

PUBLIC UTILITIES REGULATORY COMMISSION



ANNUAL REPORT 2003

Mission Statement

PURC is committed to the development and delivery of the highest quality of utility services to all consumers and potential customers, while building a credible regulatory regime that will respond adequately to stakeholders' concerns and also ensure fairness, 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 PROFILE OF PURC

The Public Utilities Regulatory Commission was established in 1997 under Act 538 to regulate and oversee the provision of utility services by public utilities to consumers. 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.

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 (NED) and the Ghana Water Company Limited (GWCL) to their customers. 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. Operations of community water systems are excluded from the Commission's purview.

The nine 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, four persons with knowledge in matters relevant to the functions of the Commission, and representatives of the Trades Union Congress, the Association of Ghana Industries and Domestic Consumers. The Commission is supported by a Secretariat which includes engineering/technical, financial, customer service and other professionals.

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.

Act 538 provides that the Commission shall be independent and not subject to the direction or control of any person or authority in the performance of its functions. The Commission is however statutorily required to submit audited statements of accounts and reports of its operations yearly to Parliament. In addition, the Commission must take reasonable account of representations made to it by consumers before approving any rates.

2 THE COMMISSION

The current Commissioners were appointed in January 2003 for a five-year term. They are:

Mr. Kwame Pianim – Chairman of the Commission. Mr. Pianim is an Economist and Investment Consultant. He was at one time the Chief Executive of the Ghana Cocoa Marketing Board, and is currently a member of the National Petroleum Board. He is also the Chief Executive of New World Investments Limited.

Mr. Stephen N. 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. Mohamed Amin Adam - Member, is an Economist and Financial Manger of the Financial Monitoring Directorate of the Ministry of Energy. He is a member of the Board of the National Service Scheme and the Residency Board of the University of Cape Coast.

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

Dr. Mrs. Mary Chinery Hesse – Member. Dr. Mrs. Chinery Hesse graduated in the disciplines of Sociology, economics and Development Studies and was at one time a Prinicipal Secretary of the Ministry of Finance. She worked with the United Nations and was appointed the first woman Deputy Director General of the International Labour Organization, first African woman Resident Co-ordinator of the UN System and

Resident Representative of UNDP in New York, Sierra Leone, Seychelles and other countries.

Mr. Andrew Lawson – Member, representative of the Association of Ghana Industries of which he is the Executive Director. Mr. Lawson is an Engineer and ex Integration Manager of British American Tobacco Company Ltd (BAT). He is currently also a member of the Board of Directors of BAT and of Mechanical Lloyd Company Ltd.

Nana Kobena Nketsia V – Member. Nana is the Omahene 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 Chairman of the Ghana Broadcasting Corporation.

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

Mr. Andrew E. Quayson –Member. Commissioner Quayson is an Engineer by profession and is the 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.

3 HIGHLIGHTS OF 2003

- A new Commission was appointed in January 2003 to serve a five-year term. Of the nine members, five were new members and four were retained from the previous Commission.
- New rates for electricity and water were announced to take effect from March 1 2003. This marked the final stage in the implementation of PURC's Transitional Plan for moving utility rates over a period of time to economic levels. The new rates represented a 14.7% and 10% increase over the existing rates for electricity and water respectively.
- In addition to the new utility rates, the Commission published an Automatic Adjustment Formula for future adjustments to the tariff, based on factors such as world crude oil prices, and the cedi exchange rate. The development of the formula was aimed at preventing erosion of the real value of the approved tariffs due to changes in those factors.
- The PURC Automatic Adjustment Formula was first implemented in October 2003. In accordance with the formula, Electricity and Water rates remained the same.
- A Quality of Service Review Meeting was held with the Boards and Management of the utility companies in November 2003. PURC emphasized the need for improvement in utility company public relations strategies and responsiveness to consumers.
- PURC completed discussions with the Ghana Water Company on the company's Customer Charter, a document which clearly sets out the company's commitment

to customers as well as customer's responsibilities to the company. The Charter is to be publicized and made available to consumers in 2004.

- The PURC Secretariat moved into the new offices at No. 51, Liberation Road, Accra in December 2003.
- A contract was awarded to KITE Consultants for the preparation of Guidelines for Embedded Generation.
- The second PURC Regional Office started operations in Sekondi, Western Region in July 2003.

4. CHAIRMAN'S STATEMENT

IN 2003, PURC continued to work towards fulfilling its critical role as an independent electricity and water regulator in the country's socio-economic development. There is no doubt that the availability of adequate and reliable supply of utility services is an essential requirement for development and improvement in the living standards of Ghanaians.

The Commission is charged with, among others, approving guidelines for utility rate-setting, ensuring the protection of consumer interests, ensuring the financial viability of the utility companies, and promoting competition. The current Commission, which was appointed in January 2003, recognizes the achievements of the first Commission who served from the inception of PURC in October 1997. Rate setting Guidelines, legislation on consumer protection issues, and tariff determinations to name few were issued, all within a challenging macro economic environment and internal constraints on manpower and financial resources.

At present however, accessibility, affordability and quality of service remain the major concerns in the sector. Currently, only approximately 45% of the population has access to electricity and 59% of the urban population to piped water. With respect to accessibility, the Commission is hopeful that appropriate stakeholder decisions

will be taken in the next few years to ensure extension of services. While recognizing that consumers' 'ability to pay' is affected by factors outside our control, we at PURC are attempting somewhat to deal with the issue of affordability and macro economic effects on tariffs by maintaining quarterly reviews and adjustments where necessary. These automatic adjustments are aimed at minimizing the necessity for steep price hikes that may be caused otherwise. The March 2003 tariff increase was the final step in a transitional plan to allow the utility companies to recover their reasonable and efficient production costs and also achieve a reasonable rate of return. After two subsequent minor adjustments during the year, that tariff remained the same in real terms till the year end.

As far as quality of service is concerned, PURC's monitoring of levels of service delivered by the utility companies indicate that instances of under-performance in 2003 were occasioned as much by inadequate investment in infrastructure as by unsatisfactory management practices. The next major tariff review will take into consideration the challenges being faced by the utility companies.

Being conscious of the social responsibilities of the Commission, we are committed to playing our part in seeing the development of the highest level of utility service in Ghana, at affordable prices that ensure adequate levels of investment to sustain and

expand assets, so as to improve access to the marginalized in the society.

PURC continues to receive support from various institutions including Government, Multilateral and other Regulatory Agencies towards the performance of its regulatory mandates.

The funding situation of the Commission however remains unsatisfactory. With the reliance on Government subvention, PURC programmes and activities become subject to budget cuts and other attendant uncertainties. This situation impacted negatively on scheduled 2003 work programmes. The slower-than-desired pace of fulfillment of some of our statutory functions is attributable to insufficient funding. The complexity of the Commission's functions and its increasing

responsibilities require better funding levels which will enhance the satisfactory discharge of PURC's responsibilities.

Much as the PURC is committed to fulfilling all aspects of its statutory duties, this will continue to be a significant challenge so long as it is not given much needed resources. In the coming year, the Commission will be pushing ahead to ensure that this underlying issue which has remained outstanding since its inception, is resolved.

For 2004, we look forward to improved consultation with stakeholders to ensure that adequate resources - both human and material – become available to us to contribute effectively to the social policies of the nation.

4 EXECUTIVE SUMMARY

Introduction

The year 2003 marks the first year of the newly constituted Public Utilities Regulatory Commission (PURC) after the maiden Commission's 5 year term came to an end. New members that joined the Commission included the Chairman, Mr. Kwame Pianim and four other members with expertise in relevant disciplines. Although the first few weeks of the year were necessarily devoted to exposing the new Commissioners to highlight of the activities and decision of the first Commission, the process was fortunately made easier and smoother by an appreciable level of continuity provided by the four Commissioners retained including the Executive Secretary.

Guided by the Chairman, the new Commission resolved to endorse the vision and mission statement of the Commission and build on the solid foundation laid by the pioneering effort of the maiden Commission, and move the Commission further towards the attainment its key objectives.

The overarching objective of ensuring the efficient production and delivery of utility services, at a cost-effective and affordable price therefore has been firmly endorsed by the Commission.

Tariff Regime

The new Commission recognized and benefited immensely from the existence of a sound legal framework and a pricing mechanism which aimed at a gradual movement to efficient cost recovery tariff accompanied by quality of service improvement. This mechanism was designed to ensure that in time the viability of the utility companies and also the financial sustainability of the utility sectors would be achieved.

As documented, the Commission commenced the implementation of the tariff adjustment formula designed to minimize the effect on the value of the tariff as a result of changes of factors outside the control of the utilities. To their credit the Commission has boldly adhered to the tenets of the adjustment formula and ensured that the pricing objective of the Commission has been broadly achieved in the year.

It is generally believed that the consultative approach adopted by the PURC with the utilities, government and other stakeholders, as far as the implementation of the adjustment formula and other activities are concerned has enhanced the image of the Commission, in the eyes of all concerned, including the international donor community.

Consumer Issues

For most part of the year, the Commission turned its attention to Consumer Issues. i.e. enhancing consumer awareness of their rights, protecting consumers' interest by

facilitating resolutions of complaints and monitoring the performance of the utilities to ensure adequate, safe and reliable levels of service for consumers.

The mechanism that was established to meet the Boards and Management of the utility companies was put into practice during the year. The meetings yielded positive results in that they afforded the opportunity for the Boards to be apprised of the utilities' performance and to contribute towards the discussions on solutions to problems utilities encountered during the period. These meetings have proved to be very useful and are expected to be continued in the ensuing years.

A major feature of the Commission's consumer related activities is analysing consumer complaints received and ensuring that they are adequately dealt with or resolved. During the year, the Commission maintained its aggressive stance on consumer complaints to ensure that the utilities took all complaints seriously and addressed them effectively and timeously.

The statistics for the year continued to show a high percentage of billing problems. This has been brought to the attention of the utilities.

Other consumer issues pursued included the monitoring of Customer Service Centres which revealed varying degrees of effectiveness and efficiency, based on specific criteria used.

The year also saw a move to increase public awareness of PURC's role and its activities to empower consumers. A number of public fora were organized particularly in the northern part of Ghana where PURC is yet to open an office to establish a presence. These fora were conducted by the Kumasi Office, which is maturing since its establishment in 2001. The opening of the Sekondi office to cover both Western and Central Regions during the year is a part-realisation of our decentralization policy to make PURC more accessible to customers and the public. Tamale has been earmarked for PURC's next regional office.

PURC also advertised its Legislative Instruments (LI's) on Termination of Service and Complaints Procedure through print and electronic media. Additional advertisements developed for TV were also screened by all the TV stations during the latter part of the year.

Performance of Utility Companies

Ghana Water Company Limited (GWCL)

Although GWCL made a general improvement in operational and financial terms, it failed to achieve some major targets set for them by PURC. It's performance in reducing losses (unaccounted for water) and collection, as well as some aspects of water quality and coverage fell short of targets.

GWCL continues to be plagued by inefficiencies which have impacted negatively on its financial results and although it would benefit from increase in capital investment to improve its operational infrastructure; this should be accompanied by a commitment to efficiency improvement, given the level of tariff that has been maintained for them.

VRA and ECG

The implementation of the tariff adjustment formula ensured that the value of the tariff was protected to the benefit of the electricity utilities and tariff stability was achieved. However, continued inefficiencies associated with system losses and revenue collection impacted negatively on the utilities' financial performance.

Whilst it is conceded that some injection of investment capital could help reduce the inefficiencies particularly in the distribution system, it is also believed that greater effort should be put into addressing inefficiencies caused by power theft and poor collection.

Human Resource Issues

Since its inception the Commission has embarked on a systematic policy of recruiting high caliber staff who will be trained to acquire the requisite skills to assist the Commission to effectively discharge its regulatory responsibilities.

Training programmes and other capacity building activities facilitated the development of a growing core of professional staff.

The successful maintenance of such a core of critical human resource depends on motivation and remuneration packages that reflect the levels of responsibility and experience, however, it is noted that in the last few years the Commission' ability to retain such well trained staff has been threatened by inadequate levels of remuneration.

The Commission believes that this issue which is related to its funding has to be seriously addressed if it is to retain its critical staff.

New Offices

At the beginning of the year the Commission moved into its newly refurbished office building. The old building which was kindly given to the Commission by the then Minister of Works and Housing had to be extensively refurbished to make it habitable. Although the accommodation offered by the building is already proving inadequate and some extension therefore, should be considered in the very near future, the Commission is grateful for being given its own office building.

5 CONSUMER SERVICE ACTIVITIES

The Commission in 2003 continued to resolve **consumer complaints**, **monitor** the activities of the utility companies' Customer Service Centres and **conduct public awareness programmes** through its Bureau of Consumer Services (BCS).

A second Regional Office was opened in Sekondi to cater for consumers in the Western and Central Regions. This was in furtherance of our programme to establish an office in all the regional capitals. In a bid to ensure a high standard of performance from the utilities with regards to customer care and quality of service, monitoring exercises were conducted in the Central, Ashanti, Brong-Ahafo and Upper West regions. An intense public awareness campaign was also undertaken in the year 2003 to educate consumers on their rights and responsibilities as well as the contents of the PURC Regulations on Termination of Service and Complaints Procedure.

5.1 COMPLAINTS

Complaints received were within the following categories of service:

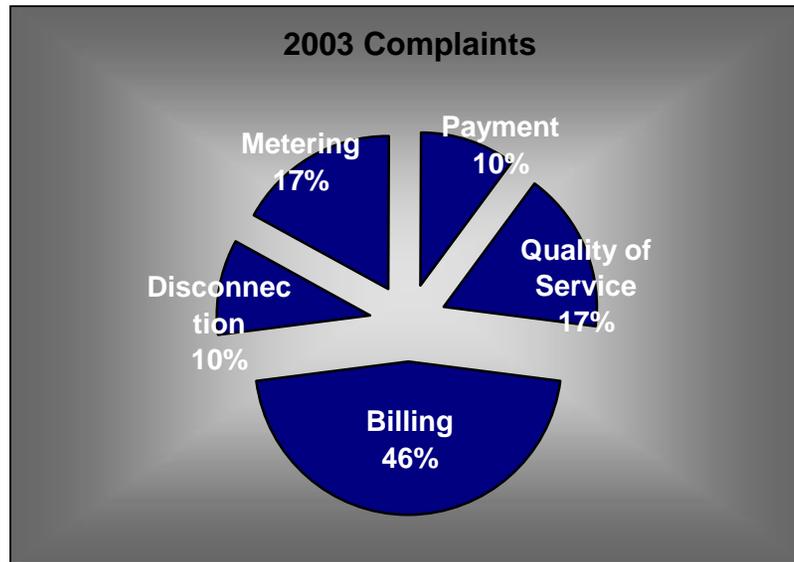
- Quality of Service
- Billing
- Payment
- Disconnection
- Metering

A total of 114 complaints were received in 2003. The data and analysis on these complaints are presented in Table 1 below:

Table 1: Categories of Complaints Received and Resolution Status

Utility Company complained against	Number of Complaints	Categories					Resolved	Unresolved
		Payment	Quality of Service	Billing	Metering	Disconnection		
ECG	74	8	12	37	11	6	66%	33%
GWCL	40	4	7	15	8	6	75%	25%
Total	114	12	19	52	19	12	69%	31%

Figure 1



5.2 MONITORING OF CUSTOMER SERVICE CENTRES

A number of the utility companies' Customer Service Centres in the Central, Ashanti, Brong-Ahafo and Upper West Regions were assessed. The only agency assessed in the Ashanti, Brong-Ahafo and Upper West Regions was the Northern Electricity Department, which is the electricity distributor for those Regions¹.

It should be mentioned that the unsatisfactory funding situation of the Commission severely constrained the BCS from carrying out a more extensive monitoring exercise.

Table 2: Customer Service Centres visited

	Utility Company	Number of centres visited
Central Region	ECG	3
	GWCL	4
Ashanti Region	VRA/NED	1
Brong-Ahafo Region	VRA/NED	1
Upper West	VRA/NED	7
	GWCL	1

The evaluation of the Centres visited was done according to the following criteria:

- Ambience;
- Availability of:- suggestion boxes, schedule of company's charges, and new service connection and metering policies;
- Facilities and services available including consumer education, complaints files and responses files;
- Disposition and attitude of officials towards consumers;
- Response time to faults and applications for new service connection;
- Availability of dedicated telephone lines; and
- Promotion of payment options.

Below is the performance score of each company per region. The figure for each region is an average of the total score of all centres for each of the criteria used.

Table 3: Quality of Customer Service Centres by Region

Region	Utility Company	Score (%)
Central Region	ECG	41.1
	GWCL	45.1
Ashanti Region	VRA/NED	38
Brong-Ahafo Region	VRA/NED	38
Upper West	VRA/NED	31.8

¹ GWCL Customer Service Centers were visited in the latter part of 2002.

The data available on the quality of Customer Service Centres is not encouraging. The scores of each region and company were below 50%. Whilst acknowledging that the centres visited were few, the Commission believes that this random sampling is an indication of poor quality of Customer Service. Customer confidence and support is essential for successful and efficient service provision. The Commission will continue to ensure that the service providers take this aspect of operations seriously.

5.3 PUBLIC AWARENESS

In conformity with the Commission's aim of ensuring effective collaboration with all stakeholders, public awareness was intensified during the year under review. This year's campaign focused on quality of service and therefore there was a lot of education on the rights and responsibilities of service providers and consumers.

The main focus was education on the policies and programmes of the Commission, such as Legislation and PURC's role in ensuring quality of service. The programme was achieved through the following strategies:

- **Advertisements**

The print and electronic media were used to advertise our legislation on Termination of Service and Complaints Procedure. Major FM stations in the Greater Accra, Ashanti, Brong-Ahafo, Northern, Upper East & Upper West regions were utilized to carry our message nationwide. This was further enhanced by the screening of television adverts on the METRO, GTV and TV 3 stations during the latter part of the year.

- **Public Fora**

Several public fora were held in the northern part of the country, particularly the Upper West and Upper East regions. These were a great boost to the image of the Commission, since it does not yet have an office responsible for those areas. It is expected that the establishment of a regional office for the three Northern regions will improve upon the Commission's ability to ensure delivery of quality service.

5.4 DECENTRALIZATION

The Commission's decentralization programme was taken a step further with the establishment of another Regional Office at Sekondi to cater for the Western and Central regions. The office is presently located in the premises of the Shama Ahanta East Metropolitan Assembly.

5.5 FUTURE PROGRAMMES

The Commission has a programme to intensify education of the utility service providers themselves. Monitoring activities will also be enhanced through feedback from consumers with the establishment of consumer services committees at the regional/district levels. A third regional office to operate within the northern sector of the country is expected to be established in 2004. Equipment, vehicles and furniture have already been acquired for this office through World Bank sponsorship.

5.6 OBSERVATIONS

From the data on complaints it is obvious that the main area of customer dissatisfaction is that of billing. The data available confirms the perception that the weakest link in the country's utility service provision is the billing aspect. This will be highlighted at the next Quality of Service Review between PURC and the Boards and Senior Management of the utility companies.

In conclusion, it must be noted that the complaints indicated above are complaints received by the Commission. In order to have a more comprehensive report the utility companies should submit on regular bases the complaints received at their customer service centres. The Commission is placing a priority on efforts to ensure that consumers can submit their complaints, by improving the communications flow and accelerating plans to establish itself in all regional capitals.

6.1 WATER - GHANA WATER COMPANY (GWCL)

This part of the report gives a synopsis of the performance of GWCL in 2003 against regulatory benchmarks. The indicators highlighted below are based on the minimum service levels for Non-revenue water, Billing and Collection Efficiency among others, for which PURC has set targets for the company.

Although a positive trend towards increased efficiency was observed during the reporting period, there was still significant room for further improvement. Unaccounted-for-water was on average still over 50%, above the benchmark of 45%. GWCL was able to cover only 59% of the population in urban and peri-urban areas, leaving over 40% inadequately served. Water production for the year stood at 205.19Mm³ as against a targeted figure of 231.74Mm³ thus registering a loss of approximately 13%. Sales, on the other hand, amounted to only 43% of water actually produced, thus indicating a non-revenue water figure of 57%.

The company's collection efficiency ratio fell below the PURC target of 95%: of the amount of water that was billed for the period, only 75% was collected, thus hampering cost recovery. Cost of operations also significantly increased, basically due to the exchange losses incurred in the course of importing chemicals and equipment for the operations of the company.

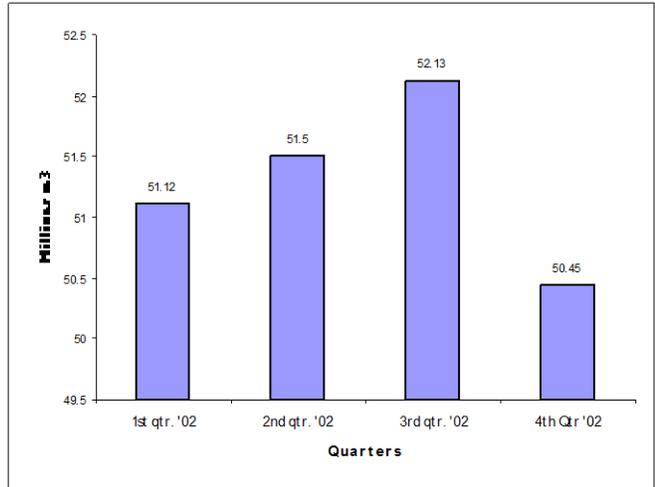
The company made a net loss of $\text{¢}322$ billion at the end of 2003, compared with $\text{¢}690$ billion in 2002. Though a loss, this was an improvement over the previous period.

6.1.1 WATER PRODUCTION

GWCL operated 84 urban water systems for the period under review. As has been stated, water production for 2003 totaled 205Mm³ as against a target of 230Mm³. The non-attainment of the target was attributed to a number of reasons, including the dislodging of the Dalun Dam in the Northern Region resulting in the deterioration of raw water quality, as well as the deliberate reduction of production in Upper East and Brong-Ahafo Regions due to low demand in the rainy season.

Figure 2 below shows a comparative analysis of water production for the various quarters in 2003.

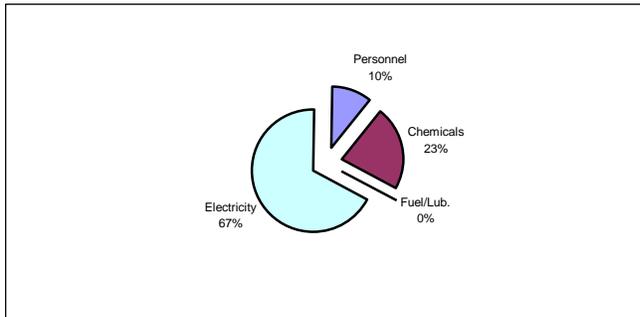
It is evident from the graph that water production increased gradually from the first quarter through the third quarter and subsequently declined in the fourth quarter of the year.



6.1.2 ANALYSIS OF WATER PRODUCTION COSTS

Total head works cost for 2003 was ₪ 229.4billion as against a budgeted figure of

Figure 3: Composition of Head Works Costs for 2003



₪282.8billion. Electricity continued to be the major cost component in water production, accounting for 67%. Chemicals constituted 23% whilst personnel costs were 10%. Costs of fuel and lubricants accounted for 0.4%.

PURC supports moves by GWCL to overcome some of its operational problems, including the intensification of routine maintenance schedules and installation of capacitor banks to improve on power factor, aimed at reducing the electricity maximum demand charges. PURC will also monitor efforts being made to have dedicated electricity lines to the water production plants.

6.1.3 COMMERCIAL OPERATIONS

Billing and Collection

Table 4 shows the target and actual billing and collection figures for the period under review.

Table 4

PERIOD / INDICATOR		TARGET ₪B			ACTUAL ₪B		
		PRIVATE	GOVT.	TOTAL	PRIVATE	GOVT.	TOTAL
1 st Quarter	Billing	82.38	16.51	98.89	80.61	19.96	100.57
	Collection	74.15	14.86	89.00	71.33	0.19	71.52
2 nd Quarter	Billing	86.61	18.21	104.82	82.08	18.03	100.11
	Collection	77.95	16.39	94.34	72.81	0.43	73.24
3 rd Quarter	Billing	86.61	18.21	104.82	82.96	18.37	101.33
	Collection	77.95	16.39	94.34	78.31	0.30	78.61
4 th Quarter	Billing	86.61	18.21	104.82	84.14	17.85	101.98
	Collection	77.95	16.39	94.34	81.33	0.25	81.58
Total Billing		342.22	71.13	413.35	329.79	74.20	403.99
Total Collection		308.00	64.01	372.01	303.79	1.16	304.95

Government billing constituted 18% whilst private billing constituted 82% of the total billing figure of ₪403.99 billion. Actual total billing for the period was ₪403.99 billion as compared to a target of ₪413.35 billion, thus recording a negative variance of 2.26%.

Again with collections, there was a negative variance of 18%, ₪304.95 billion as against a targeted figure of ₪372.01 billion. Overall collection ratio for the period was 75%, far below the PURC benchmark of 95%. Of the amount collected by the company, collections from the private sector accounted for 99.6% whilst collections from the Government amounted to only 0.4%.

The table below shows a comparative analysis of the various quarters

Table 5: Comparative Analysis of Collection Ratios

CONSUMER CATEGORY	4 th QTR. '02	4 th QTR. '03	PURC Targets
PRIVATE (%)	85.00	97	95
GOVERNMENT (%)	2.7	1	95
COMBINED (GOVT. & PRIVATE) (%)	87.70	98	95

It can be seen from the table that collection from the Government or public sector has been on the descent from the fourth quarter of 2002 through to 2003. This follows from

the overall low performance of that sector in the first quarter of 2002. **Notwithstanding 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.**

Consumer Metering

The metering ratio for the period under review was 47%, compared to a target figure of 60%. The number of working meters decreased marginally by 1.1% from the third to the fourth quarter of 2003. Over the same period, customer strength increased by 1.3%. The real metering ratio as at the end of the fourth quarter of 2003 was 46%.

Non-Revenue Water

The level of non-revenue water (physical and non-physical) during the year was 57 per cent. Compared to a target figure of 45%, there was a negative variance of 21.11%. This indicates a deteriorating performance. In the table below, an analysis of the performance of individual systems is made in comparison with the PURC benchmark of 45% set in the tariff schedules for 2003.

Table 6: Analysis of Non-Revenue Water (NRW) for 2003

Non Revenue Water (%)	Consolidated NRW	ATMA	Ksi/Cty	Sek/T'di	C/Coast	Eastern	Volta	North	U/E	U/W	B/A	Ash'RI	W/RI	Gen RI
	56.13	60.7	48.6	53.8	32.5	41.3	53.8	34.9	44.8	15.2	50.3	59.3	43.1	63.8

Of the thirteen systems indicated in the table above, only five of them met the required PURC set target of 45% level of Non Revenue Water. This is an improvement over the past quarters figures. However, 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 has outlined steps being taken to reduce the non-revenue water towards the target value set by PURC, and these will be closely monitored in the coming year.

6.1.4 CUSTOMER SERVICES

An important indicator of a utility's performance is its response to customer complaints. As stated earlier, GWCL failed to submit any data on customer complaints filed directly with the company.

However, the Commission has been involved in a number of complaints resolution submitted directly to it by the general public.

A total of 40 complaints were received concerning GWCL operations in 2003 These have been classified below.

Table 7: Complaints received against Ghana Water Company Limited

Period	Payment	Quality of Service	Billing	Disconnection	Metering	Number of Complaints
January – June	2	4	7	3	4	20
July - December	2	3	8	3	4	20
Total	4	7	15	6	8	40

6.1.5 FINANCIAL PERFORMANCE

In spite of some improvement in the company's financial performance, a deficit of ₵392.7billion was recorded for the year. This is an improvement of approximately 49.7% compared to the 2002 deficit of ₵780.3 billion.

The table below indicates that there was a decline in the operating expenditure for transmission/boosting costs. Actual production cost as well as distribution costs also dropped. However, marketing and general administration recorded positive variances.

Table 8: Variance Analysis of GWCL Direct Operating Expenses for 2003

Item	Actual (₵ billion)	Target (₵billion)	Variance	
			(₵billion)	%
Production	229,485,814	282,842,000	(53,356,186)	(18.86)
Transmission/Boostering	17,285,313	25,046,000	(7,760,687)	(30.98)
Distribution	39,117,119	44,779,000	(5,661,881)	(12.64)
Commercial/Marketing	52,501,801	22,550,000	29,951,801	132.82
General Administration	88,039	74,604	13,435	18.00
Total	338,478,086	375,291,604	(36,813,518)	(9.81)

GWCL reviewed its direct operating cost by 9.81% thus indicating an improvement in the operating ratio. The significant cut in expenditure was made on the production side, which recorded over 18% cut in cost. The average collection period for the company however worsened from 202 days as at the end of 2002 to 235 days for the period under review. Debtors turn over for the same period worsened from 1.78% to 1.53%

respectively thus indicating a high level of debtors and subsequently a low collection ratio. The Company's gearing increased from 97.51% to 114.01% over the same period further indicating a deteriorating state of the company.

Operating Profit/Loss

The company registered a loss of ₦13.4billion for the period under review indicating a deteriorating state of the company.

Rate of Return

The rate of return on assets for the period under review recorded -18.16%. This is an improvement over the previous period, which recorded -35.26%. It was noticed that the company made a loss after depreciation, and also huge interest paid on loans and the unfavorable exchange rate fluctuations led to the Company registering a further loss.

Operating Ratio

Operating ratio (Operating Cost/Total Revenue) shows the operational efficiency of a company. A low ratio is an indication of an efficient use of resources to generate income. This ratio worsened from 83.8% in the year 2002 to 102.7 % as at the close of year 2003 indicating deterioration in operational efficiency.

6.1.6 WATER QUALITY

Water Quality Standards

The role of the Commission's Water Quality Inspectorate is to analyze samples of water produced by GWCL to assess its potability. Inspection visits were made to the Kpong, Weija, Winneba, Brimso and Inchaban water treatment plants during the year. The plant supervisors reported problems of inadequate staffing, lack of transport and certain basic equipment, which created difficulties for raw water treatment and quality monitoring during the year.

Quality was measured at three points – Raw Water Source, Treatment Plants and in the Distribution Systems.

Raw Water Quality

Turbidity and colour of raw water remained a major treatment problem for most of the plants. Table X below shows the differences in some basic parameters of key treatment plants, which explains the significant differences in usage of chemicals from plant to plant.

Table 9: Raw Water Characteristics at Key Treatment Plant

Indicator	Weija	Kpong	Brimsu	Bara-kese	Daboase	Densu	Kpeve	Dalun
pH	7.9	6.8	6.6	6.9	7.0	7.2		7.0
Turbidity(mg/l)	26.9	1.0	13.6	26.0	60.7	-	-	112
Color(HU)	151.3	5.8	271.5	189	268.8	112.3	-	288.7
Iron (mg/l)	0.05	0.03	2.0	1.6	2.1	0.06	-	1.8

Output Quality at Treatment Plants

In spite of the raw water challenges, bacteriological and physical quality of water produced at most of the treatment plants was satisfactory. However, due to the high colour and turbidity of raw water at the Brimsu and Daboase plants, compliance rates for pH and turbidity at those stations fell below acceptable standards. It is recommended that the introduction of facilities to stabilize pH at those stations should be given a much higher priority by GWCL Management. The Commission has requested the company to submit a report on measures being taken to address this issue, and we will continue to monitor these stations to ensure that an acceptable quality is attained. The table below shows levels of quality achievement at key treatment plants.

Table 10: Output Quality at Key Treatment Plants

Indicator (% compliance)	Weija	Kpong	Brimsu	Bara-kese	Daboase	B/A	Densu	Kpeve	Dalun
Residual Chlorine	100	91	65.3	73.6	54.1	100	100	98.8	86.5
Bacteriological	100	100	100	100	100	100	100	100	100
pH	95.3	94.5	54	68.7	44.2	90	77.8	75	81.3
Turbidity	99	100	78.3	92.5	39.3	100	100	100	80.5

Quality in Regional Distribution Systems

Parameters monitored in the distribution systems included the number of samples taken and analyzed for bacteriological, residual chlorine and pH levels, among others. Considering that ATMA constitutes about 60% of the total production capacity of GWCL, compliance with sample taking is expected to be higher. The performance of the distribution systems as depicted by table 12 indicates that ATMA, Central and the Western regions fell below the compliance values for residual chlorine.

ATMA	69
ASH	92.2
C/R	77.4
W/R	87.9
N/R	57.3
B/A	100
V/R	77.5
E/R	97.3)
U/E	91.5

Table 12: Water Quality at Distribution systems

Indicator	ATMA	ASH	C/R	W/R	N/R	B/A	V/R	E/R	U/E
%Compliance									
Bacteriological	93.8	100	100	88.5	97.0	99.3	100	97.3	96.5
Residual chlorine	15.3	71.6	46.9	20.5	95.3	100	86.3	97.8	91.0
pH	97	80.5	66.7	68.7	95.3	100	100	98.5	93.0

Some of the reasons for non-compliance with these targets were given as poor dosing facilities at headworks, non-flushing of distribution network because of low pressure in most of the distribution systems, and water rationing which causes build up of contaminants in the system. The Commission has requested GWCL to submit a comprehensive leakage control programme which will reduce the need for rationing and make more water available for routine flushing of the systems.

Public Awareness on Water Quality

As part of the PURC public awareness program a joint forum was organized in Cape Coast with ECG and GWCL on the 26th November 2003, on “Enhancing Quality Utility Service Delivery”. The GWCL indicated that the Brimsu Water Treatment Plant which serves Cape Coast is no longer able to meet the current demand of the increase in population. Short term measures to supplement production, such as drilling boreholes and dredging of the dam to improve storage were enumerated, and progress on these will be reported in our next annual report.

The company also informed consumers of the invasion of the plant by fast-multiplying water weeds which interrupted water treatment and supply. (This made headlines in the “Daily Graphic” on Monday 24th November 2003).

PURC has called for control of activities and protection of the water treatment catchment areas as a matter of high priority. This requires the active involvement of the Water Resources Commission, which has the statutory responsibility for preserving raw water catchment areas.

CONCLUSION

In conclusion, the following points are highlighted:

- Revenue collection of GWCL was below expectation and government agencies continued to accumulate arrears, thus exacerbating GWCL's cash flow difficulty.
- Non-revenue water of 54.5% is still high compared to the Commission's target of 45%.
- Though deterioration in raw water is a major factor in the unsatisfactory quality of water, it is observed that GWCL must prioritize its investments to ensure that leakage and back-siphonage is adequately controlled.
- Customer Service issues must be adequately addressed in subsequent reports filed with the Commission by GWCL.
- PURC will require GWCL to submit progress reports in a timely manner - quarterly reports within four weeks after the end of the quarter and annual reports three months after the year end.
- GWCL has been requested to explain the inconsistencies in the residual chlorine/bacteriological quality results of water samples especially that of the Western Region.

6.2 ELECTRICITY

This section of the report provides a brief on electricity tariffs for 2003 as well as a review of 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 2003. Part I gives a brief on 2003 tariffs, Part II reviews technical and financial operations of the VRA, NED and ECG, while Part III is a review of the quality of service performance and level of service delivery from the three companies.

PART I

6.2.1 TARIFFS

As part of the Commission's efforts toward cost recovery by the utilities under the transitional plan for electricity rate adjustments, the second and final part of the two-step adjustments in electricity tariff announced in August of year 2002 was implemented on March 1, 2003.

The Commission commenced the implementation of its Automatic Adjustment Formula in respect of electricity tariffs in the second quarter of the year (July, 2003) and announced a 6% increase in the average end-user tariff. This increase comprised a 7% increase in VRA's Bulk Supply Tariff and 6% increase in ECG's Distribution Service Charge (DSC).

PART II

6.2.2 VOLTA RIVER AUTHORITY

6.2.2.1 Generation Mix Analysis 2003

System energy supply from the various generation sources for 2003 is as shown in Table 13 below. Total energy generated from hydro, thermal and imports amounted to 5899GWh.

Of this amount, hydro sources contributed 3,885 GWh representing 60%. Generation from thermal sources (TAPCO and TICO) amounted to 2,014 GWh, representing 31% of total generation for the year.

Imports of energy amounted to 940 GWh, accounting for 14%, while there was no energy generated from the Tema Diesel Generating Station.

Transmission Losses amounted to 330 representing about 5.0% of total energy generated.

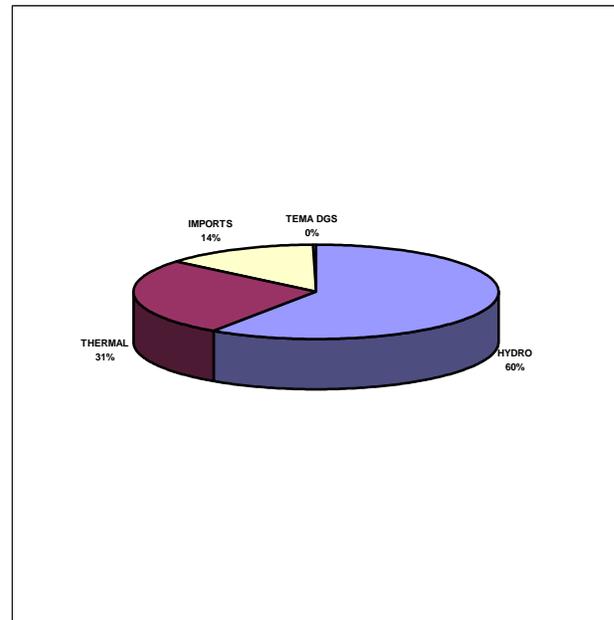


Table 13: Energy Generation by Source for 2003

Generation Source	GWh	% Composition
HYDRO:	3,885	60.0
THERMAL:	2,014	31.0
IMPORTS	940	14.0
SRP	0.88	
TEMA DGS	0	
Transmission Losses	(330)	(5.0)
Generation & Transmission Substation Use	(40)	
TOTAL	6470	100.0

6.2.2.2 System Capacity Supply and Demand Balance for 2003

Table 14: Effective Domestic Capacity Supply 2003

SOURCE	EFFECTIVE CAPACITY (MW)	INSTALLED CAPACITY (% COMPOSITION
Hydro:			
▪ Akosombo	650	1005	
▪ Kpong	140	160	68.0
Thermal:			
▪ TAPCO	150	330	
▪ TICO	200	220	32.0
Total Available Effective Capacity	1090		
System Coincident Peak Demand	1135	1706	
Reserve Margin (Effective)	45		

Table 14 shows effective domestic supply and installed capacity for the year. 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.

6.2.2.3 Energy Demand Analysis

Energy demand for the year as shown in Table 15 below totalled **6462 GWh**. Total demand by local customers including ECG and NED for the period under review amounted to **5578 GWh**. Energy supplied to foreign customers including VALCO, CEB and Free Zone Companies totalled 884 **GWh**.

Table 15: Energy Demand by Customer Type for 2003

CUSTOMER	ENERGY DEMAND (GWh)	% COMPOSITION
ECC	4505	39.7
Mines	573	8.9
Akosombo Township & Textiles	28	0.4
Aluworks	14	0.2
Others (VRA Township)	32	0.5
NED	426	6.6
Total Local Customers	5578	86.3
VALCO	250	3.9
CEB Togo & Benin	602	9.3
Free Zone Companies	4	0.1
Diamond Cement	26	0.4
Societe National D' electricite Du Barkina	2	0
Grant Total	6462	100.0
Total Foreign Customers	884	13.7
Total Energy Generated	5578	86.3
Transmission Losses	330	
Generation & Transmission Substation use	40	
Total Energy Demand	6462	100.0

6.2.2.4 Financial Analysis of VRA Operations for 2003**Operating Expenses**

	¢Billion
Revenue from Electricity Sales	2,710.3
Other Income	667.5
Total Income	2,377.9
Operating Expenses	(2,250.5)
Depreciation	(771.6)
Gain on Foreign Exchange	(35.3)
Operating Profit	391.6
Exchange Fluctuation	(334.6)
Interest & Commitment Charges	(89.3)
Net Loss (After Exchange Fluctuation, Interest, Commitment Charges & Exceptional Items)	(32.8)

Key cost drivers of VRA's direct total operating expenses for the year were as follows:

	<u>Actual Cost (cents/kWh)</u>	<u>PURC efficient Cost (cents/kWh)</u>	<u>% of Direct Cost</u>
i. Energy Cost (TAPCO Plant) ²	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

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 16 below shows a summary of the Operation and Maintenance expenses of VRA.

TABLE 16: Details of VRA's O & M Expenses for the Year Ended December 31, 2003

DIRECT O & M EXPENSE	YEAR 2003	% COMPOSITION	VARIANCE (+/-) YEAR 2003 vs. 2002	VARIANCE (%)
Hydro Generation	23.3	0.8	1.6	6.9
Thermal Generation	841.3	28.2	-426.7	102.9
Imports of Electricity (CIE)	1,104.1	37.1	358.0	-24.5
Transmission	33.9	1.1	-7.4	27.9
Central Services	171.4	5.8	3.1	-1.8
Akosombo/Akuse Township	20.9	0.7	-13.0	164.6
Health Services	12.7	0.4	-3.7	41.1
Depreciation	771.7	25.9	-215.4	38.7
Total	2979.3	100.0		

Table 17: Selected Financial/Economic/Efficiency Indicators for 2003

INDICATOR	UNIT	2002	2003
FINANCIAL/ECONOMIC/EFFICIENCY			
Operating Profit/Loss	¢B	-562.5	391.1
Net Profit/Loss	¢B	-1,236.30	-32.8
Rate of Return on Average Re-Valued Net Fixed Assets	¢B	-4.5	2.25
Overall Operating Cost/Sales Revenue	¢B	117.9	83

² calculated at 30 US\$/bbl

2003 Cash Flow Statement of VRA

	<u>Billion Cedis</u>
Cash flow from operating activities	657.1
Cash flow from investing activities	(661.2)
Cash flow from financing	(187.7)
Decrease in cash and cash equivalents	(191.7)
Cash and cash equivalents at beginning of year 2003	316.3
Cash and cash equivalents at end of year 2003	124.4

6.2.3 ELECTRICITY COMPANY OF GHANA

6.2.3.1 Distribution System Analysis

In 2003, ECG purchased a total of **4,496 GWh** of power from the Volta River Authority. Energy billed for the period totalled **3,343.0 GWh**, whilst distribution system losses for the period totalled **1153 GWh**. In percentage terms, ECG recorded **25.65%** 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 18 below.

TABLE 18: ECG Distribution System Losses for the year ended December 31, 2003

SYSTEM LOSS	Year 2002	Year 2003
Total System Loss (%)	25.60	25.65
PURC System Loss Benchmark	21.0	21.0
System Loss Deterioration With Respect To PURC Benchmark	-4.60	-4.65

TABLE 19: Analysis of Power Purchases, Sales and System Losses for 2003

DETAIL	GWh	%
Power Purchased (GWh)	4496.0	100.0
Power Sold (GWh)	3343.0	74.35
Total System Losses (GWh)	1153.0	25.65
PURC System Losses Benchmark	944.16	21.0
System Loss Deterioration With Respect To PURC Benchmark	208.84	-4.65

Table20: Cost of System Losses to ECG for the Year Ended December 31, 2003

DETAIL	Billion Cedis
Power Purchased	1,841,930.0
Power Sold	2,280,744.0
Total System Losses	582,445.8
PURC System Losses Benchmark	476,856.2
Cost of System Loss to ECG	105,589.6

6.2.3.2 Financial Analysis of ECG Operations for 2003

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

Highlights of ECG 2003 Financial Performance

	Billion Cedis	
	Year 2003	Year 2002
	¢	¢
Total Revenue	2,272.1	1,552.7
Direct Operating Costs (i.e. Power Purchase)	(1,889.2)	(1,173.6.)
Gross Profit	382.8	379.1
Operating, General & Admin. Expenses	(247.4)	(132.0)
Depreciation	(363.4)	(340.0)
Operating Profit/Loss (Before Exchange Fluctuation, Interest, Commitment Charges & Exceptional Items)	(228.0)	(116.4)
Exchange Fluctuation Loss	(166.2)	(251.6)
Loan Interest	(88.5)	(84.0)
Net Operating Profit/(Loss)	(329.0)	(380.5)

Analysis of ECG's Operating Cost for the Year 2003

The key cost drivers of ECG's operations for the period under review were:

- a. Direct: - Cost of power purchase
- b. Indirect: - Depreciation
- Exchange Fluctuation Loss on foreign loans

Though the cost of electricity purchased by ECG increased by about 62%, over year 2002 purchases due to the upward adjustments in the Bulk Supply Tariff of about 14.7% in March 01, 2003 and 7% in July 2003 by the Commission, the Company would have reduced its net operating loss for year 2003 by **¢105.6** billion if it had met PURC system losses benchmark of 21%.

Analysis of ECG's Cash Flow Position

	¢
Net Cash Flow from Operating Activities	253.4
Net Cash flow from Investing Activities	(210.0)
Net Cash Flow from Financing Activities	0
Increase in cash and cash equivalents	43.4
Balance in cash and cash equivalents (At Jan 1, 2003)	178.4
Balance in cash and cash equivalents (As at December 31, 2003)	¢221.8

ECG could have enhanced its positive cash flow position by reducing its average receivable collection period and meeting the PURC loss benchmark.

PART III

8.2.3 Quality of Service Performance Review

Quality of service performance review of the regulated electric utilities for the year 2003 involved analysis of the performance of the generation, transmission and distribution systems performance; including:

- transmission and generation availability
- generation utilization factor
- transmission system loss levels
- planned and unplanned outages, and
- duration of supply hours lost per connected customer (i.e. a measure of network availability)
- supply interruption per 100 km of system length (i.e. measure of network security and system reliability), and
- distribution system loss levels.

8.2.3.1 Generation and Transmission Systems Performance Analysis

Table 21: Generation Availability Factor (%) for the Year Ended December 31, 2003

GENERATION STATION	AVAILABILITY FACTOR (%) 2003	PURC BENCHMARK
Akosombo GS	95.17	95.0
Kpong GS	89.07	95.0
TAPCO	64.59	85.0

Table 22: Transmission System Analysis for the Year Ended December 31, 2003

DETAIL	YEAR 2003	PURC BENCHMARK (%)
Transmission System Losses (%)	4.47	2.80
Transmission System Line-in-Service (%)	99.38	97.0
Power Supply Availability (%)	99.02	97.0

8.2.3.2 Distribution Network Performance Analysis

Customer Outage Hours

During the year 2003, customer outage-hours recorded by both ECG and NED showed that with the exception of the Upper West and Northern Regions which registered on average customer outage-hours of 76 hours and 66 hours just above the PURC benchmark of 50 customer outage-hours, outage duration experienced by non-SLT Customers far exceeded PURC benchmark with the Central Region recording the highest outage-hours of 180 hours a variance of (130) below the PURC benchmark.

Supply Interruptions per 100km of System Length

During the year under review, ECG and NED recorded varying levels of supply interruptions per 100km of system length well within PURC benchmark for the year. However, ECG recorded 133.54 hours of supply interruptions per 100km of system length in the Western Region while NED registered 117.21 hours of supply interruptions per 100km of system length in Upper West during the year 2003. These figures far exceed the PURC's supply interruptions per 100km of system length benchmark of 100 hours for the year.

Distribution System Losses

Table 23: ECG Distribution System Losses 2003

SYSTEM LOSS TYPE	Year 2003
Total System Loss (%)	25.65
PURC System Loss Benchmark	21.0
System Loss Deterioration With Respect To PURC Benchmark	-4.65

The NED achieved distribution system losses of 37.7% in the Northern Region, 27.85% in Brong Ahafo, 11.5% in the Upper West Region and 24.80% in the Upper East Region as against PURC benchmark of 25% for the year under review.

7 REGULATORY COLLABORATION WITH SOME NATIONAL & INTERNATIONAL AGENCIES AND PROJECTS

African Forum for Utility Regulators [AFUR]

PURC was a founding member of the African Forum for Utility Regulators established in 2000 to foster collaboration and information sharing among utility regulators in Africa. The Forum has a membership of energy, water and telecommunications regulators from over 26 African countries.

In 2003, PURC as a member of the Executive Committee participated in the first Annual General Assembly of the forum held in Yaoundé, Cameroon. A broad framework for utility regulation across Africa was agreed, comprising principles of transparent decision-making, non-discrimination, independence of regulators, and accountability towards government, investors, end-users and other stakeholders. The promotion of these good regulatory principles and practices for utility regulation in Africa will serve as AFUR's contribution towards the continent's economic and social development and the success of initiatives such as NEPAD.

West African Gas Pipeline Project

PURC continued to review negotiations of the pipeline project to ensure that the pricing methodology and other issues affecting operations in the project are in accordance with the Commission's tariff setting guidelines and are not unduly detrimental to consumers. PURC was nominated as a member of the team negotiating the Gas Sales Agreement between VRA and N-Gas, and the West African Gas Company Ltd. However, the Commission believes that it must remain at arm's length from commercial agreements of the regulated utility companies, in order not to prejudice its regulatory role. PURC however continues to make its policies clear to VRA to ensure that these are taken into account.

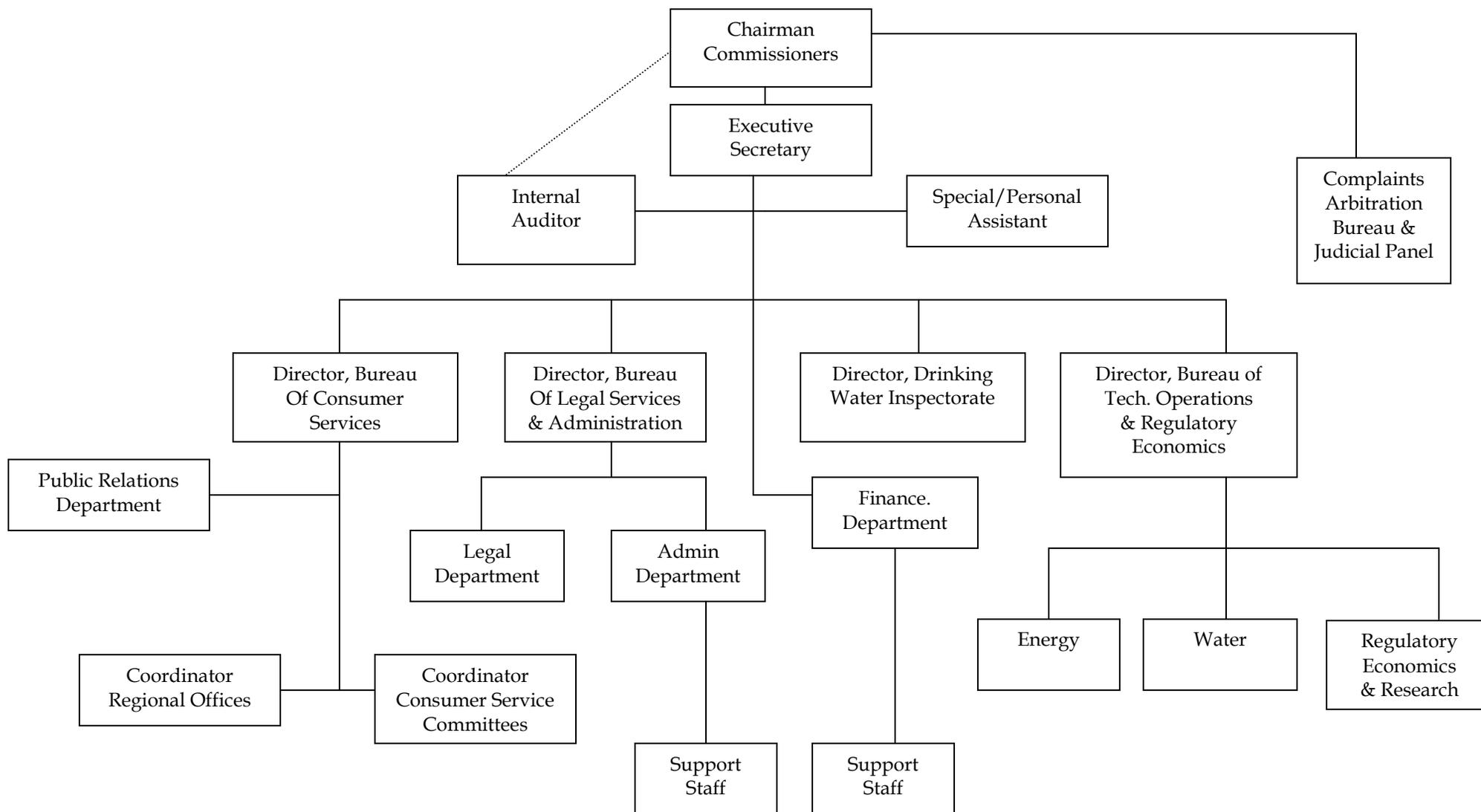
Power Sector Reforms

The Power Sector Reforms of which the PURC is a key stakeholder got a further push when the Economic Consultants Associates (ECA) presented their final report on the reform of the electricity sector. PURC's key responsibilities under the reforms include developing rules for separate regulation of hydro and thermal energy, developing guidelines for embedded power generation, and establishing Wheeling Charges for the power sector.

Energy Commission

Meetings were held during the year between PURC and the Energy Commission to agree on the classification of electricity Bulk Customers and to discuss PURC's determination of wheeling charges to be charged by the Electricity Transmission Company as well as general rules to govern transmission. The rules and charges will be publicized for stakeholder input before finalization in 2004.

8 ORGANISATIONAL CHART



9 2003 FINANCIAL STATEMENTS