



TARIFF REVIEW FRAMEWORK, GUIDELINES AND PROCEDURE FOR PUBLIC ELECTRICITY SUPPLIERS.

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ABSTRACT

On 1 May 2018, Bahamas Power and Light Company Limited (BPL) was issued a new licence, the Electricity Licence, 2016 (the Licence). The Licence has introduced several changes in the regulatory framework governing the electricity sector. Additionally, the Licences for the Authorised Public Electricity Suppliers (APESL) has introduced several changes in the regulatory framework governing the electricity sector. The two most notable changes are:

- (1) Price Controls Mechanism and Tariffs - URCA shall determine BPL's rates for electric power pursuant to URCA's powers under the EA as amended from time to time and on the principles set out in its Licence; and
- (2) Separated Accounts - BPL shall maintain separate accounts for Generation, Transmission, Distribution and Supply services, in order to assist in tariff setting.

Further, it is noted that the Government of The Bahamas created and by virtue of the 2018 Amendment to the Electricity Act, 2015, preserved a regulatory exclusion period regarding BPL's rate until 2021.

URCA is aware that the EA has given BPL a prescriptive right of way as a PESL, however, URCA shall proportionally adopt the same general tariff review framework guidelines to the APESL.

The Price Controls Mechanism and Tariffs require that (1) URCA shall conduct a tariff review for BPL in accordance with the procedure set out under section 20 of the Electricity Act, 2015 (EA); and (2) BPL shall comply with the processes and timelines established by URCA for tariff reviews. URCA proposes to apply the same principles to the APESL albeit the timeline for tariff review may differ from that of BPL.

In accordance with section 20 of the Electricity Amendment Bill, 2018 URCA's remit is that rates be based on, among other things, revenue and demand and where necessary, a detailed plan and justification for investment in necessary systems upgrades. Consequently, the Licence stipulates that BPL shall develop any expansion plans in consultation with the Government and submit to URCA for approval when satisfied that the plan represents the least economic costs for the electricity supply system expansion. To ensure consistency for tariff setting across the Islands, URCA will proportionally apply the same principle to the APESL.

The purpose of this Document is to present a framework guideline of the principles, methodologies and procedures that URCA will use in the rate setting exercise. These guidelines are not intended to be prescriptive.

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ACRONYMS, ABBREVIATIONS AND DEFINITIONS

AFUDC -	Allowance for Funds Used During Construction
APESL -	Authorised Public Electricity Supplier
Base Year -	The latest twelve months of operation of the Licensed Business for which there are audited accounts adjusted to reflect: 1) Normal operation conditions, if necessary; 2) Such changes in revenues and costs as are known and measurable with reasonable accuracy at the time of filing and are demonstrated as part of the Business Plan. The Base Year shall represent the first year of the Business Plan
Business Plan -	The five (5) year plan incorporating, among other things, the Final Criteria set by the Office and the Integrated Resource Plan (IRP) which forms the basis for the Rate Review Process to establish the non-fuel rates.
CAIDI -	Customer Average Interruption Duration Index
CAPM -	Capital Asset Pricing Model
CCGT -	Combined Cycle Gas Turbine
CIS -	Customer Information System
CPI -	Consumer Price Index
CAIDI	Customer Average Interruption Duration Index
CWIP -	Construction Work In Progress
EA	Electricity Act, 2015
PESL	Public Electricity Suppliers Licence
PES	Public Electricity Supplier
GoB	Government of The Bahamas
IPP -	Independent Power Producer
IRP -	Integrated Resource Plan

KPA	Key Performance Area
KPI	Key Performance Indicator
kWh	Kilowatt-hour
MW	Megawatt
MWh	Megawatt-hours
NEP	National Energy Policy
O&M	Operating and Maintenance
OPEX	Operating Expenses (prudently incurred)
PBRM	Performance Based Rate-Making Mechanism
PPA	Power Purchase Agreement
PPE	Property Plant and Equipment
Project Model	A file in Excel format, which specifies, inter alia, all costs and costing assumptions used in determining the projects that are being proposed in the Business Plan
RAB	Regulatory Asset Base
RE -	Renewable Energy
Rate Review Process	The five (5) year rate setting process of the Office to determine the non-fuel rates to be charged by the Licensee as well as the targets related to the Licensee's performance.
Rate Review period	The five (5) year period being considered in the Rate Review Process.
Regulatory Accounts	The reports on the financial and operational performance of the Licensee in such detail and format as designed by the Office.
Revenue Cap	The revenue requirement approved in the last Rate Review Process as adjusted for the rate of change in non-fuel electricity revenues
ROE	Return on Equity
ROI	Return on Investment
ROR	Rate of Return
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
T&D	Transmission & Distribution

TOU	Time of Use
WACC	Weighted Average Cost of Capital
URCA	Utilities Regulation and Competition Authority

1.0 INTRODUCTION

The Utilities Regulation and Competition Authority (URCA) is the independent regulator and independent authority for the Electricity Sector (ES) in The Bahamas. URCA regulates the ES in accordance with the Electricity Act, 2015 (EA), which includes inter alia the functions and powers to issue regulatory and other measures to regulate the sector. Hence, URCA is responsible for the technical and economic regulation of the Electricity sector. URCA's role generally involves regulating prices, service standards, market conduct and consumer protection. URCA also investigates and issues Orders on regulatory matters that affect the ES.

In undertaking the tariff review, URCA's objective is to build a methodology, procedure and guidelines for negotiating and establishing tariffs that both accords with the Public Electricity Supply Licence (PESL) and meets standards for good regulatory practice. The proposed guidelines, procedures and methodology include clarifying the process for resetting tariffs in the future and establishing an appropriate financial model to be used for tariff resets. URCA hereby proposes to develop the methodology in consultation with BPL and key stakeholders in a manner that considers the need for openness and transparency, while also being reasonably efficient.

The rationale for the tariff review is to assess the continuing appropriateness of tariffs, both in terms of their level and structure. URCA aims to find the right balance between the interests of the consumers of The Bahamas, of the utility, and the Government. In short,

- consumers should not pay more than necessary to receive electricity service of a given standard.
- the utility should be able to charge tariffs in such a manner that it can cover all its prudently incurred costs, and this includes operating, maintenance and investment costs; and finally,
- the government needs to keep the long-term growth and economic development of The Bahamas in view and thus wants present tariffs to support improvements and future investments in electricity supply.

To assess whether tariffs are appropriate to balance the concerns of all stakeholders, URCA shall adopt the following process and methodology:

- the costs of the utility are reviewed in order to determine what the minimum revenue requirement is for electricity supply to operate in a commercially viable manner;
- the cost information gathered from PES to inform what level of expenses are associated with the provision of services will be cross-checked by URCA staff/Consultant on the basis of known and measurable costs and using benchmarking information. This will allow URCA to assess PES's costs of electricity supply compared to other similar countries;
- the appropriateness of costs is intimately linked to the quality and reliability of service that consumers request, and the level of safety that is imposed. Service standards are therefore reviewed for their appropriateness at the same time as company costs;
- in order to determine whether the medium to long term growth and development concerns are addressed, a forward-looking assessment of consumer demand (commercial and residential) and future network investments is undertaken; and
- regarding forward-looking investments, it is also highly relevant to assess renewable generation technologies such as wind or solar.

Given the considerations set out above, the required revenues to cover the present and future costs of electricity supply will be calculated by URCA. The instrument to calculate the revenues will be a financial and economic model tailored to The Bahamas.

URCA believes that while this tariff rate review framework has the advantage of being more proactive in its orientation, it will rely to a significant degree on the capacity of BPL and URCA to impose charges for electricity having regard to reasonably incurred operating and fuel costs.

Against this background, the Rate Review Process is likely to be a rigorous and time consuming one, which in order to be effective must begin at least twelve (12) months prior to the actual submission of the Rate Review application by BPL.

The proposed Tariff Review framework is designed to provide consultative guidance to BPL with respect to the elements of the tariff mechanism that are integral to the Rate Review Process. In this respect, it provides a channel for stakeholders in the industry to discuss critical issues related to the tariff, thereby minimizing the risk for significant disputes after the rates are determined by URCA.

1.1 STRUCTURE OF THE REMAINDER OF THIS DOCUMENT

The remainder of the document is structured as follows;

- Section 2: Rate Review Principles - identifies the basis on which the PES tariff shall be established for the ensuing tariff review period
- Section 3: PES Tariff Review Framework and Guidelines - outlines the framework methodology and guidelines for deriving and establishing tariffs that both accords with the Public Electricity Supply Licence (PESL) and meets standards for good regulatory practice.
- Section 4: Regulatory options for price adjustments - outlines the objectives of a regulatory process built around an incentive-based regime of the hybrid mechanism of having elements of rate of return and price cap combined.
- Section 5: Information and supporting documentation - outlines the information and documentation required for PES Tariff Review submission
- Section 6: The service standard review - focuses on the review of and assessment of service obligations and reliability performance standards delivery by PES
- Section 7 Conclusion and next steps

2 RATE REVIEW PRINCIPLES

PES tariffs have traditionally been set based on two components – fuel and non-fuel. URCA, as prescribed by legislation, namely EA, and the PESL has the remit to approve a tariff methodology and approve tariffs submitted by PES within that methodology.

Section 20(2) of the EA gives URCA the remit to determine the tariff rate and in so doing have regard to -

- The need for revenue derived by PES from sales, services and other sources to be sufficient to pay for the Cost of Service.

This section outlines the general principles and procedures for negotiating and establishing tariffs that both accords with the Public Electricity Supply Licence (PESL) and meets standards for good regulatory practice.

2.1 TARIFF SETTING –PRINCIPLES AND PROCEDURES¹

In the power sector, tariff setting is a vital process of resource management for the utility's survival and growth and delivery of efficient service to consumers. An important factor, which has material bearing in pricing of electricity, is that it cannot be stored to meet fluctuations in demand, additionally, the service is intangible. A utility is expected to pursue profits, and other nonfinancial objectives like consumer service, technological excellence, growth and human resources development. These multiple objectives are to be harmonized without affecting commercial viability. The choices made while designing the tariff are difficult and costly to reverse and the decisions have far-reaching and long-term implications for a utility, consumers and the country. Internationally, the principles that have underpinned tariff design are as follows:

- I. Effectiveness of yielding total revenue
- II. Stability and predictability of revenue
- III. Stability and predictability of rates
- IV. Discouraging wasteful use of services
- V. Understanding the present and future private and social costs and benefits of service provided
- VI. Fairness of rates in the apportionment of total costs of service among different consumers
- VII. Avoidance of discrimination of rates
- VIII. Promotion of innovation and cost-effectiveness in the face of changing demand and supply patterns
- IX. Simplicity, comprehensibility, public acceptability and feasibility

2.1.1 Tariff Design Methodology

Internationally three methodologies have generally been adopted towards price control. These are -

¹ Reference http://regulationbodyofknowledge.org/wp-content/uploads/2013/03/NERA_Electricity_Tariff_Structure.pdf

1. Cost Plus or Rate of Return Regulation
2. Performance Based or Incentive Regulation
3. Hybrid Approach

The older of the three is termed “Cost Plus or Rate of Return Regulation” in which prices are fixed at a level that will provide the investor with a target rate of return on investment and adjusted up or down over time as the rate of return respectively falls below or rises above the target rate. Rate of Return Regulation is essentially a process of balancing costs incurred by the utilities and future estimated revenues.

Performance Based or Incentive Regulation is an extension of Cost-Plus approach that provides incentives for improving efficiency and reducing costs.

Hybrid Approach is a performance-based cost of service approach by considering actual cost and normative parameters specified in the regulations.

Price Cap, Revenue Cap and Hybrid Approach regulation are a form of Performance Based Ratemaking Mechanism (PBRM), which became popular worldwide after it was introduced in Britain in the 1980s. Performance based regulation could include: quality of service, operating standards such as plant load factor, T&D losses management, O&M expenses per customer, etc. as well as quality of service indices such as duration of outages and blackouts.

Performance based regulation methods most often are in the form of Price Cap and/or Revenue Cap. In Price Cap regulation, a formula is specified where the average price² is allowed to increase at a rate that is no more than the inflation rate, usually as measured by the consumer price index. Revenue Cap - attempts to do the same thing, but for revenue rather than prices. This method places an upper limit on revenues, thereby, constraining the price indirectly. Revenue Cap regulation is preferred for utilities that face high fixed costs.

Normally prices are required to increase slower than the rate of inflation because of expected efficiency improvements (i.e. real unit cost reductions). This approach is often referred to as CPI-X (“X” referring to the defined efficiency factor). Under certain circumstances, for example, where considerable investment in infrastructure must be undertaken, the price increases permitted may exceed the rate of inflation (in which case the formula would be CPI+X). The tariff adjustment formula is reviewed by the regulator at fixed intervals, usually four to five years, primarily to determine the value of X, but also to adjust the structure of the price cap mechanism to changing circumstances. If there were conditions of high inflation, the price cap formula would allow significant automatic increases in nominal prices (although, if the formula were CPI-X, there would be reductions in real prices, i.e. net of inflation). In this respect, however, the price cap would not necessarily differ materially from rate of return regulation. The inflation would lead to an increase in the utility’s costs through higher operational expenses, such as labour costs, and higher capital costs, because of the revaluation of assets. In such

² The weights to be used to compute the average price need to be defined (e.g. a common approach is for the weights to be the volume share of each service in the prior financial year).

circumstances, the utility would be permitted price increases to maintain its rate of return. Price cap regulation is, in reality, not the means by which prices are initially determined, but rather a methodology by which tariffs are adjusted over time from a previously accepted level. Therefore, the starting level of prices will be an issue to be addressed. If it is considered that the current level of prices is too low to provide an adequate rate of return, the price cap could be used to smooth the transition to higher prices, e.g. by choosing a value of X below the expected real unit cost reductions.

Key issues in defining a price cap mechanism are how the rate of inflation is to be determined, the initial value of X (the factor by which increases in tariffs will lag inflation), the weights in the computation of the average price, and the frequency of tariff reviews.

One potential disadvantage of price caps/revenue caps is that the utility may feel exposed to greater “regulatory risk” than under rate of return regulation. This risk does not relate to the initial details of the price cap, such as the value of X, so long as these are pre-announced, but investors may have a concern about factors such as how subsequent values of X will be set, who will be setting them, how much credibility that body has as an impartial regulator, what rights of appeal exist and how credible and impartial they are among other concerns.

There are various advantages of price caps. First, price caps provide the utility operator with an incentive to improve efficiency. This is initially to the benefit of the investor, as lower costs feed through into higher profits (this is the source of the incentive). But, later on, at the periodic price control reviews, consumers obtain a share of these benefits through price adjustments or higher values of X. This is a tried and proven feature of price caps and it is often the case that the efficiency improvements achieved greatly exceed the initial expectations at the time of the introduction of price caps/revenue caps.

Price caps also involve less intrusive regulation. Under price caps, the regulated company can choose the timing and frequency of price changes, and the structure of prices³. There may be restrictions to this flexibility, but they must be explicitly identified in the price cap formula. It also requires less direct supervision and intervention by the regulator.

³ Structure here meaning differences in prices between customer groups, or geographically, or by time of day etc.

3 PES TARIFF REVIEW FRAMEWORK GUIDELINES

This section outlines URCA’s determined framework and methodology for negotiating and establishing tariffs that both accords with the Public Electricity Supply Licence (PESL) and meets standards for good regulatory practice. The framework methodology clarifies the process for resetting tariffs in the future, determines a regulatory methodology and establishes an appropriate financial model to be used for tariff resets.

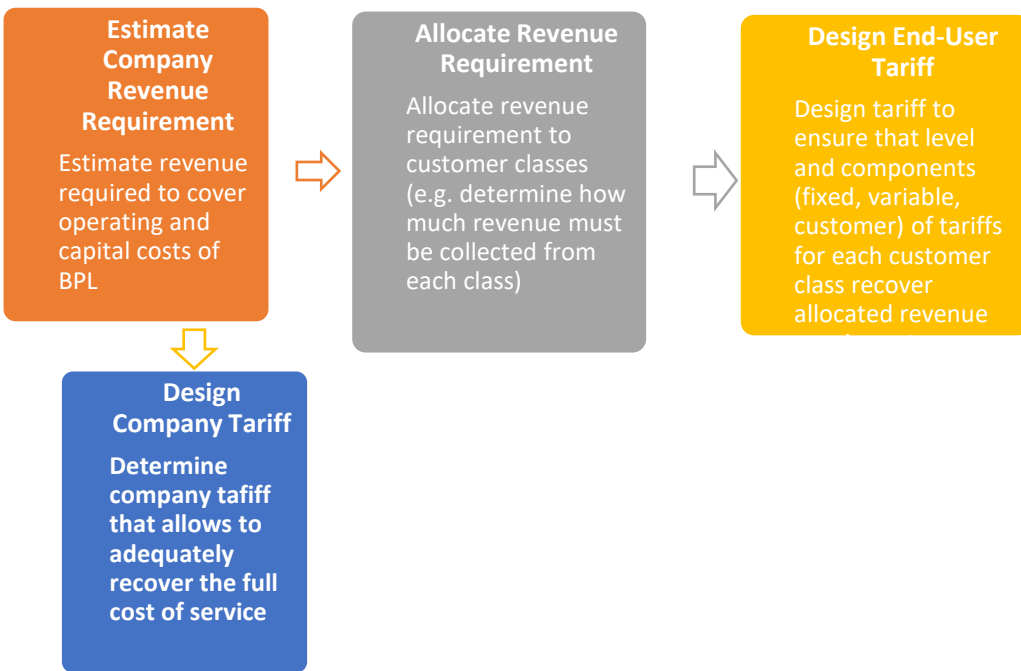


Figure 1: Framework Methodology for Tariff Setting Process Regulation

URCA believes that the revenue required to operate the utility ought to match the revenue collected from customers. Some difference between the revenue requirement for the utility and the revenue from customers is to be expected every year because of uncertainty in demand, supply availability and costs. This mismatch in revenue and cost caused by inflation and fluctuating demand over time can result in under or over-recovery of revenue for a PES. It is URCA’s remit to ensure that a PES gets the opportunity to receive the required revenue and customers are not overcharged for service.

3.1 PES COST OF SERVICE FRAMEWORK

The cost-of-service Review shall focus on developing an estimate of the reasonable cost of service for electricity services in The Bahamas served by PES. The minimum revenue requirement for the utility to provide safe and reliable service will be determined on the basis of the estimate of what constitutes reasonable costs for providing services. This review process/framework shall clarify a number of the issues that will be of interest to rate payers, such as the connection between costs and the tariff levels of electricity in The Bahamas. The framework outlining the cost-of-service ought to provide estimates for the actual cost of service for supplying electricity to consumers. Further, the Cost-of-Service Study (COSS) report to be submitted for review by URCA should provide relevant supporting documentation and analysis.

PESs shall adopt the average cost approach to estimate the cost of service. This entails taking the expenses being incurred or allowed by the energy regulator and a return on capital invested in the past as a starting point. This bucket of revenue shall be classified as being related to demand, energy consumption, and number of customers being served. The classified costs are then allocated across the various customer classes based on measures of their demand, energy use, and customer counts gleaned from a detailed Cost of Service Study. The classified and allocated costs shall then convert to tariff charges by dividing the identified costs of customer group categories by billing units (e.g. kWh, customer-months). URCA believes that this approach is the least complex and most transparent of the two approaches described in section 3 of the Consultation Document⁴, namely, Marginal cost approach and Average cost approach.

Additionally, PES shall demonstrate to the regulator that the tariff process incorporates a COSS.

Typically, there are three fundamental steps required to develop a COSS of any type. These are:

- functionalization • classification; and • allocation.

Functionalization

This first step separates the investment and expenses of the Company into specific categories based upon utility operations involved in providing electricity service. For a PES in The Bahamas, the functional investment categories associated with providing electric service are production, transmission, distribution, and general plant. The functional expense categories include production, transmission, distribution, customer services, and administrative and general expenses.

Classification

The second step, classification, identifies the “cost causative” characteristics of the investment and expenses within each function. Typically, these “cost causative” characteristics are:

- Energy-related —those costs that vary with the customers' energy consumption; this generally refers to costs incurred by the utility that vary with the megawatt-hours (MWh) of energy consumed by the customer.

⁴ Tariff Review Framework, Guidelines and Procedures for Public Electricity Suppliers (ES: 02/2021)

- Demand-related—those costs that are incurred because of the loads imposed on the system by all customers; this generally refers to costs incurred by the utility in order to provide the capacity necessary to serve the customers’ maximum load throughout the year.
- Customer-related—those costs that vary with the number of customers; this generally refers to costs incurred by the utility just to connect a customer to the distribution system, and for customer metering, customer billing and administrative costs.

Allocation

The third and final step is the allocation of costs that have been functionalised and classified as previously described.

- Energy costs—energy costs are associated exclusively with non-fuel costs and the variable operations and maintenance expenses related to the production function. These costs are allocated based on the annual MWh consumed by the customers in the various rate classes, adjusted for losses.
- Demand costs—demand costs are associated with the production, transmission and distribution functions. Demand costs at each respective service level are allocated based on the MW demand imposed by the customers in the various rate classes, adjusted for losses.
- Customer costs—customer costs are associated with the customer component of certain distribution facilities along with the costs associated with the customer service function. The customer component of distribution facilities is that portion of costs that vary with the number of customers. Thus, the number of poles, conductors, transformers, service drops, and meters are directly related to the number of customers on the PES’s system. Customer service costs are also associated with meter reading, customer accounting, collections, uncollectible expenses, etc. Customer costs are analysed on an account-by-account basis to determine the rate classes that cause these costs to be incurred.

The functionalization, classification and allocation steps are necessary and essential to the preparation of any cost-of-service study, and the process is fundamentally the same whether analysing gross plant, accumulated provisions for depreciation, materials and supplies, other rate base items, revenues, operation and maintenance expenses, depreciation expenses, taxes, etc. Items that can be specifically identified with a particular customer class are so assigned, as in the case of rate revenues. All other costs are of a joint use nature and must be functionalized and classified in order to ensure that the final allocation of costs reflect “cost causation.”

URCA is not averse to BPL and other PES addressing the need for further study to have a creditable COSS to inform adequate and equitable tariff setting. URCA is of the view that, the practical approach shall be to perform PES COSS at a higher level with agreed upon assumptions and then over time, evolve to a more detailed analysis once projects such as Advanced Metering Infrastructure (AMI) are commissioned and can provide more accurate data. Furthermore, URCA is of the view that it behoves the PES to submit to URCA the proposed scope of their COSS with the assumptions and timeline for the higher-level COSS as the starting point for discussions and, agreements. Revenue Requirement determination.

The Revenue Requirement shall be the non-fuel cost (Cost of Service) that the PES should recover through the non-fuel rates. This is so because the fuel cost with attendant adjustments is passed on directly to customers through a separate rate.

The Revenue Requirement which approximates the Cost of Service shall comprise four (4) main elements:

- (1) Return on Investment (ROI)
- (2) Cost of Debt in respect of interest and or principal of money borrowed by a PES, whether there is a continuing economic return on the money borrowed; and
- (3) Recovery of all prudently incurred expenses of the Licensed Business including:
 - a. Non-fuel operating costs/expenses
 - b. Depreciation
 - c. Cost of Securities issued by a PES and interest charges

The Revenue Requirement shall be derived as follows:

$$RR = ROI + DI\&P + (OPEX + D + S\&I)$$

Where:

RR = Revenue Requirement

ROI = Return on Investment

DI&P= Debt obligations in respect of Interest or Principal

OPEX = Non-fuel operating costs/expenses (prudently incurred)

D = Depreciation

S&I = Cost of issuing Securities

The five components of the Revenue Requirements (RR) shall be examined, encompassing the Return on Investment (ROI), Rate Reduction Bond Financing Liabilities, Debt obligation in respect of Interest or Principal followed by the Non-Fuel Operating Costs/Expenses shall be examined.

3.1.1 Return on Investment (ROI) and Rate Base

PES's rate base is essentially the utility's "prudent" capital investment, net of accumulated depreciation. Stated differently, it is the value of the net investment in the Licensed Business. PES's Rate Base includes the assets that are in use, will be expected to be in use over the Rate Review period, and are deemed useful in providing electricity services to its customers. From a regulatory standpoint, Rate Base is usually approved and determined by the utility regulator. The rate base shall be the sum of the following:

- The residual value of the assets.
- Near-term investments expected to be included in the rate base; and
- An allowance for working capital.

ROI shall be as follows;

The ROI is the product of the utility's Rate Base (RB) and its Weighted Average Cost of Capital (WACC). Mathematically, this may be expressed as:

$$ROI = RB \times WACC$$

Where:

RB = Rate Base

WACC = Weighted Average Cost of Capital

WACC combines the approved rate of return (ROR) of all categories of funds in the business in proportion to each funds' contribution to the actual or deemed capital structure to yield a single ROR for the company. WACC (pre-tax) may be expressed as⁵:

$$(pre-tax) = (D/D+E) + r_E / (1-t)(E/D+E)$$

Where:

r_D = Cost of debt

r_E = Rate of return on equity (or ROE)

D = Value of debt in the capital structure

E = Value of equity in the capital structure

t = Tax rate.

Costs of debt and equity. The costs of debt and equity determine the return the energy companies are allowed to earn on their rate bases. This is determined by the following:

- The respective costs of debt and equity allowed by the URCA; and
- The mix of debt and equity financing used.

As the occasion arises, URCA does not oppose using a "cash needs" approach for calculating the revenue required to cover debt service for specific large investments financed on concessional terms. When this approach is taken, investments financed from concessional loans are recovered through an annual debt service charge and are not included in the rate base. For example, URCA proposes not to use a rate base in estimates of the revenue requirement for investment in plants if the plants have been 100 percent financed with a concessional loan and capital costs are therefore recovered through an explicit debt service charge.

⁵ Note, $(D/D+E)$ represents the 'gearing ratio'.

Alternatively, URCA believes that a PES should be allowed to recover its revenue requirement by applying a deemed or benchmark WACC to the value of its net investment. URCA proposes that a PES be allowed to earn a Return on Investment (ROI). Thus, the rate base value will be a key variable in the determination of a PES's revenue requirement. URCA proposes to use comparative utilities in the Caribbean region as the basis of benchmarking WACC.

Alternatively, URCA believes that a PES should be allowed to recover its revenue requirement by applying a deemed or benchmark capital structure⁶ and an estimated Cost of Equity using the CAPM⁷ method and international benchmark data. The WACC derived from this alternative is then applied to the appropriate Rate Base. URCA proposes to adopt the method of comparative utilities in the Caribbean region as the basis of estimating WACC.

Rate Base shall be based on the approved net book value of the company's assets for the tariff review period and should be informed by the PES's Business Plan.

For vertically integrated electric utilities such as BPL, rate base generally includes generation, transmission and distribution infrastructure; but when it comes to valuing rate base, there can be many other items that are included in, or used to offset, the net value of the utility's plant and equipment.

Rate Base = Property Plant and Equipment + Intangible Assets + Working Capital + Long Term Receivables + Other Assets – offsets

⁸The components of the Rate Base identified in the above formula shall be as follows:

- i. The Property Plant and Equipment ("PPE"); along with the net book value of the company's assets this shall also include construction work in progress; offset by impaired assets, customer financed assets (including electricity efficiency improvement fund assets), rural electrification assets, less revaluation balance/capital reserve;
- ii. Intangible Assets (i.e., assets that are not physical in nature, e.g., copyright, software licences);
- iii. The working capital (i.e., accounts receivable + cash & short term deposits + tax recoverable + inventory – account payable – customer deposits – bank overdraft – short term loans) deployed;
- iv. Long Term Receivables;
- v. Other Assets; and
- vi. Offsets which, refer to:
 - a. Employee benefit obligations; and
 - b. Deferred revenue.

⁶ Represents the amount of debt relative to the equity shareholding. Capital structure is the proportion of each source of funding used to support the utility's rate base

⁷ is a popular pricing model that describes the relationship between systematic (market) risk and expected return and that is used to calculate the required rate of return for any risky asset.

⁸ Reference: Regulatory Assistance Project (RAP); "Revenue Regulation and Decoupling: A Guide to theory and Application" November 2016. <http://www.raponline.org/wp-content/uploads/2016/11/rap-revenue-regulation-decouplingguide-second-printing-2016-november.pdf>

3.1.2 Rate Reduction Bond financing liabilities (RRB)⁹

The RRB Act and attendant legislations will determine the level of liabilities recoverable.

3.1.3 Debt obligation in respect of interest or principal (DI&P)

Section 20 of the EA mandates that BPL be allowed to recover revenues due to costs associated with debt obligations in respect of interest or principal whether there is a continuing economic return on the money borrowed. URCA proposed to treat DI&P as a legitimate cost of service item in determining PES's RR to be recovered in tariff rates. In presenting information on the cost of debt for the tariff review period, PES shall be required to provide a schedule showing the weighted average interest rates and principal amount. The schedule shall be based on the company's latest audited financial position and shall include:

- (a) A list of all its long-term debt and their corresponding amounts.
- (b) The associated interest rate for each loan.
- (c) The computation of the weighted average interest rate; and
- (d) Prudently incurred costs associated with the issuance of debt such as commitment fees, arrangement fees, due diligence fees, breakage costs and refinancing fees should be included in the non-fuel operating expenses.

3.1.4 Non-Fuel Operating Costs/Expenses

In keeping with section 20 of the EA, prudently incurred non-fuel operating costs shall mean:

- all prudently incurred costs which are not directly associated with investments in capital plant and other operating costs, which shall include but not be limited to, salaries and other costs related to employees;
- operating costs of generation, transmission and distribution and supply facilities; power purchase costs and other related costs including but not limited to working capital and credit support charges incurred under approved PPAs, fuel supply agreements and other related infrastructure arrangements;
- interest and other financial costs on other borrowings and working capital requirements not associated with capital investment; foreign exchange results loss/(gain);
- rents and leases on property associated with the Licensed Business; and
- taxes which the Licensee is required to pay other than income taxes of the Licensee; and other costs which are determined to be reasonably incurred in connection with the Licensed Business.

From a regulatory perspective any item of cost to be included in a PES's OPEX for the purpose of establishing the Revenue Requirement, must be necessary and prudently incurred. In addition, in a new Tariff Review it is expected that BPL will achieve operational efficiencies over time. In light of this, a PES shall be required to clearly identify

⁹ Rate Reduction Bond Administration is independent of URCA's regulatory remit but represents a recoverable item from Customer as per RRB Act and other supporting legislation.

the improvement in efficiencies it expects to attain on its OPEX; and the same shall be reflected in the Business Plan to be submitted to URCA as an information requirement for the Tariff Review process.

3.1.5 Taxes

If a PES is required to pay a variety of taxes, including Value Added Tax (VAT), import taxes, income taxes and property taxes, then these taxes are all included in allowed operating expenses since they are payable under the law.

3.1.6 Power Purchase Cost

Power purchase costs are a component of the non-fuel operating costs and shall be treated correctly as an operating expense. However, it is recognized that operating expenses can be classified into two categories: “production” and “non-production” costs. For reasons of transparency and accuracy in the attribution of cost, it is sometimes necessary to separate these costs by way of a decoupling mechanism. One purpose for employing such a mechanism is to isolate the cost over which the utility actually has control in the short run (i.e., the period between rate reviews)¹⁰.

Given that the non-fuel power purchase cost is recognized as a part of a PES’s OPEX, even though it is out of the control of the PES operations’ control, it shall be decoupled from other non-fuel costs and treated as a direct pass through on customers’ monthly bill.

3.1.7 Depreciation

The regulatory literature defines depreciation, essentially, as the decline in or loss of value in an asset. Depreciation is also a systematic and rational accounting process that is used to allocate (not value) tangible capital assets less salvage value (if any), over the estimated useful life of the item. These costs are allowed operating expenses, which result in the reduction of the Rate Base¹¹.

In presenting its Non-fuel operating costs/expenses (OPEX) for Tariff Review by URCA, PES shall:

- (a) Clearly identify the improvement in efficiencies it expects to attain on its OPEX over the Rate Review period and the Business Plan shall clearly delineate the PES’s plan to improve efficiency over the rate review period.
- (b) Exclude from its OPEX any component associated with random events.
- (c) Provide details of all taxes payable by the company
- (d) Provide details on its power purchase costs which shall be decoupled from other operating expense to allow for a direct pass-through to customers
- (e) Perform its depreciation calculation on the basis of a revised depreciation schedule approved by URCA based on a most recent depreciation study done by the company.

¹⁰ Regulatory Assistance Project (RAP); “Revenue Regulation and Decoupling: A Guide to theory and Application” November 2016. <http://www.raponline.org/wp-content/uploads/2016/11/rap-revenue-regulation-decouplingguide-second-printing-2016-november.pdf>

¹¹ Neither statutes, the EA and the PESL did not prescribe for BPL to allow a return on Rate Base

- (f) Provide detailed calculations of the increases in depreciation expenses in 2021 and beyond in order that they may be considered in the Rate Review.

3.2 RATE DESIGN

URCA believes that the foundation of rate design is the COSS results in tandem with policy considerations pertinent to the electricity sector.

Rate design shall be the culmination of a COSS study where the rates and charges for each customer classification are established in such a manner that the total revenue requirements of the utility shall be recovered in the most equitable manner and consistent, to the extent reasonable and practical, in accordance with National Energy Policy. Consideration shall be given to the recovery of fixed costs in the customer and demand charges, as well as to the phasing in of any proposed rates over time.

The rate design structures that are developed shall meet the following objectives and best practices:

- Rates shall be equitable among customer classes and individuals within classes, taking into consideration the costs incurred to serve each customer class.
- Rates shall be affordable to the most vulnerable and economically challenged.
- Rates shall take into consideration other important factors such as competitive concerns, policies, etc.
- Rates shall be simple and understandable.

Some objectives may seem contradictory, but the overall objectives shall serve the public interest.

3.2.1 Electricity Rate Structure

In general electricity rate structure ought to include a customer charge, energy charge and demand charge where applicable. The customer charge shall be designed to recover customer related costs which are usually fixed cost component and energy charge shall be designed to recover all non-fuel and applicable power production costs. Additionally, the demand charge shall be designed to recover demand-related costs.

A PES shall ensure that customer and demand charges collect revenues that are attributable to the utility's fixed costs. However, energy charges may collect revenues to recover both fixed and variable costs. This is often the case for Residential customer classes that do not have demand charges. A large portion of the fixed costs is collected through the energy charge for this customer class. URCA believes that COSS results will allow the PES to assess if the various charges are adequate, or too low or high.

3.2.1.1 Tariff Categories

Tariff categories are classes of customers with common/shared characteristics that are grouped together for ease and consistency of charging. Tariff categories shall be defined by one or more of the following criteria:

- a) type of consumer (e.g., domestic, commercial, industrial, street lighting).
- b) usage characteristics (e.g., load factor, percent of use on-peak).
- c) quality of service (e.g., firm or interruptible; type of distribution layout).

- d) voltage level of service.
- e) location (e.g., geographical area)

Where necessary PESs shall offer special non-fuel charges to specific customer groups as outlined below:

Lifeline Rates— as a social policy objective to take care of the most vulnerable and economically challenged consumers PES shall adopt a universal lifeline tariff structure within the Residential rate class category, which allows all residential customers to get reduced energy charge for the first 0 - 200kWh¹² of electricity consumed, regardless of total consumption. Only the energy charge is discounted for the “lifeline” customer. That is, the customer charge and fuel charge are the same regardless of total consumption for the month.

Additionally, PES shall also offer special non-fuel charges to specific customer groups as outlined below:

Time-of-Use Rates—these rates are an optional rate classification and shall be applicable to all customers. Time of Use (TOU) rates are designed to reflect the fact that the utility’s cost to provide electricity to consumers varies according to the time of the day the electricity is produced. At the peak time, for instance, a utility incurs its highest costs since it is during this time that peaking plants, which operate at a higher cost than the base load plants, are brought onto the system. Conversely, the utility’s cost is at its lowest during the “off-peak” hours when only the base load plants are in operation. A customer under this TOU option will have to demonstrate proper load management to effectively see savings on its bills relative to the standard (flat) rate option.

Standby Rates—these rates shall be designed for those companies who own and operate generating equipment capable of meeting their own power requirement, particularly as it may pertain to renewable energy programs participants. These companies may at times find it necessary to take power from the utility when demand exceeds their supply, including times of either planned or forced outages of their generating plant.

The foundation of the PES rate design shall necessitate a Cost of Service Study (COSS) results.

4 REGULATORY OPTION FOR RATE ADJUSTMENTS

Any price control system will be designed to serve customers by preventing the PES from increasing prices excessively. While doing this it shall:

- **encourage efficient production** – since prices must be related to costs, the regulator must ensure PES keeps costs down.
- **keep prices close to costs** (including reasonable net operating revenue) – this is important for three reasons:
 - if prices are persistently above costs, customers will complain, and the resulting political and social pressure will cause regulatory instability;

¹² This represents the current Lifeline block rate for BPL customers

- if prices are persistently below costs, the company will not invest, and will eventually go bankrupt. This is bad for customers. The risk that prices would be held below costs will deter RRB investors; and
 - if prices diverge from costs in either direction, customers will no longer get good signals about the value of the resources they are consuming.
- **be stable and predictable** – customers do not like volatile prices. Even more importantly, if RRB investors cannot predict what prices will be, they will put a high-risk premium on PES. This will reduce the value of PES assets and by increasing the cost of capital for new investment, necessitate steeper tariff increases than would otherwise be necessary.

In addition, the regulatory approach shall give a PES the incentive to comply with regulatory requests and reveal accurate information to the regulator.

4.1 OPTIONS

URCS's objective is to have a regulatory process built around an incentive-based regime and therefore believes that the hybrid mechanism of having elements of rate of return and price cap combined supports this goal.

URCA is open to further examine each PES proposed rate of return approach in the context of an interim three (3) year Tariff Review submission. However, URCA's long term objective is to have a regulatory process built around an incentive-based regime. The three years interim tariff based on the ROR method is intended to give the PES sufficient time to consult and prepare for a hybrid price cap regulatory regime for the ensuing tariff review application/submission.

Rate of Return regulation ensures that prices are aligned with costs each year. However, since all costs can be passed on in price, the PES would have little incentive to become more efficient. URCA could review costs to ensure that they are reasonable, as has happened in the US, but this is a demanding task as information asymmetry will make a fair assessment by URCA most difficult. That is to say, the PES holds all the information and can mislead URCA.

Therefore, for the long term, URCA is of the view that the adoption of a hybrid regime is generally justified by the mechanism of allowing costs such as fuel costs that are outside the control of the PES to be an automatic pass-through while incentivising the PES to keep its cost down so as to realise its targeted rate of return and ensuring that the consumers are not burdened with the pass-through cost of inefficient use of the fuel. The more volatile or unpredictable these uncontrolled costs are, the more important the need to adopt a regime that reduces the risks for the operator. The specific hybrid regime design decides how much of the risk can be passed on to users while ensuring the PES is given the best opportunity to realise its Return. URCA agrees with BPL that the introduction of performance-based incentives will require a good understanding of the key performance indicators such as system loss, heat rate, etc. The adoption of an incentives-based approach to regulation will necessarily involve a few mechanisms designed for service providers to meet performance obligations. URCA

believes that setting an appropriate heat rate and losses target within a hybrid regime will provide the right incentives for efficiency.

URCA's remit and primary objective are to preserve the efficiency incentives of a price cap while keeping prices related to costs in the longer term. URCA believes in a hybrid approach of elements of Rate of Return and Price Cap combined, whereby prices are initially set to allow the PES to recover its cost of service. The PES rate of return measured by its WACC is determined and set at the review period but never adjusted until the next review. Thereafter, on an annual basis prices are adjusted on average at the rate of inflation, less an offset, namely

$$\% \text{ adj.} \leq \text{CPI} - X;$$

where % adj is the average percentage change in prices allowed in a year, CPI is the inflation index, and X is the offset or efficiency factor.

URCA believes that setting an appropriate heat rate and losses target (heat rate factor) within a hybrid regime will provide the right incentives for efficiency. The X-factor adjustment shall be determined around the magnitude of the variance of the actual heat rate factor and targeted heat rate factor.

Additionally, URCA believes that the offset, X, which represents the X-factor in price cap regimes remains zero until a comprehensive study on X-factor is established. By implication also an adjustment for inflation will be postponed until the X-factor is established.

URCA believes that the Rate of Return Model proposed by PES would remove the incentive for PES to operate efficiently by minimizing cost. While URCA is inclined to allow for this model in transitioning to a hybrid approach, it does not provide the best regulatory option in the longer term.

5 INFORMATION AND SUPPORTING DOCUMENTS

In undertaking the preparation and submission for the tariff review, the following information and supporting documents shall form part of the application:

In accordance with sections 20(2) of the EA the PES shall provide URCA with all relevant accounts and statistical statements in support of the rate review application. The data and supporting documents to be submitted by PES shall contain all data inputs used to estimate the proposed revenue requirement, cost of service study, tariff design and structure, and tariff rates categories. This data shall be used to establish reasonable rates and charges for electricity supply. The information to be submitted by PES shall be disaggregated for each cost component. PES shall also be required to submit information on their internal operational practices which will assist the URCA in its assessment of costs.

5.1 DEMAND ANALYSIS

PES shall develop and submit to URCA its demand analysis as part of the tariff review process. URCA review and assess current and future projected demand profiles and corresponding supply expansion plans and costs. A PES is expected to use the demand analysis to develop appropriate financial models. In assessing a PES's demand URCA shall review historic growth rates, together with the PES's demand projections, and analyse demand growth against other key growth rates including population, income, and tariffs, to derive projections for the future. Following development of the demand forecasts, URCA is proposing that a PES develops several expansion planning scenarios where possible. These scenarios shall include a base-case expansion plan as well as a few alternative expansion scenarios, including options for the inclusion of various alternative sources of energy. All this information shall be incorporated into the determination of the cost of service for revenue requirements for the utility, including for investments, at present and into the future.

5.2 FINANCIAL MODEL AND REGULATORY ACCOUNTS

PESs shall produce a financial model as part of their tariff submission. Additionally, the Condition of the Licence requires a PES to include in its Reporting Obligations, the latest audited financial accounts¹³.

Critical to the effective regulation of infrastructure services, such as electricity, is a framework that facilitates the periodic publication of accounting statements that explicitly support the regulatory function. In modern utilities, financial reporting involves the presentation of aggregate information that is designed primarily to meet the needs of management and shareholders. These reports, while useful in a general way, do not provide sufficient details for the regulator. Consequently, it is essential that PES generate reports that allow for the analysis of costs and revenues, as well as the evaluation of assets employed, in a way that is consistent with effective regulation.

¹³ Condition 24.1 of the PESL and Condition 23.1 of the APESL

PES shall be required to submit, along with its Audited Financial Accounts, a set of Regulatory Accounts in ensuing tariff reviews. According to Condition 54 of the PESL and Condition 53 of the APESL:

“ To assist in setting tariffs, the Licensee shall maintain separated accounts for generation, transmission, distribution and supply services.”

“ If so determined by URCA, the Licensee shall within a specific period by URCA:

- a) Prepare and maintain accounting records in a form that enables the activities of any business unit specified by URCA to be separately identifiable; and
- b) The accounts shall be maintained according to internationally comparable standards and prepared according to rules approved by URCA.”

5.3 COST OF SERVICE AND PERFORMANCE BENCHMARKING

PES shall submit an Average Cost of Service study to support its tariff design in an upcoming Rate Review application.

The starting point in assessing the reasonableness of the rates to be charged by a utility is to evaluate the cost of providing the services through a COSS. The objective of the COSS shall be to apportion all costs required to serve customers among each customer class in a fair and equitable manner. There are two broad approaches to conducting a COSS: (1) the historical average cost of service approach; and (2) the marginal cost of service approach.

The historical average cost is the approach that URCA has determined for rate design in this Rate Review framework and, as such, a PES is required to submit an Average Cost of Service study to support its tariff design in an upcoming Rate Review application. PES shall transition to Long Run Marginal Cost (LRMC) of service study to support tariff design in ensuing Rate Review applications.

5.4 BUSINESS PLAN

The EA stipulates a tariff review every 4 – 5 years as such PES’s rates are to be set based on the company’s five (5) year outlook outlined in the Business Plan. This is critical for three (3) main reasons:

- a) It provides a PES with a tool that aligns its activities with its goals within the regulatory framework.
- b) It is a means of holding the company accountable for its actions in the Rate Review period.
- c) It provides an objective basis for the regulator to assess whether the utility is efficient in the management of its resources and prudent in its operations.

It is expected that the Business Plan will present a market analysis, sales and customer service strategies, corresponding funding requirements, and financial projections. Table 06 below shows some of the issues the PES shall address in the Business Plan.

Table 06 – proposed information to be included in a PES’s Business Plan

Features	Components
Performance Review	<ul style="list-style-type: none"> • Operational Performance – Reliability, Quality, Heat Rate, System Losses • Asset Performance – Production, T&D Plant maintenance and asset condition • Efficiency – Organization and Financial Performance
Strategic Direction of the Utility	
Capital Expenditure and Investment Forecast	<ul style="list-style-type: none"> • Capital Program Summary <ul style="list-style-type: none"> - Generation - Transmission - Distribution - IT - General Plant • Program Development and Investment Drivers (e.g. growth, replacement/maintenance, enhancements, statutory, efficiency improvement) • Program Development Methodology • Cost Estimation Methodology <ul style="list-style-type: none"> - Capital cost estimation • Key Assumptions
Operations and Maintenance Budget Forecast	<ul style="list-style-type: none"> • Overview of Budgeted O&M Cost Components (e.g. Payroll & Employee Benefits, Third Party Services etc.) • HR Resource Strategy • Procurement Strategy
Financial Strategy	<ul style="list-style-type: none"> • Financing Requirements • Financing the Plan • Risk and Uncertainty Management
Customer and Stakeholder Impact	<ul style="list-style-type: none"> • Bill Impact • Other Customer Benefits/Cost

In addition, for regulatory purposes, the Business Plan shall conform to the conditions delineated in Condition 24 of the PESL and APESL.

5.4.1 Operational and procurement practices

URCA shall undertake an assessment of operational and procurement practices in key areas. These will include fuel procurement, and any areas of operations where benchmarking may indicate scope for efficiency gains. The URCA shall consider these comparisons to assess performance adequacy in The Bahamas. Where inadequacies are found, URCA shall identify the source based upon these comparisons.

5.4.2 Cost of unregulated services

URCA shall review and assess the cost of unregulated services, such as customer extensions, the operation of public streetlights, and connection requirements. URCA shall develop appropriate regulations or recommend adjustments where necessary, to ensure that customers do not suffer due to uncompetitive pricing for the examined services. In undertaking this activity, URCA shall compare a PES’s costs and fees for these services against the costs and fees charged by third party contractors for the same work, as follows: – Through information

requests, establish a PES's actual costs for selected unregulated services – Where possible, establish independent contractors' costs and fees for the same work in the same locations – Where this is not possible, establish baseline costs and fees for the same work in similar geographies, especially in similar Caribbean Island nations – Compare these costs and fees to the fees that PES charges.

5.5 SERVICE STANDARD REVIEW

The service standard review task shall focus on a review of and an assessment of current service obligations and reliability performance standards for electricity services. This review process shall determine whether service standards are currently being met. As part of this task URCA shall assess, if necessary, whether any adjustments to the current service standards are required. For example, it may not be economic for all Islands to have the same level of reliability. In undertaking this service standard review, the following activities are proposed:

5.5.1 Information and data collection

Like the initial cost of service review, and in accordance with sections 40 of the EA URCA shall seek the PES's assistance in providing URCA with all relevant accounts and statistical statements. URCA shall review current service standards and determine appropriate service standards to be applied in the future. This data will be used to establish the level of service for a PES's customers and assist URCA in determining the level of service currently being achieved.

5.5.2 Performance benchmarking

In assessing the performance of a PES against a few other comparable island utilities, URCA shall seek to establish whether there is scope for improvement on key indicators for electricity supply standards. A comparison of a PES's performance against that of similar utilities, considering differences in the operating environment between the PES and the selected benchmarked utilities. Key indicators that will be benchmarked include, but are not limited to the following: – Complaints per 1,000 customers – Customer average interruption duration index (CAIDI)² – System Average Interruption Duration Index (SAIDI)

6 TARIFF RATE REVIEW PROCEDURE

The rate application reviews are governed by a process that is set out in the URCA consultation procedures guidelines¹⁴. The procedures will be utilized by URCA to engage stakeholders in respect of various issues affecting the regulated sectors, licensees and consumers. The procedures pertain to the way consultations are to be conducted, guidelines for the persons who are interested in participating, as well as the procedures to be carried out by the parties to a consultation. The public nature of rate review consultations allows stakeholders - consumer interest groups, members of the general public, and consumers of regulated utility services, business entities, as well as the regulated utility companies themselves - to be involved in the consultation. According to the EA and the PES licenses the regulated utility company may initiate a rate review, this in keeping with tradition.

The content of the Rate Application as submitted by the regulated PES shall be subjected to the consultation procedure guidelines. It must contain a clear and concise statement of the facts, the grounds on which the Application is made as well as the nature of the order or decision that is applied for. Consequently, the regulated PES's role is to outline its needs and demonstrate that the Application is warranted.

Once an application is received by URCA the following activities shall be completed over four (5) months.

- Review submission and clarify/validate process to follow for resetting tariff
- Public Notice is proposed to be placed in the local newspapers that summarises the application and tells the public where the application documents may be examined and/or collected.
- Clarify and agree on information required from PES
- PES present their tariff review proposal to the public through public forums outlining the justification for such proposal
- Public Consultation and assessment of public responses to PES tariff review proposal
- Review and assess the application in accordance with the final determination on PES Tariff Framework and procedure.

To ensure public participation, URCA may use various media platforms periodically to remind persons wishing to provide comments of the deadline for submitting their application with all the necessary documentation.

During the utility rate review, URCA proposed that the utility ought to be required to make its case for the application to the public directly through the appropriate medium. This will form a part of the consultation procedure and URCA will facilitate to ensure that the PES is allowed to hear from their customers. It is envisioned that this engagement will allow the PES to justify its application, and enhance the overall transparency of the process.

Ultimately, it is URCA that must determine whether or not an application for an increase in rates, which is normally the basis for the application, is warranted. In carrying out this function, URCA's role is to balance the interests of the various stakeholders which means ensuring that the interests of consumers are protected and that reasonable rates reflecting the promotion of efficiency are being applied for. The sustainability of the applicant's business is

¹⁴ <https://www.urbahamas.bs/wp-content/uploads/2017/07/URCA-052017-Statement-of-Results-and-Final-Decision-URCA-Consultation-Procedure-Guidelines.pdf>

also a major consideration; therefore, URCA must also ensure that the company's rates will allow it to be able to adequately finance its operations.

7 CONCLUSION AND NEXT STEPS

The rationale for the tariff review is to assess the continuing appropriateness of tariffs, both in terms of their level and structure. As the regulator, URCA's aim is to find the right balance between the interests of the consumers, of the utility, and the Government. In short, -

- consumers should not pay more than necessary to receive electricity service of a given standard;
- the utility should be able to charge tariffs in such a manner that it can cover all its costs, and this includes operating, maintenance and investment costs; and finally,
- the government needs to keep the long-term growth and economic development of The Bahamas in view, and thus wants present tariffs to support improvements and future investments in electricity supply.

The framework, guidelines and procedures shall assess whether tariffs are appropriate to balance the concerns of all stakeholders and shall take the following form:

- the costs of the utility shall be reviewed in order to determine what the minimum revenue requirement is for electricity supply to operate in a commercially viable manner;
- the cost information gathered from the PES to inform what level of expenses are associated with the provision of services shall be cross-checked by URCA staff/Consultant based on known and measurable costs and using benchmarking information. This will allow the URCA to assess PES's costs of electricity supply compared to other similar countries;
- the appropriateness of costs is intimately linked to the quality and reliability of service that consumers request, and the level of safety that is imposed. Service standards shall therefore review for their appropriateness at the same time as company costs;
- in order to determine whether the medium to long term growth and development concerns are addressed, a forward-looking assessment of consumer demand (commercial and residential) and future network investments shall be undertaken; and
- regarding forward-looking investments, it is also highly relevant to assess renewable generation technologies such as wind or solar.

Given all elements above, required revenues to cover present and future costs of electricity supply shall be reviewed by the URCA. The instrument to calculate the revenues shall be a financial and economic model tailored to The Bahamas and should be provided by a PES as part fulfilment of the submission of a tariff proposal.

A PES required revenues indicate the total amount of money the utility is anticipated it needs to meet its cost obligations for operations, maintenance, and forward-looking investment and it also needs to include compensation for the cost of capital at disposal for the construction of the network. The PES model should allow analysing the current contributions of different users and ought to allow assessing alternative tariff levels and structure.

The use of a model will allow testing for different scenarios. Questions that can be addressed in this manner include how the revenue requirement changes if higher or lower quality standards are imposed, or faster or slower expansion/replacement plans are implemented. Trade-offs will thus become transparent and can be submitted

to the stakeholders for final decision: better or more services imply higher costs and a higher revenue requirement which might, in turn, translate into higher tariffs conditional on demand and technology developments.

URCA intends to use the methodology set out in this tariff review to establish a transparent framework for future tariff adjustments and periodic reviews.

7.1 TARIFF STRUCTURE ASSESSMENT

URCA's work on the tariff structure will consider questions such as:

- Is the current lifeline block an appropriate way of meeting social objectives to help low-income consumers?
- Is there an appropriate and cost-reflective split between fixed and variable charges?
- Are the differentials in charges between the various types of customers justified?
- What is the usefulness of the implicit cross-subsidies between customer categories? How effective would potential alternatives be?

The URCA shall assess, in consultation with PESs, alternative fuel cost adjustment mechanisms for electricity. The current tariff structure is designed to automate monthly adjustments to the electricity tariff to ensure that changes in fuel prices, which are outside of the control of the electricity provider, are passed through to consumers. To allow for, and encourage, greater use of renewable energy, URCA expects the focus will not necessarily be on the structure of tariffs, but on how tariffs will be indexed and reset. For example, one approach would be to reduce the extent of fuel-price indexation. Another approach would be to adopt forward-looking periodic reviews of prices.

In addition, URCA shall review any implicit cross-subsidies between rate classes, to assess the effect of reduced tariffs and investment growth, and to determine alternatives for encouraging access. URCA shall conduct this cross-subsidy review as a component of the tariff structure analysis, because an assessment of the effects of these cross-subsidies will be integral to developing a comprehensive understanding of current tariff structures, and how they can be made more efficient.

Further, URCA aims to clarify the process to follow for resetting tariffs. This process will be built upon the experience with utility regulation in other jurisdictions with similar characteristics. URCA's proposed approach for the tariff reset process is based upon the —methodical approach, which is described below.

In consultation with PESs, the Government, and key stakeholders, URCA will develop tariff adjustment alternatives that will incentivize the PES to share efficiency and sales volume gains with customers and will promote cost reduction options such as demand management and distributed generation. The URCA considers that exploration of these tariff adjustment alternatives will be an integral part of the tariff structure review, and these considerations will be integrated into the outputs of the tariff review process in the future.

The financial model shall be based upon previous international experience with financial models as described in the — Methodology Diagram below.

Figure 2: Methodical approach to setting the price controls

