



FAIR TRADING COMMISSION

RENEWABLE ENERGY RIDER

DECISION

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ANTECEDENT DOCUMENTS

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FTC/URD/CONRER 2012-02	Consultation Paper – Renewable Energy Rider	November 23, 2012
FTC/URD/POSPR 2010-01	Findings Report - The Barbados Light & Power Company Limited Pilot Programmes	March 19, 2010
FTC/CONS2009/01	Consultation Paper – The Barbados Light & Power Company Limited Pilot Programmes	October 21, 2009

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EXECUTIVE SUMMARY

The Fair Trading Commission (Commission) has completed its review of the Barbados Light & Power Co. Ltd.'s Renewable Energy Rider (RER). The objective of this review was to assess the newly proposed terms and conditions of the RER programme which the BL&P is seeking to implement on a permanent basis.

The RER was designed specifically to facilitate the sale of excess electricity to the grid by customers using a solar photovoltaic (PV) or wind renewable energy (RE) system up to a maximum of 150 kW to offset electricity consumption from the grid. The rider is not intended to offer an avenue for revenue generation, but to compensate RER participants at the opportunity cost of the RE (i.e. the cost that would otherwise have been incurred by the BL&P had the RER customers not fed their excess RE generated electricity to the grid). It is not meant to be used by commercial entities as a revenue generating enterprise. These entities are considered Independent Power Producers (IPPs) for which a different legal regime is required.

The Commission is satisfied that a rider of 1.6 times the fuel clause adjustment (FCA) is representative of the avoided fuel cost when consideration is given to, among other things, the type, quantity and cost of the fuel utilised to generate electricity, the fuel generation share (i.e. the percentage of electricity generated that is attributable to a particular fuel type or renewable energy resource), the cost at peak load and the RE generating capacity limit. The Commission further determined that establishing a predetermined minimum credit is not appropriate given the link between the RER and the avoided cost of fuel which is volatile.

The Commission agrees that the national intermittent RE capacity should remain at 10% of peak demand, pending the findings of the intermittent penetration study which the BL&P is undertaking. The Commission has determined that the capacity limit for distributed intermittent RE generation should be increased to 7MW. The Commission has also decided that, when the capacity reaches 5MW (there are 182 customers utilising the capacity of 1.7 MW), 1MW of the remaining 2MW should be reserved for domestic distributed intermittent generation. The Commission has also determined that the

individual customer capacity limit of 1.5 times the customer's current usage is appropriate up to a maximum capacity of 150 KW.

The Commission has determined that the billing arrangement shall be based on the sale of excess electricity to the grid and that "the two-meter alternative metering connection 1" shall be implemented for all new installations. With this metering arrangement one meter measures site generation output while the second meter is bidirectional and is placed at the service entrance and records gross flows in both directions between the customer site and the grid.

Having considered the proposed length of time that a customer will be required to wait to be reimbursed the RER credit versus the additional cost associated with more frequent reimbursement, the Commission has determined that reimbursement of the RER credit on a quarterly basis, where the credit is greater than or equal to \$100.00, is appropriate.

Having given consideration to customers' concerns regarding fluctuating payments due to monthly variations of the RER credit and the need to reduce the customer's risk by guaranteeing access to the grid, it is determined that RER customers shall be offered a grid access contract for a minimum of 10 years and that the value of the RER shall be subject to review every three years from the date of implementation of this Decision.

1. INTRODUCTION

In May 2009 the BL&P submitted an application for a review of its electricity rates. In its Memorandum on Proposed Tariffs, the BL&P proposed the introduction of an RER on a pilot basis. The Commission determined then that the pilot programme would not be addressed at the rate review hearing but as a separate public consultation. Accordingly, a consultation paper was issued in October 2009 and an oral session was convened in November 2009. Approval was subsequently granted for the BL&P to offer this RER programme on a pilot basis for two years. This trial period was intended to allow the BL&P to gather the relevant operational and feasibility information before determining whether the scheme would be offered permanently. In July 2012, the BL&P made an application to the Commission to implement the RER on a permanent basis with amended terms and conditions. Due to the nature of the newly proposed terms and conditions, the Commission considered it necessary to engage the public and stakeholders before making a determination. An RER consultation paper was issued on November 23, 2012 and a public forum was convened on May 10, 2013 to obtain feedback from all interested parties.

This Decision has considered the submissions from the BL&P and all other respondents. The issues discussed and determinations are presented herein. The Commission extends its appreciation to all parties who were involved in this exercise.

2. BACKGROUND

The BL&P, having implemented the RER on a pilot basis for two years, is seeking to make this rider permanent. The RER was designed specifically to facilitate the sale of excess electricity to the grid by customers using a solar PV or wind RE system to offset electricity consumption from the grid. The rider is not intended to offer an avenue for revenue generation, but to compensate RER participants at the opportunity cost of the RE (i.e. the cost that would have otherwise been incurred by the BL&P had the RER customers not fed their excess electricity to the grid). It is not intended to be used by commercial entities as a revenue generating enterprise. These types of operators are considered Independent Power Producers (IPPs) for which a different legal regime is required. Further, it is distinct from a feed-in-tariff which is applied in other jurisdictions, as it does not offer a premium payment for RE, neither is a contract expected to be offered for the design life of the RE technology employed.

It is important to note that the RER is not a new rate because it does not fall within the definition of rates as prescribed in the Utilities Regulation Act, CAP. 282. Notwithstanding this, the Commission considers that it is within its remit to scrutinise and provide regulatory oversight to any programme which introduces new provisions or terms of service to customers, as the proposed permanent RER does.

Public response to the pilot RER has been positive with over 182 customers signed up on the programme at the end of June 2013. The pilot RER appears to be achieving the objective of facilitating the expansion of distributed renewable systems.

Development Objectives of the RER

In assessing the revised RER proposal it is necessary to have a broad appreciation of what Barbados is seeking to achieve as it relates to its sustainable energy policy. The Commission is cognisant of the fact that this initiative is voluntary on the part of the BL&P and that the primary pieces of legislation by which the Commission is guided, namely the Fair Trading Commission Act and the Utilities Regulation Act, do not speak to RE pricing and the conditions under which it is to be offered.

It must be noted that Barbados is working towards finalisation of its National Sustainable Energy Policy and the RER initiative is only one component of a broader framework aimed at transitioning the country to a sustainable energy environment.

It is recognised that there are many stakeholders in the area of renewable energy. These include:

- Households and businesses with individual systems for their own use;
- Businesses who want to supply both for their own use and commercially;
- Independent power producers (IPPs) whose primary business will be to generate electricity for sale;
- Persons who are primarily interested in the environmental benefits of RE and/or a reduction in fuel importation;
- Businesses who market RE systems; and
- Lending agencies interested in funding RE projects.

These stakeholders have varying interests; however, this programme does not seek to address all of the issues associated with the development and use of renewable energy.

3. THE EXISTING RENEWABLE ENERGY RIDER (PILOT)

The pilot RER was available to all customers - Domestic Service (DS), Employees (EMP), General Service (GS), Secondary Voltage Power (SVP), Large Power (LP) - with renewable power sources located on the customer's own or rented premises. All of the provisions of the applicable tariffs therefore applied except as amended by the rider. The Commission approved the use of the RER for two years; however consumers requesting service under this optional rider were required to enter into a power purchase agreement with the BL&P for a minimum of one year with the option to renew the contract.

Current RER participants were limited by the following conditions:

- the maximum number of systems connected to the grid were limited to 200 customers on a first-come first-served basis or a combined maximum installed capacity of 1,600 kW, whichever occurred first;
- applicants for this rider had to be customers of the BL&P;
- the maximum size of an individual installation for customers on the DS, GS, and EMP tariffs was limited to 5kW or 1.5 times the customer's average monthly usage;
- the maximum size of an individual installation for SVP, LP tariffs was limited to 50kW.

All kWh sold to the grid were compensated via a credit at 1.8 times the FCA or 31.5 cents/kWh, whichever is greater.

4. THE PROPOSED RENEWABLE ENERGY RIDER (PERMANENT)

At the end of the pilot period, the BL&P proposed that the following changes to the RER be implemented from January 1, 2013 on a permanent basis:

- a) A reduction of the RER credit from 1.8 times to 1.6 times the FCA;
- b) A revision of the billing arrangements for the RER to reflect that the customer pays the utility at the appropriate tariff for all energy consumed and the utility purchases the energy produced by the renewable system(s) at 1.6 times the FCA, up to a maximum of 1.5 times the amount of energy the customer uses within the period. Any amount produced by the renewable systems in excess of 1.5 times the amount of energy used by the customer will be credited at the FCA;
- c) In the event that the FCA is reduced to the point that the amount the customer pays is more than what they would have paid if they were offsetting their usage with a stand-alone system, the RER credit will be increased to match what the customer would have paid had they offset their usage with a stand-alone system;
- d) Renewable Energy Credit cheques will be issued bi-annually (June & December) to customers with a credit on their account that exceeds \$500. Customers with an account credit below \$500 at the end of the calendar year may request that a cheque be issued for that amount;
- e) The maximum generator capacity for customers will be based on 1.5 times their monthly energy consumption, using the conversion of 150kWh per month per kilowatt, or 150 kilowatts, whichever is lower;
- f) The RER will be available up to a maximum combined installed capacity of 5MW; and
- g) The revised terms and conditions of the RER should be fixed for a period of three (3) years or until the next rate case, whichever is sooner.

5. THE COMMISSION'S DETERMINATION

The Commission analysed and considered the BL&P's proposals, published these proposals in the Renewable Energy Rider Consultation paper, facilitated an oral forum and considered the written responses from the BL&P and from over 20 interested persons and organisations.

The Commission's determinations regarding the issues raised during this review are hereby presented:

- **Value of Permanent RER Credit**

The BL&P proposed that the credit be moved from 1.8 times the FCA, as used in the pilot programme, to 1.6 times the FCA in the permanent rider.

The Commission is satisfied that a rider of 1.6 times the FCA is representative of the avoided fuel cost when consideration is given to the type, quantity and cost of the fuel utilised to generate electricity, the fuel generation share (the percentage of electricity generated that is attributable to a particular fuel type or RE source) and the cost at peak load. The decrease in the RER credit factor from 1.8 to 1.6 is based in part on the above factors and use of information from a more recent time interval (January 2011 to May 2012) instead of the initial pilot of May 2008 to March 2009. This means that different fuel share of generation and fuel costs are applicable.

The Commission has approved the RER credit of 1.6 times the FCA.

- **Minimum Credit**

The RER was designed specifically to facilitate the sale of excess electricity to the grid by customers using a solar PV or wind RE system to offset electricity consumption from the grid. The rider is not intended to offer an avenue for revenue generation, but to compensate RER participants at the opportunity cost of the RE. Guaranteeing a minimum credit will act to frustrate the intentions and the underlying principles of the RER. However, the BL&P has proposed that in the event that the FCA is reduced to a point that the amount the RER customer pays is more than what they would have paid if they were offsetting their usage with a stand-alone system, the RER credit shall be increased to

match what the RER customer would have paid had they offset their usage with a stand-alone system.

The Commission considers that the BL&P's proposal is somewhat complex and that fuel price decreases are not expected in the short term. As the Commission supports the periodic review¹ of the RER credit, the Commission is of the view that consideration can be given to a minimum credit at a subsequent time in the event that the value of the FCA decreases, for example, due to the availability of natural gas.

The Commission has determined that no predetermined minimum credit shall apply.

- **Capacity Limit**

Three different capacity limits were taken into consideration: the allowed national intermittent or non-firm capacity of 10% of peak demand; the total distributed scale intermittent capacity of 5MW, (i.e. RE generation from customers on the RER programme); and the individual intermittent RE system capacity of 1.5 times the customer's average monthly usage to a maximum of 150kW.

Verification of the extent to which the grid can be expected to cope with intermittent sources of electricity requires an intermittent RE penetration study. This would provide an indication of what the maximum intermittent capacity should be, thus allowing limits to be set at the overall national and distributed levels. The findings of the intermittent RE penetration study being undertaken by the BL&P are not yet available to the Commission, but the results are expected by the end of 2013.

In light of the aforementioned, the Commission has determined that the national intermittent RE capacity should remain at 10% of peak demand, but the capacity limit for distributed intermittent RE generation should be increased to 7MW (from the proposed 5MW) as this will have minimal effect on the value of the RER credit but would provide for greater participation in the programme. The Commission is also of the view that 1MW of this additional intermittent RE capacity should be reserved for Domestic, Employee and General Service customers.

¹ This is discussed later in the Decision

The individual customer capacity limit of 1.5 times the customer's current average usage up to a maximum capacity of 150kW is accepted in view of the fact that the RER programme is intended for customers who have purchased the systems for their private use. This average usage is normally calculated based on the most recent 12 months that the customer relied on the grid. It must be noted that the RER credit at 1.6 times the FCA will only be applicable to a maximum of 1.5 times the customer's average usage, thereafter RER customers will be reimbursed at 1 times the FCA.

- **Billing Arrangement**

Two types of billing arrangements were considered: "buy all/sell all"; and the "sale of excess". The former arrangement requires that all electricity generated be sold to the grid and all electricity be purchased from the grid. Customers under a "buy all/sell all" arrangement will not realise the benefits of self-generation specifically as it pertains to the reduction in consumption from the grid, reclassification into a lower tariff tier, a reduced customer charge and very importantly, the sense of independence from the national grid.

Under the billing arrangement where only the excess is sold to the grid, gross electricity flows at the connection must be known. This billing approach is supported by the two-meter alternative metering connection 1 only (as shown in Appendix 1), as it is the only configuration that monitors gross sale between the customer and the utility. The "sale of excess" billing arrangement also offers the customer the intangible comfort of retaining direct use of what they produce if they have a bimodal inverter or batteries. This approach lowers the customer's consumption from the grid, thus lowering the tier in which he/she is billed and the customer charge - benefits of self-generation. Seventy-eight per cent (78%) of current RER customers have opted for billing alternative 1 - "sale of excess".

The Commission has determined that the "sale of excess" electricity to the grid billing arrangement shall be adopted.

- **Metering System**

Both meter connection alternatives 1 and 2 proposed by the BL&P (see Appendix 1) use two meters and record generation data. The major difference between these two metering

systems is that with Alternate Meter Connection 1, one meter is bidirectional and records gross flows in both directions between the customer site and the grid. The other meter measures the total flow from the customer's RE generator. On the other hand, with Alternate Meter Connection 2, both meters record totals with one meter recording total flows of electricity from the customer's RE generator to the utility grid and the other meter measuring the total electricity flow from the grid to the customer site. It is recognised that the Commission's billing determination for the "sale of excess" electricity to the grid is only supported by the alternative metering connection 1 system.

The Commission has determined that the Alternate Meter Connection 1 shall be implemented for all new installations.

- **RER Customer Reimbursement of Credits**

The BL&P proposed bi-annual reimbursement where the credit is greater than \$500.00. Given the current value of average monthly customer credits, it appears that customers in the domestic, secondary voltage power and employee classes, who represent the majority of the current participants, would have to wait between five and nine months before a credit is issued under BL&P's proposal.

Respondents to the consultation favoured monthly payments of credits. The BL&P however estimated that the issuing of monthly credit cheques, irrespective of the amount of credit, would result in an estimated increase in administration costs of approximately \$4,000 per month. The Commission has considered the length of time that RER participants would have to wait before receiving a credit cheque versus the additional cost associated with more frequent reimbursement by the BL&P.

The Commission has determined that the BL&P shall reimburse RER customers on a quarterly basis where the applicable credit is greater than or equal to \$100.00.

- **Contract Period**

Determining the value of the RER based on the avoided fuel cost means that as the inputs change for example fuel costs, fuel mix and generation plant, so too will the avoided cost. A contract period that extends into a period where the factors used to calculate the

avoided cost have changed, may result in either RER participants being paid less than the avoided cost or non-RER participants facing higher costs due to the level of the credit paid to RER participants. Another equally important consideration is that of guaranteed access to the grid. Enabling the deployment of RE technology requires that some risks be minimised.

In seeking to balance these two considerations the Commission considers that a contract period of 10 years with the provision to review the value of the RER credit every three years is appropriate. This periodic review will allow for adjustment of the RER credit based on the changing avoided fuel cost or any other relevant input.

The Commission has determined that RER customers shall be offered a contract for access to the grid for a minimum of 10 years. The value of the RER shall be subject to review every three years from the date of implementation of this Decision.

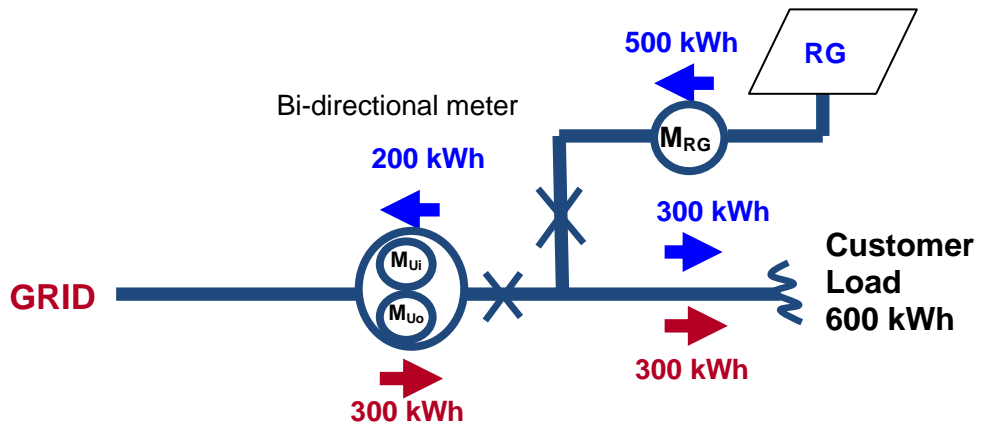
- **RER Interconnection Agreement**

The Commission also received comments concerning the terms and conditions contained within the BL&P's Renewable Energy Interconnection Agreement. These comments raised questions concerning what would constitute the appropriate scope of the said interconnection agreement, the impact of the agreement on the customer generator's right to privacy and indemnity issues.

The Commission, having reviewed the same, has determined that one clause, namely clause 9 which dealt with the issue of indemnity, merited a review. Therefore, this will be discussed with the BL&P.

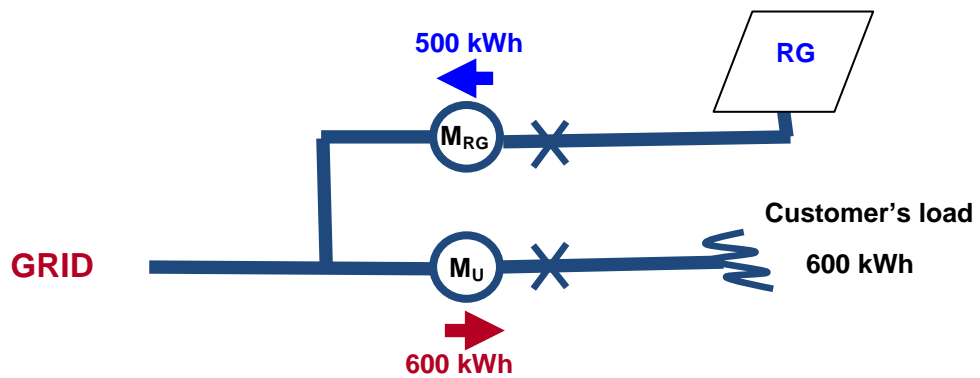
APPENDIX 1

Alternative Meter Connection 1



Customer Pays 300 kWh (M_{U_o}) x Rate
Utility pays 200 kWh (M_{U_i}) x 1.6 x FCA

Alternative Meter Connection 2



Customer Pays 600 kWh (M_U) x Rate
Utility pays 500 kWh (M_{RG}) x 1.6 x FCA

Dated this 8th day of August 2013

Original signed by

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Neville V. Nicholls
Chairman

Original signed by

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Gregory F.M. Hazzard
Commissioner

Original signed by

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Andrew W. Willoughby
Commissioner

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Philmore Alleyne
Commissioner