

Addressing Affordability of Regulatory Prices

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This document outlines the approach used by the RIC to reduce the impact of increased electricity prices on low income and vulnerable groups in Trinidad and Tobago during the first price control period. It then presents the RIC's considerations in creating strategies to soften the impact of increased electricity prices on low income and vulnerable groups for the second price control review.

Consultative
Document

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1 Overview

The Regulated Industries Commission (RIC) is responsible for setting price controls for the electricity sector and does so within a regulatory framework that is governed by the Regulated Industries Commission Act No. 26, 1998 (RIC Act). This framework provides for the review of the principles for determining rates and charges for services, every five years. In this regard, the RIC is undertaking its second Price Review for the Trinidad and Tobago Electricity Commission (T&TEC) for the control period 2018-2023. This exercise follows a seven-year lag after the RIC's first review for T&TEC for which the control period was June 01, 2006, to May 31, 2011.

In setting price controls, there are a range of matters that the RIC is required to have regard to, including the ability of consumers to pay rates. The challenge for the RIC is to take into account the social impact of prices while ensuring that the service provider can effectively carry out and finance its operations. The RIC must therefore contribute to the promotion of social equity by putting mechanisms in place to manage the affordability of utility services.

1.1 Purpose of the Document

This paper looks at the issue of affordability of utility services and the various factors that may influence affordability. It also examines the past approaches which have been specifically employed by the RIC towards reducing the impact of increased electricity prices on low income and vulnerable groups in Trinidad and Tobago. Finally, the paper outlines the considerations of the RIC in undertaking its role to make electricity affordable and soften the impact of increased electricity prices, during the second price review for T&TEC.

1.2 Responding to this Document

In keeping with the RIC's obligation to consult, stakeholders are invited to comment on this document. Responses should be sent by post, fax or e-mail to:

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All responses will normally be published on the RIC's website unless there are good reasons why they must remain confidential. Any requests for confidentiality must be indicated. A copy of this document is available from the RIC's website at [**www.ric.org.tt**](http://www.ric.org.tt).

Deadline for submission of comments is February 28, 2018.

2 Context

The RIC was established by the RIC Act, Chapter 54:73 of the Laws of Trinidad and Tobago, as such, its functions, powers and duties are derived directly from its legislation. One of the RIC's core functions is to set price limits every five years. Alongside its price setting function, the RIC Act imposes a social obligation as it mandates that the Commission must be concerned with social issues surrounding the services it regulates.

In setting price limits, the RIC's obligation to ensure affordability is imposed by the following sections of the RIC Act:

- Section (6)(1)(c), “to ensure as far as is reasonably practicable, that the service provided by a service provider operating under prudent and efficient management will be on terms that will allow the service provider to earn sufficient return to finance necessary investment”;
- Section (6)(3)(a), “to ensure maximum efficiency in the use and allocation of resources and to ensure as far as reasonably practicable, that services are reliable and provided at the lowest possible cost”;
- Section (6)(3)(c), “to ensure fair treatment of consumers and of service providers similarly placed”;
- Section (6)(3), “to have regard to the public interest”; and
- Section (67) (3)(c), “to have regard to the ability of consumers to pay rates”.

In setting price limits the RIC has a responsibility to ensure that its determination of allowed revenues reflect the utility's efficient costs and that there is maximum efficiency in the management of the utility's resources, in order to ensure the lowest possible rates to customers and a sustainable utility service. Notwithstanding, the established tariffs are likely to have a disproportionate impact on different customers' ability to pay, thereby giving rise to the issue of affordability of the service to particular vulnerable customers.

Additionally, while the RIC has legislated responsibility to take into account the social impact of prices, the Government of Trinidad and Tobago is recognized as having the primary responsibility for addressing social issues surrounding the provision of utility services. For this

reason, the RIC must consider the existing measures of the government and other agencies that affect affordability. The RIC must therefore consider all existing measures and develop strategies to manage affordability issues that arise from its price setting activities.

3 Affordability

3.1 Defining Utility Service Affordability

Affordability of a utility service can be broadly defined as the ability to pay for a subsistence level of the service within normal spending patterns¹. The social aspect of utility services provision is most clearly and closely linked to pricing policies and because of this, affordability analysis is an integral part of any price review exercise. Affordability of a utility service is, however, not solely determined by the level of the tariff as other factors may have an impact on affordability. These include:

- **Deposit Requirements** – The poor may have difficulty meeting the cost of upfront prepayments for service. Hence, pro-poor measures can help cover the deposit requirements in these circumstances.
- **Disconnection and Reconnection Policies** – The requirement of proper notice prior to disconnection for non-payment is a procedural safeguard which can assist poor customers. An appropriate disconnection policy generally prohibits disconnections at night or on the weekend and this provides a safety net for the very poor. Establishing a proper reconnection policy is another device which can provide a safety net for the poor.
- **Access Policies** – A policy outlining the terms under which the utility extends service to new consumers that meet certain income criterion, is another measure which can assist the poor.
- **Availability of Rebates/concessions** – The provision of tariff rebates and utility service vouchers to poor households.
- **Assistance offered in the event of payment difficulties** –The provision of easier payment plans and arrears forgiveness.

¹ Florence School of Regulation, Affordability of Basic Public Utilities: Regulation and Poverty Policies, 2008

- **Availability of Payment Methods** - The provision of a range of payment methods, including adequate number of services centers in proximity to poor communities which facilitates ease of making bill payments.

In essence, any measure that affects a customer's ability to pay for a necessary minimum service level under the terms and conditions set by the utility is considered to be a factor influencing affordability.

Several indicators have been used to evaluate the affordability of utility service charges. In 2002 the World Bank developed macro and micro (utility service) affordability indicators². Macro-affordability indicators were developed by relating national average household utility charges to either average household income or average household aggregate expenditure. Micro-affordability indicators disaggregate the former by income groups, family types or regions. These indicators guide policy maker's decisions about measures to address consumers' unique affordability circumstances.

There are two popular methods of measuring electricity affordability. The first method looks at the percentage of income spent on energy, inclusive of electricity usage. In this regard, the popular norm is that if a household spends more than 10% of its income on energy, the service is not considered to be affordable. This 10% threshold is only a rule of thumb and it changes depending on whether the country concerned is a tropical country or if the country is one where electricity is also required for heating. Within this approach, the use of *Consumption Deciles/Expenditure* is sometimes preferred to income as an indicator of electricity affordability. With this approach, one uses a threshold where electricity consumption accounts for more than a certain percentage, for instance, 10% or greater, of total expenditure. Using consumption captures the application of funds from all sources of income (salary, pensions, benefits, rental income, informal economy earnings, self-employment, agricultural income etc.). This measure also captures the effect of smoothing consumption over time, for example, using savings during times of temporary income shortfalls.

The second method looks at the affordability of basic-needs electricity. Again, the percentage of income required to attain basic-needs volume of electricity is generally considered in the

² World Bank, Poverty Measurement and Analysis, 2002

analysis. In order to assess electricity poverty and affordability, the subsistence electricity needs of a typical household in the country is estimated. Identification of such basic needs would facilitate the regulator in determining the lifeline (subsidized) block of electricity tariffs. For example, with regard to basic-needs electricity, two approaches are generally used; a top-down approach and a bottom-up approach. The top-down approach suggests that the “most essential electrical appliances” be identified in order to estimate the average consumption of electricity for those appliances over a period of time. In the context of bottom-up, the definition of basic needs electricity is the volume of electricity consumed by the households on the poverty threshold. The poverty threshold is generally defined in terms of the national official poverty line. To facilitate cross-country comparisons of electricity consumption of those in poverty, one can choose to use the absolute poverty lines³.

3.2 Classification of Affordability Instruments

Affordability instruments to protect low income consumers are often used to complement tariff reform and can be classified into income support provisions and tariff support provisions⁴. Income support measures address the individual customer’s ability to pay out of their disposable income. These measures usually take the form of direct income assistance or utility service vouchers, mostly provided to a target group of customers by the Government. Other forms of income support measures include hardship initiatives that provide financial assistance to households or directly to bills, partial reimbursement on bills and arrears forgiveness. Tariff-related measures on the other hand keep the size of bills low and can take the form of tariff caps, lifeline tariffs⁵, and discounts. The tariff related measures are usually financed through some form of cross-subsidization. The affordability of electricity usage by poor households can also be promoted by adjusting (lowering) bills in other ways such as; providing a subsidy for the

³ These are US\$1 per person per day expenditure at purchasing power parity (extreme poverty) or US\$2 per person per day expenditure at purchasing power parity (poverty) as used by the World Bank.

⁴ The classification is based on the paper “Social Issues in the Provision and Pricing of Water Services”, Organization for Economic Co-operation and Development (OECD), 2003. Affordability Instruments can also be classified into Supply-side instruments, which are given directly to the service provider or Demand-side instruments, which are directed towards customers; see “Affordability and subsidies in public urban transport”, Policy Research Working Paper Series 4440, World Bank, 2007.

⁵ Lifeline tariffs provide subsidized rates for basic needs consumption.

connection fee, reducing or eliminating the fixed charge component of the tariff, eliminating or reducing the energy charge for a defined maximum consumption, and reducing the energy charge with no defined maximum.

Income support measures are favored by regulators because, in focusing on income rather than price, the economic and environmental signals sent by tariffs are not affected.⁶ In fact, tariff systems should be designed to reflect the full costs of the service, while discount and subsidy systems should be designed to directly target the needs of the poor. An approach that combines tariffs, discounts and subsidies should consider the basis and continuing validity of the tariff design, the financing sources of the utility and how to distribute the discount or subsidy so as to accomplish its specific purpose. Ideally, stakeholders should be involved at all stages.

An affordability instrument can also be classified as a general or specific measure, depending on its focus. General or untargeted instruments reduce prices to all or most customers, while specific or targeted instruments reduce prices for particular customers. To ensure that the poor and vulnerable benefit from these interventions the instruments must be targeted.

Since electricity bills are often a function of price and quantity, in principle, an inclining block tariff is an example of a targeted measure that can be structured to provide the lowest rates for subsistence levels of consumption. On the other hand, a Government subsidy to a utility is an affordability measure that is considered to be untargeted as it also delivers benefits to non-deserving customers by reducing the service provider's cost and lowering the tariffs to all customers. This can lead to reduced incentives to pursue efficiency improvements on the part of the service provider and to over-consumption on the part of the customers.

Whether electricity subsidies are a cost-effective way to reduce the cost of service for the poor (and thus raise their disposable incomes) depends on the degree and manner in which they are targeted. A better targeted subsidy implies a lower subsidy budget needed to provide a given discount to the poor, or alternatively, the greater the benefit to the poor for a given subsidy budget.

⁶ OECD, *Social Issues in the Provision and Pricing of Water Services*, 2002.

3.3 Criteria for Evaluating Affordability Instruments

The performance of different instruments will vary depending on the nature of the affordability problem being addressed. Therefore, it is important that proper criteria be employed for evaluating affordability instruments. Some of the criteria for evaluating affordability instruments include:

- the extent to which those in need are being reached, that is, the **coverage of the benefit**. It is important to ensure that the benefit is indeed reaching the poor and vulnerable in society and that a large proportion of those in need benefit from the subsidy. The benefits must relieve the affordability problem.
- the share of the benefit that goes to the poor, that is, the **targeting** efficiency of the benefit. A targeting variable is often used to identify households that are eligible to benefit from a particular subsidy. It is important that these variables are well chosen to ensure that funds are not misdirected to households that meet the criteria, but are not genuinely in need of the subsidy. This will ensure that there is relief from the affordability problem for those that are actually in need.
- the **extent of price distortions and other unintended side effects** of the benefit. The use of subsidy mechanisms can lead to changes in the relationship between cost and prices and distortions in demand. It is important to monitor these and if necessary, find ways to remove these distortions so that there is minimal impact on economic efficiency, such as encouraging under or over-consumption, compromising the service provider's financial viability, etc.
- the **administrative costs and simplicity**. High administrative costs are often associated with schemes that have high targeting efficiencies. Although screening customers to determine eligibility is important, it is also equally important that there be a balance between the targeting efficiency and administrative costs of the benefit. The costs imposed by the administration of the benefit should not place an excessive burden on those funding it. The instrument should also be relatively simple so as to minimize these administrative costs.
- the **excessive burden** on those funding the instrument. It is important that there should not be an excessive burden on those funding the instrument.

4 RIC's Affordability/Pro-Poor Measures for the Electricity Sector

Apart from its measures to encourage efficiency, which aims to achieve lowest possible cost and caters to general affordability of electricity prices, specific measures that target affordability of vulnerable customers of the utility were introduced in the first price control period (2006-2011).

In the first price control period, the RIC established various customer categories and corresponding tariffs. The increases implemented varied across customer categories with the lowest increase for lower income groups. With respect to low income and vulnerable groups, the RIC's three main strategies⁷ for reducing the impact of increased prices in the first year of the first control period were:

- **Lifeline Tariff**

The RIC utilized an inclining block tariff structure that incorporated a life-line tariff which allowed the households to pay at a lower rate for subsistence level electricity consumption. In setting the first tranche of the inclining block tariff structure, the RIC estimated subsistence level with consumption to be 400 kWh bimonthly, based on basic appliances of a typical household and the associated electricity usage. The tariff was also set to ensure vulnerable customers' expenditure on electricity would be within the internationally accepted affordability threshold of 10%.

The RIC also applied a fixed dollar discount on the residential customer charge and a fuel cost subsidy.

- **Low Income Assistance Programme⁸**

The RIC recommended the establishment of a special fund of \$5 million annually, by T&TEC, to cater for the special needs of those who may still experience difficulty in

⁷ Apart from these measures the RIC also included strategies to further reduce the impact of increased prices over time, such as its a rebalancing control (side constraint) to set limits on the extent of price increases to customers, the limit was set at $(RPI+X) = 7.4\%$. Further, the RIC also incorporated efficiency carryover mechanism to further incentivize the service provider to achieve cost savings, under this mechanism the benefits are shared between customers and the service provider over different periods of time. Service providers derive benefits over the specified period set by the regulator. Customers, on the other hand, derive benefits when out-performance is passed to them in the form of lower prices over the next price control period.

⁸ Based on the RIC's recommendation for low income assistance, the Utilities Assistance Programme was established by the Ministry of Public Utilities in 2010.

paying their bills. This fund was available for customers who would have been identified by the Ministry of Social Development as being in need and whose usage fell below 400 kWh bi-monthly. T&TEC was also required to maintain a register of customers in need and the fund was to be used for:

- customer bill assistance (that is, a maximum of 7% and 5% of customer's bill for customers using less than 100 kWh and between 101 to 400 kWh respectively);
- appliance repair assistance; and
- arrears forgiveness.

Other measures under the low income assistance programme included:

- waiving of interest payments on outstanding accounts;
- protection from service termination (this did not apply in cases of illegal tampering of meters and illegal service connections); and
- extended payment arrangements i.e. the option of arranging alternative payment schedules and deferring payments.

- **Energy Efficiency Programme**

This demand-side management programme was centered on education of consumers to encourage the reduction and management of energy consumption. The inclining-block tariff structure allows the consumer to pay a fixed price for each unit of electricity consumed within a particular block. However, if consumption exceeds this block, the price per unit of consumption increases. Therefore, RIC encouraged consumers to become more efficient in their electricity consumption as a way to control their electricity bills.

5 Further Considerations and Strategies for Affordability in the Second Regulatory Period

As discussed before, when addressing affordability, the nature and extent of affordability issues must first be determined before appropriate measures to address the specific situation can be established in a way that maximizes benefits. There are several factors for the RIC to consider in arriving at strategies for affordability for the second control period. These include the length of time between the first control period and the forthcoming period, the economic climate and also the measures for utility affordability which have been implemented by the government and other agencies. The RIC also intends to deepen its focus on energy efficiency as part of its efforts towards addressing affordability.

- **Regulatory Lag⁹**

The RIC is cognizant of the fact that transitional affordability issues may arise when prices increase quite suddenly, for example, after a long period of time. The forthcoming price review for the T&TEC follows a seven-year lag after the RIC's first review for T&TEC, which expired in 2011. Prior to that, customers had not experienced an increase in rates since 1992. When increases cannot be predicted, customers are not able to plan for rate increases and may face difficulty paying markedly larger bills. While the aim is typically to avoid rate shocks by gradually introducing rate increases, under such circumstances the regulator must determine an appropriate price path by applying a cap on the size of annual increases in tariffs, that is, by imposing side constraints. The efforts of the RIC will also involve ensuring consistency between the generation paying for the benefit and the generation receiving the benefit as well as providing accurate pricing signals to promote efficiency and allow cost recovery for the utility.

- **Affordability Measures of the Government**

Subsequent to the RIC's first rate determination for the electricity sector, the Government introduced two measures to provide assistance to vulnerable customers for electricity

⁹ The length of time between the implementation of rate reviews.

bills, namely, the Utilities Assistance Programme (UAP) and the Low Income Relief Measure.

The UAP was introduced in October 2010, with the intention of easing the burden of increasing utility bills for essential utility services (water and electricity), to some citizens considered eligible based on poverty related criteria. To determine eligibility, electricity customers are means-tested and must not consume more than 600 kWh of electricity on a bimonthly basis. Currently the subsidy covers 100% of the electricity bills of eligible customers of T&TEC, making the maximum annual benefit of the subsidy to eligible customers TT\$1,056. As at December 2016, approximately 1200 or 0.3% of T&TEC's residential customers benefited from the subsidy.

The Low Income Relief Measure is a recent initiative of the Government of Trinidad and Tobago which aims to assist the less fortunate with their electricity bills. The measure came into effect December 1, 2016 and allows for the application of a 25% rebate to all residential customers of T&TEC whose regular electricity billings are three hundred dollars (\$300.00) or lower. Currently the measure has benefitted a larger number than the 120,000 customers that were targeted. As at August 2017, approximately 220,000 or 52% of T&TEC's residential customers have regularly benefitted from the subsidy measure.

Further analysis of the two measures suggest that there may be room for improvement in the targeting performance of these two measures, as there are high errors of inclusion of non-poor electricity customers, particularly with the Low Income Measure where no income criteria was applied for eligibility of the subsidy. The RIC is also concerned that both measures give assistance to customers beyond what may considered subsistence levels of electricity consumption and further assistance can exacerbate the undesirable behavior by some customers.

With these two affordability measures in place, a large segment of residential electricity customers now receive assistance with electricity bills, additional to the measures implemented by the RIC during the first control period. While the Government has not signaled an intention to discontinue these measures, the RIC is mindful that in the current economic climate, it is possible that these measures are not sustainable.

- **Energy Efficiency**

Analysis of customer consumption data over the period 2011-2016 shows high average usage of electricity by residential customers including those who are vulnerable. While energy efficiency initiatives pay little attention to income levels of customers it presents an opportunity for all customers to reduce their usage and eventually their bills, thus impacting on affordability of the service. A major part of the RIC's thrust in this regard is towards customer education on measures residential customers can employ in order to reduce their household usage. The RIC will continue to utilize various platforms to educate on energy efficiency and encourage more responsible use of electricity by all users, including vulnerable customers.

- **Economic Climate**

As part of its assessment of affordability for the forthcoming tariff review, the RIC is required to make assumptions about the state of the affairs in the country and particularly future income growth, including those for low income households. The analysis will involve looking at the trends in key economic variables such as Gross Domestic Product, average monthly income and unemployment rates. The latest indicators of poverty and percentage of the population receiving social welfare payments will also be analyzed to ascertain the extent poverty and vulnerability within the society.

Further, as a general rule the following approaches would achieve better results:

- where there is a shortfall between the regulator's determined tariff and the cost-reflective tariff, an explicit government-funded payment would be a preferred instrument;
- where the issue is one of public good such as universal service obligation/access charges, an explicit government-funded subsidy should be the favoured method of addressing the issue; and
- finally, the affordability issues affecting vulnerable or disadvantaged groups should best be addressed by a direct, targeted subsidy (i.e. income support payments or benefits, rebates, concessions, etc.) directly to those in need.

6 Conclusion

As the RIC looks towards the second Price Determination for T&TEC it has to, as a responsible regulator, examine the effects of its measures and determine what affordability instruments are best suited for the purpose at hand. Even though the RIC's capacity to respond to specific affordability issues facing low income groups is limited, the RIC has proposed a number of measures and considerations to address affordability issues that can arise as a result of its pricing decisions.

The RIC can pursue general affordability by establishing tariffs at levels no greater than necessary for the recovery of efficient costs and a reasonable rate of return. Effective monitoring and reporting are also essential in enabling the RIC to track progress on social issues and identify possible additional areas for future action to address affordability of vulnerable customers. The RIC will continue to monitor and report on the service provider's performance against its social obligations relating to non-payment of bills, disconnection, energy efficiency advice, etc., by publishing quarterly/annual reports. Having input from customers, particularly the vulnerable, is key to being able to properly take their interests into account, in the RIC's decision-making.

The RIC invites comments and views on all the ideas and proposals presented in this paper.