



# **Urban Water Tariff Policy**

February 2005



# **Public Utilities Regulatory Commission**

## ***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 services to all consumers at fair prices.*



# Urban Water Tariff Policy

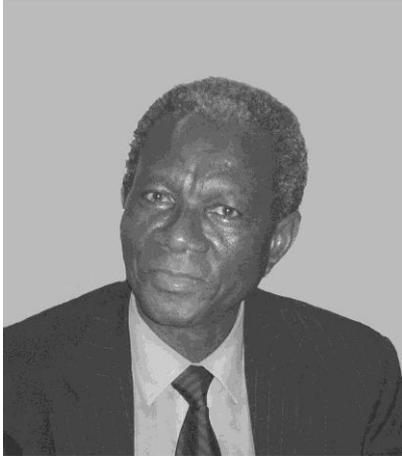
February 2005

## Table of Contents

<b>CHAIRMAN'S MESSAGE .....</b>	<b>1</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>2</b>
<b>1. INTRODUCTION .....</b>	<b>4</b>
1.1 RATE SETTING PROVISIONS OF THE PURC ACT 538 .....	4
1.2 OBJECTIVES .....	4
<b>2. JURISDICTION .....</b>	<b>5</b>
2.1 GHANA WATER COMPANY LTD .....	5
2.2 SECONDARY MARKETS .....	5
<b>3. PRINCIPAL TARIFF POLICY OPTIONS.....</b>	<b>5</b>
3.1 TARIFF STRUCTURES .....	5
3.1.1 <i>Uniformity of tariffs</i> .....	5
3.1.2 <i>Rising block tariff structures and the lifeline tariff</i> .....	6
3.1.3 <i>Cross-subsidies between different user categories</i> .....	7
3.1.4 <i>Infrastructure development charges</i> .....	7
3.1.5 <i>Connection and reconnection fees</i> .....	8
3.1.6 <i>Level of service</i> .....	9
3.2 COST RECOVERY.....	9
3.2.1 <i>Short term approach</i> .....	9
3.2.2 <i>Medium to long-term cost recovery</i> .....	10
3.2.3 <i>Direct operational costs (excluding depreciation and return on capital)</i> .....	10
3.2.4 <i>Capital costs including capital maintenance</i> .....	11
3.2.5 <i>Working capital</i> .....	11
3.2.6 <i>Taxation</i> .....	11
3.2.7 <i>PURC costs</i> .....	12
3.2.8 <i>Capital valuations and regulatory capital value</i> .....	12
3.2.9 <i>Return on capital</i> .....	12
3.2.10 <i>Capital structure</i> .....	13
3.3 ENVIRONMENT .....	13
3.3.1 <i>Water use management</i> .....	13
3.3.2 <i>Unaccounted for water (UfW)</i> .....	14
3.4 CONSTRAINTS AND OTHER FACTORS.....	15
3.4.1 <i>Cash flow</i> .....	15

3.4.2	<i>Affordability</i> .....	15
3.4.3	<i>Currency</i> .....	15
<b>4.</b>	<b>PROCESS</b> .....	<b>16</b>
4.1	TARIFF REVIEW PERIODS .....	16
4.2	MAJOR TARIFF REVIEW PROCESS .....	16
4.3	INTERIM REVIEWS .....	16

## CHAIRMAN'S MESSAGE



*Unlike many other household commodities, simple market forces of supply and demand cannot determine the price and quality of water; the choice of different quality products at different prices is not available, a network supply is a natural monopoly with inherent abuses and inefficiencies, and water as a basic human need is exposed to exploitation by political interest groups. Regulatory intervention is essential to solve these problems for which a transparent Tariff Policy is a key ingredient.*

*The development of a Tariff Policy for water supply is one of the initial steps leading towards the development of a high quality, sustainable and affordable water supply infrastructure. Without a Tariff Policy it is extremely difficult for managers, government, funding agencies and other stakeholders to plan, invest in and operate the water supply infrastructure. Simply increasing tariffs is not a cure for falling levels of service and often results in failure; the beneficial effects are only short term and the longer lasting adverse effects of inefficiency and poor planning very quickly take over.*

*The different stakeholders in the water supply sector and their varying needs and objectives, many of which pull in different directions, demand a high degree of consensus in the determination of a Tariff Policy. Our legal remit requires us to set tariffs taking account of: consumer interest, investor interest, costs of production and the financial integrity of the utility. Incorporating these objectives into a comprehensive tariff policy provides a foundation upon which the water supply infrastructure can be developed in a sustainable and affordable manner.*

*Although a Tariff Policy alone cannot address all the problems experienced in the water sector it is possibly the single most important and most urgent issue. It is unlikely that other efforts to improve service will succeed without the financial stability that a Tariff Policy can bring.*

A handwritten signature in black ink, appearing to read 'Kwame Pianim', written in a cursive style.

**Kwame Pianim**

**CHAIRMAN**

Public Utilities Regulatory Commission

February 2005

## **EXECUTIVE SUMMARY**

This PURC Water Tariff Policy is based upon the legal obligations set out in the PURC Act 538, 1997. The primary objective of this Tariff Policy is to strike the optimum balance between the often conflicting interests of stakeholders, notably those of customers and service providers.

This Tariff Policy relates to the activities of the Ghana Water Company Ltd (GWCL) and excludes secondary service providers.

The principal tariff policy options include:

### 1. Tariff structures

- Uniform tariffs throughout the country.
- Provisions for rising block and lifeline tariff structures.
- Cross-subsidies between different consumer groups.
- Connection and reconnection fees.
- Improved access to piped water supply services for the poor.

### 2. Cost recovery

- Short term approach leading to cost recovery within five years.
- Longer term full cost recovery including a return on capital.
- Direct operational costs (per unit of water sold and paid for) to reduce with improved operational performance and efficiency.
- Capital costs reflected in the tariff through increasing allowances for the recovery of current cost depreciation until full cost recovery is achieved.
- Taxation obligations to be factored into the tariff when applicable although this is not considered to be an issue in the short term.
- Return on capital limited to interest payment obligations in the short term but longer term allowances will provide for a return on total capital.

### 3. Environment

- Water use management factored into the tariff through the support of education and awareness programmes
- Leakage control activities based upon economic levels of leakage

### 4. Constraints and other factors

- Cash flow recognised as a constraint
- Affordability addressed through the lifeline tariff
- Currency of tariff to be in GHC

The process of tariff determinations shall include: publication of proposals, public consultation, publication of final determinations and an appropriate appeals mechanism. The PURC shall also undertake interim reviews factoring in inflation and other extraordinary changes to the operating environment.

## **1. INTRODUCTION**

### **1.1 Rate setting provisions of the PURC Act 538**

This policy, issued by the Public Utilities Regulatory Commission (PURC) in accordance with the PURC Act, 1997, Act 538 (sections 3a and 16) applies to urban water rate setting in Ghana.

Section 16 of Act 538 requires the PURC to prepare rate setting guidelines which the public utilities are obliged to adhere to in the preparation of their rate applications. This section requires the guidelines to take account of consumer interest, investor interest, costs of production and the financial integrity of the utility.

Section 17 requires the PURC to scrutinise all costs and reach conclusions as to their justification or reasonableness. The Act does not explicitly state that costs determined by the PURC as being unjustifiable or unreasonable are to be excluded from the determination of rates and it is therefore assumed that the PURC can exercise a degree of discretion in this regard. This allows the PURC to recognise that all identifiable inefficiencies could not be eliminated immediately and, in order to protect the financial integrity of the public utility, some allowance for the costs of inefficiency may need to be retained in the short term, for example excess labour.

Section 20 allows, but does not oblige, the PURC to determine a nation-wide uniform rate structure for the provision of services provided by a public utility. For so long as the provision of urban water supply services is wholly the responsibility of the Ghana Water Company Ltd (GWCL), a uniform rate structure is appropriate (refer Section 3.1.1 below).

### **1.2 Objectives**

The interests of the various stakeholders do not necessarily coincide; for example consumer interest in low tariffs is in conflict with investor interest in profit maximisation. It is the function of the PURC to ensure that the rates provide an optimum balance between these interests and ensure the best possible value, including price and improved quality of service for the consumers. This Tariff Policy is designed to deliver this best overall balance.

## **2. JURISDICTION**

### **2.1 Ghana Water Company Ltd**

This policy document is based upon the current institutional environment whereby GWCL is the sole supplier and distributor of water services to areas of supply that fall within the remit of PURC tariff regulation. It is recognised that this environment may change. Consequently, some of the policy statements in this document may be temporary in nature but in general will include the underlying principles of water price determinations that will apply to both the existing and any revised institutional environments.

### **2.2 Secondary markets**

The PURC believes that the rates charged for the provision of water supply services to secondary markets by vendors and tanker services, are subject to free market forces and do not warrant regulatory intervention other than to ensure water quality, a factor that is outside the scope of a Tariff Policy. However, the prices charged by GWCL to the providers of secondary market services are subject to PURC price regulation.

***Policy Statement 1: Jurisdiction***

***This Tariff Policy applies to the activities of GWCL only and does not apply to the activities of secondary market providers except insofar as GWCL provides water to these service providers.***

## **3. PRINCIPAL TARIFF POLICY OPTIONS**

### **3.1 Tariff structures**

#### **3.1.1 Uniformity of tariffs**

National pricing policy for essential services, including petroleum products and electricity, calls for uniform prices throughout the country. The PURC believes that water supply should be no exception to this rule and a uniform price structure is supported.

***Policy Statement 2: Uniformity of tariffs***

***In accordance with national policies for price uniformity for essential services the GWCL shall apply a uniform tariff structure throughout its area of supply irrespective of the differences in the costs of supply.***

Although not a reason for adopting this policy, there is the added advantage of cross-subsidisation from larger population centres, where incomes are higher than average and the cost of service is low (through economies of scale), to those centres where incomes are lower but the cost of service is generally higher.

**3.1.2 *Rising block tariff structures and the lifeline tariff***

Although the inefficiencies of rising block tariff structures are recognised, the PURC has chosen to retain this structure so as not to disadvantage the small portion of the population that currently benefits from it.

***Policy Statement 3: Rising block tariff structure***

***Although the rising block tariff structure is recognised as an inefficient mechanism for the delivery of affordable water supply services to the poor, it is retained for the benefit of the small portion of the population who currently benefit from such a structure.***

***The rising block structure shall comprise two bands: lifeline and normal. The rising block structure shall only apply to domestic customers; non-domestic customers shall be subject to a single band volumetric tariff.***

The lowest band of the rising block tariff structure is the lifeline tariff, a rate set to cover the costs of the basic minimum household requirements at a rate that reflects affordability by the poorest section of the served community. It is recognised that customers not currently served by a piped water supply in fact pay substantially more per unit of water than those with supply. It is therefore considered fair that the lifeline rate shall be set at levels that are not overly generous and at least cover basic operational costs (excluding depreciation and other financial costs).

***Policy Statement 4: Lifeline tariffs***

***Where the rising block structure is applied for domestic customers the lowest band, defined as the lifeline tariff, shall be set at levels to reflect affordability but not less than basic operational unit costs excluding depreciation and return on capital. The monthly allowance for water subject to the lifeline tariff shall reflect basic needs to ensure an acceptable quality of life with respect to hygiene and basic household needs.***

It is recognised that lifeline tariffs only have limited benefit to the poor, defined by PURC as those without direct supply from GWCL and who collect water by buckets or other containers. A more appropriate pro-poor approach is to expand the service to those who currently do not enjoy the benefits of GWCL service. Consequently, PURC shall reserve the right to replace the lifeline tariff with a more appropriate pro-poor tariff arrangement at some time in the future.

**3.1.3 *Cross-subsidies between different user categories***

Although the cost of supply to non-domestic customers may be less than it is for domestic customers, largely as a result of economies of scale, affordability considerations suggest that it would be fair to impose a higher tariff on this consumer group thus allowing the domestic tariff to be reduced: in effect, a cross subsidy from non-domestic customers to domestic customers.

***Policy Statement 5: User categories and cross subsidies***

***The tariffs for non-domestic customers shall be set at rates higher than that applied to domestic customers irrespective of the actual costs of supply.***

**3.1.4 *Infrastructure development charges***

Infrastructure development charges are charges set to recover the additional investment for system expansion from those benefiting from the expansion on the basis that existing customers have already paid for their infrastructure and should not pay for expansion. Although such a policy may be appropriate in a developed economy, where system expansion is for the benefit of industry and a wealthy population, it is not

appropriate for Ghana where expansion is for the benefit of those who do not enjoy piped water supply, defined as the urban poor. Furthermore, it is questionable as to whether existing customers have paid for their infrastructure in full as tariffs have been below full cost recovery levels for a considerable period. Moreover there is limited justification to impose such charges on non-domestic customers as they are already paying a higher than average tariff.

***Policy Statement 6: Infrastructure development charges***

***This Tariff Policy does not support the imposition of infrastructure development charges although the PURC may propose such charges in the future if considered appropriate***

**3.1.5 Connection and reconnection fees**

***Policy Statement 7: Connection and reconnection fees***

***Connection fees shall be set to recover the full cost of a connection from the mains to the customer including the service pipe, meter and ancillary components. Reconnection fees shall be set to recover the costs of reconnection plus a penalty charge sufficient to act as a deterrent against non-payment.***

It is often cited that the principal barrier for the poor to access water supply is the connection charge as opposed to the volumetric unit tariff. This is demonstrated in Ghana whereby the non-serviced customers pay substantially higher volumetric rates to secondary market service providers than those connected to the GWCL system. However, in Ghana the barrier is not through customer choice but as a result of a lack of adequate infrastructure. It is considered that the full costs of connections can be met by the customers once the service is expanded to reach them. Consequently, PURC sees no need at present to cross-subsidise connection charges. Notwithstanding this position PURC shall promote and support strategies designed to assist the poor to gain access to the piped water supply system through funding mechanisms specifically designed to help the urban poor.

***Policy Statement 8: Assisted access for the poor***

***The PURC shall promote and support initiatives to help the poor gain access to the GWCL piped water supply system.***

**3.1.6 Level of service**

Different customers experience different levels of service including: private connections, yard connections and community standpipe services. In some cases the unit cost of supply to lower levels of service may, in fact, be higher than the unit cost for a higher level of service (largely as a result of low sales) suggesting that the tariff should be higher for a lower level of service. This concept is clearly contrary to the concept of tariffs being 'pro-poor' and cannot be supported. On the other hand, although a lower tariff for a lower level of service may, at first glance, appear socially fair this concept is also not supported due to unconnected customers currently paying more per unit of water to secondary market service providers than those served by GWCL.

***Policy Statement 9: Levels of service***

***All domestic customers shall be subject to the same tariff structure irrespective of the level of service and the unit cost of supply.***

**3.2 Cost recovery**

**3.2.1 Short term approach**

Until such time as full cost recovery is achieved tariffs shall be determined on cash flow requirements plus additional allowances to include for the gradual recovery of depreciation. This approach shall also incorporate reasonable expectations of improvements in operating efficiency. The transition to full cost recovery is expected to take five years.

***Policy Statement 10: Short-term approach***

***Prior to the attainment of full cost recovery tariffs shall be based upon cash flow requirements plus an increasing allowance for depreciation but also allowing for reasonable expectations of efficiency improvements.***

### **3.2.2 Medium to long-term cost recovery**

Once full cost recovery, excluding return on equity, is achieved the tariffs shall thereafter include an increasing allowance for a return on total capital to a maximum return appropriate to the risk category of the water supply industry as determined by the PURC. The tariff model shall be based upon base year costs with outputs subject to adjustments in line with inflation.

***Policy Statement 11: Medium to long-term cost recovery***  
***Medium to long-term cost recovery shall include allowances to returns on total capital.***

### **3.2.3 Direct operational costs (excluding depreciation and return on capital)**

The direct operational unit cost (defined as the direct operational costs, excluding depreciation and return on capital, divided by water sold and paid for defined as 'paid for water') shall be expected to fall through operational and commercial efficiency gains and expansion of the customer base<sup>1</sup>. The targets for the expected reduction in unit costs shall be determined by PURC based upon reasonable expectations of improvements in operational efficiency (manpower utilisation, energy efficiency, leakage control) and commercial efficiency (revenue collection improvements, system expansion etc).

Where GWCL's activities are managed through a private sector management contract the operating costs shall include the management fees (unless the fees are paid for by an outside agency on a non-cost recovery basis) but the efficiency target for unit operating costs shall be adjusted to reflect the improved efficiency expected from a private sector manager / operator.

***Policy Statement 12: Direct operational unit costs***  
***It is expected that the direct operational unit cost of water sold and paid for (excluding depreciation and return on capital) shall fall as efficiency improves. The unit cost projections shall be carried forward to the long-run discounted cash flow analysis.***

---

<sup>1</sup> 'Paid for water' is that volume of water sold within the analysis period for which payment from the customers is received. It should not include water related to payments received for billings prior to the analysis period.

### **3.2.4 Capital costs including capital maintenance**

Capital investment, including capital maintenance, shall be included in tariff calculations on the basis of the unit current cost depreciation, i.e. current cost depreciation divided by paid for water sales forecasts. The capital investment profile shall reflect investment plans as approved by PURC. In determining depreciation the useful lives shall be defined by PURC on the basis of real asset life expectations which may or may not conform to writing down allowances employed within the GWCL accounting rules and/or Ghanaian taxation provisions. In the short-term depreciation shall not be carried through to the tariff in full but shall gradually increase to 100% recovery within a specified period. It is expected that efficiency improvements over this period shall temper the adverse tariff implications of increasing the depreciation charge passed through to the tariff (refer sub-section 3.2.1). Depreciation on new assets (1995 onwards) shall be passed through to the tariff in full.

***Policy Statement 13: Capital investment including capital maintenance***

***Capital investment shall be reflected in the tariff by increasing current cost depreciation allowances to a maximum of 100% depreciation after which full cost recovery is considered to have been achieved. All new assets (1995 onwards) shall have their full depreciation allowances passed through to the tariff from the outset.***

### **3.2.5 Working capital**

***Policy Statement 14: Working capital***

***The cash flow stream for GWCL shall allow for any changes in working capital requirements.***

### **3.2.6 Taxation**

Currently GWCL does not generate profits and therefore pays no corporation taxes. It is probable, with tax shields of previous years applied, that GWCL will continue to enjoy the benefits of not paying tax for several years to come. Consequently, taxation is not an immediate PURC issue and should not be considered as part of the tariff calculation. However, this is an area that PURC shall monitor and, if appropriate, apply a small premium

to the allowable return on capital to allow for any probable future tax obligations.

***Policy Statement 15: Taxation***

*PURC shall not consider tax within its tariff determinations until such time that it becomes apparent that GWCL shall incur tax on profits whereupon PURC shall include a premium to the allowable return on capital.*

**3.2.7 PURC costs**

***Policy Statement 16: PURC costs***

*Currently PURC costs are not carried through to the tariff. PURC shall reserve the right to impose a regulatory charge on GWCL at some time in the future.*

**3.2.8 Capital valuations and regulatory capital value**

***Policy Statement 17: Capital valuations and regulatory capital value***

*The regulatory asset value of the GWCL assets upon which a return on capital can be earned on the achievement of full cost recovery shall be the net value of assets determined on a current cost accounting basis.*

**3.2.9 Return on capital**

Prior to the achievement of full cost recovery the return on capital shall be that required to finance interest payments.

On the achievement of full cost recovery the PURC shall set a reasonable real return on capital. This return shall not be less than that required to finance the net interest payment obligations but not more than that expected from a similar risk category industry. To alleviate price shocks the return on capital may be set at a low level in the early years of full cost recovery, increasing over time to the defined long run reasonable return on capital.

***Policy Statement 18: Return on capital***

***In the short term the allowable return on capital shall be that necessary to finance interest payment obligations on GWCLs debts. On the achievement of full cost recovery the tariff shall include a provision for a return on GWCL's total regulatory capital value.***

If, in the course of its activities, GWCL outperforms the efficiency expectations and generates returns in excess of the allowable return on capital, GWCL shall retain such additional returns as profit. Subsequent reviews, however, shall re-evaluate future targets to ensure that customers ultimately benefit from the out-performance of GWCL. This is the fundamental principle of price-cap regulation.

**3.2.10 Capital structure**

Conventional economic theory rules that capital structure has no bearing on the performance of a business. Consequently, the return on capital shall be based upon a return on total capital value irrespective of capital structure. However, as mentioned in Section 3.2.9 PURC shall examine the debt obligations to determine the minimum return on capital requirements.

***Policy Statement 19: Capital structure***

***The PURC considers capital structure to be a GWCL management issue and shall have no bearing on the tariff, except insofar as determining minimum levels of return on capital to satisfy debt obligations.***

**3.3 Environment**

**3.3.1 Water use management**

Although the rising block tariff structure does penalise large consumers of water it is not the intention, at least in the short-term, to employ tariffs as a mechanism to manage water use. The PURC shall, on the other hand, promote efficiency in the use of water by allowing the costs of awareness programmes to be passed through to the tariff. The PURC shall reserve the right to introduce demand management tariffs at an appropriate time in the future.

***Policy Statement 20: Water use management***

***The concept of employing tariffs as a mechanism to reduce consumption is not supported, at least not in the short-term. This Tariff Policy supports the development of awareness and education campaigns undertaken by the operators to encourage efficient water use by the customers even though the benefits are measured in economic as opposed to financial terms.***

**3.3.2 Unaccounted for water (UfW)**

The financial incentives of capturing illegal connections are considered to be financially self-justifying and no additional costs related to this activity shall be incorporated in the tariff.

The primary benefit of improved leakage control is to increase water availability elsewhere in the networks and thereby increase sales. The operational efficiency targets described in Section 3.2.3 shall ensure adequate incentive for GWCL to reduce water losses.

In the long run GWCL is encouraged to control leakage to economic levels, i.e. to maintain leakage levels to the point whereby the costs of any further leakage reduction measures outweigh the benefits. The benefits include increased sales and savings in direct operational costs, mainly energy and chemicals, which are relatively easy to determine, and indirect costs savings attributable to deferred capital investment, not so easy to determine.

***Policy Statement 21: Leakage control***

***This Tariff Policy supports the concept of leakage control directed towards the achievement of an economic level of leakage as opposed to setting specific targets that do not reflect the costs of leakage control.***

This Tariff Policy does not support the inclusion of economic (as opposed to financial) benefits limiting water abstraction in the determination of economic levels of leakage. This is assumed to be part of the operators' statutory obligations with respect to environmental protection for which the costs of compliance are included in the operators' base cost profiles.

### **3.4 Constraints and other factors**

#### **3.4.1 Cash flow**

In a purely commercial activity cash flow considerations would be considered to be an internal management issue and outside the remit of a regulator. However, it is recognised that GWCL may not have the appropriate lines of credit available to meet any short term cash flow shortfalls. Consequently, the tariff policy will recognise anticipated cash flow constraints on the activities of GWCL and, if necessary, adjust tariffs to remove or alleviate such constraints.

***Policy Statement 22: Cash flow***

***The PURC shall, in its tariff determinations, consider the cash flow position of GWCL.***

#### **3.4.2 Affordability**

Affordability and willingness to pay are prime considerations in the determination of tariffs, especially with respect to the poor. The approach adopted by PURC is to consider affordability in the determination of the lifeline tariff (the first block for domestic tariffs) to ensure that basic needs are satisfied at an affordable rate.

***Policy Statement 23: Affordability***

***The lifeline rate for domestic customers is the principal mechanism whereby affordability constraints are incorporated into the tariff structure.***

#### **3.4.3 Currency**

Although the GWCL's balance sheet includes significant liabilities in foreign currencies, predominantly USD, the PURC considers the current macro-economic climate of stable exchange rates and low inflation to be opportune to set tariffs in GHC.

***Policy Statement 24: Currency***

***PURC shall determine tariffs in GHC with all foreign exchange costs and liabilities converted to GHC at the prevailing exchange rate at the time of the tariff determination.***

## **4. PROCESS**

### **4.1 Tariff review periods**

***Policy Statement 25: Tariff review periods***

***The PURC shall undertake a major tariff review every five years.***

### **4.2 Major tariff review process**

In accordance with the provisions of the PURC Act, the PURC shall publish its determinations in the Government Gazette and the national media. In addition a process of public consultation will be undertaken.

***Policy Statement 26: Tariff review process***

***The tariff review process for major determinations (every five years) shall include the publication of draft tariff proposals, public consultation, the publication of final determinations, and an appropriate appeals procedure.***

### **4.3 Interim reviews**

***Policy Statement 27: Interim reviews***

***The PURC shall undertake quarterly interim reviews of the tariff taking into account inflation, exchange variations and any extraordinary changes in the operating environment.***



Public Utilities Regulatory Commission  
PO Box CT 3095  
Cantonments  
Accra

Tel: (233-21) 244181-3 / 225680

Fax: (233-21) 244188

E-mail: [purcsec@ghana.com](mailto:purcsec@ghana.com)

Website: [www.purc.com.gh](http://www.purc.com.gh)