

# **PUBLIC UTILITIES REGULATORY COMMISSION**



**ANNUAL REPORT 2007**

### ***Mission Statement***

*PURC is committed to the development and delivery of the highest quality of utility services to all consumers, while building a credible regulatory regime that adequately responds to stakeholders' concerns and ensures transparency, reliability and equity in the provision of utility services in the country.*

### ***Vision***

*To become a model institution which ensures the delivery of the highest quality utility services to all consumers at fair prices.*

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## **1. PURC IN BRIEF**

The Public Utilities Regulatory Commission was established in 1997 under Act 538 to regulate and oversee the provision of utility services. Public Utilities are defined in the Act as bodies engaged in the supply, transmission or distribution of electricity or water for a fee, whether directly or indirectly. Act 538 however makes provision for the extension of PURC's mandate to cover other utility services through a Legislative Instrument recommended by the Minister with responsibility for a particular sector.

Currently, the Commission regulates electricity and urban water services provided by the Volta River Authority (VRA), the Electricity Company of Ghana (ECG), the Northern Electricity Department of VRA (NED) and the Ghana Water Company Limited (GWCL) to their customers. Operations of community water systems are excluded from the Commission's purview.

The 9 members of the Commission are appointed by the President in consultation with the Council of State. The Commission consists of a Chairman, an Executive Secretary, 4 persons with knowledge in matters relevant to the functions of the Commission, and a representative each of the Trades Union Congress (TUC), the Association of Ghana Industries (AGI) and Domestic Consumers. In 2005 and 2006, two members of the Commission resigned to take up other full-time appointments. They are yet to be replaced, and the vacancies kept the number of members at 7. The Commission is supported by a Secretariat of engineering/technical, economics, financial, customer service and other staff.

The Commission works through Committees comprised of both Commissioners and Secretariat staff, which deliberate on matters and submit recommendations on all policy issues to the Commission for approval. The Committees are: Administrative, Legal & Consumer Affairs, Finance and Technical & Tariffs.

The mandates of PURC include: approving rates chargeable for provision of utility services, protecting the interests of consumers and providers of utility services, monitoring the compliance of utility companies with standards of performance established by licensing authorities, and promoting fair competition among public utilities. The Commission also receives and resolves complaints related to the provision of utility services. The Commission has rule making powers and has issued some Subsidiary Legislation to enhance consumer protection in the provision of utility services.

By virtue of Section 4 of Act 538, the Commission is an independent body and is not subject to the direction or control of any person or authority in the performance of its functions. PURC is however statutorily required to submit audited statements of accounts and reports of its operations yearly to Parliament. In addition to the institutional representation on the Commission of AGI and TUC, PURC consults stakeholders extensively. Indeed, the Commission is enjoined by law, its regulatory policy and good regulatory practice to take reasonable account of representations made to it by consumers before approving any rates.

## 2. THE COMMISSION

Commissioners are by statute appointed for five year terms which may be renewed. The Commission comprises:

Mr. Kwame Pianim – Chairman, is an Economist and Investment Consultant. He was at one time the Chief Executive of the Ghana Cocoa Marketing Board, and a member of the National Petroleum Tender Board. He is also the Chief Executive of New World Investments Limited. (Mr. Pianim resigned as Chairman of PURC in November 2007.)



Mr. Stephen Nyante Adu - Member and Executive Secretary. Mr. Adu is a Financial Consultant. He was the Acting General Manager and Financial Controller of Ghana Leasing Company Ltd. and worked briefly with Price Waterhouse as an Associate Consultant.



Mr. Alex Bonney - Member. He is currently the Chairman of the Trades Union Congress (TUC), appointed to represent that organization as one of the two key institutional representatives on the Commission. Mr. Bonney is by profession an Accountant.



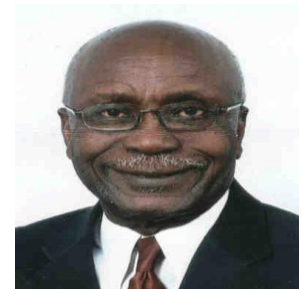
Mr. Andrew Lawson – Member. Mr. Lawson is the representative of the Association of Ghana Industries on the Commission. He is an Engineer by profession. He is the Chairman of the Board of Directors of British American Tobacco Company Ltd. (BAT) and a Board Member of Mechanical Lloyd Company Ltd.

Nana Kobina Nketsia V – Member. Nana Nketsia is the Omanhene of Essikado in the Western Region. He is also a lecturer at the University of Cape Coast. He currently serves as the Chairman of the Museums Board and was the Chairman of the Ghana Broadcasting Corporation.



Mr. Kwame Osei – Poku - Member. Mr. Osei-Poku is an Engineer by profession. He is a Water Consultant and a former Deputy Managing Director of the Ghana Water and Sewerage Corporation, now Ghana Water Company Ltd. (GWCL).

Mr. Andrew E. Quayson –Member. Mr. Quayson is an Engineer by profession and the current Chairman of the Energy Foundation. He was formerly the Managing Director of Juapong Textiles Ltd. and Ghana Textiles Printing Co. Ltd. and also the Executive Director of the Association of Ghana Industries. Mr. Quayson was at one time the President of the Ghana Institution of Engineers.



### 3. CHAIRMAN’S STATEMENT

**2007** was an important landmark not only for the nation but also for PURC. Significantly, the year in which Ghana commemorated its 50<sup>th</sup> Independence Anniversary and hosted other memorable continental and world events, also marked a decade of the introduction of independent utility regulation and the establishment of the Commission.

**T**he electricity outlook for the year was unfavourable. The sector faced severe energy challenges with the cost of crude oil increasing dramatically from about \$50 to about \$ 80 per barrel. The situation was further worsened by the shortage of water in the Volta Lake, forcing a reduction of hydro-electric power generation from the Akosombo generation station.

For the country, the energy challenges that persisted for several months in 2007 meant the expected rate of growth in the economy could not be achieved, with industry being the sector hardest hit.

The Commission welcomed the Government’s initiatives to solve the power problems in the short term as well as the long term. For the short term, several emergency thermal power plants were procured. The Bui Hydro Electric Dam was commenced and the Bui Hydroelectric Authority established to oversee the construction and operation of Ghana’s third hydro dam project. It should be mentioned that the year witnessed heightened investor interest in the electricity sector.

**T**he Commission has been focusing its activities on quality of service and other

consumer issues with the aim of ensuring value for money. In January 2007 the PURC Water Inspector’s Manual was issued. This manual will be utilised for auditing of Drinking Water Standards, Drinking Water Safety Plans as well as compliance with the PURC Water Tanker Guidelines. It is expected to enhance the Commission’s capacity to credibly deliver on its mandates.

With regard to natural gas, the intended commissioning of the West African Gas Pipeline in December did not occur due to damage to the pipeline and certain other factors, including outstanding works. PURC is disappointed at this turn of events because of the obvious cost benefit that natural gas usage would have on electricity generation. The Commission understands that action has been initiated to repair the damage to the pipeline.

Discovery of oil and gas in Ghana’s territory could secure additional fuel sources if appropriate arrangements are made to procure the gas from the producers for domestic use.

**I**n October, the Commission considered proposals for electricity tariff adjustment in the light of crude oil pricing trends and approved an average increase of 35%. This also entailed an adjustment in water tariffs by a corresponding 35%. These tariffs took effect in November.

Energy conservation efforts were intensified in 2007. As a measure to minimise the effect of increased tariffs, Government imported 6 million energy efficient CFL bulbs for free distribution to consumers. An analysis of the impact is yet to be finalised; however this policy is expected to reduce energy consumption substantially. This is to be followed by other radical but complementary energy saving

measures such as the ban on importation of incandescent bulbs and used appliances.

**I**n November 2007, the Commission bid farewell to Mr. Kwame Pianim who resigned as Chairman of the Commission.

During his 3-year tenure as Chairman Mr. Pianim exemplified unrelenting hard work and commitment to the inter-linked goals of efficient

utility regulation and the socio-economic development of the country.

The Commission is grateful for his motivating leadership.

*Andrew E. Quayson*

*Commissioner*



## 4. EXECUTIVE SUMMARY

### Introduction

The Commission celebrated its 10<sup>th</sup> anniversary in 2007, hopeful that it can demonstrate a decade of utility regulation in Ghana which points to a gradual but significant improvement in the delivery of utility services, and an overall potential for sustainability in the electricity and water sectors.

This Annual Report for 2007 has been put together in keeping with previous years' formats to facilitate comparison and to enable effective tracking of the utilities' performance over the years.

During the year, the Commission at every opportunity signaled to all stakeholders particularly the utilities that from 2008 onwards it was going to put in place a strict regime of monitoring based on PURC's performance benchmarks which would focus on their operational efficiency.

With regard to consumer issues, we believe that the Commission's aggressive consumer marketing and education has created awareness thus showing a more enlightened consumer complaint profile. Our efforts have also resulted in increase in the number and quality of consumer service centres established by the utility companies. The development of the PURC Inspector's Manual to enhance the effectiveness of water quality monitoring was another significant achievement in this direction.

It is disappointing that the much anticipated completion of the West African Gas Pipeline Project was not achieved due to construction delay, attributed to several incidents. It is hoped that this critical project which has great promise for the sustainability of the energy sector will be executed within the ensuing year.

### Water

The inadequate level of investment in the utility sector continues to impact negatively on water production. Challenges resulting from this in 2007 included frequent power interruptions, breakdown of critical water production equipment as well as the deteriorating quality of raw water.

Quite apart from the need for investment however, PURC's monitoring highlighted a number of operational shortcomings which can be resolved through efficient management. For instance, it is alarming to note that in 2007 GWCL operated with a rather poor debtor's turnover of 236 days instead of a more reasonable benchmark of 30 days, a situation which is obviously unacceptable and which makes the company financially vulnerable. Further, urgent attention must be paid to reduction of non revenue water which is again on the ascendancy from 50.6% in 2006 to 52.4% against a target of 45% for 2007.

In spite of the above challenges the quality of water produced within the year generally met the Ghana Standards Board requirements for drinking water. On its part the Commission is collaborating with stakeholders (Water Aid - Ghana, AVRIL, and GWCL) to undertake pilot projects in parts of Accra which will explore creative water supply options. This is aimed at obtaining adequate information to refine social policies and regulatory decisions for expanding access to water.

With regards to the submission of operational and financial reports, there has been little improvement in the performance of GWCL. At the time of publication of this report (September 2008) GWCL was yet to submit its Fourth Quarter Report of 2007 to the Commission, although this should have been submitted at the end of January 2008, and their Annual Report submitted by the end of the first quarter of the year. This report therefore excludes activities of GWCL in the fourth quarter of 2007. It should be noted that these delays affect the Commission's own ability to meet its reporting obligations. The performance of the Electricity Company of Ghana (ECG) in this respect seem to suggest that significant improvements can be made by GWCL. The Board and Management of GWCL have therefore been charged with ensuring strict compliance with reporting obligations.



A crucial issue that continues to pose a threat to energy security is the inadequacy of investment in the power sector, particularly in Transmission. Currently, there are no redundant connections in the transmission grid, indicating that prolonged power supply interruptions should be expected to accompany any major maintenance works on the grid. The negative implications for the economy are obvious.

Electricity production was severely constrained by significant hikes in world crude oil prices during the year. Further, a drastic reduction in water inflows into the Volta Lake meant that for the most part of the year, only two hydro turbines were operated. Power generation was reduced by 28% leading to load shedding for the most part of the year. As a result, it was difficult to benchmark the electric utilities. Emergency thermal generation was however sought by Government to supplement the shortfall.

Due to the increased reliance on thermal power, by October 2008 it became necessary to revise electricity tariffs upwards by an average of 35%, with the expectation that the cost of generation will be reduced once natural gas becomes available in mid-2008 from the West African Gas Pipeline.

In June, 2007, crude oil and natural gas were discovered near Cape Three Points in the Western Region of the country. Commercial production is forecast for 2010 and the Commission has been participating in sector institutional capacity building efforts to prepare itself for natural gas

regulation. It is expected that a single industry will be developed which places the regulation of gas imported through the WAGP and locally produced gas under a single framework, since there is now no need to distinguish between the primary and secondary gas markets.

## *C*onsumer Services

A very important aspect of the Commission's work involves the provision of fair representation for consumers and utility service providers. This is implemented in a variety of ways including monitoring of standards of service and handling of complaints.

This year, attention was focused on monitoring of Customer Service Centres and District Offices of the utility companies. Here again, the electric utilities were found to be implementing some of the recommendations of the Commission towards improving physical facilities and service delivery, whilst the story is different for GWCL. Closer supervision of the District Offices by Management is called for.

There has been an increase in the number of complaints received against the utility companies, which can be attributed to the aggressive consumer and public education activities undertaken by the Commission during the year under review. The establishment of more PURC Regional Offices such as the Tamale Office also enabled more consumers to access the services of the Commission. However, PURC needs to be adequately resourced to improve upon its monitoring capacity.

## *F*inance

Inadequate funding has plagued the Commission since it was established, and continues to pose a challenge. This affects its ability to effectively deliver on its mandates and means that the pace of work is extremely slow. The process for achieving independent funding through a regulatory charge or levy started in earnest and has achieved broad understanding and acceptance. The next important step is to obtain Cabinet endorsement and move for Parliamentary approval. It is important that stakeholders demonstrate their commitment to the success of utility regulation in the country by providing adequate financial support to PURC. The current uncertainty of funding has affected execution of some critical projects as well as the administrative effectiveness of the Commission's Secretariat.

## *C*onclusion

The Commission has ended its first decade of existence with a modest feeling of achievement, and now enters the second decade with optimism. We are determined to build positively on our achievements. This would be helped greatly by seeing to our financial security to enable us to implement an effective monitoring regime which addresses all the aspects of utility operations.

## 5. TECHNICAL OPERATIONS –WATER

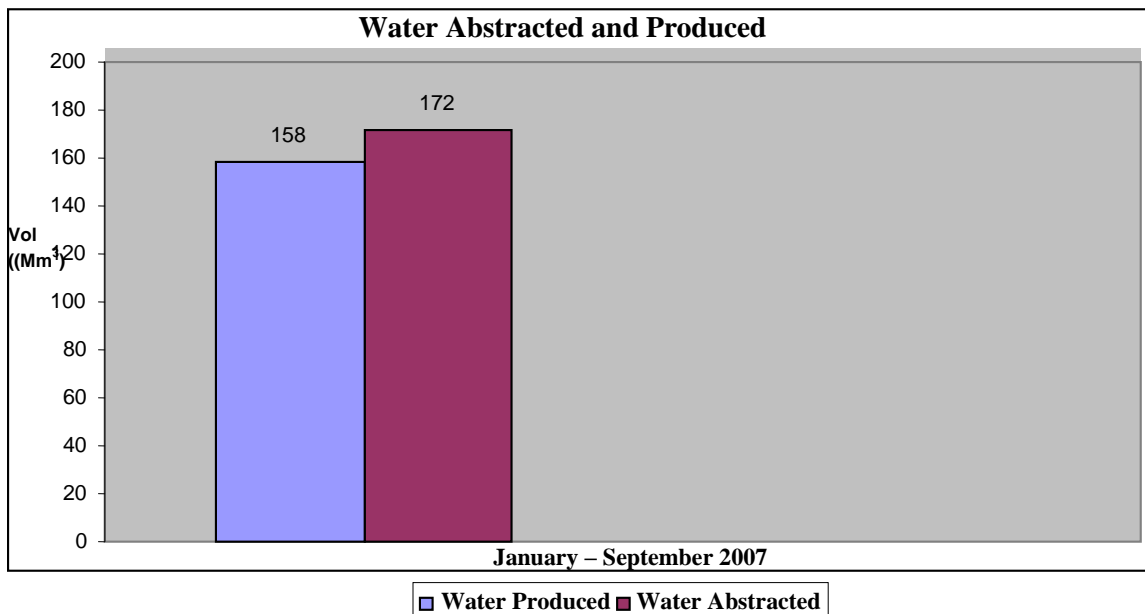
This section of the report provides an overview of GWCL activities for the first three quarters of 2007, based on information from GWCL third quarter report. At the time of publication of this report GWCL was yet to submit its fourth Quarter report of 2007 to the Commission. Although the Operator (AVRL) had submitted monthly reports up to December 2007, these were yet to be verified and finalized by GWCL. The report therefore excludes activities of GWCL in the fourth quarter of the year. Again the Commission calls for GWCL to adhere to statutory and regulatory timelines for submission of operational and financial reports.

### 5.1. Water Production

During the year GWCL operated eighty water systems across the country. Production for the period under review stood at approximately 158Mm<sup>3</sup> or 34,760 million gallons. This is against an approximate figure of 172Mm<sup>3</sup> or 37,840 million gallons of water abstracted. This indicates a loss of 9% in pre-production losses. Frequent power interruptions, the breakdown of low lift pumps at intake points, low dam levels, deteriorating quality of raw water abstracted, poor performance of filters and poor functioning valves among others have led to a reduction in production and performance in general.

Total Head works cost for the period was GH¢ 20.74 million compared with GH¢ 6.23 million for the same period in 2006. This indicates a total head works cost per meter of water sold during the period to be GH¢ 0.27 as against GH¢ 0.09 for the same period in 2006. This is as a result of the high electricity charges over the period coupled with the high chemical costs to treat the deteriorating raw water at the Headworks.

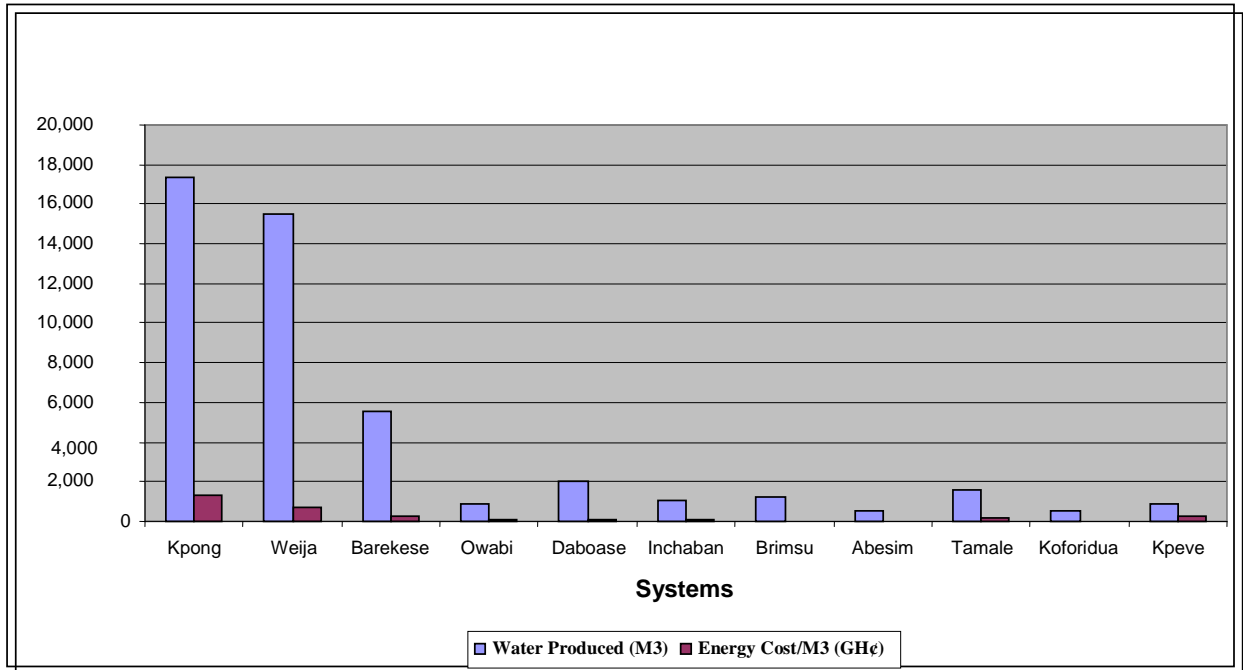
**Figure 1**



## 5.2. Energy Consumption

Energy consumption figures reported for key operational systems are depicted graphically below.

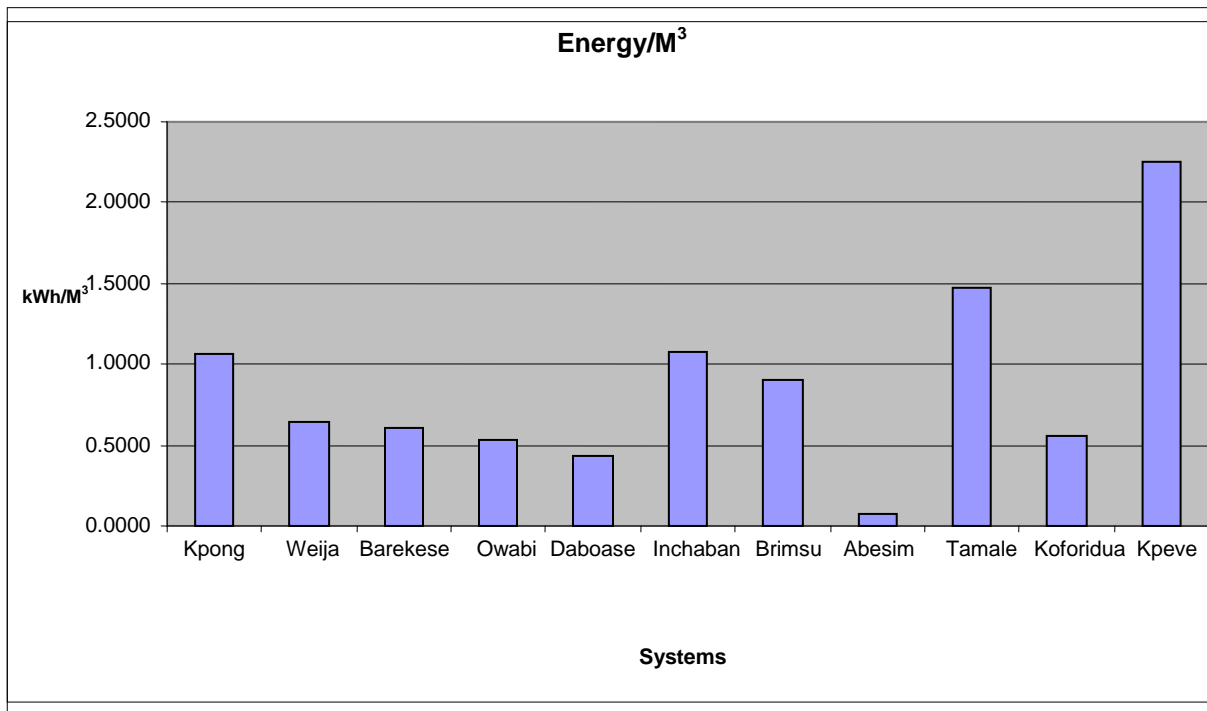
**Figure 2: Energy Consumption as against Water Production (Major Headworks)**



From the figure above, energy cost per  $m^3$  is highest in Kpong and lowest in Abesim. The high energy cost recorded in Kpong is as a result of the long distances over which water is pumped compared to Weija which flows by gravity from the Headworks thus resulting in minimal energy cost. However, GWCL could scale down on energy consumption by vigorously pursuing the energy conservation program embarked upon.

The energy/ $m^3$  (kWh) of water produced for the period under review for the same systems is presented below.

**Figure 3: Energy Consumption (kWh) per Cubic Meter of Water Produced**



Energy consumption by the key systems range from a minimum of 0.08 KWh/M<sup>3</sup> to a maximum of 2.26 KWh/M<sup>3</sup>. The figure above indicates that the Kpeve system in Volta Region recorded the highest amount of energy required to produce a cubic meter of water whilst the Abesim system in Brong Ahafo recorded the lowest amount of energy required. GWCL however could not give any explanation to the high cost recorded in Kpeve which is a perennial problem. However, the company indicated that the issue was still under discussion. A long lasting solution to this problem needs to be found.

### 5.3. Water Sales and Collection

The period under review recorded sales amounting to GH¢46.62 million compared to a target figure of GH¢49.11 million. This indicates a variance of 5.1%. Collection for the same period was GH¢34.74 million thus giving a collection ratio or efficiency ratio of 74.5%. Private collections amounted to 92.4% whilst Government collection amounted to 1% without any offset from Government. With Government offset, it is assumed that all payments have been effected thus resulting in a 100% collection rate from Government.

Real metering ratio at the end of the period recorded 48%. There was no movement on this indicator in the third Quarter compared to the previous two Quarters. Non revenue water for the period recorded an average value of 52.4% compared to a targeted figure of 45%.

The rise in non revenue water from an average of 50.6% in 2006 is attributed to suspected increase in commercial losses or defective meters. Management of GWCL should therefore strategise to help reverse this trend. Some of these measures or strategies should include prosecutions of illegal consumers and the replacement of weak and obsolete transmission and distribution lines.

The Commission will enforce sanctions on the utility company in the event that agreed parameters are not met.

#### **5.4. Financial Performance**

Gross revenue for the period amounted to GH ¢47.5million made up of GH¢45.1million from the core business of water sales, and GH¢2.4million from new service connection and other income generating activities. The gross revenue figure represents an 8.7% improvement over the same period for 2006 which recorded GH¢43.7million. Gross expenditure was GH¢47.9million as against a reported figure of GH¢41.3million for the same period in 2006. This corresponds to approximately 16% deficit in the expenditure budget. In comparison with the revenue position for the period under review, the expenditure overrun was approximately 0.8%.

**Table 1: Summary of GWCL operational and financial performance - January – September 2007**

<b>PERFORMANCE INDICATORS</b>					
	<b>Unit</b>			<b>Unit</b>	
Water production	Mm <sup>3</sup>	158.40	Collection ratio	%	74.52
Water sales	Mm <sup>3</sup>	75.40	Operating ratio	%	102
Billing	MGH¢	46.62	Gross revenue	MGH¢	47.5
Collection	MGH¢	34.74	Net Profit/Loss	MGH¢	(0.37)
Revenue Creating Production	Mm <sup>3</sup>	75.40	Operating surplus	MGH¢	(1.18)
Revenue Creating Production	%	47.60	Staff Cost/Revenue	%	34.00
Non Revenue Water	%	52.40	Metering ratio	%	48.0
Average Tariff	GH¢/m <sup>3</sup>	0.62	Adm. Exp./ Total Revenue	%	31.23
Debtors Turnover	Days	236			

The table above indicates an alarming debtor's turnover or number of days to collect bills to be 236 days instead of 30 days. This implies that it takes approximately eight months for GWCL to collect monies owed the company. This obviously is unacceptable and makes the company vulnerable. The reasons assigned for the delay in collection include recalcitrant customers who refusing to pay on time as well as the long billing cycle of 30 days credit facility extended to all customers. Further, a 28 day period is given for private customers to honour their indebtedness to



the Company whilst an additional 14 day warning notice period is given. Government bills equally take long to be paid thus prolonging the number of days. It is imperative that an arrears reduction program or scheme is instituted and pursued vigorously to resuscitate the financial health position of the company.

The company also recorded a high operating ratio indicating that the bulk of the operational revenue is used to finance the operating expenses thus reducing operational efficiency. In this regard, it is appropriate that GWCL puts in place cost efficiency measures to cut down on costs and increase revenues. Staff costs to revenue had increased from 28% in 2006 to 34% in 2007. This is as a result of salary increases which have not been commensurate with productivity or income levels. It is recommended that the Company institutes measures to address adequately the increase in income levels with productivity.

## **5.5. Monitoring**

Over the period in review, two field trips were undertaken to some of the water systems in Ashanti and Brong Ahafo Regions, and the Eastern Region respectively. The team observed that some of the challenges for the Operator include:

- Frequent power outage and voltage fluctuations (brown outs) which are a common feature running throughout the Districts visited;
- Unreliability of the source of raw water which prevents full scale production;
- Broken down pumps and valves which contribute to inadequate production levels;
- Lack of dosing equipment which necessitates manual dosing of chemicals. This does not allow for the right amount of dosing.

GWCL has put in place a number of measures to remedy the above challenges. Among these are the various projects being undertaken under the Urban Water Project in the Regions to upgrade the facilities at the Treatment works as well as within the distribution system. Alternative sources of water supply to dry up sources such as the Damongo Water system in the Northern Region have been proposed by GWCL.

PURC has also engaged Government at the Ministerial level, specifically the Ministries of Energy & Water Resources, Works and Housing together with the Electricity Company of Ghana and the Water Resources Commission to facilitate the provision of dedicated transformers to serve the GWCL systems within the affected communities.

In the light of the above, the Commission recommends the urgent need for the provision of backup systems (low and high lift pumps) to the water systems. Considering the power

fluctuation to the Treatment Plants it is recommended that GWCL liaises with ECG for a dedicated transformer to the major Headworks to enable a regular and stable power supply to the Plants. This will greatly enhance the operations of GWCL as well as provide a constant supply of water to the communities served.

There is the need to harmonize relations between GWCL and AVRIL to facilitate the operations of the Operator. It is important that GWCL executives visit the systems to ascertain the actual situation at the plants. PURC also needs improved resources to undertake these monitoring exercises from time to time as part of its statutory responsibilities. This encourages rapport amongst the Regulator, Operator and the Grantor as well as enhancing improved service delivery to consumers.

## **5.6. Drinking Water Quality in 2007**

### **5.6.1 Water Quality in Urban Supply Systems**

The quality of water produced within the year generally met the Ghana Standards Board requirements for drinking water, albeit with a few exceptions as indicated below. It should be stated that lack of some analytical equipment and reagents also adversely affected GWCL's own monitoring of treatment processes.

Improvements in raw water quality were reported from August to October 2007 which is normal due to the ending of the rainy season. As such chemical dosing equipment as well as the filters performed better. Filters were also frequently backwashed in order to meet the acceptable limits for colour and turbidity.

#### ***pH***

With respect to borehole systems, some systems in Ashanti Region (Effiduase/ Asokore), Central Region, Navrongo and Zuarungu failed to meet pH targets for the first three quarters of the year, right through to October. Nevertheless these pH values were analyzed to ascertain the causes for appropriate actions to be taken where necessary. Also, the mean pH at the discharge points of some conventional systems such as the Kpeve and Tanoso headworks occasionally exceeded the standards with mean values of 8.6 and 8.7 respectively.

#### ***Colour and Turbidity***

Poor performance of chemical dosing equipment and sand filters resulted in high values for colour and turbidity values for certain areas in Ashanti (Effiduase/Asokore) and Brong Ahafo Regions (Dormaa) for most of the year. High measurements of colour were also occasionally recorded in the Western Region (Sekondi district) and Volta Region (Sogakorpe district) due to lack of flushing in the distribution network.

Certain areas of the Central Region (Breman Asikuma), and Northern Region (Yendi) suffered below-target turbidity values in the month of September due to lack of adequate filtration systems. With the exception of Yendi, (with a maximum of 7.8 NTU and a mean of 5.1 in the distribution network) the turbidity of the water of all systems met the required standards attributable to an improved raw water quality because of the ending of the raining season.

### ***Residual Chlorine***

In November, residual chlorine samples in the distribution network did not consistently meet the standards due to a lack of dosing equipment at that time; some borehole systems did not dose chlorine at all. However, an excess of residual chlorine was used at such headworks to ensure sufficient quantities of residual chlorine in the network.

### ***Bacteriology***

In spite of the above challenges with residual chlorine, no bacteriological substance was found in the distribution network and headworks in that same month. Below is a table of Water Quality Indicators (treated water) for the year 2007.

**Table 2:**

Region	pH		Colour(HU) units		Turbidity(NTU)		Res. Chlorine(mg/l)		Bact. E-Coli (cfu/100ml)	
	min	max	min	max	min	max	min	max	min	max
<b>Ghana Standard</b>	<b>6.5</b>	<b>8.5</b>	<b>0</b>	<b>15</b>	<b>0</b>	<b>5</b>	<b>0.2</b>	<b>0.5</b>	<b>0</b>	<b>0</b>
<b>ATMA</b>	6.6	8.5	0	5	0	2	0	2	0	0
<b>Ashanti</b>	6	9.8	0	15	0	8	0	2.5	0	0
<b>Western</b>	5.1	9.9	0	11	0	12.7	0	3.5	0	0
<b>Central</b>	6.2	8.8	0	15	0	12	0	2.5	0	0
<b>Eastern</b>	6.3	8	5	20	0.3	12	0.1	2.5	0	0
<b>Northern</b>	7.1	8.8	3	10	1	7.9	0.5	2	0	0
<b>Volta</b>	6.5	8.9	0	15	0	5	0.1	2	0	0
<b>B. Ahafo</b>	6.5	9.1	5	8	0	2	0	2	0	0
<b>Upper East</b>	6	8.4	5	13	2	2	0	2	0	0
<b>Upper West</b>	6.5	6.7	5	5	0	0	0	0.6	0	0

**NTU** Nephelometric Turbidity Units (NTU)

**HU** Hazen Units

**Mg/l** Milligrams /litre

**Cfu** Colony Forming Unit (bacteriology)

### **5.6.2 Challenges in Urban Water Quality Control**

During the year, GWCL reported a number of challenges with respect to quality control. In May the chlorinator in Kpong new works and the Adam Clarke plant in Weija broke down. Calcium Hypochlorite was therefore used in place of chlorine gas. Dodowa water supply disinfection was made possible with the installation of pilot study Calcium Hypochlorite dosing system (SANIKIT). The use of chlorine gas as disinfectant in Kpong was resumed in September after the installation of chlorinators. However after barely 3 months, Kpong started experiencing problems with the newly installed gas doser due to the absence of the pressure demand valve (regulator) component of the set which was not supplied.

Accurate and efficient chemical dosing remained a problem, and until raw water production meters are installed and the dosing equipment is replaced or repaired this will see no improvement. Major faulty equipment including laboratory equipment at all headworks were however identified and prioritized for procurement.

Salt water intrusion was experienced at the Daboase Intake in May, leading to abstraction of water from the standby Bosomase Intake for processing at Daboase (designed and constructed for such occasions). Unfortunately power problems at Bosomase limited raw water abstraction and therefore production. However, the salt water intrusion ceased from June to the end of the year.

In September, the Bosomase intake source was again used intermittently to augment the abstraction at Daboase and to keep the pumps at Bosomase in operable condition.

The Commission notes that inadequate dosing equipment at some GWCL plants was an issue identified in the Initial Review conducted within the first 6 months of the GWCL-AVRL Management Contract as far back as 2006. There is little justification for delays in prioritization of procurement by AVRL, and inaction on GWCL's responsibility for investment.

Below is a table of average monthly chemical consumption figures of 2007.

**Table 3: Average Chemical Consumption 2007**

Region	Alum (kg)	Lime (kg)	Soda Ash (kg)	Chlorine Gas (kg)	Bleaching powder (kg)	P. Permanganate (kg)	Activated Carbon (kg)	Polyelectrolyte (Kg)	Copper Sulphate (kg)	Sodium Chloride (kg)
ATMA	500,650	40,910	0	12,888	13,544	0	0	0	0	0
Ashanti	225,609	54,459	597	11,3597	6803	640	593	6,680	0	0
Western	76,738	17,556	136	2,916	4,792	0	0		0	75
Central	95,875	15,966	0	2,348	2,697	106	1,647	0	75	131
Eastern	28,297	2,971	0	0	2,462	0	0	0	0	164
Northern	33,300	3,444	0	900	863	0	0	0	0	0
Volta	1,272	2,142	0	250	2,212	0	0	0	0	181
B. Ahafo	23,233	6,015	0	0	1449	0	0	0	0	0
Upper East	6,375	1,438	0	0	525	0	0	0	0	0
Upper West	0	0	0	0	60	0	0	0	0	0
<b>Total</b>	<b>991,349</b>	<b>144,901</b>	<b>733</b>	<b>132,899</b>	<b>35,407</b>	<b>746</b>	<b>2240</b>	<b>6680</b>	<b>75</b>	<b>551</b>

The main water treatment chemicals in use are Alum for water clarification, Lime for adjustments of the alkalinity as well as pH correction, Chlorine gas and Bleaching powder for disinfection. Potassium Permanganate is used in Ashanti and Central regions for the removal of Iron in raw water. Raw water Iron content in these plants was much higher than the others.

Sodium Chloride was used in the Western, Central, Eastern and Volta regions to generate sodium hypochlorite to supplement the disinfection of water.

The use of a poly electrolyte as a coagulant aid was commenced at the Owabi Water Treatment Plant in the Ashanti region on trial basis, to deal with the raw water peculiarities at the plant.

### 5.6.3 PURC Inspector's Manual

In January 2007, PURC with the assistance of its Adam Smith International consultant for water quality developed the concept of an "Inspector's Manual". This entailed a compilation of a series of documents on the Water Inspectorates' functions with respect to auditing and enforcement of

drinking water quality. The manual outlines the functions of PURC and its enforcement powers (specifically the role of the Inspectorate division). It sets out parameters for the technical audit of the water company including the auditing of Drinking Water Standards, audit of sampling and analysis methods and also the audit of the Drinking Water Safety Plans. Further, the manual provides for the audit of compliance with the PURC Tankering Guidelines, Audit/Inspection Reports, Consumer Complaints on Drinking Water Quality, as well as Incidents and Emergencies. Finally it would deal with the Inspectorate's role in Communication and Reporting, the operation of an enquiry service and also the publication of an Annual Report. Its implementation would involve other departments of the Commission such as the Legal Department and the Consumer Services Department who support certain aspects of the Inspectorate's functions.

The manual is an important document whose content is meant to remain accurate and up-to-date, to provide PURC with a means of reliably pursuing its duties under its Act. Whilst it will be developed to meet changing requirements, it will be maintained as a "controlled document" in which any changes must be approved by the manual controller (the Inspectorate) in order to protect its credibility. The first complete manual is expected to be finalized in April 2008. The Inspector's Manual has been discussed in meetings with both GWCL and the Operator. A presentation was made to a group comprising members of both parties on what the manual entails and also their role and input in its development. Copies of the procedures as they affect the Operator will be made available to GWCL/AVRL.

#### **5.6.4. Inspection of Sampling in the Distribution System.**

As part of its routine auditing program of drinking water quality the Commission's Inspectorate Division carried out an inspection in April 2007 within the Accra East District, covering the areas of La, Teshie and Nungua. From the high number of consumer premises without flowing water, the Commission appreciated the challenges faced by GWCL with sampling in water stressed areas such as Accra, as well as the caliber and competence of the Operator's team involved in routine sampling of water received at consumer premises.

#### **5.6.5 Inspection of Weija Works**

An inspection of the Weija Water Works was also undertaken during the year. Weija was used as the pilot for the development of the Drinking Water Safety Plans and a checklist was adapted from the drawn-up safety plans as a guide in the inspection. Two key technical personnel from the plant were included in the inspection team to expose them to the expectations of the inspection team for future performance. The team was informed of the various challenges

experienced at the headworks and also the setbacks they face with slow response time to these challenges from the Head Office.

### **5.6.6 Other Activities**

Various meetings were held with GWCL/AVRL and other stakeholders in the water sector. Issues discussed included the roll-out of the Commission's Drinking Water Safety Plans, the Tanker Service Guidelines, Drinking Water Quality Data Returns, and the development of the Inspector's Manual.

- Drinking Water Safety Plans With regards to the DWSP, the aim was to ascertain which of the mitigation measures suggested in 2006 had been implemented and to identify the difficulties in implementation. Plans for the future roll-out of the DWSPs into other regions were discussed.
- Tanker Service Guidelines PURC organized meetings with the Tanker Owners' Associations and GWCL officials to finalize the guidelines and plan for their launching.
- Drinking Water Quality Data Returns These were discussed with GWCL. A format was developed for more satisfactory water quality data returns to be made available for PURC's analysis.
- Ghana Standard for Drinking Water Quality This was also generally discussed in relation to GWCL's own internal targets which are used by the company for its own quality control purposes. It was however understood that the applicable standards in this country are those set by the Ghana Standards Board who are mandated to do so. Concerns over sampling frequencies were also raised during meetings with both the GWCL and the Operator. PURC suggested that this should not go by default but if GWCL believes there is a case for a change from the requirements in the Ghana Standards, there should be a procedure for GWCL to apply for a departure from the frequency specified in the standards. This has been raised by Ghana's peculiar population concentration situation, lack of regular flow of water and the number of consumers per customer. Irregular supply (and sometimes total lack of flow), and high population concentration in certain areas makes the required sampling frequency difficult to achieve and less random. As a result it is not truly representative of the water quality situation.
- Improving the Performance of Chemists and Bacteriologists In November, AVRL organized a Change Management and Supervisory Skills Course for Chemists, Bacteriologists and other personnel of GWCL's Water Quality Department. PURC was invited to give a lecture on a number of topics including Auditing of Drinking Water Safety Plans, and Audit of Sampling and Analysis.

## **5.7. Pilot Projects**

As already stated, the Commission is collaborating with WaterAid-Ghana, AVRL, and GWCL to provide potable drinking water through pilot projects to selected peri-urban areas in Accra. The objectives of the pilot projects are to provide the Commission with adequate information to better identify and target the poor for further refining of its social policies and regulatory decisions. It is also to provide the utility operator with relevant lessons in defining, developing and implementing strategies for low income urban community entry, participation and service provision. The project is also to establish good practice and ensure the safety of drinking water with the community's participation.

Two consultants were successful in the bid evaluations and have subsequently been contracted to undertake a baseline study as well as a community entry and sensitization for the project.

## **5.8. Retreats and Workshops**

In the course of the year, two retreats were organized by PURC. The first, which was held in July, took place in Ada under the theme 'Demand Management and Performance Measurement'. This meeting was organized to bring together various institution within the water sector so as to foster a harmonious working relationship amongst them. Institutions such as the Water Resources Commission, Ghana Water Company Limited, Aqua Vitens Rand Limited, State Enterprises Commission, the Ministry of Water Resources, Works and Housing were represented. The Commission through its facilitation was able to further strengthen the relations between AVRL and GWCL.

The second stakeholders' conference was held in November and took place at the Cresta Atlantic Resort, Aplaku. The theme was 'Building Partnerships to Develop an Effective Regime for Water Regulation'. A working group with membership from all stakeholders was constituted at this workshop to oversee the finalization of the PURC Water Rate setting Guidelines which will dovetail into the tariff setting process.

In organizing these retreats, the Commission hopes to strengthen the collaboration amongst the various institutions in the water sector. It was also to bring the activities of the Commission especially in the area of tariff setting much closer to the stakeholders and the public at large. Through these activities, the Commission has been able to bridge the seeming differences between the Operator and the Grantor in executing their tasks under the Management Contract. Stronger relationships have been built and it is hoped that this will be sustained over the coming years.



## 6. TECHNICAL OPERATIONS - ENERGY

### 6.1 ELECTRICITY

The financial, operational, and technical activities of the electricity utilities were monitored during the year. This included review of Availability, Utilization, Losses and Network Security for the year. (Network Security or Fault Performance refers to interruptions or faults per 100km of the network for the year). The analysis of the Quality of Service Performance was carried out on data submitted by VRA and ECG. We also include financial analysis of these companies using data submitted on their financial performance.

#### 6.1.1 Generation

There was a reduction in electricity generation during the year under review due to the low water level in the Akosombo dam. For the most part of the year, only two hydro turbines were operated and as a result, generation was reduced by 28% from the previous year's figures of 9058 GWH to 7101 GWH in the year. Below are the details.

- **Availability and Utilization**

The table below compares generation availability and utilization factors between 2007 and 2006. The **availability factor** of a power plant is the amount of time that it is able to produce electricity over a certain period, divided by the amount of the time in the period.

[Hence, Availability factor (AF) = Total hours of operation of a plant during the period x 100/Total length of period (hours)].

The **utilization factor** of a power plant is the ratio of the useful energy to the energy supplied.

Due to the low water level in the Akosombo Dam, both the Akosombo and Kpong Hydropower Plants were operated for less time than in 2006. Hence both plants were operated outside their best efficiency points for most of the year. This accounted for the lower utilization factors compared with 2006.

Below is a comparison of Availability and Utilization for 2006 and 2007.

**Table 4: Generation- Comparison of Availability and Utilization Factors for 2007 and 2006**

Station	Generation Availability Factor (%)			Utilization factor (%)		
	2007	2006	PURC Benchmark	2007	2006	PURC Benchmark
Akosombo GS	96.51	97.09	95	78.83	82.64	95
Kpong GS	90.82	98.74	95	85.68	90.33	95
<b>TAPCO</b>	<b>71.62</b>	<b>72.52</b>	95	<b>54.61</b>	<b>49.43</b>	95

Conversely, thermal generation went up in 2007 as compared to 2006 and so did the availability and therefore utilization. During the year under review, emergency generation (from diesel plants procured by the government) was introduced into the mix to augment the supply condition in the country. Although the availability for TAPCO was lower in 2007 compared with 2006, the utilization was higher and therefore more energy was produced than in the previous year. This higher utilization of TAPCO was to reduce the effect of the reduction in generation from hydro.

- **Generation Mix**

Hydro generation significantly reduced in absolute figures from 5,619GWh in 2006 to 3,727GWh in 2007 or about 66% of the 2006 value. The 2007 figure forms 50.6% of the mix as opposed to 62% in 2006. There was a modest increment in thermal generation from 2,810GWH in 2006 to 2,929GWH in 2007, an increment of about 4%.

**Table 5: Generation Mix for 2007 and 2006**

Station	Generation Mix (Energy)			
	2007		2006	
	GWH	%	GWH	%
Akosombo GS	3,104	42.1	4,690	52
Kpong GS	623	8.5	929	10
<b>Total Hydro</b>	<b>3,727</b>	<b>50.6</b>	<b>5,619</b>	<b>62</b>
TAPCO	1,512	20.5	1,416	15
TICO	1,417	19.2	1,395	15
<b>Total Thermal</b>	<b>2,929</b>	<b>39.8</b>	<b>2,810</b>	<b>31</b>
<b>Emergency Generation</b>	<b>274</b>	<b>3.7</b>		
<b>Imports</b>	<b>435</b>	<b>5.9</b>	<b>629</b>	<b>7</b>
<b>Grand Total</b>	<b>7,101</b>	<b>100</b>	<b>9,058</b>	<b>100</b>

This notwithstanding, thermal generation contributed 39.8% to the mix. Due to power generation challenges in La Cote d'Ivoire, the needed imports from that country could not be obtained to balance our energy demand. Emergency generation sought by Government to close the supply-demand gap provided in total 274GWH, constituting 3.7% of the mix. Imports for 2007 were 435GWH or only 69% of the 2006 figure of 629GWH, forming 6% of the mix for 2007.

### **6.1.2 Transmission**

**Transmission System Loss** refers to the energy which is expected to be lost during the transmission of electrical energy from generating plants to load centres. There was only slight reduction in the transmission system losses in 2007 compared with 2006, despite the huge reduction in the energy transmitted. This can be attributed to the fact that much of the energy generated was at the load centre, and also there was no significant increase in thermal energy generation to warrant any huge drop in losses. The high percentage (99.48%) value of

transmission lines in service indicates that there are no redundant connections in the transmission grid. This implies that prolonged power supply interruptions can be expected whenever major maintenance on the grid is carried out.

**Table 6: Transmission System Performance for 2007 and 2006.**

Transmission Systems	2007	2006	PURC Benchmark
Transmission System Losses (%)	3.36	3.56	2.8
Transmission System line in Service (%)	99.48	99.24	95
Power Supply availability (%)	97.12	98.84	95

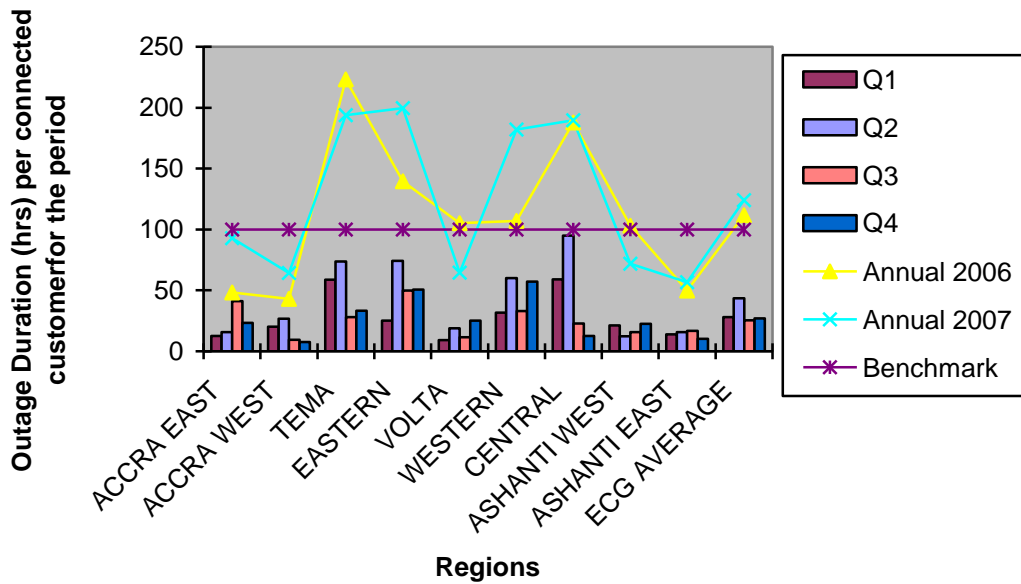
### **6.1.3 Distribution**

- **Supply Availability-ECG**

Supply availability is the measure of the number of outage hours suffered by a customer for the year. PURC's analysis of the availability figures indicated that most of the outages suffered by customers were unplanned. The implication that the planned load shedding did not affect customers much is clearly at variance with normal expectations and this therefore casts doubt on the availability figures submitted by ECG. It can be noted from the graph below that only three regions (Accra West, Central and Ashanti East) had low fourth quarter outage durations compared with the other quarters, although again unplanned outages were higher, just like the previous three quarters.

Comparing 2006 and 2007 overall figures, there was no general trend showing the effect of the load curtailment exercise on supply availability since the load shedding, not being the norm, was not factored into ECG's reporting. The overall outage duration for the ECG was 124hrs per connected customer for the year. The analysis of ECG and NED's performance is provided below.

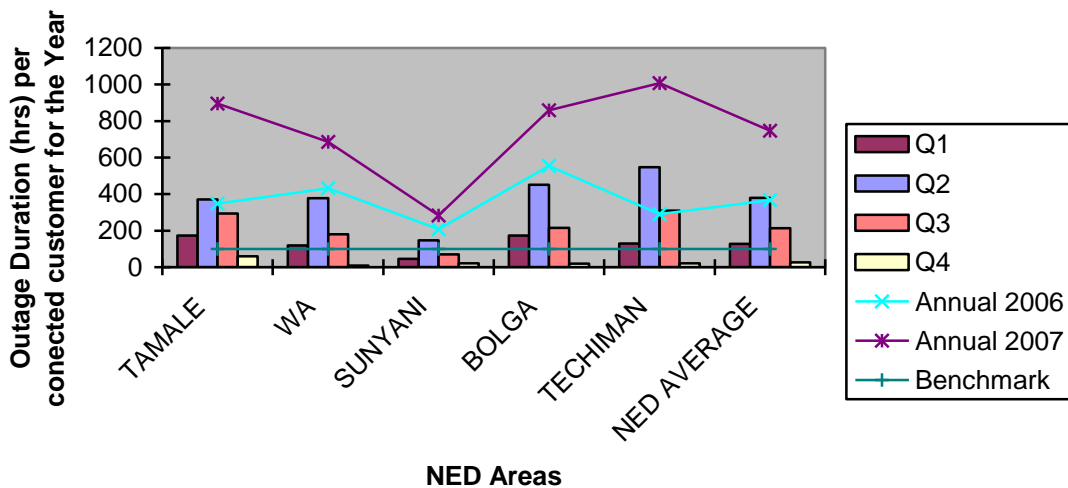
**Figure 4: Supply Availability per connected Customer (Hrs) 2007 & 2006 - ECG**



- **Supply Availability-NED**

Unlike ECG, NED’s availability figures showed a pronounced effect of the load curtailment exercise on the outage duration suffered by customers and can be seen in the graph below. Outage duration in the Sunyani Area has been the lowest for two years running.

**Figure 5: Supply Availability per connected Customer (Hrs) 2007 & 2006 - NED**

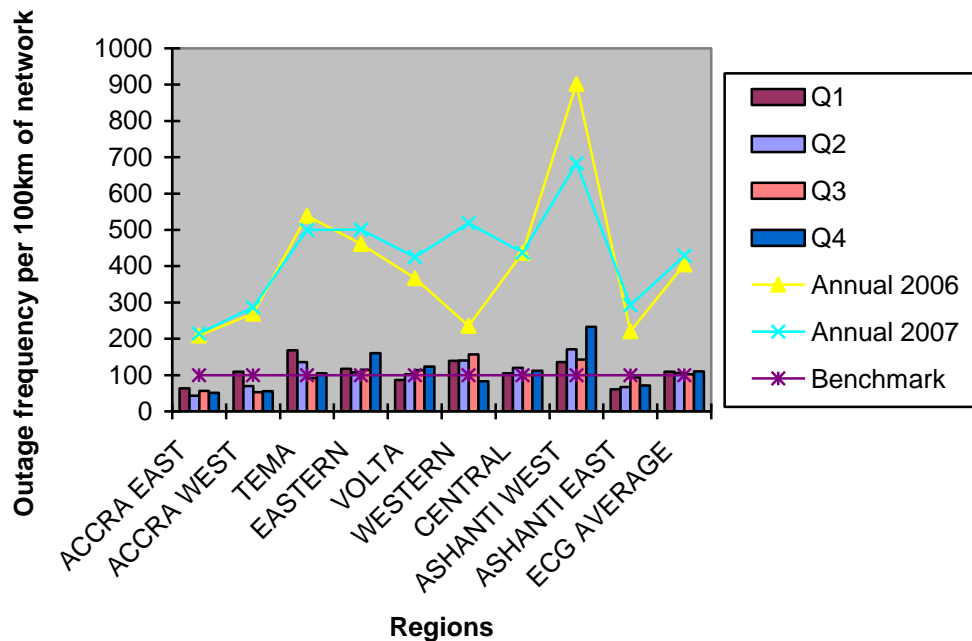


The PURC benchmark relates to performance over the entire year. In the year under review, the water level in the Akosombo Dam dropped below the minimum operating level (240 feet) of the turbine. At the peak of the shortage, only two turbines out of the six at Akosombo were operated. In view of this nationwide rationing, the utilities could not be benchmarked for the year.

- **Network Security - ECG**

The network security or fault performance relates to the interruptions or faults per 100km/year of network. As expected the figures for the year were above that of the previous year's: however the load curtailment program was not the major contributor.

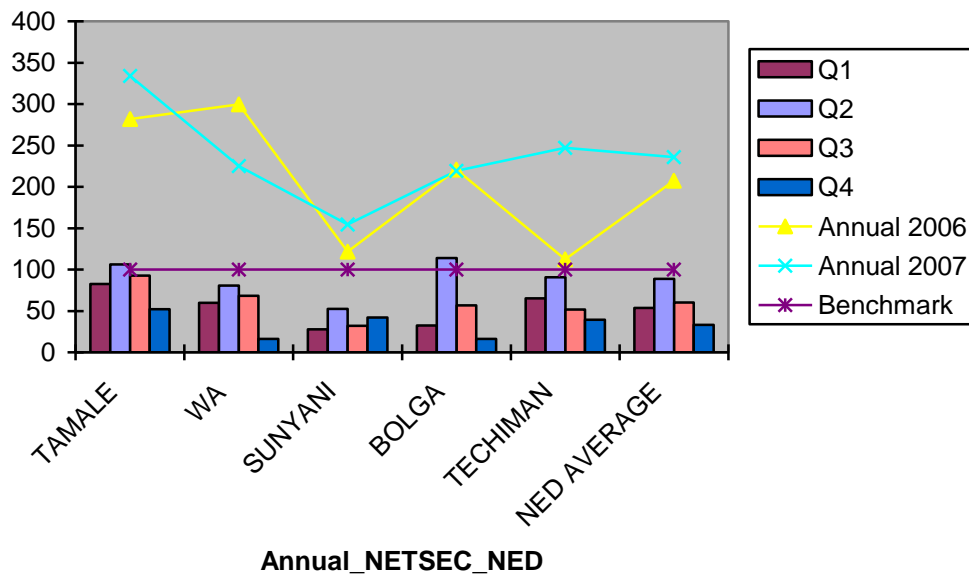
**Figure 6: Frequency of Interruption per 100km of Network 2006 & 2007 - ECG**



- **Network Security – NED**

The NED areas recorded high figures of frequency of interruption consistent with our expectations for the year. The high level of interruption might be due to two reasons. Firstly, the NED network distribution covers a very large geographical area with long feeders. Secondly, there is only one transmission grid line from Kumasi that supplies power to the NED system, unlike the southern sector that has most parts ringed.

**Figure 7. Frequency of Interruption per 100km of Network 2007 & 2006 - NED**



- **System Losses**

**Table 7: Distribution System Losses for ECG and NED - 2007 & 2006**

	2007 (%)	2006 (%)	Benchmark (%)
ECG	23.96	24.26	21
NED	22.86	24.41	25

Although ECG recorded lower distribution system losses in 2007 than in 2006, it still did not make the benchmark of 21%. NED has improved on its losses over the 2006 figure by 1.55% which is below the set benchmark of 25%.

## **CONCLUSION**

The year under review has been very challenging both for the utilities and the Commission due to the energy crisis the country was faced with for most of the year. The Commission could not apply the benchmarks for the figures submitted since the situation was not under the control of the utilities. We however hope that with a number of investors expressing their desire to generate electricity, adequate levels of generating capacity will be available going forward.

## **6.2 NATURAL GAS**

### **6.2.1 INTRODUCTION**

Under the West Africa Gas Pipeline Project, Natural Gas is to be imported from Nigeria for primary usage (to be regulated by the West Africa Gas Pipeline Act and Regulations) and for a secondary market of mainly industrial and other bulk users (to be regulated by PURC and other sector regulators). The development of a Secondary Natural Gas Market is dependent on the commissioning of the (WAGP). Unfortunately, there was a shift in the intended commissioning date fixed for December, 2007 when the project experienced a setback after a ship caused substantial damage to an offshore segment of the pipeline near Cotonou, Benin. Prior to this major incident, the completion date of the pipeline had earlier been delayed by instability in the Niger Delta Region where the gas is to be extracted.

In addition, the gas from Nigeria has also been found to be off-specification. The natural gas currently produced is wet and needs drying before transmission to Ghana to ensure the integrity of the pipeline and to meet the specification required by users in Ghana.

### **6.2.2 PROGRESS TO DATE**

Natural Gas is to be used as an alternative source of energy for the thermal plants at Aboadze Thermal (and other IPPs). A key objective and expectation for utilizing the natural gas is to achieve a substantial reduction in the cost of generating electricity.

The West African Gas Pipeline Company WAPCO has initiated a tender process to appoint a contractor to repair the damage to the pipeline. Also, another contractor is to be appointed to speed up the construction and installation of certain compressor and pumping stations whose completion had also delayed.



In June, 2007, Ghana discovered oil and gas near Cape Three Points in the Western Region. It is forecast that commercial production of these energy sources can only start in 2010, besides, commercial arrangements have to be made to enable consumers in Ghana access the gas to be produced locally.

This discovery and production will also change the original philosophy of importing gas into Ghana. Under the current situation there is no need to distinguish between the primary and secondary markets. Rather, a single industry will be developed which places the regulation of gas imported through the WAGP and locally produced gas under a single framework.

### **6.2.3 REGULATORY FRAMEWORK**

The regulatory framework for the Natural Gas Secondary Market is being developed. Currently, the arrangement in place is wholesale contract between the Gas Supplier in Nigeria and the power producers in Ghana.

So far, three legislative instruments for the market were developed by the Energy Commission with the collaboration of PURC and passed in 2007, namely:

- (1) Natural Gas Distribution and Sale (Technical and Operation) Rules, 2007;
- (2) Natural Gas Distribution and Sale (Standards of Performance) Regulation, 2007; and
- (3) Natural Gas Transmission Utility (Technical and Operation) Rules, 2007.

### **6.2.4 STAFFING & CAPACITY BUILDING**

The Natural Gas Unit of the Commission lack adequate staff. It is planned to recruit a manager for the unit by early 2009. Meanwhile, the Commission has been participating in sector institutional capacity building efforts to prepare it for natural gas regulation.

## 7. CONSUMER SERVICES

The Commission's Bureau of Consumer Services (BCS) develops programmes to implement PURC's obligation of providing protection and fair representation for consumers and utility service providers. These programmes include handling of consumer complaints, conducting surveys as a way of monitoring standards of service, creating public awareness and regular communication with consumers and the regulated utilities.

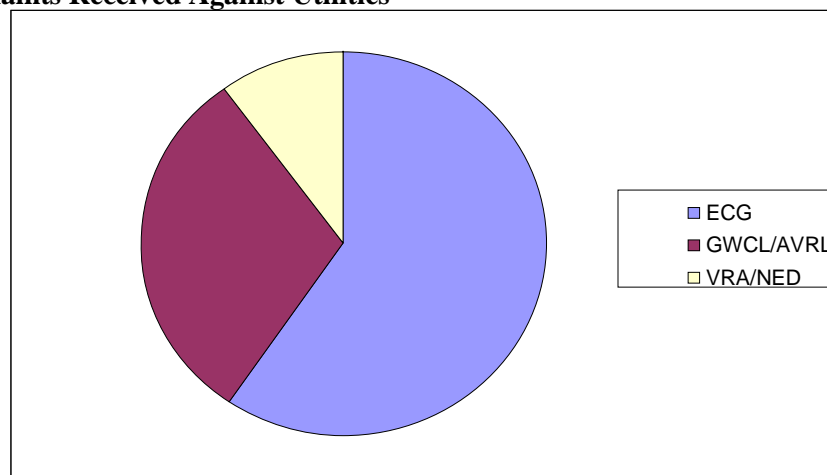
### 7.1 CONSUMER COMPLAINTS

In 2007, the Commission received a total of 353 complaints against the utilities, and facilitated the resolution of 240 (68%) by the utilities. ECG was the utility most complained about with 210 which is 59.5% out of the total number of complaints received for the reporting year. GWCL was the next with 108 representing 30.6%, while the NED of VRA received 35 which is 9.9% of the total complaints filed for the year. There was a 28% increase in the total number of complaints received, which can be attributed to the aggressive consumer and public education activities undertaken during the year under review.

**Table 8: Complaints Received Against Utilities**

Utility	No. of Complaints	% of Total	No. Resolved	% Resolved
ECG	210	59.5	134	63.8
GWCL	108	30.6	71	65.7
VRA/NED	35	9.9	35	100
<b>Total</b>	<b>353</b>	<b>100</b>	<b>240</b>	<b>68</b>

**Figure 8: Complaints Received Against Utilities**



### 7.1.1 ECG Complaints Categories

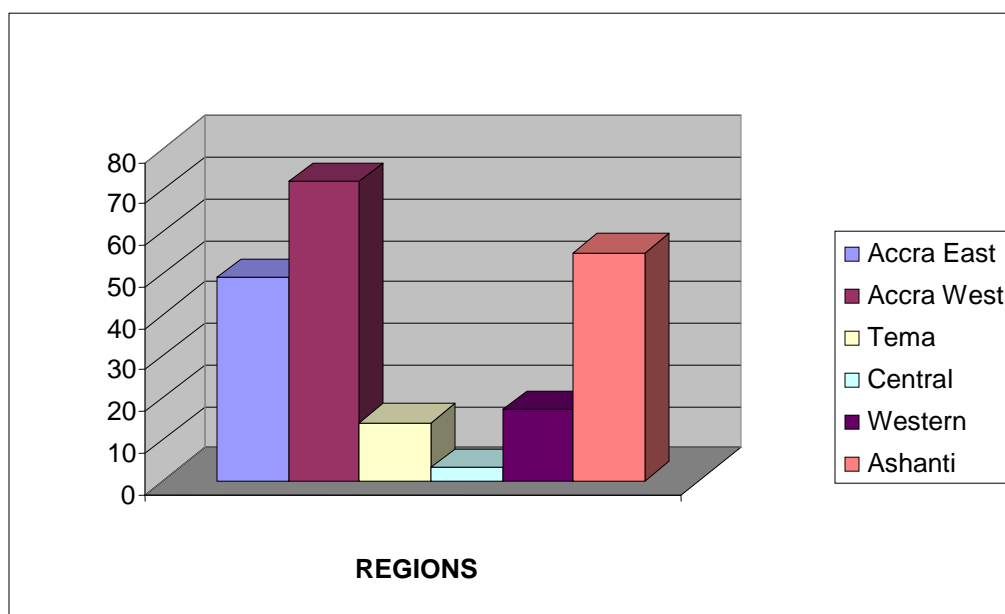
The complaints against the ECG have been categorized according to the regions as illustrated in Table 9 below.

**Table 9: Number of Complaints against Regional Offices by Category**

Region	*Quality of service	Billing	Payment	Metering	Disconnection	Total
Accra East	34	10	4	-	1	49
Accra West	42	18	6	2	4	72
Tema	10	3	0	1	0	14
Central	0	2	0	0	1	3
Western	3	7	1	1	5	17
Ashanti	3	23	4	13	12	55
<b>Total</b>	<b>82</b>	<b>79</b>	<b>14</b>	<b>20</b>	<b>31</b>	<b>210</b>

*\*Complaints such as frequent power outages and power fluctuation are categorized under quality of service.*

**Figure 9: Complaints by Regions**



## Analysis

The categories of complaints lodged with the PURC against ECG include quality of service, billing, metering, disconnection, payment, among others. The mode of receipt of the complaints were either written, phone-in, e-mail or walk in. Quality of service remains the major component of the complaints lodged with the Commission against ECG. This constitutes about 39% of ECG's total complaints reported to the Commission. The power crisis that hit the entire country in 2007 and the resultant load shedding as well as unannounced power outages associated with the load shedding exercise might have contributed to the rise in the number of this type of complaints.

Again an increase in customer population without corresponding upgrade of vital equipment such as old transformers has resulted in an overloaded system. This and the challenges in managing the billing system resulted in 37.6% of complaints related to billing issues.

The third highest component of complaints related to disconnections, with 14.8%. Delays in issuing bills to customers, bulk bills resulting from high estimates, guess work by meter readers, among others often lead to unnecessary disconnections. Occasionally, non-defaulters are also wrongly affected during major disconnection exercises for non payment of bills. It has been impressed on the Board and Management of ECG that these inefficiencies relate to management and can easily be avoided.

Meter related issues such as illegal transfer of meter, non reflection of unit purchased into prepaid meter system and meter tampering also constituted 9.5% of the total complaints against ECG in 2007.

**Table 10: ECG Complaint Resolution by Region**

Region	Number of complaints	Number Resolved	Number Unresolved	%Resolved
Accra East	49	30	19	61
Accra West	72	53	19	74
Tema	14	8	6	57
Central	3	3	0	100
Western	17	12	5	71
Ashanti	55	28	27	51
Total	210	134	76	64

From the table above, 134 of the complaints against ECG were resolved representing 64%. This is a marginal improvement of 2.76% over that of 2006 in which 62% of complaints were resolved. Whilst the improvement in complaints resolution can be attributed to the vigilance of the Commission, the continued poor performance by ECG in complaints resolution is due to the lack of enforcements of penalties by the Commission. The inability of the Commission to formally penalize the utilities has led to the continued complacency in complaints resolution.

A significant observation from Table 10 is that all the regions responded to more than 50% of the complaints lodged against them, with the average being 64%. The low level of complaints from the Central region is most likely due to the low level of awareness of the Commission by consumers in that region. It is therefore our priority to focus awareness programmes in that region in the coming year.

### 7.1.2 Complaints against NED

The NED is the electricity service provider in the Northern, Brong Ahafo, Upper East and Upper West regions of the country. In the reporting year, the Commission received a total of 35 complaints against the NED. Quality of service representing 57% remains the major component of the complaints lodged with the Commission against the NED. Billing (34%), disconnection (9%) and metering related issues (3%) followed in that order respectively.

**Table 11: Complaints against NED Regional Offices by Category**

Region	Quality of service	Billing	Payment	Metering	Disconnections	Total	Resolved
Northern	19	11	0	1	3	33	33
Upper East	1	1	0	0	0	2	2
Total	20	12	0	1	3	35	35

### Analysis

The number of complaints against the NED has increased from 2 in 2006 to 35 in 2007 due to the opening of PURC's Regional office in Tamale to cater for the three Northern Regions. Significantly, all the complaints brought against NED were resolved. The Commission hopes to sustain this performance in the interest of customers.

### 7.1.3 Complaints against Ghana Water Company Limited (GWCL)

In 2007, a total of 97 complaints were filed against the GWCL across the country. 70 of those complaints representing 72% were resolved. The types of complaints lodged against the GWCL include quality of service<sup>1</sup>, billing, metering, disconnection and payment, among others.

**Table 12: GWCL Complaint Categories and Resolution by Region**

Region	Quality of Service	Billing	Payment	Metering	Disconnection	Resolved	Total
Accra East	21	10	5	0	3	24	39
Accra West	8	5	3	1	2	14	19
Tema	10	2	0	0	0	10	12
Ashanti	3	5	2	7	1	6	18
Western	7	0	0	0	0	6	7
Central	1	1	0	0	0	2	2
Northern	4	4	0	0	0	8	8
Total	54	27	10	8	6	70	97

#### Analysis

From the above table, it can be seen that quality of service is the most prevalent concern expressed against GWCL. It constitutes about 56% of the total complaints. Billing related matters including over estimated bills, bulk billing, and delay in issuing of bills follow with 28%. Payment not reflecting and payment for no flow trail with 10%, while non reading of meter and meter tampering, illegal connections and wrongful disconnections tag along with 8% and 6% respectively.

<sup>1</sup> Quality of service complaints include burst pipes, no flow of water, and poor quality of pipe borne water

**Table 13: Comparative Analysis of Complaints Management for 2007, 2006 and 2005**

Utility	Total complaints 2007	No. of complaints Resolved 2007	% of total of Resolved 2007	Total complaints 2006	No. of complaints Resolved 2006	% of total Resolved 2006	Total complaints 2005	No. of complaints Resolved 2005	% of total Resolved 2005
ECG	210	134	63.8	184	114	61.9	176	140	79.5
GWCL	97	70	72.2	87	52	59.8	111	90	81.1
NED	35	35	100	3	0	0	0	0	0
<b>Total</b>	<b>342</b>	<b>239</b>	<b>69.9</b>	<b>274</b>	<b>116</b>	<b>42.3</b>	<b>287</b>	<b>230</b>	<b>80.1</b>

Table 13 reveals that generally, complaints to the PURC against the utilities have been on the increase from 2005 to 2007. This stems from the consistent public awareness and sensitization of the public about the role of the PURC in resolving disputes between consumers and the utilities. Also, a direct factor in the increase of reported cases against the utilities is PURC policy of decentralization of its offices. As more regional offices are opened, the opportunity to access the services of the Commission is enhanced. For instance, the presence of the PURC in the Northern regions has raised the number of complaints filed against the VRA/NED from 0 in 2005 to 35 in 2007, and has enabled consumers to obtain resolution to their utility complaints. However the absence of complaints from the Brong-Ahafo and the Upper West regions underscores the need to accelerate the pace of the Commission’s awareness nationwide so as to reach all consumers within the country.

## **7.2 MONITORING OF UTILITY CUSTOMER SERVICE CENTERS AND DISTRICT OFFICES**

As part of efforts to ensure quality service delivery to consumers, attention was focused on helping the utilities to improve their Customer Service Centres and District Offices. A total of 108 CSCs and District Offices were visited to enforce compliance with certain minimum standards of performance.

Generally, the picture is one of improvement, particularly at ECG centers. The company appears to be gradually implementing some of the recommendations of the Commission towards improving physical facilities and service delivery. Conversely, the GWCL centres are a pale

shadow of what is expected. Not much appears to be done by way of implementation of the Commissions recommendations for improvement at the centers.

To effectively measure the standard of customer service delivery, a set of fifteen criteria were used. These criteria include location, response time to fault, ambience, consumer education, complaint handling, consumer comfort, metering policy and facilities at the centres, among others.

### **7.2.1 Objectives of the visits to the Customer Service Centres**

- Assess the quality of service provided to customers at first hand.
- Ascertain the appropriateness and ambience of the space and facilities available at the customer centers.
- Examine the complaint handling procedures and its proper management.
- Encourage customer education and sensitization.
- Enhance quality customer care.

### **7.2.2 Findings**

#### *Location*

All the Customer Service Centres and District Offices visited were conveniently located and accessible to customers. With the exception of two centers, namely Juaboso and Half Assini all the office buildings were set in a good working environment.

#### *Ambience*

The ambience within 90 % of the center was good, though about 40% required painting. 65 out of the 72 ECG District Offices visited had the necessary facilities and equipment for effective work. However, same cannot be said of the GWCL centers.

#### *Suggestion Box*

All the ECG centers had a suggestion box and a display of the PURC approved schedule of charges but only 12% of GWCL centers did.

#### *Consumer Education*

There were displays of educational and informational materials in almost of the ECG centers visited but the GWCL centers lacked such materials. A major lapse in the centers and District



Offices is the lack of systematic planned customer education. Most of the centers rely on the educational programmes drawn from the Regional headquarters. However, the centers claimed to do some unplanned education during mass disconnection exercises.

#### *Complaint Management*

90% of the centers keep complaint and fault note books. Though there were records, the complaint management was inadequate as it did not reflect how and when the complaints were resolved. Customer Service officers and operatives at the fault sections were taken through the complaint management cycle and encouraged to follow the new procedures.

#### *Disposition of Staff*

The disposition of staff at most of the centers was good as they appeared brisk and professional. Their attitude to customers was also good as the customers that we interacted with spoke well of the staff. This is healthy for good customer relations. However there were a few exceptions, particularly at the VRA - NED centers in the three Northern regions.

#### *Facilities at the Centres*

The ECG centers visited had the basic means of cash collection. They also make use of bonded cashiers who visit communities to assist in cash collection. The centers are also able to meet 70-100 % of their collection ratios. However, only about 20% of the ECG district offices have dedicated telephone lines for consumers with 45% of GWCL centers having at least one. With the exception of two GWCL centers, all other District Offices had one or more computer to facilitate their work.

#### *Power systems*

Power systems in most centers / districts are bedeviled by vegetative growth on the line during the raining season in particular. The systems are also old and prone to frequent outages. Some systems are also long and pose a challenge in identifying faults.

### 7.2.3 Regional Monitoring Distribution, ECG and NED

Table 14

Region	No. of centres visited	ECG centres visited	General observations
Gt. Accra/ Eastern/ Volta	10	Kibi, Oda ,Asesewa, Koforidua,Tafo  Nsawam, Kade, Somanya, Amanokrom	<p>Conductor theft was identified as a major problem especially in the eastern region. Hardly a day passed without a blackout emanating from these illegal activities.</p> <p>Some customers complained that the demand for a Building Permit before a new service connection is made is a harsh policy. This to them causes undue delay considering challenges associated with obtaining the permits.</p> <p>Most of the domestic customers in the Somanya district acquired connections through the Self Help Electrification Project (SHEP) resulting in the inability of these customers to meet their financial obligation to the ECG. The situation had led to the finalization of several domestic accounts which accumulated a total debt of GH ₵124,971.</p>
Western/ Central	13	Agona Nkwanta, Tarkwa, Bogoso,  Asankragua, HalfAsini, Axim  Juaboso, Effiekuma, Saltpong, Swedru, Winneba	<p>The regular complaints to the centres in all the districts include, billing disputes, faulty meters, unlawful disconnections, payments not reflecting, non reading and recording on meter cards.</p> <p>Some customers interviewed complained of delay in ECG's complaints resolution.</p>

Ashanti/ Brong Ahafo	32	Dichemso, Asokwa, Abuakwa, New Edubiase, Kwabre, Ayigya, Mampong Effiduase, Dunkwa, Obuasi, Konongo & other centres	Generally, consumer education at all the centres visited was very low.
Northern NED	17	Wa,Nadowli,Nandom, Jirapa,Tolon,Savelugu, Bolga,Garu,Gambaga, Walewale,Bawku, Sandema,Tumu & other centres	Most of the commercial customers such as corn millers in the Tolon Kumbugu and Savelugu Nandom districts are unmetered. This results in misunderstandings between NED staff and customers.  Some of the centres visited still prepare bills and count money manually.

#### **7.2.4 Recommendations**

- Customer complaints need to be given much needed attention to promote customer confidence.
- Logistics such as vehicles, computers, photocopiers and other equipment which facilitate the smooth operation of ECG need to be provided.
- Customers on the flat rate should be provided with meters to forestall the misunderstanding between the customers and ECG/NED staff.
- New transformers need to be acquired to replace overloaded ones.
- Recalcitrant meter readers who are found to engage in ‘guess work’ for billing purpose should be sanctioned.

### 7.3 Regional Monitoring of GWCL

Table 15

Region	No. of centres visited	GWO centres visited	General observations
Gt. Accra/ Eastern/ Volta	8	Dodowa,Oda, Koforidua,Tafo Nsawam,Kade, Somanya.	All the District Offices of the GWCL visited serve between 1000 and 5000 customers. However, Accra West, Accra East and Tema Regions had a customer population of more than 5000 and about half of these were unmetered.  Although most of the District Offices were accessible to customers, they all lack logistics such as computers, cash registers, vehicles, etc, for efficient service delivery.
Western/ Central	4	Tarkwa, Axim, Saltpong ,Swedru	Over billing, burst pipes, payment not reflecting and lack of supply were the dominant complaints lodged at most of the District Offices.  Some customers interviewed complained about undue delay in complaints resolution by GWCL
Ashanti/ Brong Ahafo	9	Suame, Abuakwa, Mampong, Konongo, Barekese, Aboabo	Although most District Offices had seating for customer comfort, the pay points had none and were usually small wooden structures which made it difficult for personnel to man them.  Very low activity in customer education was observed.
Northern	15	Wa, Nadowli, Namdom, Jirapa, Dalun, Savelugu, Bolga, Garu, Zebila, Bongo, Navrongo, Bawku, Sandema, Tumu.	

### 7.3.1 Recommendations

- Customer complaints need to be given attention to promote customer confidence.
- Logistic such as vehicles, computers, photocopiers, cash registers and other tools which help the smooth operation of GWCL should be provided.
- The aged pipe lines need to be replaced to reduce the rate of pipe bursts in most areas such as Somanya.

### 7.3.2 Public Education

A special schools education programme dubbed “Catch them Young” was organized to educate students of second cycle schools in Kumasi in the Ashanti region.

Some consumer education was also done through the local FM radio and television stations in the regions to discuss the establishment, key roles, landmark achievements, and challenges of the PURC. The media interaction enabled consumers and the general public to ventilate their concerns.

## 7.4 KEY ISSUES

- ◆ The Utility Companies should vigorously pursue improvement in quality of service to consumers
- ◆ Consumer education is imperative for good customer relationship, revenue mobilization, conservation practices and reduction in illegal connections. District Offices and Customers Service Centres should be empowered and resourced to pursue local/community consumer education
- ◆ The provision of adequate logistics such as computers, vehicles, cash machines, among others, to the centers cannot be overemphasized as one of the means towards efficient performance.
- ◆ Utility Companies should focus on making consumer services one of their priorities especially in the areas of education, communication, information flow, complaints management and response to faults.
- ◆ Customer Service Centers must be efficient in terms of quality of service, availability of equipment such as computers and vehicles, effective supervision especially of meter reading and billing which is impacting negatively on revenue collection.

- ◆ There is the need to establish more regional offices in the country to reach out to more centers and extend the services of PURC to more customers.

## **7.5 THE WAY FORWARD**

The ultimate aim for both the regulator and regulated utilities is customer satisfaction that comes from quality service delivery. There is therefore the need to establish an efficient and effective consumer system which will ensure sustainable service provision. The improvements indicated above will be enhanced in the future by not only strengthening the Directorate's capacity through improved skills and technology but also ensuring greater collaboration with consumers through the establishment of Consumer Services Committees and intensive Public Education.

## **8. PUBLIC & EXTERNAL RELATIONS**

In pursuance of its objective of promoting transparency in regulation, the Commission regularly undertakes a number of activities in the area of public and external relations. Activities during the year included exhibitions and trade fairs, media talk shows, collaboration with other sector institutions and publications.

### **8.1 EXHIBITIONS & TRADE FAIRS**

As an outreach to sensitize consumers of water and electricity on their rights and responsibilities, the Commission participated in the Golden Jubilee Fair organized by the Ghana Trade Fair Company in Accra between February and March. Almost three thousand consumers visited the Commission's stand to learn at first hand, our role in ensuring that the providers of utility services make the most of their investments without subjecting consumers to undue exploitation.

### **8.2 MEDIA TALK SHOWS & PUBLICATIONS**

During the year, various PURC officials participated in selected television and radio programmes to educate consumers on the Commission's activities and importantly, to explain the factors that went into the determination of the new electricity tariff approved in November 2008. As is the custom, brochures were also disseminated that serve as a ready source of information for consumers and the general public. This greatly helped in the Commission's public education and awareness drive.

### **8.3 COLLABORATIVE EFFORTS**

The Commission facilitated the formation of an Inter-Agency Communications Committee comprising communication managers of PURC and the utility companies and a representative from the Ministry of information to educate consumers on the new Water and Electricity tariffs announced in November 2007.

### **8.4 EVENT MANAGEMENT**

During the year a partnership conference was successfully hosted between PURC and the Public Utilities Commission of Ohio, USA (PUCO). The conference which served as a platform for the strengthening of existing partnership agreements between the PURC and PUCO, brought

together major players in the utility regulation sector from the two countries to share ideas on how to strengthen ties for mutual benefit.

A retreat was held with the Senior Management of the utility companies to agree benchmarks for ensuring quality service delivery as a precursor to the announcement of the newly-approved tariffs. At the end of the programme, clear-cut guidelines for the provision of improved quality of utility services were spelt out by the Commission to ensure that utility consumers get value for their money.



## 9. THE SECRETARIAT- HUMAN RESOURCES AND ADMINISTRATION

The Secretariat is made up of five departments headed by the Executive Secretary. The departments are: Technical Operations and Regulatory Economics, Drinking Water Inspectorate, Consumer Services, Legal Services and Finance & Administration.



Stephen Nyante Adu

Executive Secretary



Emmanuel Sekor, Director, Legal Services

Energy Director (Vacant)



Nii Okai Kotei, Director - Drinking Water Inspectorate



Mami Dufie Ofori

Director, Consumer Services

Charles Oduro-Nyarko Director, Finance & Administration

The Commission is committed to ensuring a working environment that encourages a high level of productivity. To further this objective, strategies were developed during 2007 to enhance accountability, improve internal communication and encourage continuous learning and professional development despite tight budgetary constraints.

<b>STAFF COMPLEMENT BY DEPARTMENT</b>	
Executive Secretary's Office	2
Energy Sector	2
Water Sector	5
Natural Gas	0
Consumer Services	6
Regional Offices	12
Finance	3
Legal Services	3
Public Relations	1
Internal Audit	1
HR & Administration	14
<b>Total</b>	<b>49</b>

### Staff Strength

There was no increase in the staff complement in 2007. Two members of staff however resigned during the year. Sadly, one employee in the Natural Gas Department passed away in the latter part of the year.

Three post-National Service interns from 2005 and 2006 were retained in line with the Government's initiative to reduce graduate unemployment. In the case of two of the interns, financial clearance from the Office of the President is still awaited in order to employ them as permanent staff.

The importance of maintaining a high caliber of staff for PURC cannot be over-emphasized. This need is however seriously threatened by a decline in the competitiveness of PURC as an employer, which poses a challenge to the retention of professional staff. In recent years the Commission's remuneration package has been surpassed by most of the comparable institutions and continues to decline.

The Government has still not been able to implement the recommendations made by the Consultant engaged in 2006 to carry out a job evaluation and review of the remuneration package of staff. There is therefore the need for acceleration of the implementation of a regulatory charge to alleviate the funding challenges that has impeded our recruitment drive.

### Training and Development

The Commission continues to provide periodic training to improve the skills of its staff. Other sources of funding need to be identified to enable the Commission deepen and sustain its training programmes.

## **Office Accommodation**

There has been little improvement in PURC's office accommodation. The Commission is committed to maintaining a lean organizational structure. However the accommodation constraint is a major challenge for recruitment of the basic level of staff and the Commission appeals to Government to urgently assist in securing office accommodation to house the staff needed. Furthermore, a good proportion of the office equipment e.g. vehicles, computers, printers, air-conditioners have outlived their usefulness.

## **Conclusion**

The Commission faced a lot of financial constraints during the period under review thus hindering the execution of most of its planned programmes. It is hoped that the Government would take the necessary steps to address this precarious situation, so as to enable the country realize the objectives for which an independent utility regulator was established.

## 10. FINANCIAL PERFORMANCE

The Commission submitted a budget of ₵1,795,982 to Government. However, this was subjected to a budgetary ceiling which reduced the amount to ₵1,028,212 representing 57.3% of the request of the Commission. Clearly, this fell far short of the needs of the Commission and was inadequate to meet most of our service, investment and administrative needs. The breakdown was as follows:

	<u>BUDGETED</u>	<u>ACTUAL</u>	<u>%</u>
	GH¢	GH¢	
<b>Personnel Emoluments</b>	<b>455,065.10</b>	<b>453,311.18</b>	
<b>Administration</b>	<b>409,297.90</b>	<b>339,682.95</b>	
<b>Service</b>	<b>730,169.00</b>	<b>153,476.82</b>	
<b>Investment</b>	<b>150,000.00</b>	<b>43,350.40</b>	
<b>Utility Payments</b>	<b>51,450.00</b>	<b>38,390.78</b>	
	-----	-----	-----
	<b>1,795,982.00</b>	<b>1,028,212.13</b>	<b>57.3</b>
	=====	=====	=====

Income received from Donor agencies and Utility Companies which had to be solicited amounted to GH¢ 916,662.87. This was to support the Commission's regulatory activities since the Government approved funds for the year were inadequate. The breakdown is as follows:

**AMOUNT**

GH¢

<b>Donor Agencies</b>	<b>783,924.53</b>
<b>Utility Companies</b>	<b>122,694.20</b>
<b>Others</b>	<b>10,044.14</b>
	-----
	<b>916,662.87</b>
	=====

Total revenue received by the Commission for the financial year ended 31<sup>st</sup> December, 2007 therefore totaled GH¢ 1.945 million. The breakdown is as follows:

	<b><u>BUDGETED</u></b>	<b><u>ACTUAL</u></b>
	GH¢	GH¢
<b>Government Subvention</b>	<b>1,795,982.00</b>	<b>1,028,121.13</b>
<b>Donor Agencies</b>		<b>783,924.53</b>
<b>Utility Companies</b>		<b>122,694.58</b>
<b>Others</b>		<b>10,044.76</b>
	-----	-----
	<b>¢1,795,982</b>	<b>¢1,944,785</b>
	=====	=====

Budgetary allocation from Government increased by GH¢223,488 from GH¢804,724 in year 2006 to GH¢1,028,212 in year 2007. Additionally, a total of GH¢783,925 was received from Donor Agencies in the year under review. This amount showed an increase of GH¢747,050 over GH¢36,875 received in 2006.

The expanding responsibilities of the Commission including regulation of Natural Gas and the increasingly important requirement for effective monitoring of the utilities' activities make the funding issue of PURC critical.

### **Funding Challenges**

Inadequate funding remains a grave concern ten years after the establishment of the Commission. The main source of funding is from Government's Central Budget. Unfortunately, the subvention or budgets approved annually fall far short of the Commission's requirements for effective operations. Indeed, from 1998 to 2000, PURC received about 45.7% of its budgetary requirement, and from 2001 to 2002 dropped to 28.5%. This has been the fluctuating trend. In 2007, the Commission received 57.3% of its budgetary requirements.

Persistent efforts to obtain Government approval for the universal practice of instituting a Regulatory Charge on the Utilities' revenue 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 functions such as operational and technical audits into utility operations and consumer education.

The Commission will continue to explore avenues for securing independent sources of funding. This 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 of 1997.