

Uganda Case Study

Annex 1

CFL Technical Specifications



ATTACHMENT “D”

Request for Tender CFL/UM07

1. Introduction

The Government of Uganda through the Ministry of Energy and Mineral Development (MEMD) has approved a short term energy efficiency programme which includes making available, Compact Fluorescent Lamps to residential households through a bulk procurement programme. To this end Umeme will be facilitating the procurement process and distribution of these Compact Fluorescent Lamps.

2. Background

The tender is for the supply of 800,000 Compact Fluorescent Lamps (CFL's). 400,000 **14watt** and 400,000 **20watt** or supplier's equivalent of 75 watt and 100watt respectively of incandescent bulbs. To facilitate a more speedy supply there is an option for Umeme to have the initial 100,000 CFL's air freighted while the balance will be shipped by sea.

Tenderer's are requested to bid for both airfreight and sea freight shipments which is catered for in the pricing schedule.

3. Technical Specifications.

I. GENERAL DESIGN

The compact fluorescent lamps (CFLs) must be unitary (a single, non-separable unit containing lamp and ballast, also often referred to as self-ballasted) and designed for applications furnished with a pin socket originally intended to operate standard incandescent bulbs.

Parts	Description/Type
Unit	Unitary/Self-ballasted 14W and 20W
Lamp length	≤ 135 millimeters from base to tip of lamp
Ballast	Electronic
Base	Pin: B22
Tube	U-shaped

Confidential

II. TECHNICAL SPECIFICATIONS

Items that must be clearly indicated on the CFL product package are indicated in italics.

Laboratory and Test Requirements	Performance Specifications
Laboratory Facility	Must be accredited according to ISO 17025, or equivalent standard. Accreditation document must be provided to with bid.
Testing Conditions	Performed at 25±1°C in an atmosphere with maximum relative humidity of 65%.
Position and Initial Burn-in	Measurements should be recorded from products in the Vertical Base Up (VBU) position, after an initial burn-in period of 100 hours at stabilized light output and current.
Test Data and Sample Size	Test data must be from the model for which qualification is sought. Values indicated on the application form shall be calculated as the average of the data from all the units tested.
Longevity of Test Results	Test results must be less than two years old, unless manufacturer can document to Umeme’s satisfaction that older test results accurately portray the performance of the present model.

These technical specifications for Compact Fluorescent Lamps (CFLs) are consistent with the IFC/GEF Efficient Lighting Initiative (ELI) Voluntary Technical Specifications for Compact Fluorescent Lamps (as revised 01 March 2006). These baseline specifications have been chosen as they represent a well-known international standard for CFL quality that has been implemented in many countries worldwide. The following enhancements have been added to the ELI specifications: ≤ 135 millimeters from base to tip of lamp; epidemic failure warranty is **12 months from the date that the goods are accepted by the Purchaser**; and a minimum rated starting temperature not be higher than 5 °C. In addition, this procurement specifies lamps with cool daylight colour temperature and with lumen output ≥ 1,100 Lm.

Confidential

Efficiency Specifications

The CFL package must clearly state the performance of the following characteristics, as defined in IEC 60969:

- Rated input power in watts, and
- Light output in lumens.

Efficiency shall be calculated from luminous flux and input power for the specific lamp and ballast combination in the CFL measured at 25 ° C and 240 V. To qualify, CFLs shall meet the following minimums:

- At input power of <15 W and 6500 CCT \geq 52 lm/W
- At input power of \geq 15 W and >4000 CCT \geq 55 lm/W
- At input power of <25W and 6500 CCT: \geq 57 lm/W

Power Characteristics	Performance Specifications
Input Power	Input power required to achieve the specified lumen output.
Power Factor	Measured in vertical base up position, as defined in IEC 61000, CFLs must have a power factor of 0.5 or greater at maximum power.
Tolerance of Voltage Variation	Manufacturers must state in the application that CFLs will perform within specified parameters at a range of 170 to 250 volts without a reduction in the rated life.

Operating Characteristics	Performance Specifications
Lamp Start	CFL must continuously illuminate within 1.5 seconds of being switched on at minimum rated starting temperature and maximum power. Prior to measurement, CFL must be switched off for at least 30 minutes.
Rated Operating Temperatures	<i>CFL package must declare the range of rated operating temperatures.</i> The minimum rated starting temperature must not be higher than 5 °C.
Lifetime	CFL must have a minimum rated lifetime of 6,000 hours as defined in IEC 60969. <i>CFL lifetime shall be clearly indicated in hours on product packaging.</i>
Safety	CFLs must meet all local safety requirements and the requirements of IEC 60968.

Light Characteristics	Performance Specifications
Lumen Output	<i>Lumen output of the CFL must appear on product packaging</i> The lumen output of the CFL must be \geq 1100 lumens
Correlated Color	<i>Correlated color temperature (CCT) of the CFL must appear on</i>

Confidential

Temperature	<p><i>product packaging</i> (as defined in IEC 60969 and measured in accordance with IES LM-16-1984).</p> <p>The CFLs supplied shall be “daylight” color temperature (5500 K to 6500 K).</p>
Color Rendering Index	Color Rendering Index (CRI) of at least 80 (as defined in IEC 60969, measured in accordance with CIE 29/2).
Lumen Maintenance	After 2000 hours of operation the luminous flux of CFLs must be \geq 80% of initial levels (measured in accordance with IES LM-66-1991 or IEC 60969 for unitary CFLs). In order to pass the lumen maintenance test, at least 80 % of the sample lamps must pass the lumen maintenance threshold at 2,000 hours.
Stabilized Light Output	The time to 75% of stabilized light output after switch-on shall not exceed 100 seconds, or, the time to 80% of stabilized light output after switch-on shall not exceed 120 seconds (measured in accordance with IEC 60969).

Other	Performance Specifications
Lamp Package	<p>In addition to other technical characteristics that must be listed on the CFL package (identified in <i>italics</i> in these Technical Specifications), the package must display the Republic of Uganda coat of arms and also be displayed in one colour on the base of the lamp in the form given by the Purchaser.</p> <p>As the Purchaser, Umeme reserves the right to review the packaging for the lamps in this procurement before the Supplier prints the packaging.</p>
Warranty	<p>Manufacturer to supply a self declaration of failure rate after production for the last 3 years and statistical return of bulbs for last 3 years for Developing World markets. A minimum of 1% or the self declared failure rate percentage which ever is higher to be supplied as swap stock for any lamp failures in addition to normal self declared warranty periods. Manufacturer must provide a lamp warranty against epidemic failure for a minimum period of 12 months from the date that the goods are accepted by the Purchaser. Guarantee card in English must be included with CFL when purchased.</p>
Quality of Production	CFLs must be manufactured under a Quality Assurance System in accordance with ISO 9001-2000 or equivalent.

Confidential

Schedule of Requirements

The delivery schedule expressed in weeks stipulates hereafter a delivery date which is the date of delivery of the first shipment from when the contract is placed on CIF terms (for goods offered from abroad). In order to determine the correct date of delivery hereafter specified, the Purchaser has taken into account the additional time that will be needed for international transit to Umeme stores or to another common place.

No.	Description	Quantity (Unit)	Recipient	Sea port	Final Destination	Delivery Schedule in weeks from date of Contract effectiveness	
						Required	Bidder's offer
Lot 1	Compact Fluorescent Lamps, as described in Technical Specifications	700,000	Umeme	Mombasa	Umeme's warehouse Kampala	8 weeks to 12 weeks	
Lot 2	Compact Fluorescent Lamps, as described in Technical Specifications	100,000	Umeme	Entebbe Airport	Umeme's warehouse Kampala	4 weeks to 6 weeks	

Notes:

- 1) Lot 1 is for sea freight and deliveries of are to be scheduled at 3 week intervals from shipment of first container load.
- 2) Lot 2 is for air freight to Entebbe airport and can be shipped as one or two shipments

Confidential

4) General Conditions

1. Insurance

- 1.1 (a) For Goods supplied from abroad, the Insurance shall be in an amount equal to one hundred and ten (110) percent of the CIF or CIP value of the Goods from “warehouse” to “warehouse” on “All Risks” basis, including War Risks and Strikes.

2. Warranty

- 2.1 After delivery and acceptance of Goods, the Supplier shall furnish to the Purchaser the Warranty Security issued by a reputable bank acceptable to the Purchaser with the amount of five (5) percent of Contract Price.

The Warranty Security will be released within thirty (30) days after the date of expiration of the warranty period.

- 2.2 This warranty shall remain valid for 12 months from the day the Goods are accepted by the Purchaser.

The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the Contract. If, for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall replace the defective lamps within one month of receiving the claim from the Purchaser or Receiver. In case the supplier fails to replace the defective lamps, the purchaser will replace them at the supplier's expense.

3. Payment

- 3.1 The method and conditions of payment to be made to the Supplier under this Contract shall be as follows:

Payment for Goods supplied from abroad:

Payment of foreign currency portion shall be made in the currency or currencies in which the Contract price has been stated in the following manner:

- (i) On Shipment: Twenty (20) percent of the Contract Price shall be paid through irrevocable letter of credit in favour of the Supplier in a bank in its country upon

Confidential

submission of a complete set of original shipping documents.

(ii) On Acceptance: Eighty (80) percent of the Contract Price of Goods received shall be paid within thirty (30) days of receipt of the Goods at final destination upon submission of an acceptance report.

This payment shall be paid through irrevocable confirmed letter of credit opened in favour of the Supplier in a bank in its country, upon submission of the acceptance report but not later than thirty (30) days after receipt of goods at final destination.

4. Performance Security

4.1 Within fifteen (15) days from the Effective Date of the Contract, the Supplier shall furnish to the Purchaser the performance security.

The amount of performance security, as a percentage of the Contract Price, shall be ten (10) percent of the Contract Price.

4.2 The performance Security shall be issued by a reputable bank acceptable to the Purchaser.

4.3 After delivery and acceptance of the Goods, the performance security shall be returned to the Supplier upon submission of Supplier's warranty security in accordance with Clauses GC 2.1

ANNEXURE "A"

Tenderer's Name:

Appendix 1: Data Response Summary Sheet

PRODUCT SPECIFICATIONS

Where applicable indicate levels of compliance as follows:

- Compliant - **C**
- Partial Compliance - **PC**
- Non-Compliant - **N**

In the event of PC and/or NC statements, the Tenderer must submit detailed motivations and reasoning.

No.	Requirements	Remarks
1.	Product Specification	
2.	Technical specifications	
3.		
4.		
5.		

OTHER FACTORS

No.	Requirements	Remarks
1.	Schedule of Requirements.	
2.	Payment Terms	
3.	Insurance	
4.	Warranty	
5.		

Note: Submissions may not be limited to the above response sheet.

Confidential



ANNEXURE “A”

Tenderer’s Name:

Appendix 2: Check List for Tenderer Documentation.

The following Check List is to help checking the completeness and ensuring compliance with specifications in Bidding Document.

Section	Criterion	Verification by Bidder (Bidder to fill out to certify that documentation provided; that specification achieved; or to list actual value of product)*	(Umeme USE ONLY) Meets Specifications (√)
BID PAPER WORK AND FORMS			
Eligible signature on Bid	Documentation of signing authority of the person who signed the Bid, if needed; OR Authorization Letter for signing Bid, if needed.		
Annixure A	Data Response Summary sheet		
Annixure B	Price Schedule		
Authorization Letter	Manufacturer’s Authorization Letter (In the case of Trading Agent/Company)		

Confidential

TECHNICAL SPECIFICATIONS			
Lamp type	Unitary/Self-ballasted		
Lamp length	≤ 135 millimeters from base to tip of lamp		
Ballast	Electronic		
Base	PIN: B22		
Tube	U-shaped		
Laboratory Facility	Must be accredited according to ISO 17025, or equivalent standard. Accreditation document must be provided to Umeme		
Testing Conditions	Performed at 25 ° C in an atmosphere with maximum relative humidity of 65%.		
Position and Initial Burn-in	Measurements should be recorded from products in the Vertical Base Up (VBU) position, after an initial burn-in period of 100 hours at stabilized light output and current.		
Test Data and Sample Size	Test data must be from the model for which qualification is sought. Values indicated on the application form shall be calculated as the average of the data from all the units tested.		
Longevity of Test Results	Test results must be less than two years old, unless manufacturer can document to Umeme's satisfaction that older test results accurately portray the performance of the present model.		
The CFL package must clearly state the performance of the following characteristics, as defined in IEC 60969:	Rated input power in watts, and Light output in lumens.		

Confidential

Efficiency	At input power of <15 W: ≥ 45 lm/W At input power of ≥ 15 W and >4000 CCT: ≥ 55 lm/W		
Power Factor	Measured in vertical base up position, as defined in IEC 61000, CFLs must have a power factor of 0.5 or greater at maximum power.		
Tolerance of Voltage Variation	Manufacturers must state in the application that CFLs will perform within specified parameters at a range of nominal voltages $\pm 10\%$ of rated operating voltage without a reduction in the rated life.		

Transient Protection	CFL must comply with IEC 61547.		
Lamp Start	CFL must continuously illuminate within 1.5 seconds of being switched on at minimum rated starting temperature and maximum power. Prior to measurement, CFL must be switched off for at least 30 minutes.		
Rated Operating Temperatures	<i>CFL package must declare the range of rated operating temperatures.</i>		
Rated Operating Temperatures	The minimum rated starting temperature must not be higher than 5 °C.		
Lifetime	CFL must have a minimum rated lifetime of 6,000 hours as defined in IEC 60969.		
Lifetime	<i>CFL lifetime shall be clearly indicated in hours on product packaging.</i>		
Safety	CFLs must meet all local safety requirements and the requirements of IEC 60968.		
Lumen Output	<i>Lumen output of the CFL must appear on product packaging</i>		
Lumen Output	The lumen output of the CFL must be ≥ 1100 lumens		
Correlated Color	<i>Correlated color temperature (CCT) of</i>		

Confidential

Temperature	<i>the CFL must appear on product packaging</i> (as defined in IEC 60969 and measured in accordance with IES LM-16-1984).		
Correlated Color Temperature	The CFLs supplied shall be “daylight” color temperature (5500 K to 6500 K)		
Color Rendering Index	Color Rendering Index (CRI) of at least 80 (as defined in IEC 60969, measured in accordance with CIE 29/2).		
Lumen Maintenance	After 2000 hours of operation the luminous flux of CFLs must be $\geq 80\%$ of initial levels (measured in accordance with IES LM-66-1991 or IEC 60969 for unitary CFLs).		
Stabilized Light Output	The time to 75% of stabilized light output after switch-on shall not exceed 100 seconds, or, the time to 80% of stabilized light output after switch-on shall not exceed 120 seconds (measured in accordance with IEC 60969).		
Lamp Package	The Supplier shall display the Republic of Uganda coat of arms in one color on the lamp base and on lamp package in the form given by the Purchaser.		
Warranty	Manufacturer must provide a lamp warranty against epidemic failure for a minimum period of 12 months from the date that the goods are accepted by the Purchaser. Manufacturer to provide a percentage swap stock for individual bulb failure. Guarantee card in English must be included with CFL when purchased.		
Quality of Production	CFLs must be manufactured under a Quality Assurance System in accordance with ISO 9001-2000 or equivalent.		

* Tenderers must note specifically the section in their bid where the technical specifications or criteria are provided or documented.

Confidential



ANNEXURE “B”

Tenderer’s Name:

PRICING SCHEDULE

Option 1		14watt & 20watt U- tube, pin base CFL		SEA FREIGHT	
REQUIREMENTS	Required Quantity	UNIT COST	TOTAL COST		
Ex -Works Price 14 watt	400,000				
Ex – Works Price 20watt	400,000				
Sea Freight & Insurance cost per component	800,000				
Total CIP Kampala cost (incl. Freight, Insurance)	800,000				

Option 2		14watt & 20watt U-tube, pin base CFL			
REQUIREMENTS	Required Quantity	UNIT COST	TOTAL COST		
Ex -Works Price per component	350,000				
Freight cost per component	350,000				
Sea Freight & Insurance cost per component	700,000				
Total CIP Kampala cost (incl. Freight, Insurance)	700,000				

Confidential

Option 2: This option will apply if the initial shipment of 100,000 lamps is to come by air.

PRICING SCHEDULE

14watt & 20watt U-tube, pin base CFL

Air Freight

REQUIREMENTS	Required Quantity	UNIT COST	TOTAL COST
Ex -Works Price 14 watt	50,000		
Ex - Works Price 20 watt	50,000		
Air Freight & Insurance cost per component	100,000		
Total CIP Entebbe cost (incl. Freight, Insurance)	100,000		

Confidential