	LED Traffic lights - Amber		40	Each	Each			
92	LED tubes (1200mm) - Replacement fluorescent		40	Each	Each			

STREET AND FLOOD LIGHTING LUMINAIRES

The street light luminaire must be tested and be in compliance with the latest revision of IEC/SANS 60598-1.

The street light luminaire must be tested and be in compliance with the latest revision of IEC/SANS 60598-2-3.

If the street light luminaire is to be used as part of a Lighting Management System (LMS), the luminaire should be compliant with the requirements of the D4i specifications.

If the street light luminaire is to be used as part of an LMS, the luminaire shall be fitted with a blank receptacle compliant to the ZHAGA consortium book 18 specifications rated at IP66.

The street light luminaire must be able to accommodate a NEMA (ANSI C136.41) 3, 5, and 7 pin node receptacles without compromising on the IP rating of the full luminaire.

The street light luminaire shall allow for the side entry of a 42 mm diameter spigot with an entry length of 125 mm.

The spigot compartment should be separate and make provision for positive and negative rake angles of -15° to +5° in order to fit on current infrastructure without the use of additional levelling brackets.

The spigot entry shall accommodate at least 2 x M10 stainless steel bolts and lock-nuts to ensure secure mounting to the spigot.
The flood light luminaire must be tested and be in compliance with the latest revision of IEC/SANS 60598-1.
The flood light luminaire must be tested and be in compliance with the latest revision of IEC/SANS 60598-2-5.
If the flood light luminaire is to be used as part of a Lighting Management System (LMS), the luminaire should be compliant with the requirements of the D4i specifications.
If the flood light luminaire is to be used as part of an LMS, the luminaire shall be fitted with a blank receptacle compliant to the ZHAGA consortium book 18 specifications rated at IP66.
The flood light luminaire shall provide the ability to be adjusted vertically with the help of an angle indicator at 5 degrees intervals.
The flood light luminaire shall incorporate a stirrup bracket with the ability to be installed on a horizontal or vertical surface without the need for any modifications.
The flood light luminaire stirrup bracket to be manufactured from either Stainless-steel grade 304 or better or Hot Dip Galvanised mild steel in accordance with SANS 121.
The flood light luminaire stirrup bracket to be at least a 6 mm thick.
Illustrations and light distribution diagrams in accordance with SABS 1277 shall be submitted for each luminaire type offered.

		SABS mark						
93	57 W PL-T		50	Each	Each			
94	75 W Sodium		50	Each	Each			
95	125 W Mercury vapour		50	Each	Each			
96	150 W H P Sodium		50	Each	Each			
97	250 W HPS		50	Each	Each			
98	1000W High mast lights		50	Each	Each			
99	S/L 27W 3650lm 4K (125W replacement)		50	Each	Each			
100	S/L 58W 9250lm 4K (150W replacement)		50	Each	Each			
101	S/L 97W 14000lm 4K (250W replacement)		50	Each	Each			
102	F/L 1-3 215W 25661lm 4K (400W replacement)		50	Each	Each			
103	F/L 435W 55100lm 4K (1000W replacement)		50	Each	Each			

STREETLIGHTING POLES

Galvanized single cantilever steel poles, continuously tapered or stepped. Outreach of cantilever shall be 1,8 m with a straight portion at 17,5° to horizontal and radius of circular portion 1,0 m. A spigot 125 mm long and 42 mm diameter shall be fitted.
Total height shall be 8,5 m and a cable access opening of 100 x 50 mm shall be provided 750 mm from the base.
A terminal chamber with opening 230 mm x 75 mm fitted with brackets for mounting a fuse board, and a cover held in position by means of countersunk or recessed screws, shall be provided 1,7 m from the base.
Each pole shall be supplied with a detachable base plate, 450 mm x 450 mm x 5 mm thick with bolts. Alternatively the bottom of the pole shall be closed by means of a welded plate.

Poles shall be designed for luminaires with maximum mass 12,5 kg and projected windage area of 0,15 m¨.
Detailed drawings of the pole offered shall be submitted with the tender.

104			50	Each	Each			

TRANSFORMERS - DISTRIBUTION

The transformers offered shall comply in all respects with Standard Specification SABS 780, and shall bear the SABS mark. Construction and fittings shall be standard.

Price basis and price adjustment formulae shall be stated in a covering letter.

REQUIREMENTS

Type Outdoor
Tank Sealed
System voltage 6 600 / 11 000 tap switch where possible
Secondary voltage 230/400
Terminals Outdoor bushings without arcing horns
Windings Copper

105	6.6 kV, 25 kVA 3 phase pole mounted		1	Each	Each			
106	11 kV, 25 kVA 3 phase pole mounted		1	Each	Each			
107	6.6 kV, 50 kVA 3 phase pole mounted		1	Each	Each			
108	11 kV, 50 kVA 3 phase pole mounted		1	Each	Each			
109	6.6 kV, 100 kVA 3 phase pole mounted		1	Each	Each			
110	11 kV, 100 kVA 3 phase pole mounted		1	Each	Each			
111	6,6 kV, 200 kVA 3 phase		1	Each	Each			
112	11 kV, 200 kVA 3 phase		1	Each	Each			
113	6,6 kV, 500 kVA 3 phase		1	Each	Each			
114	11 kV, 500 kVA 3 phase		1	Each	Each			
115	6,6 kV, 250 kVA 3 phase		1	Each	Each			
116	11 kV, 250 kVA 3 phase		1	Each	Each			
117	6,6 kV, 800 kVA 3 phase		1	Each	Each			
118	6,6 kV, 630 kVA 3 phase		1	Each	Each			
119	6,6 kV, 500 kVA 3 phase(mini-sub)		1	Each	Each			
120	6,6 kV, 315 kVA 3 phase(mini-sub)		1	Each	Each			
121	11 kV, 500 kVA 3 phase (mini-sub)		1	Each	Each			
122	11 kV, 315 kVA 3 phase (mini-sub)		1	Each	Each			
123	Dual Ratio 6.6 / 11 kV, 25 kVA 3 phase pole mounted		1	Each	Each			
124	Dual Ratio 6.6 / 11 kV, 50 kVA 3 phase pole mounted		1	Each	Each			

125	Dual Ratio 6.6 / 11 kV, 100 kVA 3 phase pole mounted		1	Each	Each			
126	Dual Ratio 6.6 / 11 kV, 200 kVA 3 phase		1	Each	Each			
127	Dual Ratio 6.6 / 11 kV, 500 kVA 3 phase		1	Each	Each			
128	Dual Ratio 6.6 / 11 kV, 250 kVA 3 phase		1	Each	Each			
129	Dual Ratio 6.6 / 11 kV, 500 kVA 3 phase(mini-sub)		1	Each	Each			
130	Dual Ratio 6.6 / 11 kV, 315 kVA 3 phase(mini-sub)		1	Each	Each			

EARTH LEAKAGE - SINGLE PHASE

Isolator type 60A, sensitivity of 30mA Earth Leakage Units similar or equal to Heinemann/HY-MAG SA13C

131			50	Each	Each			

POLE TOP BOXES

Pole top box, 1-4 way, with tilt up lid, IP65 min rating to install 4 x 63A MCB and 4 x energy meters

132			100	Each	Each			

MINI-SUBS

TYPE B 500 kVA

The mini-sub shall comply with NRS 004.

The system voltage of the mini-sub must be 6 600 / 415 V and 11 000 / 415 V respectively.

The vector group is Dyn 11.

The mini-sub shall be equipped with an oil fused ring main unit.

The mini-sub shall be olive green.

The mini-sub must also comprise of the following:

A Medium Voltage compartment housing the ring main unit (RMU) and earth fault indicator equal or similar to Sentinel type EFI-50 MLY, core to be mounted on the outgoing leg.

A Transformer compartment housing the transformer.

A low voltage compartment housing the LV equipment.

The LV compartment of each mini-sub shall be equipped with the following:

1 x 800 Amp main large frame electronic MCCB with flash barriers

3 x 250 Amp, 20 kA, 3 pole circuit breakers

1 x 250 Amp, 20 kA, 3 pole circuit breaker with shunt trip coil

3 mm thick galvanized gland plates

LV auxiliary circuit with three pin socket outlet protected by a 20 Amp earth leakage unit

20 A HRC fuse and neutral link.

The following additional equipment is also required with each mini-sub:

3 x 1000/5 max demand ammeters

3 x 1000/5, class 1 metering CTs

1 x 0 – 500 V voltmeter with selector switch

1 x Socomex, MD kWh, Amp and Voltage indication meter
Earth fault indicator in RMU compartment similar to Sentinel Type EFI-50 MLY
Transformer overload protection and shunt trip facility in the transformer compartment
Thermistor to be set at the tripping breaker with shunt trip coil at the oil temp of 110 degrees C.

133	6 600 / 415 V		1	Each	Each			
134	11 000 / 415 V		1	Each	Each			
135	Dual Ratio 6.6 / 11 kV / 415 V		1	Each	Each			

DAYLIGHT SWITCHES

136	6A		25	Each	Each			
137	15A		25	Each	Each			

SILICA GEL

138			50kg	Each	Each			

21. OTHER RELEVANT EQUIPMENT

139	Quotations will be solicited from the appointed service providers.							

THE END

Initials of Service Provider's Authority: ……..