PUBLIC UTILITIES REGULATORY COMMISSION

ANNUAL REPORT – 2002

ANNUAL REPORT 2002

SUMMARY OF ACTIVITIES IN 2002

DATE / MONTH	EVENT
FEBRUARY 6	PURC organized a public forum in Accra aimed at improving communication between utility service providers and consumers. The forum was an important step in PURC's drive towards improving the utility companies' customer responsiveness and quality of service delivery.
MARCH 21	**Survey on Water Accessibility and Supply** A workshop was held in Accra to present the final findings of a Socio-Economic Survey on Water Accessibility Issues to key stakeholders, including utility companies and consumer associations. The survey was undertaken jointly by PURC and the Adam Smith Institute (ASI), and was sponsored by the UK Department for International Development (DFID).
APRIL 8-12	**Visit by Maryland Public Service Commission (MPSC)** A visit by officials of the MPSC in April marked the end of the two-year partnership programme between the two Commissions, funded by USAID and facilitated by the United States Energy Association (USEA).
MAY 3	**Quality of Service Review Meeting with Boards and Management of Utility Companies** A quality of service review meeting was held in Akuse with the Boards and Senior Management of the utility companies to review the companies' performance against PURC's Performance Benchmarks of May 2001.
MAY	**Review of Performance Contracts of Utility Companies** PURC undertook a review of the Performance Contracts executed between Government and the utility companies. The Commission made recommendations to Government on important service indicators as well

	as key requirements to be included in subsequent contracts. **Resignation of PURC Chairman** Nana (Dr) S. K. B Asante stepped down on personal grounds, after having served as Chairman of the Commission since its establishment in 1997.
JULY 26	**Tariffs** A two-phased tariff increase for Electricity and Water, effective August 2002 and March 2003, was announced. The new tariffs were duly published in the Gazette and mass media.
AUG 28 – SEPT 13	**Nation-wide Public Education** The Commission undertook a public education campaign in all regional capitals to sensitise consumers on PURC's functions, activities, critical issues involving tariff levels and structure, as well as measures being undertaken to improve quality of service.
OCTOBER 1	**Rehabilitation of New Office Accommodation** Messrs. Micsat Ltd. commenced rehabilitation works on Bungalow No. 51, Liberation Road, Accra, allocated to the Commission by the Ministry of Works and Housing. The work is expected to be completed in six months.
NOVEMBER 5-7	**African Forum of Utility Regulators (AFUR)** The Executive Secretary, Mr. Stephen Adu was elected a member of the AFUR Executive Committee at the 4th meeting of the forum held in Cape Town, South Africa in November. The Committee will be responsible for steering the affairs of AFUR for a three-year term.
DECEMBER	**Draft Legislative Instrument** The Draft LI on the establishment of PURC Consumer Service Committees was considered by the Parliamentary Sub-Committee on Subsidiary Legislation, and laid before Parliament as part of the process necessary for the LI to become law.

FOREWORD

The year 2002 marks the end of the first five-year term of the Public Utilities Regulatory Commission (PURC). This annual report provides a broad overview of the Commission's achievements regarding key policy objectives and also sets the tone for what the focus should be as the Commission moves into the next stages of its development and growth.

Funding issues continued to engage the attention of the members and staff. The budgetary constraints that have characterized the Commission's activities since its inception remain, although great efforts were made to bring our difficulties to the attention of the authorities. There is no doubt that this persistent funding difficulty hampered the Commission's progress towards the achievements of some of its critical regulatory and statutory tasks during the year under review and indeed, during the whole of its first term.

Notwithstanding this, the Commission's determination to tackle its critical objectives particularly those relating to consumer protection saw some progress. Some of the main attainments were:

- Periodic quality of service review meetings have been established between the utilities and PURC.

- In addition to PURC's Kumasi Regional Office, plans are advanced towards the establishment of an office in Takoradi in the New Year to be followed by another office in Tamale thereafter.

- Reporting formats have been developed for the regulated utilities to facilitate quality of service monitoring. In addition, the Water Inspectorate Bureau has issued reporting formats tailored specifically for monitoring of drinking water quality. The Inspectorate is acquiring water-testing kits for conducting random sample tests to assure the delivery of good quality drinking water especially to the urban poor who depend upon tanker services.

The lack of appreciable improvements in quality of service remains a grave concern. Despite measures taken by the Commission, including granting of further tariff increases which effectively moved rates to efficient economic levels, the expected improvements in the quality of service have not as yet materialized.

The Commission has always maintained that tariff increases must be matched with significant efforts at revenue collection as well as capital investment by the shareholder. Sustained efforts in these directions will enable the utility companies to replace obsolete equipment and deliver the desired high quality of service.

Although the continued delays in upfront investment exacerbates the utility companies' technical and operational difficulties, the companies themselves are urged to examine their managerial and commercial practices. A complete re-orientation would be required if significant performance improvement and higher quality of service are to be realised.

Next year, the Commission will intensify its monitoring of the utilities' performance to ensure that consumers begin to enjoy some level of improvement in the services for which they are continually called upon to pay higher rates.

In fulfilling its role, the Commission's regulatory activities have been devoid of any bias towards a particular segment of the regulatory regime. In its first five years of existence, the Commission has focused on maintaining a delicate balance between consumer interests and the financial viability of utility providers. This will continue as the Commission strives towards achieving a convergence of the requirements of optimal cost recovery rates and quality of service objectives.

As far as tariffs are concerned, the year 2002 saw some major developments. The Commission sought to actualise the Transitional Plan that raised tariffs to efficient economic levels and also provided a formula for future automatic adjustments. That decision also marked a freeze on major tariff reviews till 2005.

Finally, the Commission would like to bid farewell to its pioneering Chairman Nana (Dr) S. K. B Asante, who in May 2003, stepped down for personal reasons. We acknowledge his exceptional leadership and immense contribution towards the establishment and development of PURC as a reputable regulatory institution. The legal framework of PURC benefited immensely from Nana's wealth of legal expertise in its critical formative years.

1.0 FINANCING FOR THE COMMISSION

A major challenge that the Commission has had to grapple with since its establishment five years ago, is that of obtaining secure and adequate funding for its ever increasing and challenging activities. Historically, the Commission has been funded mainly through Government subvention and support from Donor Agencies. From the onset, proposals were made to Government to approve a source of funding which would guarantee PURC's financial independence whilst freeing up scarce state resources to be channelled into other sectors, such as education and health. The necessary approvals have however not been obtained to enable the Commission implement this universally accepted means of financing regulatory institutions.

The undesirable situation where year after year, arbitrary ceilings are imposed on the Commission's budget is a major constraint on its ability to completely fulfil its statutory and regulatory responsibilities. In 2002, the Commission's proposed budget of ¢8.5 billion was reduced to ¢2.7 billion, and eventually, only ¢2.5 billion was released to the Commission. The table below shows that subvention released to the Commission over the years has constituted a dismal average of about 38% of its budgetary requirements.

Table 1: Comparison of Proposed Budgets with Budgets Approved and Actual Subvention Received

	PROPOSED BUDGET ¢ BILLION	APPROVED BUDGET ¢BILLION	RECEIVED ¢BILLION
1997-1998	1.1	0.9	0.9
1999	5.0	3.6	1.2
2000	5.5	2.6	1.7
2001	8.5	2.1	2.1
2002	8.5	2.7	2.5

The effect of this restrictive funding situation is the continual postponement of projects such as decentralization to broaden awareness of PURC and increase access to its services, comprehensive quality of service monitoring, commissioning of studies to aid policy making, and technical audits into the operations of the utility companies.

It is hoped that the recent positive responses received from Government will lead to the expected formal approval for the Commission to institute a funding mechanism that is not only sustainable but also guarantees the Commission's financial independence.

2.0 ELECTRICITY SECTOR

This section of the report reviews the technical and financial performance of the electric power system, that is, the operations of Volta River Authority (VRA), Northern Electricity Department (NED) and the Electricity Company Ghana (ECG) for the year ended December 31, 2002. Section one reviews technical and financial operations of the Volta River Authority, Northern Electricity Department (NED) and Electricity Company of Ghana, while section two reviews the quality of service performance and level of service delivery from the three power utilities

2.1 VRA: TECHNICAL ANALYSIS

2.1.1 Generation Mix Analysis

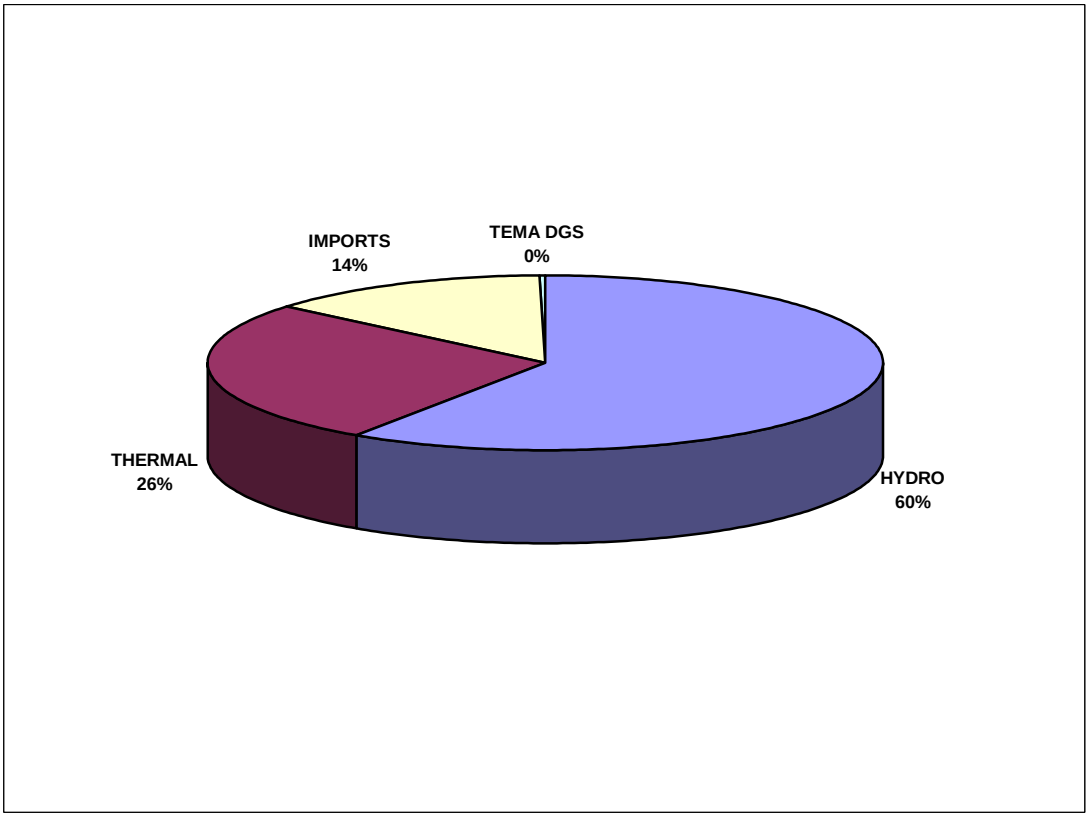
System Energy supply from the various generation sources for the period under review is as shown in Table 2 below. Total energy generated for the year from hydro, thermal and imports amounted to **8,440 GWh**. Of this amount, hydro sources contributed **5,035 GWh** representing **60.0%**. Generation from thermal sources (TAPCO and TICO) amounted to **2,237 GWh**, representing **26.0%** of total generation for the year. Imports of energy amounted to **1,146 GWh**, accounting for **14%,** while energy generated from the Tema Diesel Generating Station amounted to **33 GWh,** accounting for **0.3%.** Transmission Losses amounted to **370 GWh** representing about **4.4%** of total energy generated.

Table 2: Energy Generation by Source for the period ended December 31, 2002

Generation Source	GWh	% Composition
HYDRO:		
Akosombo	4,177	49.5
Kpong	858	10.0
SUBTOTAL	**5,035**	**60.0**
THERMAL:		
TAPCO	874	**10.7**
TICO	1,363	**16.0**
SUBTOTAL	**2,237**	**26.0**
IMPORTS	1,146	**14.0**
TEMA DGS	33	**0.3**
TOTAL	**8,440**	**100**

FIGURE A

Pie Chart showing Generation-Supply Mix for the year ended December 31, 2002



2.1.2 System capacity supply and demand balance for 2002

Table 3: Effective domestic capacity supply for the year ended December 31, 2002

SOURCE	EFFECTIVE CAPACITY (MW)	INSTALLED CAPACITY (MW)	% COMPOSITION
Hydro:			
Akosombo	650	912	
Kpong	140	160	67.0
Thermal:			
TAPCO	150	330	
TICO	200	220	23.0
Total Available Effective Capacity	**1,140**		100.0
System Coincident Peak Demand	1,147	1147	
Reserve Margin (Effective)	7		

Table 3 above shows effective domestic supply and installed capacity for the year. During the period under review, average peak system capacity including supply to VALCO recorded was **1147 MW**. The total effective capacity was **1,140 MW**, thus giving a reserve margin of **7MW**. VRA had to rely on imports from Cote d'Ivoire to provide the necessary support for system security and reliability.

2.1.3 Peak capacity consumption analysis

Analysis of peak domestic consumption for the period under review shows that the peak capacity utilization by domestic customers during the year ranged between **964 MW** and **734 MW**, thus giving an average of **849 MW** representing **74%** of total capacity utilization.

Maximum capacity utilization by VALCO for the same period ranged between **301 MW** and **200 MW**, giving an average of **251 MW** representing about **21%** of total capacity utilization, with the exports to Togo and Benin accounting for **4.2%.**

Table 4: Average peak capacity consumption by customer class for year ended December 31, 2002

CUSTOMER CLASS	CAPACITY CONSUMPTION (MW)	% COMPOSITION
DOMESTIC	848.75	74.0
VALCO	250.5	21.8
TOTAL DOMESTIC	**1099.25**	**95.8**
EXPORTS (TOGO & BENIN)	47.75	4.2
TOTAL	**1147**	**100.0**

2.1.4 Energy Demand Analysis

Energy demand for the year as shown in Table 5 below totalled **8,440 GWh**. Total demand by local customers including ECG and NED for the period under review amounted to **5345** GWh, representing **63.0%** of total energy demand. Total energy supplied to foreign customers including VALCO, CEB and Free Zone Companies amounted to **2,677 GWh**, representing **32.0%** of total demand for the period, whilst Transmission Losses accounted for **4.0%** and Generation and Transmission Substation use amounted to **1.0%**

VALCO accounted for **2,063 GWh** representing **24.0%** of total energy supplied to both local and foreign customers whilst exports to Togo and Benin (CEB) accounted for **611 GWh**, representing **7.0%.** Percentage composition of total energy demand by all customers as met by VRA during the period shows that ECG accounted for **51.0%,** Mines **7.0%,** NED **4.7%,** VALCO **25.7%** and CEB **7.6%,** with Transmission Losses of **4.4%.**

Table 5: Energy Demand by Customer Type for year ended December 31, 2002

CUSTOMER	ENERGY DEMAND (GWh)	% COMPOSITION
ECG	4326	51.26
Mines	562	6.66
Akosombo Township & Textiles	28	0.33
Aluworks	15	0.18
Others (VRA Township)	33	0.33
NED	381	4.51
Total Local Customers	**5345**	63.27
VALCO	2063	24.44
CEB Togo & Benin	611	7.24
Free Zone Companies	3	0.15
Total Foreign Customers	**2677**	31.82
Total Energy Generated	**8022**	95.09
Transmission Losses	370	4.38
Generation & Transmission Substation use	48	0.53
Total Energy Demand	**8440**	**100.00**

2.2 FINANCIAL ANALYSIS OF VRA OPERATIONS

2.2.1 Analysis of VRA's Operating Expenses

	Billion Cedis:
Revenue from Electricity Sales	**2,028.8**
Other Income	**88.5**
Total Income	**2117.3**
Operating Expenses	(2,128.6)
Depreciation	(566.3)
Gain on Foreign Exchange	14.9
Operating Loss	(582.5)
Exchange Fluctuation	(473.6)
Interest & Commitment Charges	(26.5)
Net Loss (After Exchange Fluctuation, Interest, Commitment Charges & Exceptional Items)	**(1,2691)**

The key cost drivers of VRA's direct total operating expenses are as follows:

		Actual Cost (cents/kWh)	PURC efficient Cost (cents/kWh)	% of Direct Cost
i.	Energy Cost (TAPCO Plant)*	5.7	4.0	41
ii.	TICO (Energy* and Capacity Cost)	8.7	8.0	33
iii.	Power Imports from CIE	5.0	5.0	17

* **calculated at 30 US$/bbl**

The high variable cost recorded for TAPCO was as a result of the fact that for technical reasons, the plant could not be operated to deliver its "firm" capacity of 300 MW (NB: installed capacity is 330 MW). The plant was operated as a "half" combined cycle of about 150 MW, thus giving a higher energy cost compared to the PURC efficient cost. For the TICO Plant, the difference between the PURC efficient cost and the actual cost recorded in 2002 was due to the lower capacity charge of 12 US $/kW/month which was granted VRA by the Commission, compared to about 14 US $/kW/Month proposed by VRA, in accordance with the Power Purchase Agreement (PPA) it signed with CMS, Michigan. Table 6 below shows a summary of the (Operation and Maintenance) O & M expenses of VRA.

TABLE 6: Details of VRA's O & M Expenses

DIRECT O/M EXPENSES	YEAR 2002 (¢ Billion)	% COMPOSITION	YEAR 2001 (¢ Billion)	VARIANCE (+/-) Year 2002 vs. 2001	VARIANCE IN %
Hydro Generation	21.8	0.8	19.25	-2.55	-13.25
Thermal Generation	414.6	15.4	395.25	-19.35	-4.90
Purchase of Electricity (CIE & TICO)	1462.1	54.3	715.758	-746.342	-104.27
Transmission	26.5	1	22.54	-3.96	-17.57
Central Services	160.9	6	103.76	-57.14	-55.07
Akosombo/Akuse Township	7.9	0.3	9.2	1.3	14.13
Health	9	0.5	9.48	0.48	5.06
Depreciation	566.3	21	400.67	-165.63	-41.34
TOTAL O/G EXPENSES	2694.9	100	1675.9	-1019.0	-60.80

TABLE 7: Selected Performance indicators of VRA for the year ended December 31, 2002

INDICATORS	UNIT	2001	2002
FINANCIAL/ECONOMIC			
Operating Profit (Loss)	¢B	-220	-562.5
Gross Earnings (Electricity Sales)	¢B	1,393.10	2,028.80
Net Profit (Loss)	¢B	-329.7	-1,236.30
Rate of Return on Average Re-valued Net Fixed Assets	%	-2.0	-4.5
EFFICIENCY			
Total Operating Cost/Sales Revenue	%	93.7	117.9
Personnel Cost/Sales Revenue	%	5.7	5.4
Average Debtors Collection Period	Days	219	180

2.2.2 Cash Flow Statement of VRA

	Billion Cedis
Cash flow from operating activities	(23.29)
Cash flow from investing activities	(281.7)
Cash flow from financing	378.62
Increase in cash and cash equivalents	120.2
Cash and cash equivalents at beginning of year 2002	196.1
Cash and cash equivalents at end of year 2002	316.3

VRA recorded a positive cash flow at the end of the review period. This position could have been more favourable if VRA had reduced its average debtors collection period from about 180 days (i.e. about 6 months) to 60 days (i.e. about 2 months).

2.3 FINANCIAL PERFORMANCE OF NORTHERN ELECTRICITY DEPARTMENT (NED)

In 2002, the Northern Electricity Department (NED) purchased a total of **¢101.6 billion** of electricity from the national grid to meet the energy demand of its customers. Total revenue from sale of electricity by NED amounted **¢120.0 billion**. With operating expenses including depreciation of **¢256.4billion**, NED made a net loss of **¢132.8 billion** for the period.

TABLE 8: Analysis of NED's Electricity Sales for the period

CUSTOMER-TYPE	AMOUNT (¢B)	% COMPOSITION
Residential	59.8	49.8
Non-Residential	41.6	34.7
Low-Voltage	9.2	7.7
High-Voltage	9.3	7.8
TOTAL SALES	**120.0**	**100.0**

Analysis of electricity sales by NED for the year ended December 31, 2002 reveals that Residential customers accounted for **50.0%** of total sales for the period, whilst Non-Residential customers accounted for **35.0%.** Low and High Voltage customers combined constitute **15.0%** of total sales as shown in Table 8 above.

TABLE 9: Comparative Analysis of PURC Targets and NED Performance for 2002

PERFORMANCE INDICATOR	PURC TARGET	NED PERFORMANCE	VARIANCE (%)
Operating Ratio (Total Direct O&M/Sales Revenue) %	80	106	**-26.0**
Personnel Cost/Total Revenue %	0.1	0.01	
Rate of Return (%)		-6.5	
Average Collection period (Days)		622	
Total System Loss (%)	**27**	**30**	**-3.0**

2.3.1 Summary of NED's Financial Performance

	Billion Cedis
Revenue from Electricity Sales	**120.0 bn cedis**
Other Income	**3.6 bn cedis**
Total Income	**123.6 bn cedis**
Operating Cost	(127.4) bn cedis
Depreciation	(129.0) bn cedis
Net Loss	**(132.8) bn cedis**

The high operating cost was due to the increase of 85% in the Bulk Supply Tariff to VRA and a 32% increase in salaries and related expenses.

2.3.2 Cash Flow Statement of NED for the year ended December 31, 2002

	Billion Cedis
Cash flow from operating activities	**17.1**
Cash flow from investing activities	(2.2)
Increase in cash and cash equivalents	**14.9**
Cash and cash equivalents at beginning of year 2002	**19.6**
Cash and cash equivalents at end of year 2002	**34.5**

The NED needs to put the necessary strategies in place to reduce its average debtors collection period from the unacceptably high level of 276 days to about 60 days to enhance its cash flow position.

2.4 REVIEW OF ECG OPERATIONS FOR 2002

2.4.1 Distribution System Analysis

In 2002, ECG purchased a total of **4,326 GWh** of power from the Volta River Authority. Energy billed for the period totalled **3,218.5 GWh**, whilst distribution system losses for the period totalled **1107.5 GWh**.

In percentage terms, ECG recorded **25.6%** system losses as against PURC's transitional system loss benchmark of **21%.** ECG's system loss deterioration with respect to PURC benchmark for the period was **4.6%** as shown in Table 10 below.

TABLE 10: ECG's Distribution System Losses for the year ended December 31, 2002

TYPE OF SYSTEM LOSS	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER	AVERAGE SYSTEM LOSS
Technical Loss (%)	10.80	10.80	10.80	10.80	10.80
Non-Technical Loss (%)	14.41	14.56	14.76	15.46	14.80
Total System Loss (%)	**25.21**	**25.36**	**25.56**	**26.26**	**25.60**

TABLE 11: Analysis of Power Purchases, Sales and System Losses for 2002

ITEM	GWh	%
Power Purchased (GWh)	4326.0	
Power Sold (GWh)	3218.5	
Total System Losses (GWh)	1107.5	25.6
PURC System Losses Benchmark		21.0
System Loss Deterioration With Respect To PURC Benchmark	199	-4.6

2.4.2 Financial Analysis of ECG Operations for 2002

Financial analysis of ECG's operations involved an impact analysis of total distribution system loss on ECG's direct operating cost.

2.4.2.1 Highlights of ECG Financial Performance

	Billion Cedis	
	Year 2002	Year 2001
	¢	¢
Total Revenue	**1,552.7**	**1,010**
Direct Operating Costs (i.e. Power Purchase)	(1,173.6.)	(673)
Gross Profit	**379.1**	**309**
Operating, General & Admin. Expenses	(132)	(109)
Depreciation	**(340)**	**(55)**
Operating Profit (Before Exchange Fluctuation, Interest, Commitment Charges & Exceptional Items)	**(85)**	**(153)**
Exchange Fluctuation Loss	**(251)**	**(6.2)**
Loan Interest	**(84)**	**(70)**
Net Operating Profit/(Loss)	**(380)**	**110**

2.4.2.2 Analysis of Operating Cost.

i. Impact Analysis of Distribution System Loss

ECG could have reduced its power purchase expense to VRA by about 82 Billion cedis had it met the PURC loss benchmark, which would have put the company in a position to meet its operating costs before foreign exchange losses and loan interest payments.

ii. Analysis of ECG operating costs.

The key cost drivers were:

a. Direct: - Cost of power purchase

b. Indirect: - Depreciation
- Exchange Fluctuation Loss on foreign loans

The cost of electricity purchase increased by about 61%, as a result of the August 1, 2002 Bulk Supply Tariff (increase) of about 85% to VRA by PURC.

The over 500% increase in depreciation from the year 2001 value also affected the operating profit of the distribution utility. The significant increase was due to the physical asset revaluation exercise, which was carried out on ECG's distribution system assets by Pricewater House Coopers in 2002. ECG's revalued asset base was put at **4.7 Trillion** Cedis, compared to the 2001 end of year asset value of **942 Billion Cedis.**

The Foreign Exchange loss was also a major contributor to ECG's overall operating expense. The recorded figure of **251 Billion Cedis** was about 66% of the net loss recorded during the period under review.

iii. Key Financial Performance Indicators

	2002	2001
Average collection Period (Days)	203	195
Collection Rate	85%	85%
Receivable Turnover Ratio	1.9	1.8
Rate of Return (on average re-valued net Fixed assets)	19	3.0

2.4.2.3 Analysis of ECG's Cash Flow Position

	¢
Net Cash Flow from Operating Activities	156.4
Net Cash flow from Investing Activities	(58.9)
Net Cash Flow from Financing Activities	3.6
Increase in cash and cash equivalents	62.5
Balance in cash and cash equivalents (At Jan 1, 2002)	115.9
Balance in cash and cash equivalents (As at December 31, 2002)	**¢178.4**

ECG could have enhanced its positive cash flow position by reducing its average receivable collection period from about 200 days to 60 days and meeting the PURC loss benchmark.

2.5 QUALITY OF SERVICE PERFORMANCE ANALYSIS

2.5.1 VRA

The quality of service performance analysis of VRA's hydro generation involved a review of generation system availability, level of utilization of the company's two hydro generation stations, (i.e. Akosombo and Kpong Generating Stations), transmission system availability, as well as outages caused by the VRA system and transmitted to customers through the two distribution utility companies.

2.5.2.1 PERFORMANCE ANALYSIS OF HYDRO PLANT GENERATION

In terms of generation availability, Akosombo Generating Station achieved an average Generation Availability Factor (GAF) of **97%** and Utilization Factor of **88%** during the period under review. Kpong Generating Station, on the other hand, achieved an average Generation Availability Factor of **92%** and Utilisation Factor of **86%** for the same period. Details are shown in Table 12 below.

In comparison with PURC Performance Benchmarks, Akosombo GS exceeded the PURC Generation Availability Factor Benchmark of **95.0%** by **1.79%,** whilst Kpong Generating Station under-performed by **0.64%** (see Table 12 below).

TABLE 12: TECHNICAL PERFORMANCE ANALYSES OF AKOSOMBO AND KPONG HYDRO GENERATING STATIONS

PERFORMANCE MEASURE	1ST Q	2ND Q	3RD Q	4TH Q	AVERAGE /TOTAL	PURC BENCHMARK	VARIANCE +/(-)
GENERATION AVAILABILITY FACTOR (%)							
AKOSOMBO	99.07	96.69	96.48	94.90	96.79	95.0	1.79
KPONG	87.66	95.70	96.48	97.58	94.36	95.0	-0.64
UTILISATION FACTOR (%)							
AKOSMOBO	89.09	86.79	83.21	80.56	84.91	N/A	
KPONG	86.77	85.81	84.64	87.77	86.25		

2.5.2.2 PERFORMANCE ANALYSIS OF THERMAL PLANT GENERATION

As indicated in Table 13 below, the Aboadze Thermal Power Plant recorded a lower average Generation Availability Factor of **69.7%** for the year ended December 31, 2002, as against PURC Benchmark of **85%** and also registered a Utilization Factor of about **63.6%,** which was below the PURC Benchmark of **85%**.

TABLE 13: PERFORMANCE ANALYSIS OF ABOADZE THERMAL PLANT

PERFORMANCE MEASURE	1ST Q	2ND Q	3RD Q	4TH Q	AVERAGE % UTILISATION	PURC BENCHMARK	VARIANCE +/(-)
GENERATING AVAILABILITY FACTOR (%)	88.94	88.30	24.35	77.16	69.7	85	-15.3
UTILISATION FACTOR (%):	84.30	83.80	14.10	72.20	63.6	85	-21.4

The low availability and utilization factors recorded was due to the technical problem experienced at the TAPCO, where the plant had to be operated to deliver 150 MW of power, instead of the firm capacity of 300 MW.

2.5.2 TRANSMISSION SYSTEM PERFORMANCE

On the Transmission Systems performance for the period, VRA achieved on average, a transmission system energy loss of **4.4%** compared with the PURC target of **2.8%,** a shortfall of -**1.6%,** which according to VRA was partly due to the poor end user power factors of industrial customers.

VRA however, recorded a transmission system availability of **99.4%** compared with PURC's Transmission System Availability Target of **97.0%,** showing a favourable Transmission System Availability variance of **2.4%** and Power Supply Availability of **99.4%** compared with PURC Benchmark of **97%,** as shown in Table 14 below.

This improved performance, according to the company, was due to prudent planning and maintenance of the lines. A further reason for this achievement as noted by the company was that distribution feeder availability at all Bulk Supply Points during the period was reasonably high.

TABLE 14: TRANSMISSION SYSTEMS PERFORMANCE

PERFORMANCE MEASURE	1ST Q	2ND Q	3RD Q	4TH Q	AVERAGE	PURC BENCHMARKS	VARIANCE % +/(-)
Transmission System Energy Losses in (%)	4.5	4.99	3.58	4.44	4.4	2.8	-1.6
Transmission System Availability (Line-in-Service (%))	99.4	99.4	99.6	99.62	99.5	97.0	2.5
Power Supply Availability	99.23	99.45	99.29	99.69	99.4		2.4

2.5.3 DISTRIBUTION NETWORK

2.5.3.1 ECG AVAILABILITY/DURATION OF SUPPLY

Analysis of availability of supply or duration of supply hours lost per connected customer for the year in all the eight operational regions of ECG showed that overall duration of outages with respect to SLT-customers, were lower than the PURC benchmark for the period.

TABLE 15: DURATION OF SUPPLY HOURS LOST PER CONNECTED SLT CUSTOMER INDUSTRIAL CUSTOMERS (SLT)

REGION	DISTRIBUTION OUTAGES (HOURS)	DURATION OF OUTAGES BY VRA (HOURS)	PURC TARGET
	SLT	SLT	
ACCRA EAST	6.812	2.671	30
ACCRA WEST	0.941	2.684	30
TEMA	4.452	0.043	30
EASTERN	3.571	0.031	30
VOLTA	0.265	0.024	30
WESTERN	6.722	0.63	30
CENTRAL	10.376	0.056	30
ASHANTI	2.714	0.062	30
AVERAGE	**3.60**	**0.80**	**30**

TABLE 16: DURATION OF SUPPLY HOURS LOST PER CONNECTED CUSTOMER FOR RESIDENTIAL AND NON -RESIDENTIAL CUSTOMERS (NON SLT)

REGION	DISTRIBUTION OUTAGES (HOURS)	DURATION OF OUTAGES BY VRA (HOURS)	PURC TARGET
	NON-SLT	NON-SLT	
ACCRA EAST	166.229	85.782	100
ACCRA WEST	238.369	103.28	100
TEMA	83.591	25.438	100
EASTERN	124.211	76.926	100
VOLTA	29.158	137.203	100
WESTERN	96.483	239.87	100
CENTRAL	509.651	127.473	100
ASHANTI	119.131	110.777	100
AVERAGE	**170**	**113**	**100**

The overall average system duration lost-hours per connected customer for both VRA and ECG exceeded the PURC benchmark. The high values recorded by ECG in Accra West was due to the frequent tripping of the Automatic Frequency Load Shedding (AFLS) and the poor response time to faults due to the absence of a remotely controlled system such as SCADA.

2.5.3.2 NORTHERN ELECTRICITY DEPARTMENT

As shown in Table 17 below, a review of NED performance with respect to availability or duration of supply hours lost per connected customer for the period revealed that the Upper East Region suffered the highest outage hours of **248.25** hours, followed by Brong-Ahafo Region with **241.31** hours, Upper West with **212.99** hours, and Northern Region with **145.45** hours.

TABLE 17: AVAILABILITY /DURATION OF SUPPLY HOURS LOST PER CONNECTED CUSTOMER (SLT AND NON SLT)

REGION	1ST Q	2ND Q	3RD Q	4TH Q	OVERALL DURATION (HOURS)	PURC TARGET	VARIANCE +/(-)
BRONG-AHAFO	84.46	89.25	32.95	34.65	241.31	100	-141.31
NORTHERN	42.96	30.55	42.91	29.03	145.45	100	-145.45
UPPER EAST	94.06	84.79	56.28	13.12	248.25	100	-148.25
UPPER WEST	32.49	31.05	90.78	58.67	212.99	100	-112.99
AVERAGE					**212.00**	**100**	

The higher average duration of hours lost recorded for the NED area could be attributed to the absence of a SCADA system, which contributed to the poor response time of the NED.

2.5.4 NETWORK SECURITY: NUMBER OF OUTAGES

2.5.4.1 ELECTRICITY COMPANY OF GHANA

With respect to Network Security (number of supply interruptions per 100Km of system length), the Ashanti Region recorded the highest number of outages of **533.5** interruptions per 100km of system length, followed by Accra West with **521.46** outages, Accra East **486.2**, Central Region with **341.85** outages, Eastern Region with **272.9** outages, Volta Region with **210.18** outages, Western Region with **143.4** outages, and Tema **134.2** outages.

TABLE 18: NUMBER OF SUPPLY INTERRUPTIONS PER 100KM OF SYSTEM LENGTH (NON-SLT)

REGION	NO OF OUTAGES	PER 100KM OF SYSTEM LENGTH	TOTAL NO OF OUTAGES PER 100KM OF SYSTEM LENGTH	PURC BENCHMARK
	CAUSED BY ECG	CAUSED BY VRA		N/A
ACCRA EAST	451.304	34.901	486.205	N/A
ACCRA WEST	483.03	38.43	521.46	N/A
WESTERN	141.2	2.216	143.416	N/A
TEMA	129.02	5.182	134.202	N/A
EASTERN	259.43	13.568	272.998	N/A
VOLTA	200.95	9.237	210.187	N/A
CENTRAL	329.26	12.59	341.85	N/A
ASHANTI	524.8	8.757	533.557	N/A

2.5.4.2 NORTHERN ELECTRICITY DEPARTMENT

Analysis of supply interruptions per 100km of system length within the NED operational region revealed that Upper West recorded the highest number of supply interruptions of **264** outages followed by Northern Region with **190** outages, Brong-Ahafo Region with a total of **167** outages, and Upper East with **132** respectively as shown in Table 19 below.

TABLE 19: NUMBER OF SUPPLY INTERRUPTIONS PER 100KM OF SYSTEM LENGTH (NED)

REGION	1ST Q	2NDQ	3RD Q	4TH Q	TOTAL NO. OF OUTAGES PER 100KM OF SYSTEM LENGTH	PURC BENCHMARK
BRONG-AHAFO	51.66	45.32	30.28	40.16	167.42	N/A
NORTHERN	43.81	57.57	25.54	62.88	189.80	N/A
UPPER EAST	17.02	18.5	73.36	23.42	132.29	N/A
UPPER WEST	82.37	64.35	22.57	95.08	264.37	N/A

2.6 DISTRIBUTION SYSTEM LOSSES

Shown in Table 20 and Table 21 below are the Distribution System Losses for the Electricity Company of Ghana and the Northern Electricity Department for the year ended December 31, 2002. While ECG's total system loss exceeded PURC's target by **4.6%,** the Northern Electricity Department (NED) achieved an average Distribution System Loss of **27.7**% as against PURC Distribution System Loss benchmark of **25%** for the period ended December 31, 2002 resulting in an unfavourable variance of about **3.0%** as shown in Table 21 below.

TABLE 20: ECG'S DISTRIBUTION SYSTEM LOSSES LEVELS

TYPE OF SYSTEM LOSS	1ST Q	2ND Q	3RD Q	4TH Q	AVERAGE SYSTEM LOSS	PURC BENCHMARK	VARIANCE +/(-)
Technical Loss (%)	10.80	10.80	10.80	10.80	10.8	10.0	-0.8
Non-Technical Loss (%)	14.41	14.56	14.76	15.46	14.80	11.0	-3.8
Total System Loss (%)	**25.21**	**25.36**	**25.56**	**26.26**	**25.6**	**21.0**	**4.6**

TABLE 21: NED'S DISTRIBUTION SYSTEM LOSSES FOR 2002

REGION	1ST Q	2ND Q	3RD Q	4TH Q	AVERAGE SYSTEM LOSS	PURC BENCHMARK 2002	VARIANCE +/(-)
BRONG-AHAFO	23.95	24.65	28.2	28.95	26.44	25.0	
NORTHERN	35.20	37.30	37.6	37.8	36.98	25.0	
UPPER EAST	23.6	22.60	23.6	25.3	23.78	25.0	
UPPER WEST	19.80	28.0	24.0	21.8	23.40	25.0	
AVERAGE	**25.63**	**28.13**	**26.88**	**28.5**	**27.7**	**25.0**	**- 3.5**

The average total distribution system loss for the NED area exceeded the PURC benchmark of 25% due to the high losses recorded in the Brong-Ahafo and Northern Regions.

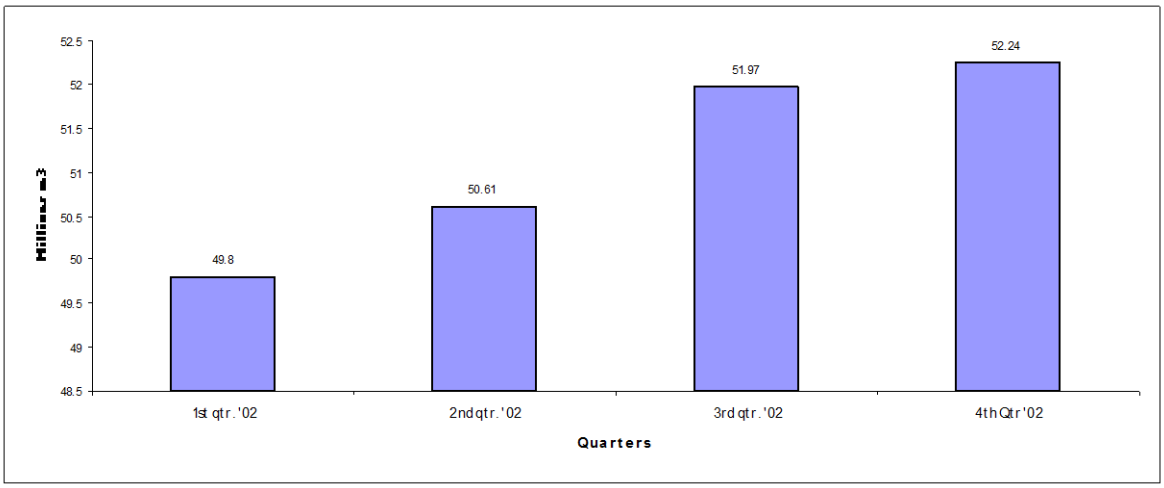
3.0 WATER SECTOR

3.1 WATER PRODUCTION

Water production covered all 84 operational urban water systems. The Company also operated 6 of the small town water supply systems, which have already been transferred to the District Assemblies for Community ownership and management.

Water production for the period was 204.6mm^3 as against a target of 209mm^3 thus recording a negative variance of 2.15%. There was a 0.52% increase in production for the fourth quarter after it had increased from 51.97Mm^3 in the third quarter to 52.24Mm^3 in the fourth quarter. Compared to the previous year's production figure of 188.25mm^3, there was an improvement of 8 per cent in the year under review. Figure 1 below depicts the situation graphically as it pertained over the period.

FIGURE A: COMPARATIVE ANALYSIS OF WATER PRODUCTION FOR THE YEAR 2002



It is evident from the graph above that water production increased gradually from the first quarter through the fourth quarter of the period under review. Water sales for the same period recorded 85.08mm^3.

3.1.1 Analysis of Water Production Cost

Electricity continued to be the major cost component in water production, averaging 51%. This was followed by personnel cost of 30%. Chemicals constituted 16%, whilst cost of fuel and lubricants account for the remaining 3%. This is depicted in the pie chat below. Total production cost constituting head works cost, operating costs and non-operating costs amounted to ¢ 1,098 billion.

FIGURE B: COMPOSITION OF HEAD WORKS COSTS FOR THE YEAR 2002

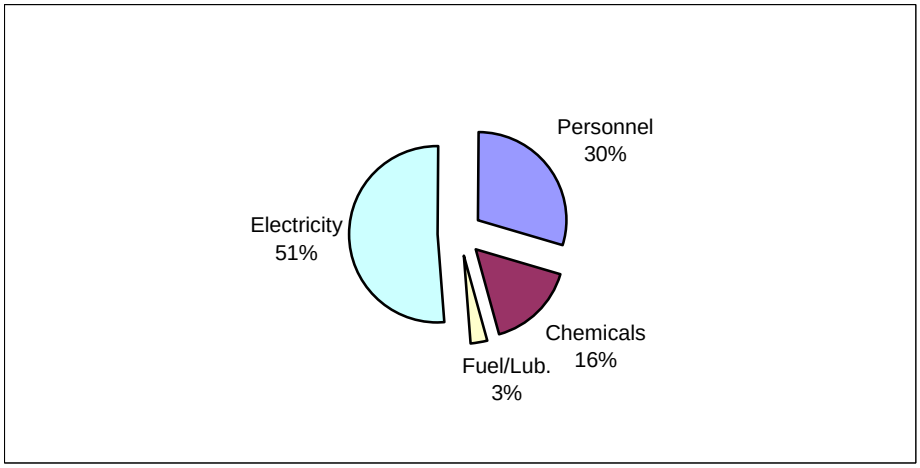


TABLE 22: TOTAL PRODUCTION COST FOR THE YEAR 2002

Composition	(¢m)	(%)
Electricity	100,682,954,740	51
Chemicals	32,159,067,744	16
Personnel	58,348,585,398	30
Fuel/Lubricants	6,144,501,620	3

GWCL reported the following as some of the problems encountered during the period under review:

- faults on transmission and distribution lines.
- 672 production hours lost due mainly to over and under voltage
- routine water rationing with adverse effects on the quality of water and high valve repair cost
- low yields of boreholes

In a bid to overcome these problems, GWC is intensifying routine maintenance schedules and installation of capacitor banks to improve upon their power factor and thus reduce the demand charges paid to the Electricity Corporation of Ghana as part of their electricity bills. The installation of the capacitor banks is a follow up to the study undertaken by the Energy Foundation on GWCL's installations. The table below indicates some key production systems of GWCL and their energy consumption

TABLE 23: ENERGY CONSUMPTION AND COSTS PER METER CUBE OF SOME KEY SYSTEMS 4TH QUARTER 2002 FIGURES

Systems	Water Produced (M^3)	Energy Consumed (KWh)	Energy Cost (¢)	Cost/M^3 (¢)
Kpong	18,262,405	19,855,790	7,379,752,705	404.10
Weija	14,155,000	7,152,867	3,371,992,987	238.22
Barekese	5,876,458	3,422,142	1,966,795,460	334.69
Owabi	1,133,670	577,131	458,013,909	404.01
Daboase	2,082,700	1,559,071	629,088,000	302.05
Brimsu	1,284,505	760,985	458,348,941	356.83
Abesim	622,873	465,470	372,227,347	525.35
Tamale	1,679,562	2,011,000	877,044,200	522.19
Koforidua	391,591	312,562	192,003,656	490.32
Kpeve	765,328	1,671,661	1,097,831,696	1,434.46

Energy consumption per cubic meter ranged from ¢238/M^3 for the Weija system to ¢1,434/M^3 (Kpeve). The Kpeve Treatment plant recorded the highest cost for every cubic meter of water produced. This high cost was reported to be due to a technical problem existing on site and GWCL is taking steps to rectify the situation.

3.2 COMMERCIAL OPERATIONS

3.2.1 Billing and Collection

Table 24 shows the target and actual billing and collection figures for the four quarters of the year 2002.

TABLE 24: BILLING & COLLECTION FIGURES FOR THE QUARTERS OF THE YEAR 2002

INDICATOR	TARGET			ACTUAL		
	PRIVATE ¢B	GOVT. ¢B	TOTAL ¢B	PRIVATE ¢B	GOVT. ¢B	TOTAL ¢B
1st Qtr. Billing	56.65	11.27	67.92	56.48	10.83	67.31
1st Qtr. Collection	50.98	10.15	61.13	49.25	7.26	56.51
2nd Qtr. Billing	56.65	11.27	67.92	53.24	10.00	63.25
2nd Qtr. Collection	50.98	10.15	61.13	50.16	0.91	51.07
3rd Qtr. Billing	71.67	14.36	86.03	64.27	14.18	78.45
3rd Qtr. Collection	64.50	12.92	77.43	51.82	0.18	52.00
4th Qtr. Billing	79.32	15.77	95.09	75.39	18.69	94.08
4th Qtr. Collection	71.39	14.19	85.58	64.34	0.50	64.84
Total Billing	264.29	52.67	316.96	249.38	53.70	303.08
Total Collection	237.86	46.41	284.26	215.57	8.85	224.42

Actual total billing for the year was ¢303.08 billion as compared to a target of ¢316.96 billion, thus recording a negative variance of approximately 4.4%. Of this figure, private billing constituted 82.3% whilst Government billing constituted 17.7%. Actual collection for the same period was ¢224.42 billion as against a target figure of ¢237.86 billion, thus recording a negative variance of 6%. Collection from the private sector amounted to 96.1% whilst collection from the Government amounted to only 3.9%.

Overall collection ratio for the year was 74%. Table 24 below shows a comparative analysis of the year on year quarters for 2002

TABLE 25: COMPARATIVE ANALYSIS OF COLLECTION RATIOS

CONSUMER CATEGORY	4th QTR. '01	4th QTR. '02	PURC Targets
PRIVATE (%)	86.57	85.00	95
GOVERNMENT (%)	88.85	2.7	95
COMBINED (GOVT. & PRIVATE) (%)	87.37	69	95

It is evident from the table that collection from the public sector has been on the descent from the fourth quarter of 2001. This is indicative of the overall low performance for both sectors in the first quarter of 2002. Not withstanding the decline in the collection ratio from the Government side, there is an indication of an improvement in Government payment especially with the Government offset of ECG bills. With 100% collection deemed realized in the Government category, the collection ratio would improve from 69% to 88%.

3.2.2 Consumer Metering

The metering ratio declined from 53% at the end of 2001 to 49% for the period under review. Customer strength outstripped the number of working meters. Management in view of the seriousness of the situation is acquiring new meters. However, Pre-paid metering increased from two thousand and eighty-three (2,083) meters in the fourth quarter to two thousand-three hundred and fifty-five (2,355) units as at the first quarter of the year. Of this number, four are standpipes.

3.2.3 Non-revenue water

The level of non-revenue water (physical and non-physical) for the year under review averaged 58 per cent. Compared to the figure of 52 per cent for the year before, it indicates a deteriorating performance. In the table below, an analysis of the performance of individual systems is made in comparison with the PURC set target of 45 percent in the previous tariff schedule of August 2002.

TABLE 26: ANALYSIS OF NON-REVENUE WATER ON A SYSTEM BASIS

Descrip.	Consol.	ATMA	Ksi/ Cty	Sek/ T'di	C/ Coast	E/R	V/R	N/R	U/E	U/ W	B/A	Ash/R	W / R	C/R
Non Revenue Water (%)	58.4	63.6	49.8	52	35.5	29.4	50.8	58.9	47.4	22.8	49.2	44.6	41.9	64.9

Of the thirteen systems indicated in the table above, only 38% of them met the required PURC set target of 45% level of Non Revenue Water. This is an abysmally low figure and GWCL will have to do a lot more to reduce the level of non-revenue water. This will obviously increase their sales and subsequently reflect in sales revenue once the collection is stepped up. GWCL would have to furnish the Commission with steps being taken to reduce the non-revenue water towards the target value set by the Commission.

3.2.4 Customer Services

GWCL did not report on supply interruptions as well as customer complaints. Future reports should include this aspect of GWCL's operations.

3.3 Financial Performance

A deficit of ¢46.04 billion was recorded as against a target deficit of ¢64.60 billion for the first quarter of the year. This indicates a positive variance of 29 per cent. The Company recorded a deficit of ¢690 billion as against a target profit of ¢ 3.5 billion for the last quarter of 2002. Cumulatively, the Company recorded a deficit of ¢ 780 billion cedis. The high discrepancy between target and actual as explained by GWCL is a result of the downward revision of the depreciation figure.

TABLE 27: FOURH QUARTER VARIANCE ANALYSIS OF DIRECT OPERATING EXPENSES FOR 2002

Item	Actual (¢'000)	Target (¢'000)	Variance	
			(¢'000)	%
Production	42,518,274	64,605,250	22,086,976	34.19
Transmission/Boostering	6,177,239	2,409,500	(3,767,739)	(156.37)
Distribution	6,097,829	5,135,550	(962,279)	(18.74)
Commercial/Marketing	21,059,274	3,894,200	(17,165,074)	(440.79)
General Administration	20,276,608	37,593,200	17,316,592	46.06
Total	96,129,224	113,637,700	17,508,476	15.41

GWCL reviewed its direct operating cost by 15% thus indicating a marginal improvement in its operations over the last quarter. Production and General Administration costs remained within targets whilst all others overshot their targets. The average collection period for the company declined from 164 days in the last quarter of 2001 to 142 days in the first quarter of 2002. The average collection period however increased through out the year to a maximum of 202 days in the last quarter. Debtors turn over for the period has been on the increase from 1.04 in the second quarter to 1.78 in the last quarter. The Company's gearing ratio similarly increased from 36.11% to 97.51% over the same period.

3.3.1 Operating Profit

Operating profit for the last quarter of the year indicated a deficit of ¢690 billion as against a targeted surplus of ¢3.5 billion. The third quarter registered a deficit of ¢39 billion. Cumulatively, there was a ¢780 billion deficit for the year.

3.3.2 Rate of Return

The rate of return on assets worsened from –2.27% in the third quarter of the year to –35.26% in the fourth quarter thus recording a marked deterioration. The Company made a loss of ¢780 billion after depreciation. Huge interest paid on loans and the unfavorable exchange rate fluctuations were the main contributory factors to the loss.

3.3.3 Operating Ratio

Operating ratio (Operating Cost/Total Revenue), which shows the operational efficiency of a company, declined from 94.56% in the second quarter of the year to 81.58% in the third quarter indicating an improved use of equipment to generate income. However, this rose marginally to 83.80% in the last quarter. The cumulative figure for the year was 105.66% thus indicating an inefficient use of resources in operation.

4.0 DRINKING WATER INSPECTORATE

4.4.1 WATER QUALITY STANDARDS

The bureau continued to monitor drinking water quality in accordance with standards established by the Ghana Standards Board (GS 175 PTS 1, 2, 4 and 5). Regular samples were taken by the GWCL from the treatment works and from fixed points randomly selected for quality analysis.

Discussions with the GWCL regarding the reporting format to be used for drinking water quality analysis and the time frame for submission of such reports are on going. Timely receipts of reports would enable the Inspectorate to respond adequately to any consumer problems with respect to water quality because of the health implications.

4.4.2 Visits to Water Systems

Visits to several water systems were undertaken as part of the Water Inspectorate's regulatory role in monitoring the standard of performance of the Ghana Water Company.

The Ashanti and Central Regional Laboratories were visited during the year under review. In addition, follow up visits were made to Barfikrom and Winneba Water Treatment Plants in the Central Region as well as the Saltpond Water Distribution System in response to consumer complaints received during a public forum held at Saltpond.

The GWCL was directed to make adequate provision to restore the filtration process at Bafikrom Water Treatment Plant, which had apparently been bypassed for a long time. This was to improve the characteristics of the final water especially with respect to turbidity and residual chorine to the Saltpond distribution system.

4.4.3 Water Quality Performance

Water quality performance at key GWCL treatment plants inspected was found to be satisfactory with respect to bacteriological quality. Table 28 shows performance of key plants. The company's

compliance with residual chlorine standards was however below average at the Weija, Barekse, and Daboase and Brimsu treatment plants.

Table 28: Residual Chlorine & Bacteriological Levels of Achievement of Treatment Plant Samples

Major Plants/ Indicator	Weija	Kpong	Brimsu	B'kese	Daboase	B/A	Densu	Kpeve	Dalun
Residual Chlorine (% compliant)	63.1	100	65.5	63.2	23	100	100	97.5	97
Bacteriological (% compliant)	100	100	100	100	100	100	100	100	100

4.4.4 Water Distribution Systems

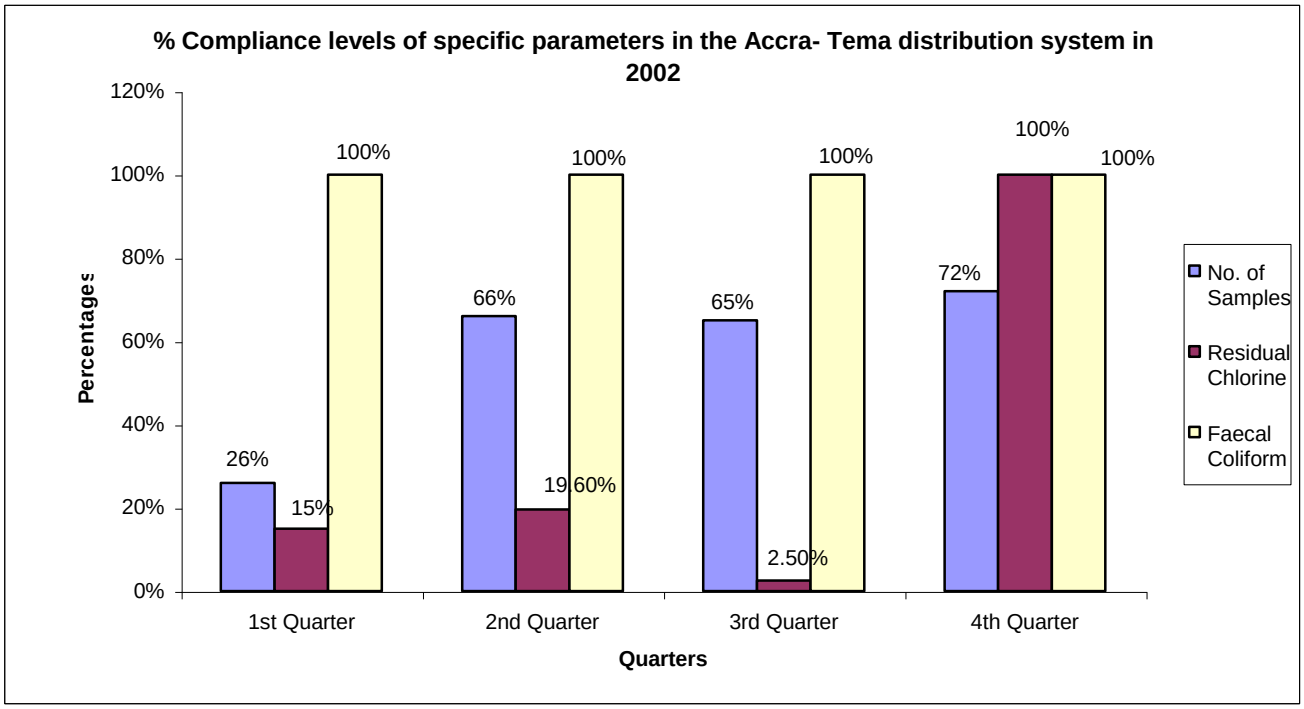
The level of performance of the main distribution systems in ATMA is shown in table 29

Table 29: LEVEL OF PERFORMANCE OF MAIN DISTRIBUTION SYSTEM, ATMA, 2002

		4th QUARTER		3RD QUARTER		2ND QUARTER		1ST QUARTER	
Indicators	Target	Actual	% Compliance	Actual	% Compliance	Actual	% Compliance	Actual	% Compliance
No. of Samples	1560	1800	100	1025	65	1008	66	400	26
Turbidity (NTU)	95% ≤ 2.0	0.3–1.0	100	0.0–2.3	99.9	0.30 – 1.00	100	0.3 – 5	100
Colour (HU)	≤ 5	2 – 5	100	4 – 6	99.8	4 – 5	100	3 – 8	98
PH	95% ≥ 7.0	7.0–8.4	100	7.0 – 8.4	100	6.8 – 8.4	97.2	7.0 – 8.4	100
Residual Chlorine (mg/l)	≥ 0.1	0.05–0.15	100	0.05 – 0.25	2.5	0.0 – 0.2	19.6	0.0 – 0.20	15
Total plate count	100% – ve	75% – ve	75	69	69	75	75	67	67

Compliance for residual chlorine deteriorated seriously during the third quarter of the year but the bacteriological quality was satisfactory. Figure x shows the percentage levels of compliance with chlorine residual standards, the number of samples taken and performance with respect to faecal coliform.

Figure C % Compliance Levels



A formal complaint was made during the last quarter of the year to GWCL on the low chorine residuals from some major treatment plants. The main cause for the low residuals of chlorine in final water from the headworks and subsequently the distribution system, as given by GWCL, was inadequate and irregular supply of disinfectants. Follow up investigations revealed that subsequently, the delivery of water treatment chemicals was streamlined with supplies assured till February 2003.

4.4.5 Independent Laboratories Network

Updated proposals for an accreditation system for water testing laboratories of the GWCL were received from the Ghana Standards Board. The Commission, together with the Standards Board, is also considering proposals for funding for the program. The objective of establishing this system is to build independence and consumer confidence in the testing procedures to be adopted under the Self-Audit approach to drinking water regulation.

The Commission received quotations from five independent laboratories that could be used for independent investigations of incidents with respect to water quality complaints. Two of these laboratories which are well established and in a position to undertake both the full Chemical and

Bacteriological examinations are the Water Research Institute, which has branches in Accra and Tamale, and the SGS Environment in Accra. Other testing facilities that could be used include the Ghana Standard Boards in Accra and the Chemistry and Civil Engineering departments of the Kwame Nkrumah University Of Science and Technology in Kumasi. The Bureau will, in the coming year, identify more of such facilities in the Western and Volta Regions.

4.4.6 Public Awareness

Results from a Socio-Economic Survey by the PURC on Water Supply Service Priorities in Ghana rated Water Quality about a third on the list of priorities of water consumers in Ghana. The most important priority was Accessibility followed by Cost. The Bureau was therefore concerned with the low level of public awareness on drinking water quality issues. As part of the Commission's Quality of Service Monitoring team, the inspectorate participated actively in all outreach programmes undertaken in Saltpond, Dodowa and Akim Oda.

4.4.7 Consumer Complaints

Informal complaints with respect to quality were received. The concerns found to be most prominent related to the presence of particles and odour in water. The complaints were very localised and were readily resolved by adequate flushing.

Due to high consumer expectations about quality of service, sustained interaction with consumers was maintained through the Bureau of Consumer Services.

5.0 CONSUMER SERVICES

5.1 CONSUMER COMPLAINTS

Since its inception, the Bureau of Consumer Services (BCS) through a collaborative effort with stakeholders has been providing an efficient and accountable management of consumer complaints. In 2002, the Bureau investigated and mediated 160 complaints filed with the Commission. Of these, 159 were resolved to the satisfaction of the consumers. Complaints received related to the following areas of service: poor quality, billing irregularities, wrongful disconnection and new service connections.

5.1.1 Trend of Complaints

A curious trend in complaints monitoring is the low number of complaints received from VRA-NED operating areas. In 2001, only three complaints were recorded by PURC from NED, and in 2002, four. However, the consumer fora organised by the BCS in Sunyani and the three Northern Regions during the year confirmed that the level of consumer satisfaction in the quality of utility services in those regions was no better than what pertained in the ECG operating areas.

The low number of complaints may therefore be attributed to limited awareness of PURC in those regions. This is due to the fact that the Commission has no regional offices in any of the three Northern Regions. The Commission is, therefore, determined to secure the necessary funding to establish a Regional Office in Tamale in 2003. Additionally, in 2003, the BCS will redouble its efforts to increase public awareness in the NED operating areas.

5.1.2 Complaints on Billing

As in the last four years, billing continued to be the major subject of complaints in 2002, followed by quality of service. Following a drop from 60% (2000) to 41.2% in 2001, billing accounted for as high as 43% of the complaints received in 2002.

5.1.3 Pre-paid Metering Complaints

Complaints on prepaid metering have declined due to PURC's insistence on increased education by the utility companies and the installation of more sophisticated brands of meters. PURC has stressed on the need for education and demonstrations so as to increase consumer confidence that the prepaid meters mimic the tariff structure of the PURC.

5.2 CONSUMER EDUCATION

In the year 2002, the BCS embarked on a National Consumer Education in the Regional Capitals and selected District Capitals. The BCS also did a lot of education on Radio, Newspaper and Radio Advertising and Public Relations. The rationale was to build awareness among stakeholders on the functions of the PURC and what it could do for them.

5.2.1 National Consumer Education

For the first time, the Secretariat embarked on an extensive country-wide consumer education campaign. Starting from 27 August to 12 September 2002, PURC held a forum in Obuasi and all the Regional capitals except Cape Coast. A programme has been proposed for the Central Region next year.

5.2.2 Objectives of the Consumer Fora

The objectives for organizing the consumer education fora were as follows:

i. To explain the basis for the new tariffs and solicit the support of consumers.
ii. Discuss with consumers what the PURC was doing to protect them.
iii. Ascertain whether or not consumers were happy with the quality of service provided by the utility service providers and explore sustainable ways of improving service; and
iv. Elicit other peculiar problems of consumers in various regions .

5.2.3 Consumer Problems and Concerns

A wide range of consumer problems and concerns came up at the national education fora. Notable among these were:

i. Arbitrary termination of service without recourse to PURC laid down regulations;

ii. Payment of streetlight levy while most of the streetlights were faulty and poor pubic information regarding which entity had responsibility for the repair of streetlights;

iii. Power outages and disruption of service without prior notice;

iv. Delays in attending to faults by the Utility Companies especially GWCL;

v. Irregular meter reading often resulting in submission of excessive bills.

vi. Delays in new service connections by the ECG and VRA-NED;

vii. The compound houses and its adverse effect on rate payers who miss out on the lifeline;

viii. Issuance of back-bills without clear modalities.

ix. Unacceptable rules regarding continuance rights or compensation for consumer contribution to capital costs of service extension.

The views of the customers are taken into account and inform the Commission's policy-making and activities.

5.2.4 District Consumer Education

In the year 2002, consumer education fora were held in selected district capitals. They were Saltpond, Ashanti Mampong, Nkoranza, Dodowa and Akim Oda. One of the important findings made by the Commission was the poor consumer relations and pervasive attitude of unresponsiveness to customers.

5.2.5 Monitoring Programme

The monitoring activities of the Commission for the year 2002 included inspection tours of customer service centers of ECG, GWCL and NED. The monitoring visits afforded the Commission the opportunity to ascertain the level of customer complaints handling procedures and other measures put in place to deal promptly with customer issues.

5.2.6 Recommendations on Visits to CSCs

The following recommendations were made for further discussions with the Utility Companies. (i) (ii) Regular customer satisfaction survey to be undertaken. (iii) Regular More proactive approach to financial redress or information to customers about the opportunity for independent review. audit of a

sample of the companies' complaints file was strongly recommended. (iv) Adequate information should be provided for prepayment meter customers. (v) The promotion of varied payment options. (vii) Provision of more information on consumer bills (viii) Schedule of charges should be posted in most offices. (ix) More efforts should be made to facilitate contact with defaulting customers whose accounts have been disconnected. (x) Announcement should be made any time there was supply outage or faults.

In the year 2002, the BCS did a lot of work in creating and building consumer awareness on the statutory responsibilities of the PURC. The National Consumer Fora was used to educate consumers on the reasons for the August 2002 tariff increases, the rights and responsibilities of consumers and service providers and consumer protection. It is hoped in the year 2003, the Commission will be better funded so that the BCS can achieve its targets especially sustained consumer education in the northern part of Ghana.

6.0 LEGISLATION

6.1 Draft Regulations

The draft Public Utilities (Consumer Service Committees) Regulations which was submitted to the Attorney General's Department for review in 2001 was debated before the Parliamentary Sub-Committee on Subsidiary Legislation. It is expected that the Regulations will be passed into law in the early part of 2003. The establishment of Consumer Service Committees (CSC) is a statutory requirement under section 31 of the PURC Act, Act 538. The concept is aimed at involving consumers in the Commission's monitoring processes, and in addition, the establishment of CSCs in various districts around the country will facilitate the Commission's consumer education programmes.

7.0 OUTLOOK

Over the next five years, the Commission intends to consolidate the gains made regarding utility regulation and to position itself to deal with the regulatory challenges of the next stages of the sectoral reforms and cross-border arrangements with respect to energy resources. The Commission will also intensify communication with stakeholders, continue to work towards achieving consumer quality of service expectations, and undertake effective demand side management programmes.

In the above regard, the Commission's main focus will be to continue with the decentralization process, strengthen external relations with emphasis on communication, continue the development of the human resource base and obtain reliable funding for the Commission's work. The Commission's main forward plans for the next years are provided below.

7.1 DECENTRALIZATION

The Commission's objective with respect to decentralization is to bring its services closer to the consumer. A social survey commissioned by the Commission revealed that a lot more must be done to improve awareness of PURC particularly in the rural areas. The Commission's policy and programme to

establish regional offices in all regions of the country is underpinned by the results of the survey, good regulatory practice and PURC policy and communication strategy.

With experience gained from the Kumasi Office, the regional offices will be started with core skeletal staff utilising experienced and committed customer oriented professionals who will be responsible mainly for co-ordinating education programmes and the informal resolution of complaints.

Plans are advanced towards the establishment of the Takoradi Office in the New Year and the Tamale Office to follow soon after.

7.2 RE-DEFINITION OF EXTERNAL RELATIONS

The Commission recognizes that it cannot work in isolation to achieve its regulatory goals; rather it has to collaborate effectively with other organisations, policy makers, professionals and identifiable consumer groups towards the socio-economic development of our country. PURC will proactively work towards greater collaboration and cooperation with various stakeholders to ensure coordinated planning and implementation of initiatives that are required for securing the desired improvement in service provision and the sustainable development of the sector. PURC's expectations with some of the external bodies in the next years may be summarised as follows:

7.2.1 Energy Commission

The Commission will work closely with the Energy Commission inter alia, to fulfil certain additional PURC mandates provided for under the Energy Commission Act, Act 541, namely: -

a) Regulating the charges payable for:

i. the operation of a national transmission system for the transmission of natural gas throughout the country;
ii. the wholesale supply of natural gas to distribution companies;
iii. the distribution and sale of natural gas; and
iv. the operation of strategic depots for petroleum products, and for the bulk transportation of petroleum products.

b) Monitoring and ensuring compliance with standards of performance.

In addition, through appropriate monitoring and enforcement mechanisms, PURC will provide support for efforts of stakeholders such as the Energy Commission in ensuring improvements in quality of service. PURC will also continue to collaborate with the Energy Commission generally in ensuring that the country's energy requirements are met.

7.2.2 Ministry of Energy

The Commission has had a fruitful working relationship with the Ministry of Energy. We are hopeful that through occasional briefings, the Ministry will continue to apprise PURC of important sector developments and provide information and data when requested. Advancing the power sector reform remains an important goal, and PURC will co-operate with the Ministry and contribute its quota towards implementing the recommendations for reforms.

7.2.3 Ministry of Works and Housing

The Commission has had a good working relationship with the Ministry of Works and Housing which also has responsibility for the water sector. The Ministry graciously allocated a Government bungalow, No. 51 Liberia Road to the Commission for refurbishment into an office. This will provide relief from the accommodation problems the Commission has faced since its inception.

As far as the water sector is concerned, PURC remains committed to support any policy initiatives that will attract the necessary funds, expertise and managerial know-how to help extend service to a greater majority of consumers and introduce greater efficiency. Consequently, PURC will continue to be guided by the Ministry's policy while cooperating with all stakeholders to address the challenges confronting the sector, so as to promote the desired development and growth.

7.2.4 Regulated Utilities

As part of its forward programme, PURC will intensify communication and cooperation with the regulated utilities, namely, GWCL, ECG and VRA in fulfilling its regulatory responsibilities. Now that

there is greater acceptability and understanding of PURC's role, the Commission would press for increased collaboration in achieving better results. On their part, the utilities will be expected to be more timely in submission of their operational and financial reports.

7.2.5 Donor Agencies

PURC is extremely grateful for support being provided by The World Bank, DFID and USAID. The Commission looks forward to further collaboration with the World Bank for financial support for procurement of essential equipment and the organizational capacity building drive.

PURC is also appreciative of DFID support for its Public Awareness and Education programmes and the extension for the next few years of the Technical Assistance and other funding support for the water sector. The assistance will be scrupulously utilised to ensure maximum benefit.

7.2.6 AFUR/WUP

The Commission remains committed to the ideals for establishment of the African Forum for Utility Regulation (AFUR) and the Water Utility Partnership. PURC will continue to participate in the meetings and programmes of these organizations to promote information sharing and take full advantage of the benefits of networking that is so vital for the development of regulatory structures on the continent.

7.3 POWER SECTOR REFORM ISSUES

PURC is of the view that the full benefits of sectoral reforms in the electricity sector will be realised if the recommendations are fully implemented. The Commission is encouraged by Government's interest in continuing the reform process by adopting a phased approach, including opening up of the development of new generation units to the private sector and the separation of transmission from the generation and distribution functions. PURC is also concerned to see appropriate clarification or definition and some codification of market rules for the sector.

7.4 FUTURE OF PSP IN WATER AND PURC INVOLVEMENT

Since PURC's inception and following the Government's decision to introduce PSP into the water sector, the Commission has maintained a close interest. Institutions and agencies that the Commission has had dealings with include the Water Sector Restructuring Secretariat, the Ministry of Works and Housing, the World Bank and other Donor Agencies as well as the Transaction Advisor to the Government.

In dealing with the Transaction Advisor, PURC has thoroughly reviewed the lease documents to ensure that all our regulatory objectives were taken into account in the bid documents. In particular, the tariff model that was agreed eventually was based on PURC's philosophy of performance related tariffs.

We understand that the current global financial climate is not conducive for a lease, necessitating a change from the originally agreed enhanced lease to an initial 3-year management contract to be followed by a lease agreement. This change would require a modification of the tariff model and regulatory approach. PURC is holding itself in readiness to make its contribution towards the full implementation and operation of the modified PSP. It should be emphasised that PURC's regulatory objectives to ensure the efficient production and delivery of potable water to an increasing number of Ghanaians at a reasonable and affordable price, would remain regardless of the type of PSP arrangement that is decided upon. It the expectation of PURC and indeed of other stakeholders, that as envisaged, PSP would result in better management of increased access to potable water and a general improvement in the quality of services.

7.5 TARIFFS

As far as tariffs are concerned, PURC implemented an important aspect of a transitional plan to reach economic and efficient tariffs by a two-phased tariff regime effective August 2002 and March 2003. A significant development in the tariff review was the introduction of an Automatic Adjustment Formula (AAF) whereby tariffs are adjusted periodically following certain triggers that are factored into the formula. This measure is a protective mechanism that ensures that the value of the tariff is not eroded by certain factors beyond the control of the regulated utilities.

The applicable tariffs and AAF have been duly published in the Gazette. The following activities will be undertaken in respect of tariffs:

a. Establishment of Committee to manage AAF

A Committee of stakeholders will be established to oversee the implementation of AAF.

Until such a Committee is inaugurated and operational, PURC shall continue to operate the formula and duly notify the utilities periodically of percentage adjustments, which may be applicable.

b. Fine tuning of AAF

The AAF will be monitored by the Commission for a period to test its performance. Thereafter it may be reviewed if necessary.

c. Considerations for major tariff review

No major tariff review is planned until 2005. Thereafter, PURC will, if there are overwhelming reasons, address any considerations for a review.

d. Embedded Generation

There is currently no provision within the PURC Electricity Rate Setting Guidelines for embedded or distributed generation facilities such as wind, solar and waste energy plants. However, within the sector policy, such facilities are intended as an essential medium for meeting electricity demand. PURC will undertake the necessary study to prepare specific guidelines that will enable the Commission to adopt appropriate pricing concepts, and also determine issues such as a price setting mechanism to regulate connection charges and distribution wheeling charges.

It is the expectation of the Commission that the other policy makers and licensing authorities will define the market rules for embedded generation soon.

7.6 COMMUNICATION

PURC will continue to pay close attention to its statutory responsibility of protecting consumer interests by maintaining and enhancing communication channels established during the first term of

the Commission's existence. This is critical in order to ensure consumer understanding of the issues and support of policy initiatives aimed at improving services.

Through sustained education, consumers will be given an awareness of their major role in monitoring and providing feedback to the Commission with regards to the Quality of Service they receive. The Commission will, in addition, implement a comprehensive education programme involving both service providers and consumers. The programme would be aimed at information dissemination, particularly on the Commission's Regulations and Procedures with regards to complaints resolution and fair and acceptable industry practices. The Commission will seek the collaboration of the Energy Foundation and Energy Commission to highlight conservation issues.

7.7 FUNDING

Funding issues remain a grave concern five years after the establishment of the Commission. The main source of funding for the Commission is from Government's Central Budget. Unfortunately, the subvention or budgets approved annually fall far short of the Commission's requirements for effective operation. Indeed, from 1998 to 2000, PURC only received about 45.7% of its budgetary requirement, and from 2001 to 2002 this figure dropped to 28.5%

Persistent efforts to obtain Government approval for the universal practice of instituting a Regulatory Charge on the utilities' revenues have so far, proved unsuccessful. This poses a severe constraint on the Commission's ability to recruit and maintain a high calibre of staff and has caused continual postponement of vital regulatory projects such as operational and technical audits into utility operations and consumer education.

The Commission will continue to lobby key figures to canvass the necessity of providing an independent and secured source of funding for the Commission, which will not only relieve central Government of the burden, but also give full meaning to the Commission's statutory independence as provided for in Section 4 of Act 538.