GHANA

GAZETTE

Published by Authority

No. 35	FRIDAY, 26TH JULY	2002

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PUBLIC UTILITIES REGULATORY COMMISSION (PURC)
PUBLICATION OF ELECTRICITY TARIFFS

In accordance with the statutory duty to publish rates approved by the Public Utilities Regulatory Commission under Section 19 of the Public Utilities Regulatory Commission Act, 1997 (Act 538) this publication is made this 18th day of July 2002.

1. The Volta River Authority (VRA) shall charge the rates provided for in the First Schedule hereto as Bulk Supply Tariff (BST) to take effect from 1st August 2002 and 1st March 2003 respectively as stipulated in the said First Schedule.

2. The Electricity Company, Ghana (ECG) Limited and Northern Electricity Department (NED) of the Volta River Authority (VRA), shall charge the rates provided for in the Second Schedule hereto as Distribution Service Charge (DSC) to take effect from 1st August 2002 and 1st March 2003 respectively as stipulated in the said Second Schedule.

3. The Electricity Company, Ghana (ECG) Limited and Northern Electricity Department (NED) of the Volta River Authority (VRA) shall charge the detailed tariffs stipulated in the Third Schedule hereto as End-User Tariffs to take effect from 1st August 2002 and 1st March 2003 respectively.

4. The projections used in the computation of the rates approved are provided for in the Fourth Schedule.

5. Subject to paragraph 6, the rates approved shall not be exceeded and shall remain in force until they are changed by the Public Utilities Regulatory Commission.

6. Until the next major tariff review at the end of 2004, electricity tariffs shall be adjusted as per the automatic adjustment (indexation) formula provided in the Fifth Schedule.

7. The rates approved by the Public Utilities Regulatory Commission which took effect from May 1, 2001 for VRA, ECG and NED as published in Gazette No. 19, of April 27, 2001 are hereby accordingly revoked and replaced with the following:

DEFINITIONS

BST	..	Bulk Supply Tariff
DSC	..	Distribution Service Charge
SLT-LV	..	Special Load Tariff-Low Voltage
SLT-MV	..	Special Load Tariff-Medium Voltage
SLT-HV	..	Special Load Tariff-High Voltage
KWh	..	Kilowatt-Hour
KVA	..	Kilovolt-Ampere

FIRST SCHEDULE

Tariff Category	Effective August 1, 2002	Effective March 1, 2003
BST (Cedis/kWh)	359	412

SECOND SCHEDULE

Tariff Category	Effective August 1, 2002	Effective March 1, 2003
DSC (Cedis/kWh)	264	285

THIRD SCHEDULE

Tariff Category	Effective August 1, 2002	Effective March 1, 2003
*Residential**		
0-50 (Exclusive "Lifeline" Block Charge)	14,000	18,000
51-300	400	550
300+	960	960
Non-Residential		
0 300	750	800
300+	980	980
Service Charge (Cedis/month)	20,000	20,000

Tariff Category	Effective August 1, 2002	Effective March 1, 2003
SLT-LV Max. Demand (Cedis/kVA/month) Energy Charge (Cedis/kWh) Service Charge (Cedis/month)	130,000 360 60,000	135,000 380 60,000
SLT-MV Max. Demand (Cedis/kVA/month) Energy Charge (Cedis/kWh) Service Charge (Cedis/month)	82,000 350 60,000	92,000 360 60,000
SLT-HV Max. Demand (Cedis/kVA/month) Energy Charge (Cedis/kWh) Service Charge (Cedis/month)	74,000 340 60,000	84,000 350 60,000

FOURTH SCHEDULE

PROJECTIONS USED IN TARIFF COMPUTATION

Variable	Year 2002	Year 2003
Average Inflation Rate	16%	10%
Average Exchange Rate	US1$ = ¢ 8,000	US1$ = ¢ 8,500
Generation Mix	Hydro 50% Thermal 50%	Hydro 50% Thermal 50%
Light Crude Oil Price	26 US$/bbl	26 US$/bbl

*- All consumption above 50 units will not benefit from the subsidized and exclusive "lifeline" block charge.
- Consumption above 50 units and up to 300 units will attract a tariff of ¢400 per unit for total units consumed.
- Consumption above 300 units will attract a tariff of ¢400 per unit for the first 300 units and ¢960 per unit for consumption above 300 units.

FIFTH SCHEDULE

Electricity Tariff Adjustment (Indexation) Formula:

The Adjusted Variable Energy Price is computed as follows:

$$P = P_0 \left\{ a \frac{FP}{FP_0} + \beta \frac{CPI}{CPI_0} \right\} \text{----------------------------------- (1)}$$

where:

P	= Adjusted Variable Energy Price,
P_0	= Base Thermal Variable Energy Price:
	Oil Fired Simple Cycle Plant = 4.61 cents/kWh.
	Oil Fired Combined Cycle Plant = 3.03 cents/kWh.
	Levelized Energy Price **for natural gas fired thermal plant = 2.9cents/kWh.**
FP	= Fuel Price (For liquid fuels, the reference fuel is Bonny Crude Oil)
FP_0	= Base Fuel Price **(20 US $/bbl + a premium of 2.0 US $/bbl) = 22 US $/bbl**
CPI	= % change in the Consumer Price Index of USA
CPI_0	= % change in the Base Consumer Price Index of USA = **2.00 %**
a	= Annual Fuel coefficient.
β	= Annual CPI coefficient.

The Annual Fuel and CPI coefficients are defined in the table below.

Table of Fuel Coefficients for computing P.

COEFFICIENTS	CRUDE OIL	NATURAL GAS
FUEL COEFFICIENT (*a*)	0.89	0.89
CPI COEFFICIENT (ß)	0.11	0.11

Upon **attainment of economic efficient tariff,** the fuel adjustment formula would be triggered in accordance with the following mathematical relationship:

Fuel Price Change = (30 ± 1.5) US $/bbl

ii. **Calculation of Adjusted Weighted Average Cost of Generation, BGC_{ADJUST}:**

The Adjusted Weighted Average Cost of Bulk Generation Charge, BGC_{ADJUST} is computed as follows:

$$BGC_{ADJUST}. (Cents/kWh) = [(X_1H_C + X_2P_2 + X_3P_3) + nK]$$

where :

X_1 = Percentage of Hydro contribution in the Generation Mix

X_2 = Percentage of Simple Cycle thermal energy in the Total Generation Mix

X_3 = Percentage of Combined Cycle thermal energy in the Total Generation Mix

H_C = Hydro Cost **(cents/kWh)** determined by PURC

P_2 = Adjusted Variable Energy Price **(cents/kWh)** of a Simple Cycle Plant (calculated from equation 1 above).

P_3 = Adjusted Variable Energy Price **(cents/kWh)** of a Combined cycle plant (calculated from equation 1 above)

K = System Capacity Price **(12.20 US $/kW-month = 1.67 cents/kWh)**

n = Effective percentage **thermal capacity** contribution to system demand.

iii. **Conversion of BGC_{ADJUST}, in cents/kWh, to cedis/kWh:**

Since the Bulk Generation Charge (Adjusted) is computed in **cents/kWh,** PURC will use **Bank of Ghana's average exchange rate projection for the next period,** to effect the conversion from **cents/kWh** to **cedis/kWh** using the following relationship:

$$BGC_{(ADJUST)} (Cedis/kWh) = \frac{BGC_{ADJUST} (Cents/kWh) \times EXCH_t}{100}$$

where:

$BGC_{ADJUST}.$ **(Cents/kWh)** = Adjusted Bulk Generation Charge

$EXCH_t.$ = Average Cedi-to-US $ exchange rate in the next period (as projected by the Bank of Ghana)

Calculate:

$$BST = BGC_{ADJUST} + TSC$$

Where:

BST = Bulk Supply Tariff (cedis/kWh)
TSC = Transmission Service Charge (cedis/kWh)

For TSC, the PURC Benchmark = 0.9 Cents/kWh

Convert TSC in Cents/kWh to Cedis/kWh using the following relationship:

$$TSC (Cedis/kWh) = \frac{TSC (Cents/kWh) \times EXCH_t}{100}$$

iv. **Correction of Distribution Service Charge (DSC) for depreciation/appreciation of cedi against the US Dollar**

Use the following formula:

$$DSC_t = DSC_{t-1} \ X \ \frac{EXCH_t}{EXCH_{t-1}}$$

where:

DSCt = Distribution Service Charge (in cedis/kWh) for next period, t.

DSC_{t-1} = Distribution Service Charge (in cedis/kWh) for previous period

$EXCH_t$ = Average Exchange Rate (cedis to US dollars), for next period (as projected by the Bank of Ghana)

$EXCH_{t-1}$ = Average Exchange Rate (cedis to US dollars), used by PURC for previous period

v.   **End-User Tariff Determination:**

Calculate EUT using the following mathematical formula:

EUT (cedis/kWh) = BST (cedis/kWh) + DSC (cedis/kWh)

where:

EUT = Average End-User Tariff, in cedis/kWh.

vi.   **Trigger Condition for Automatic Adjustment of Tariff:** On Quarterly Basis

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PUBLIC UTILITIES REGULATORY COMMISSION
PUBLICATION OF WATER TARIFFS

In accordance with the statutory duty to publish rates approved by the Public Utilities Regulatory Commission under Section 19 of the Public Utilities Regulatory Commission Act, Act 538, this publication is made this July 18, 2002.

1. The Ghana Water Company Limited (GWCL) shall charge the rates specified in the First Schedule to take effect from August 1, 2002 and March 1, 2003 respectively.

2. The projections used in the computation of the rates approved are provided in the Second Schedule.

3. Subject to paragraph 4, the rates approved shall not be exceeded and shall remain in force until they are changed by the Public Utilities Regulatory Commission.

4. Until the next major tariff review at the end of 2004, water tariffs shall be adjusted as per the automatic adjustment (indexation) formula provided in the Third Schedule

5. The rates approved by the Public Utilities Regulatory Commission which took effect from May 1, 2001 for GWCL as published in the Gazette No. 19 of April 27, 2001 are hereby accordingly revoked and replaced with the following:

FIRST SCHEDULE

Category of Service	Monthly Consumption (1000 Litres)	Effective August 1, 2002	Effective March 1, 2003
		Approved Rates in Cedis (per 1000 Litres)	Approved Rates in Cedis (per 1000 Litres)
a. Metered Domestic	0-20	3,000	3,500
	20 and above	4,500	4,800
b. Commercial/Industrial	Flat Rate	5,500	6,000
c. Public Institutions /Govt. Departments	Flat Rate	5,000	5,400
d. Un-metered Premises-Flat rate per house per month		22,000	25,000
e. Boreholes, wells, hand pumps-Flat rate per house per month		4,000	5,000
f. Premises without connection (Public stand pipes) per 1000 litres		3,000	3,500
g. Reconnection fee:			
(i) Domestic		20,000	25,000
(ii) Commercial/Industry		75,000	80,000

SECOND SCHEDULE

PROJECTIONS USED IN TARIFF COMPUTATION

Variable	Year 2002	Year 2003
Average Inflation Rate	16%	10%
Average Exchange Rate	US1$ = ¢8,000	US1$ = ¢8,500

FOOTNOTE:

There is a sewer surcharge which will be determined by the appropriate authority.

THIRD SCHEDULE.

Water Tariff Indexation:

i. **Automatic Adjustment Formula for water tariff**

The adjustment formula is defined as:

$$P_T = P_{T-1} \left\{ A \left(\frac{E_T}{E_{T-1}} \right) + B \left(\frac{CPI}{CPI_o} \right) \right\}$$

where:

P_T = Average Water Tariff for next period, t, in cents/m^3.

P_{T-1} = Average Water Tariff for previous period, t-1, in cents/m^3.

E_T = Average End-User Electricity Tariff for next period, t, in cents/kWh.

E_{T-1} = Average End-User Electricity Tariff for previous period, t-1, in cents/kWh.

CPI = % change in the Consumer Price Index of USA

CPI_O = % change in the Base Consumer Price Index of USA = **2.00 %**

The **coefficients A and B are weightings** defined as follows:

COEFFICIENT	VARIABLE	WEIGHTING
FACTOR A	Average End-User Electricity Tariff	0.84
FACTOR B	Consumer Price Index	0.16
	TOTAL	1.00

ii.   **Conversion of P_T (in cents/m^3) to cedis/m3.**

The mathematical relationship for the conversion is given as follows:

$$P_t \text{ (cedis/m}^3) = P_t \text{ (cents/m}^3) \times \frac{EXCH_t}{100}$$

where:

$EXCH_t$ = Average exchange rate in next period, t (as published by the Bank of Ghana)

P_t = Average Water Tariff for next period

iii.   **Trigger Condition for Automatic Adjustment of Tariff:** On Quarterly Basis

A. E. QUAYSON

Commissioner, Public Utilities Regulatory Commission

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