



# Kenya Power

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Stima Plaza, Kolobot Road,  
Nairobi, Kenya*

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*Our Ref. KP1/9AA-2/PT/32/ITT/14-15*

*16<sup>th</sup> March 2015*

M/s

Dear Sir,

**ADDENDUM (II) - KP1/9AA-2/PT/32/ITT/14-15 FOR THE SUPPLY, INSTALLATION AND COMMISSIONING OF NETWORK OPERATIONS CENTER (NOC)**

The following amendments are made to the specified provisions of the Tender document *KP1/9AA-2/PT/32/ITT/14-15 for the Supply, Installation and Commissioning of Network Operations Center (NOC)*.

**1. RELATIONSHIP WITH THE PRINCIPAL TENDER DOCUMENT**

Save where expressly amended by the terms of this Addendum, the Principal Tender Document shall continue to be in full force and effect.

The provisions of this Addendum shall be deemed to have been incorporated in and shall be read as part of the principal tender document.

**2. Bidders are hereby requested to note the amendments to the following;**

- I. Bill of quantities.
- II. Schedule of rates and prices
- III. Schedule of requirements
- IV. Server application and monitoring
- V. Site monitoring unit
- VI. Tender closing date

### 3. BILL OF QUANTITIES

Item No.	Description	Unit Of Measure	Quantity	Indicate Make & Type	Indicate Delivery Date
1.	Server	Piece	2		
2.	Operating System	Piece	2		
3.	NOC Database	Piece	2		
4.	NMS software	Piece	2		
5.	Desktop PC and Monitors	Piece	3		
6.	Laptop	Piece	4		
7.	Graphics User Interface (GUIs)	Piece	7		
8.	Switch	Piece	1		
9.	Local Area Network	LOT	1		
10.	Fiber cable	Meters	50		
11.	Printers	Piece	1		
12.	Furniture	LOT	1		
13.	UPS	Units	2		
14.	Cabinet	Piece	1		
15.	Installation and Commissioning	LOT	1		
16.	Training	LOT	1		
17.	Site Monitor Unit	LOT	1		
18.	Split Air Conditioning unit	Piece	2		

Table 3.1: BOQ

#### 4. SCHEDULE OF RATES AND PRICES

##### PRICE SHEDULE FOR GOODS

No.	Description	Quantity	Country of Origin	Unit Price DDP Exclusive	VAT	Total Price DDP Exclusive	VAT	Total Price DDP Inclusive	VAT
1.	Server	2							
2.	Operating System	2							
3.	NOC Database	2							
4.	NMS software	2							
5.	Desktop PC and Monitors	3							
6.	Laptop	4							
7.	Graphics User Interface (GUIs)	7							
8.	Switch	1							
9.	Local Area Network	1							
10.	Fiber cable	50							
11.	Printers	1							
12.	Furniture	1							
13.	UPS	2							
14.	Cabinet	1							
15.	Installation and Commissioning	1							
16.	Training	1							
17.	Site Monitor Unit	1							
18.	Split Air Conditioning unit	1							

## 5. SHEDULE OF REQUIREMENTS

Item No.	Brief Description	Unit Of Measure	Quantity
1.	Server	Piece	2
2.	Operating System	Piece	2
3.	NOC Database	Piece	2
4.	NMS software	Piece	2
5.	Desktop PC and Monitors	Piece	3
6.	Laptop	Piece	4
7.	Graphics User Interface (GUIs)	Piece	7
8.	Switch	Piece	1
9.	Local Area Network	LOT	1
10.	Fiber cable	Meters	50
11.	Printers	Piece	1
12.	Furniture	LOT	1
13.	UPS	Units	2
14.	Cabinet	Piece	1
15.	Installation and Commissioning	LOT	1
16.	Training	LOT	1
17.	Site Monitor Unit	LOT	1
18.	Split Air Conditioning unit	Piece	2

## 6. SERVER AND APPLICATION MONIROTING

This is a clarification for the type of NMS Kenya Power is looking to purchase for server and application monitoring. According to Addendum I, Kenya Power had indicated to purchase a NOC solution that concentrates on Operating Software and Database uptime and network visibility.

Kenya Power seeks to purchase an NMS that can monitor infrastructure and applications running on different servers.

Server monitoring will be based on OS, CPU on per Chassis/per CPU per core basis. Resources such as CPU usage, temperature, memory consumption, and network, disk usage (free space and disk operation) will be used as thresholds in monitoring of physical servers and applications running on them to determine the health of each core running on a particular server. A maximum of 300 servers to be monitored which is inclusive of application servers. This is not limiting the instances to be monitored.

List of different servers;

	<b>Make of Server</b>
1.	SPARC Enterprise M8000 (4 System Board)
2.	SPARC Enterprise M9000 (4 System Board)
3.	Oracle Supercluster – ½ Rack
4.	Exadata – ½ Rack
5.	IBM system Z
6.	HP ProLiant Blade 460C
7.	HP ProLiant DL580 Generation 5
8.	HP ProLiant DL580 Generation 6
9.	IBM xseries 3560 (Blade)
10.	IBM xseries 3850
11.	HP PriLiant 380
12.	HP Blade system c7000 enclosure
13.	IBM System x3630m 3

Technical Specifications

<b>3 NETWORK MONITORING SOFTWARE (NMS)</b>	
Network Monitoring	Availability & Performance Monitoring
	Bandwidth Monitoring
	Application Monitoring
	Virtual Server Monitoring
	SLA monitoring
	QoS Monitoring (Leased lines, VoIP – Contact Centre)
	LAN, WAN, VPN, and Multiple Site Monitoring
	Event logging
	Radios, Routers, Switches, Links, Devices, Printers
	Scheduled Auto Discovery
	provide 24/7/365 operations
Server Monitoring	Microsoft Windows - 98, NT 4.0, 2000 Server, XP, 2003, 2008 Server
	Sun Solaris 5.8 and above
	Linux – Red Hat, SUSE, Canonical Ubuntu
	Oracle
Application Monitoring	Oracle 9i/10g/11g and above
	MS SQL 2000/2005/2008
	IBM DB2 8/9 and above
	My SQL 4/5
	Microsoft Exchange 2007,2010,2013
	Microsoft IIS 5.x/6.x/7,x
	Microsoft .NET applications
	Microsoft DHCP/DNS/Active Directory
Application Availability of any port, process	
Automated Discovery	Automatic discovery of servers, routers, switches, UPS
	Discover router/switch details including interfaces, CPU, Memory, etc.
	Agentless - Discovery does not need agents to be installed on target elements
	Discovery can be run at defined schedule i.e. every number of days, hours, minutes
	Discovery can run across a specific subnet range
Inventory Scanning	Automated scan keeps asset database up to-date and eliminates manual intervention
	Scheduled scan of servers, routers, switches, UPS
	Identify and record any changes detected on IT assets
	Agentless - Scan does need agents to be installed on target elements

## 7. SITE MONITOR UNIT

A site monitor will be installed in all Kenya Power Data Centers and Radio Repeater Sites across the country to monitor operational parameters of the Data Centers and instances captured and recorded by the NMS.

This addendum will clarify further what Kenya Power is looking for as a Site monitor. The Site Monitoring units will be handled as a LOT and costs will include installation in the various Data Centers and Radio Hub sites (repeater sites), all wiring (cables) to the unit. A list of all the sites is attached and will act as a guideline for type of Site monitoring equipment to be installed for each site. Data Center parameters vary across the country but all Repeater site parameters to be monitored will be standard. Cabinets are available in all sites.

The Site monitor will monitor environmental parameters from a local and remote location, over an intranet or internet connection and GSM/GPRS through an internal or connected GSM/GPRS modem. These parameters include;

- Mains Supply
- Temperature
- Humidity
- Door monitoring
- Flood detection
- Smoke detection
- Liquid level
- Measure AC/DC voltages and currents.
- Monitor battery voltage, and battery charging current for UPS batteries.

The site monitor is a stackable rack mount device that should be able to generate alarms when a circuit is open or closed, or when a sensor reading is above or below a user defined range. Alarm notifications can be sent via SMS, SNMP and displayed on a customized dashboard on the NMS and adjustable alert threshold. The Site monitor shall have IP interface and accessible through a web browser at the NOC.

The site monitoring Unit will be purchased as a LOT and will have 54 locations will be distributed as in the list of sites in Table 5.1 below.

	Site Name	Quantity
1.	Stima Plaza	2
2.	Electricity House – Nairobi	2
3.	Electricity House – Mombasa	1
4.	Electricity House – Kisumu	1
5.	Electricity House – Nakuru	1
6.	Nyeri Stima	1
7.	Thika	1
8.	Eldoret	1
9.	Nairobi South	1

	Site Name	Quantity
10.	Nairobi North – Ruaraka	1
11.	Juja NCC – Comm room	1
12.	Repeater Sites	39
13.	Nyeri – Diana	1
14.	Stima Sacco Mall	1
	<b>Total</b>	<b>54</b>

Table 5.1

Technical Specifications

16	Site Monitor
Housing	Rack mount (stackable allowed) on a 19” rack cabinet
Indicators	Power, Network link, Network Status LEDs, LCD display
Sensor Pods	Room, Rack, Wireless Sensor Pods
Power Requirements	Double power feed: (16-60) Vdc and/or (12-40)Vac, 20 VA
Communications	- RS232 communication or USB 2.0 - 10/100 Base-T communication port - GSM/GPRS cellular link
Inputs and Outputs	To be determined by per site parameters. Find on attached list of sites including number of environmental features to be monitored.  <b>Note:</b> data center (15 sites) parameters vary but parameters for repeater sites (25 sites) are standard.
Accessories	- AC and DC measurement adapter - dry contact door position - AC current transformer - DC current - Smoke detection - Temperature sensor - Humidity sensor - Flood sensor - internal backup battery - auxiliary dc feed outputs
Protocols	TCP/IP, HTTP / HTTPS (web access), SMTP, SNMP (v1 v2c and v3)
Management Interface	Internet Explorer v5.5 or later; Mozilla 1.3 or later; Firefox 2.0 or later or StruxureWare Data Center Expert
Operating Environment	Temperature: 0 – 45 degree C, Relative Humidity: 0-95% (non-condensing)
Labour	Delivery to site, installation (wiring of different sensors and components) and commissioning of site
Warranty	Two Years



## 8. TENDER CLOSING DATE

The tender closing date has been extended to *Tuesday, 31<sup>st</sup> March 2015* at **10.00a.m.** All the other terms and conditions remain as per the tender document.

Yours faithfully,

**For: KENYA POWER & LIGHTING COMPANY LIMITED.**

  
**BERNARD K. NGUGI**  
**Ag. GENERAL MANAGER, SUPPLY CHAIN**

**SITE  
MONITOR;  
STIMA  
PLAZA  
DATA  
CENTRE**

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item No.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
2	mains power supply distribution board 2	1	0-240vac	1	1	1
				2		
3	Direct current -48vdc for Siae Radio	1	0-48v dc	1	1	1
4	Direct current -48vdc for Fox 515 mux	1	0-48v dc	1	1	1
				2		
5	Fire Detection/supression System	0	0	0	1	1
6	Fire Detection/supression System 12vdc	1	0-12vdc	1	1	1
				1		
7	Temperature sensor A room 1	1	0-45 deg C	1	0	1
8	Temperature sensor B room 1	1	0-45 deg C	1	0	1
9	Temperature sensor A room 2	1	0-45 deg C	1	0	1
10	Temperature sensor B room 2	1	0-45 deg C	1	0	1
11	Temperature sensor A room 3	1	0-45 deg C	1	0	1
12	Temperature sensor B room 3	1	0-45 deg C	1	0	1
13	Temperature sensor A room 4	1	0-45 deg C	1	0	1

14	Temperature sensor B room 4	1	0-45 deg C	1	0	1
				8		
15	AC #1 on room 1 (telcos)	0	0		1	0
16	AC #2 on room 1 (telcos)	0	0		1	0
				0		
17	AC #3 on room 2 (servers rm 1)	0	0		1	0
18	AC #4 on room 2 (servers rm 1)	0	0		1	0
19	AC #1 on room 2 (servers rm 1)	0	0		1	0
20	AC #2 on room 2 (servers rm 1)	0	0		1	0
21	AC #3 on room 3 (servers rm2)	0	0		1	0
22	AC #4 on room 3 (servers rm 2)	0	0		1	0
23	AC #1 on room 3 (servers rm 2)	0	0		1	0
24	AC #2 on room 3 (servers rm 2)	0	0		1	0
26	AC #1 on room 4 (IBM ZZ)	0	0		1	0
27	AC #2 on room 4 (IBM ZZ)	0	0		1	0
28	Door 1 Main Open/Close	0	0		1	1
29	Door 2 Back Open/Close	0	0		1	1
30	Door 3 Room-telco Open/Close	0	0		1	0
31	Door 4 Room-server room 2 Open/Close	0	0		1	0
31	Door 5 Room-server room 3 Open/Close	0	0		1	0
32	Door 6 Room-server room 4 Open/Close	0	0		1	0
33	Humidity sensor rm 1	1	0-95%	1	0	0
34	Humidity sensor rm 2	1	0-95%	1	0	0
35	Humidity sensor rm 3	1	0-95%	1	0	0
36	Humidity sensor rm 4	1	0-95%	1	0	0
				4		
38	Water flooding	0	0		1	1
40	Extractor Fans	0	0		1	1
		17			25	17
	others					
41	Energy Measurands KWh DB1		to use digital energy meter with pulse output			
42	Energy Measurands KWh DB2		to use digital energy meter with pulse output			

Summary	
Analogue Voltage Measurands	17
Temperature	8
Humidity	4
48vdc	2
240 vac	2
12vdc	1
KWh meters	2
Status Indications	25
Alarms outputs	17

**SITE MONITOR;  
STIMA PLAZA  
BASEMENT**

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item No.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
2	Mains power supply distribution board 2	1	0-240vac	1	1	1
				2		
3	Generator supply	1	0-240vac	1	1	1
4	AVR output supply	1	0-240vac	1	1	1
5	UPS bank 1 output Supply	1	0-240vac	1	1	1
6	UPS bank 2 output Supply	1	0-240vac	1	1	1
				4		
8	Fire Detection/suppression System	0	0	0	1	1
8	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
9	Temperature sensor A UPS room 1	1	0-45 deg C	1	0	1
10	Temperature sensor B UPS room 1	1	0-45 deg C	1	0	1
11	Temperature sensor1 battery room	1	0-45 deg C	1	0	1
12	Temperature sensor2 battery room	1	0-45 deg C	1	0	1

13	Temperature sensor 1 Switch room	1	0-45 deg C	1	0	1
				5		
14	AC #1 on room 1 (UPS room)	0	0		1	0
15	AC #2 on room 1 (UPS room)	0	0		1	0
16	Door 1 Main Open/Close	0	0		1	1
17	Door 2 Back Open/Close	0	0		1	1
18	Door 3 Room-Battery room Open/Close	0	0		1	1
19	Door 4 Room-switch room Open/Close	0	0		1	1
20	Humidity sensor UPS room	1	0-95%	1	0	0
				1		
21	Water flooding	0	0		1	1
22	Extractor Fans	0	0		1	1
		13			16	19
	others					
23	Energy Measurands KWh GenSet		to use digital energy meter with pulse output			
24	Energy Measurands KWh Mains ac		to use digital energy meter with pulse output			

Summary	
Analogue Voltage Measurands	13
Temperature	5
Humidity	1
UPS & Regulated Voltages	4
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	16
Alarms outputs	19

## SITE MONITOR; ELECTRICITY HOUSE NAIROBI - 14TH FLOOR

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item No.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board	1	0-240vac	1	1	1
				1		
2	Fire Detection/suppression System	0	0	0	1	1
3	Fire Detection/suppression System 12vdc for batteries	1	0-12vdc	1	1	1
				1		
4	Temperature sensor A room 1	1	0-45 deg C	1	0	1
5	Temperature sensor B room 1	1	0-45 deg C	1	0	1
				2		
6	AC #1 on room 1	0	0		1	0
7	AC #2 on room 1	1	1	1	1	1
				1		
8	Door 1 Main Open/Close	0	0		1	1
9	Humidity sensor 1	1	0-95%	1	0	0
10	Humidity sensor 2	1	0-95%	1	0	0
				2		
11	Water flooding	0	0		1	1
12	Extractor Fans	0	0		1	1
				7	7	8

others

13	Energy Measurands KWh DB1	to use digital energy meter with pulse output				
17	Energy Measurands KWh DB2	to use digital energy meter with pulse output				

Summary	
Analogue Voltage Measurands	7
Temperature	2
Humidity	2
48vdc	0
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	7
Alarms outputs	8



**SITE  
MONITOR;  
ELECTRICITY  
HOUSE  
NAIROBI -  
2ND FLOOR**

Environmental  
parameters to be  
monitored

Bidders to supply suitable environmental devices with the following plus at  
least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input (show presence or absence of measurand)	Status Indication Binary I/O Output Alarms output
		Measurands				
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
2	Mains power supply distribution board 2	1	0-240vac	1	1	1
				2		
3	Fire Detection/suppression System	0	0	0	1	1
4	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
5	Temperature sensor A room 1	1	0-45 deg C	1	0	1
6	Temperature sensor B room 1	1	0-45 deg C	1	0	1
7	Temperature sensor A room 2	1	0-45 deg C	1	0	1
8	Temperature sensor B room 2	1	0-45 deg C	1	0	1
9	Temperature sensor A room 3	1	0-45 deg C	1	0	1
10	Temperature sensor B room 3	1	0-45 deg C	1	0	1
11	Temperature sensor A room 4	1	0-45 deg C	1	0	1
12	Temperature sensor B room 4	1	0-45 deg C	1	0	1
				6		
13	AC #1 on room 1 (UPS)	0	0		1	0
14	AC #2 on room 1 (UPS)	0	0		1	0
				0		
15	AC #3 on room 2 (PRINTER)	0	0		1	0
16	AC #4 on room 2 (PRINTER)	0	0		1	0
				0		
17	AC #1 on room 3 (UPS)	0	0		1	0
18	AC #2 on room 3 (UPS)	0	0		1	0

				0		
19	AC #1 on room 4 (Telcos)	0	0		1	0
20	AC #2 on room 4 (Telcos)	0	0		1	0
				0		
21	Door 1 MAIN room 4 Open/Close	0	0		1	0
22	Door 2 BACK room 1 Open/Close	0	0		1	0
23	Humidity sensor rm 1	1	0-95%	1	0	0
24	Humidity sensor rm 2	1	0-95%	1	0	0
25	Humidity sensor rm 3	1	0-95%	1	0	0
26	Humidity sensor rm 4	2	0-95%	1	0	0
				3		
27	Water flooding	0	0		1	1
28	Extractor Fans	0	0		1	1
		16			15	13
	others					
29	Energy Measurands KWh DB 1		to use digital energy meter with pulse output			

Summary	
Analogue Voltage Measurands	16
Temperature	6
Humidity	3
48vdc	0
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	15
Alarms outputs	13

**SITE  
MONITOR;  
ELECTRICITY  
HOUSE  
KISUMU CITY**

Environmental parameters  
to be monitored  
Bidders to supply suitable environmental devices with the  
following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
				1		
2	Fire Detection/suppression System	0	0	0	1	1
3	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
4	Temperature sensor A room 1	1	0-45 deg C	1	0	1
				1		
5	AC #1 on room 1 (servers rm 1)	0	0		1	0
6	Door 1 Main Open/Close	0	0		1	1
7	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
8	Water flooding	0	0		1	1
9	Extractor Fans	0	0		1	1
		4			6	6
	others					

10	Energy Measurands KWh DB1	to use digital energy meter with pulse output				
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Summary	
Analogue Voltage Measurands	4
Temperature	1
Humidity	1
48vdc	0
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	6
Alarms outputs	6

**SITE  
MONITOR;  
ELECTRICITY  
HOUSE  
MOMBASA**

Environmental parameters  
to be monitored  
Bidders to supply suitable environmental devices with the  
following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
				1		
2	Direct current -48vdc for Fox 515 mux room 2	1	0-48v dc	1	1	1
				1		
3	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
4	Temperature sensor A room 1	1	0-45 deg C	1	0	1
5	Temperature sensor A room 2	1	0-45 deg C	1	0	1
				2		
6	AC #1 on room 1 (telcos)	0	0		1	0
7	AC #2 on room 1 (telcos)	0	0		1	0
				0		
8	AC #3 on room 2 (servers rm 1)	0	0		1	0
9	AC #4 on room 2 (servers rm 1)	0	0		1	0
10	Door 1 Telecoms room Open/Close	0	0		1	1
11	Door 2 Server Open/Close	0	0		1	1

12	Humidity sensor rm 1	1	0-95%	1	0	0
13	Humidity sensor rm 2	1	0-95%	1	0	0
				2		
14	Water flooding	0	0		1	1
15	Extractor Fans	0	0		1	1
		7			10	8
others						
16	Energy Measurands KWh DB1 - Room 1		to use digital energy meter with pulse output			
17	Energy Measurands KWh DB2 - Room 2		to use digital energy meter with pulse output			

Summary	
Analogue Volatge Measurands	7
Temperature	2
Humidity	2
48vdc	1
240 vac	2
12vdc	1
KWh meters	2
Status Indications	10
Alarms outputs	8

## SITE MONITOR; NYERI STIMA

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
				1		
2	Direct current -48vdc	1	0-48v dc	1	1	1
				1		
3	Fire Detection/suppression System	0	0	0	1	1
4	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
5	Temperature sensor A room 1	1	0-45 deg C	1	0	1
				1		
6	AC #1 on room 1 (telcos)	0	0		1	0
7	Door 1 Main Open/Close	0	0		1	1
8	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
9	Water flooding	0	0		1	1
10	Extractor Fans	0	0		1	1
		5			7	7
	others					

11	Energy Measurands KWh DBI	to use digital energy meter with pulse output				
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Summary	
Analogue Voltage Measurands	5
Temperature	1
Humidity	1
48vdc	1
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	7
Alarms outputs	7



## SITE MONITOR; NYERI STIMA

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
				1		
2	Direct current -48vdc	1	0-48v dc	1	1	1
				1		
3	Fire Detection/suppression System	0	0	0	1	1
4	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
5	Temperature sensor A room 1	1	0-45 deg C	1	0	1
				1		
6	AC #1 on room 1 (Server)	0	0		1	0
7	AC #2 on room 1 (Server)	0	0		1	0
8	Door 1 Main Open/Close	0	0		1	1
9	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
10	Water flooding	0	0		1	1
11	Extractor Fans	0	0		1	1

							5	8	7
	others								
12	Energy Measurands KWh DBI	to use digital energy meter with pulse output							

Summary	
Analogue Voltage Measurands	5
Temperature	1
Humidity	1
48vdc	1
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	8
Alarms outputs	7

# SITE MONITOR; ELDORET KVDA PLAZA

Environmental parameters to  
be monitored

Bidders to supply suitable environmental devices with  
the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O Output
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
				1		
2	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
3	Temperature sensor A room 1	1	0-45 deg C	1	0	1
				1		
4	AC #1 on room 1 (telcos)	0	0		1	0
5	AC #2 on room 1 (telcos)	0	0		1	0
				0		
6	Door 1 Main Open/Close	0	0		1	1
7	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
8	Water flooding	0	0		1	1
9	Extractor Fans	0	0		1	1
		4			6	5
	others					
10	Energy Measurands KWh DB1	to use digital energy meter with pulse output				

Summary	
Analogue Voltage	
Measurands	4
Temperature	1
Humidity	1
48vdc	0
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	6
Alarms outputs	5

**SITE  
MONITOR;  
THIKA  
ARCADE**

Environmental  
parameters to be  
monitored

Bidders to supply suitable environmental devices with the following plus  
at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O input
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board	1	0-240vac	1	1	1
				1		
2	Direct current -48vdc for Loop	1	0-48v dc	1	1	1
				1		
3	Fire Detection/suppression System	0	0	0	1	1
4	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
5	Temperature sensor A room 1	1	0-45 deg C	1	0	1
				1		
7	AC #1 on room 1 (telcos)	0	0		1	0
8	AC #2 on room 1 (telcos)	0	0		1	0
9	Door 1 Main Open/Close	0	0		1	1
10	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
11	Water flooding	0	0		1	1
12	Extractor Fans	0	0		1	1
		5			8	7
	others					
13	Energy Measurands KWh DB1	to use digital				

		energy meter with pulse output			
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Summary	
Analogue Voltage Measurands	5
Temperature	1
Humidity	1
48vdc	1
240 Vac	2
12vdc	1
KWh meters	2
Status Indications	8
Alarms outputs	7

## SITE MONITOR; NAIROBI SOUTH - DOLNHOM

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O input
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
				1		
2	Fire Detection/suppression System	0	0	0	1	1
				0		
3	Temperature sensor A room 1	1	0-45 deg C	1	0	1
				1		
4	AC #1 on room 1 (servers rm 1)	0	0		1	0
5	Door 1 Main Open/Close	0	0		1	1
6	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
7	Water flooding	0	0		1	1
8	Extractor Fans	0	0		1	1
		3			5	5
	others					
9	Energy Measurands KWh DB1	to use digital energy meter with pulse output				

**Summary**

Analogue Voltage Measurands	3
Temperature	1
Humidity	1
48vdc	0
240 Vac	2
12vdc	0
KWh meters	2
Status Indications	5
Alarms outputs	5



**SITE MONITOR;  
NAIROBI  
NORTH -  
RUARAKA**

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O input
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board	1	0-240vac	1	1	1
				1		
2	Fire Detection/suppression System	0	0	0	1	1
				0		
3	Temperature sensor A room 1	1	0-45 deg C	1	0	1
				1		
4	AC #1 on room 1	0	0		1	0
5	Door 1 Main Open/Close	0	0		1	1
6	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
7	Water flooding	0	0		1	1
8	Extractor Fans	0	0		1	1
		3			6	6
	others					
9	Energy Measurands KWh DB1	to use digital energy meter with pulse output				

### Summary

Analogue Voltage	
Measurands	3
Temperature	1
Humidity	1
48vdc	0
240 Vac	2
12vdc	0
KWh meters	2
Status Indications	6
Alarms outputs	6

## SITE MONITOR; JUJA NCC

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O input
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
2	mains power supply distribution board 2	1	0-240vac	1	1	1
				2		
3	Direct current -48vdc for Fox 515 mux	1	0-48v dc	1	1	1
				3		
4	Fire Detection/suppression System	0	0	0	1	1
5	Fire Detection/suppression System	1	0	1	1	1
6	Fire Detection/suppression System	1	0	1	1	1
				2		
7	Temperature sensor A room 1	1	0-45 deg C	1	0	1
8	Temperature sensor B room 1	1	0-45 deg C	1	0	1
9	Temperature sensor A room 2	1	0-45 deg C	1	0	1
				3		
10	AC #1 on room 1 (telcos)	0	0		1	0
11	AC #2 on room 1 (telcos)	0	0		1	0
				0		
12	AC #3 on room 2 (SCADA rm 1)	0	0		1	0
13	Door 1 SCADA Open/Close	0	0		1	1
14	Door 2 Telcos Open/Close	0	0		1	1

15	Humidity sensor rm 1	1	0-95%	1	0	0
16	Humidity sensor rm 2	1	0-95%	1	0	0
17	Humidity sensor rm 3	1	0-95%	1	0	0
				3		
18	Water flooding 1	0	0		1	1
19	Extractor Fans 1	0	0		1	1
		11			12	12
	others					
20	Energy Measurands KWh DB1		to use digital energy meter with pulse output			
21	Energy Measurands KWh DB2		to use digital energy meter with pulse output			

Summary	
Analogue Volatge Measurands	11
Temperature	3
Humidity	3
48vdc	3
240 vac	2
12vdc	2
KWh meters	2
Status Indications	12
Alarms outputs	12

# SITE MONITOR; ELECTRICITY HOUSE NAKURU

Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O input
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board	1	0-240vac	1	1	1
				1		
2	Direct current -48vdc for FOX	1	0-48v dc	1	1	1
				1		
3	Fire Detection/suppression System	0	0	0	1	1
4	Fire Detection/suppression System 12vdc	1	0-12vdc	1	1	1
				1		
5	Temperature sensor A room 1	1	0-45 deg C	1	0	1
6	Temperature sensor B room 1	1	0-45 deg C	1	0	1
				2		
7	AC #1 on room 1 (server rm)	0	0		1	0
8	AC #2 on room 1 (server rm)	0	0		1	0
9	Door 1 Main Open/Close	0	0		1	1
11	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
12	Water flooding	0	0		1	1
13	Extractor Fans	0	0		1	1
		6			8	8
	others					

14	Energy Measurands KWh DB1	to use digital energy meter with pulse output			
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Summary	
Analogue Volatge Measurands	6
Temperature	2
Humidity	1
48vdc	1
240 vac	2
12vdc	1
KWh meters	2
Status Indications	8
Alarms outputs	8

## SITE MONITOR; REPEATER SITES

Number of Repeater sites	39
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Environmental parameters to be monitored

Bidders to supply suitable environmental devices with the following plus at least 10% extra capacity or more

Item NO.	Description	Analogue I/O port (voltage or current)	Range		Status Indication Binary I/O input	Status Indication Binary I/O input
		Measurands			(show presence or absence of measurand)	Alarms output
1	Mains power supply distribution board 1	1	0-240vac	1	1	1
				1		
2	Direct current -48vdc for Fox 515 mux	1	0-48v dc	1	1	1
				1		
3	Fire Detection/suppression System	0	0	0	1	1
				0		
4	Temperature sensor A room 1	1	0-45 deg C	1	0	1
5	Temperature sensor B room 1	1	0-45 deg C	1	0	1
				2		
6	AC #1 on room 1 (telcos)	0	0		1	0
7	AC #2 on room 1 (telcos)	0	0		1	0
8	Door 1 Main Open/Close	0	0		1	1
9	Door 2 Back Open/Close	0	0		1	1
10	Humidity sensor rm 1	1	0-95%	1	0	0
				1		
11	Water flooding	0	0		1	1
12	Extractor Fans	0	0		1	1

others		5	8	8
41	Energy Measurands KWh DB1	to use digital energy meter with pulse output		
42	Energy Measurands KWh DB2	to use digital energy meter with pulse output		

Summary	
Analogue Voltage Measurands	5
Temperature	2
Humidity	1
48vdc	1
240 Vac	2
12vdc	0
KWh meters	2
Status Indications	8
Alarms outputs	8

	REPEATER SITE LOCATIONS	REGION	Total
1	Oldonyo Sabuk (ODS), KiaNjiru, Chuka Mesacco, Karue hill, Nyambene, Kiganjo s/s, Nyeri hill, Oldaiga	Mt. Kenya System	8
2	Ngong RS, Maparasha, Kilome, Loitoktok, Mbondoni, Mbuinza, Namanga	Nairobi system	7
3	Narok hill, Eburu, Londiani, Nyahururu igwamiti	Central Rift System	4
4	Sokoke, Rabai s/s, Chasimba, kwale	Coast System	4
5	Surungai, Kipkabus, Kapenguria hill, Kapsimotwo, Kabarnet timboiwo, lessos s/s, Gucha, Nyamira hill, Kisii s/s, gembe, osupuko, Migori hill, maragoli, bumala, musaga s/s	North Rift and West Kenya System	16
			<b>39</b>