



FAIR TRADING COMMISSION

CONSULTATION PAPER

RENEWABLE ENERGY RIDER

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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

This Consultation Paper is not a legal document and does not constitute legal, commercial or technical advice. The Commission is not bound by this document. The consultation is without prejudice to the legal position of the Commission or its rights and duties to regulate the telecommunications market generally.

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SECTION 1 - PURPOSE OF CONSULTATION

The Fair Trading Commission's (Commission) Findings Report of March 19, 2010 considered the Renewable Energy Rider (RER), Interruptible Service Rider (ISR) and Time-of-Use (TOU) tariff pilot programmes as proposed by the Barbados Light & Power Co. Ltd. (BL&P). As agreed by the Commission, these pilot programmes were undertaken for two years. On July 31, 2012 the BL&P submitted a comprehensive report on the assessment of the pilot programmes. In that report it was recommended that the ISR and the TOU tariff pilot programmes be extended to allow for further data acquisition and assessment. The Commission agreed to the request for the extension of the ISR and TOU pilot programmes; however, the Commission believes that the BL&P's proposal to adopt the RER permanently with amended terms and conditions requires stakeholder discussion and comment.

The objective of this consultation is to obtain feedback from the public on the proposed terms and conditions of the RER in order to inform the Commission's decision regarding its permanent implementation.

The Commission recognises that the BL&P is the sole electricity supplier in Barbados and as such is the only entity that persons can sell excess power to using their renewable energy systems. Therefore, to ensure a balance in bargaining power the Commission has decided to engage the public on the formulation of the RER as it is cognisant of the role it plays in determining whether the terms and conditions of the RER are fair and reasonable to all participating customers. The burden to ensure this increases in light of the pending National Sustainable Energy Policy under which the Commission has a duty to facilitate the promotion of renewable energy and energy efficiency within Barbados.

The BL&P's recommendations with regard to the changes in the construct of the RER were significant. Given the proposed degree of divergence from the original terms and conditions and it being the pilot that facilitates practical application of the proposed National Sustainable Energy Policy, the Commission considers it necessary to revert to the

public of Barbados before adjudicating on the terms and conditions of a permanent version of the RER. This consultation paper therefore outlines the BL&P's findings from the RER pilot and their recommendations for the permanent RER. The Commission has already sought additional information on the revised RER from the BL&P and their response is also included in this paper. The Consultation period will begin on **November 23, 2012** and end on **December 14, 2012 at 4:00 p.m.**

SECTION 2 – BACKGROUND

REGULATORY FRAMEWORK

The Commission's regulatory framework seeks to ensure that the interests of consumers are protected by ensuring that service providers supply to the public service that is safe, adequate, efficient and reasonable pursuant to Section 3 (2) of the Utilities Regulation Act CAP. 282 (URA). The use of pilot programmes or trials on a small scale, as was applied for by the BL&P and allowed by the Commission in 2010, is a strategy that the regulator may employ to ensure that any new service or service modification which is to be provided, is safe, adequate and reasonable for consumers at large.

The BL&P's recommended changes to the RER deviate considerably from the original construct of the RER. The Commission therefore considers it necessary to consult with the public on the newly proposed terms and conditions in keeping with the requirements of Section 4 (4) of the Fair Trading Commission Act Cap. 326B. Section 4 (4) obligates the Commission to consult with service providers, representatives of consumer interest groups and other parties that have an interest in the matter before it in relation to its functions under Section 4 (3) (a), (b) and (f).

EXTENSION OF PILOT PERIOD

Having allowed the BL&P to conduct the ISR, the TOU and the RER pilot programmes over the last two years, the data submitted has been reviewed and a determination was made on the continuation of the ISR and the TOU pilot programmes, as was requested by the BL&P. The Commission granted the BL&P the extensions and the ISR and TOU pilot programmes will now run until December 31, 2013 and September 09, 2013 respectively. This will facilitate the collection of additional data, the design of the Integrated Resource Plan (IRP) and the conduct of a marginal cost study. The IRP is currently being developed and is expected to be available in the first quarter of 2013.

SECTION 3 – BL&P SUMMARY OF RENEWABLE ENERGY RIDER EVALUATION & RECOMMENDATIONS

The following is an extract from the BL&P Pilot Programme Report¹ which was submitted to the Commission. Relevant questions have been inserted for your consideration.

Structure

The RER makes provision for customers who own solar photovoltaic or wind systems to interconnect and feed back to the grid any excess power produced by their renewable energy system. The BL&P provides the customer with a monthly renewable energy credit of 1.8 times the Fuel Clause Adjustment (FCA) for all kWh supplied to the grid. The factor of 1.8 times the FCA was developed based on the avoided cost of fuel over an 11-month period prior to the 2009 rate review application.

Participants

At the end of April 2012, when the programme evaluation commenced, 13 customers were being billed on the RER. However, by the end of the pilot programme in June, participation had expanded to 25 customers.

Programme Objectives

The RER was designed to facilitate the interconnection of customers who own solar photovoltaic or wind systems.

Programme Operations

RER participants use these systems to generate a portion of their energy needs. Thus, they purchase energy from the BL&P at times when on-site generation falls short of their usage, and sell excess power to the BL&P when it is in surplus, thus reducing their monthly energy costs. (In some instances bill reductions were quite significant.)

¹ A copy of the report is available on the Commission's website; www.ftc.gov.bb

Programme Benefits

The lower bill that customers received reduced the BL&P's revenues. However, offsetting those revenue reductions are reduced costs of generating and delivering power to RER customers. Furthermore, much of the customers' energy production occurs during peak periods.

FTC's Question 1:

In the event that the RER credit is reduced from 1.8 times the FCA to 1.6 times the FCA how would this impact your participation in the RER?

The current RER credit of 1.8 times FCA (which is designed to reflect the fact that renewable generation tends to displace generation where fuel cost is higher than the average, which is represented by FCA) appears to exceed the value of the BL&P's avoided cost of generation for the amount of energy purchased from the RER customers. After review, the avoided cost was closer to 1.6 times the FCA.

Programme Feedback

Customers' motivations for participating in the programme were evenly balanced between the pursuit of bill savings and a desire to promote energy efficiency or environmental improvement.

FTC's Question 2:

What would encourage you to participate in the RER Programme?

Customers expressed moderate to high satisfaction with the programme. They liked the quality of programme administration, but some encountered problems with setup and approval. They also identified some challenges with metering and billing, many of which were resolved during the course of the pilot.

Customers also made a range of broader policy suggestions, directed mostly at improving certification and training of installers, but also at enhancing the BL&P's efforts to promote the programme. All customers stated that they would like to continue participating in RER service, assuming current payment rates.

Non-participants with renewable systems who were surveyed indicated that they decided not to participate for a variety of reasons. These include installation size limits, a desire to retain 60Hz service, and concerns with timing of credit payments at year-end only.

Suggestions for improvements included making the credit fixed to provide more investment certainty, and an expansion in unit maximum size.

Meter Connection and Billing

The RER service can be supported by a variety of metering configurations and billing approaches. Possible metering configurations are: 1) net metering, in which a single meter records the net flows between the BL&P and the customer; and 2) dual metering, in which one meter measures the site generator output. There are two alternatives for the second meter location. In the first alternative, the second meter is bidirectional, and is placed at the service entrance with the renewable generator's point of connection on the load side of the meter. It records the net consumption of the site. In the second alternative, the second meter is placed at the service entrance with the renewable generator's point of connection on the line side of the meter. It records gross flows in either direction. Additionally, a utility can choose conventional metering, which records single values for the entire billing period, or interval data recorders that can measure hourly flows.

Net metering is unattractive due to its data limitations, even if time-based metering is used. The difficulty lies in the inability to record the amount of consumption appropriate for charging distribution services, for which total flows are desirable. The first alternative to net metering appears to have an advantage over the second, in that it supports both billing alternatives. Regardless of the method chosen, time-based pricing may be cost-effective, especially if cost to serve varies across time.

FTC's Question 3:

Which type of metering system would you prefer and why?

There are two billing alternatives. Billing Alternative 1 treats all generation not consumed on site as sold to the utility and all consumption not self-generated as purchased from the utility. Billing Alternative 2 treats all generation on site as being sold to the utility and all consumption as purchased from the utility.

After evaluating the alternative billing methods, Billing Alternative 2, which is supported by both Alternative Metering Configurations 1 and 2 with dual metering, is arguably a superior approach in a world of bundled rates. This is the case because a customer's total site consumption is likely to be a better metric of the utility's cost (other than generation) incurred to serve the customer, than the gross sales of Billing Alternative 1. Stable payments for these services, at a price exactly equal to the prices charged other customers in the class, are intuitively defensible.

FTC's Question 4:

Which type of billing arrangement would you prefer - 1) treating all generation not consumed on site as sold to the grid and all consumption not self-generated as purchased from the utility (i.e. only excess sold to grid) or; 2) treat all generation on site as being sold to the utility and all consumption as purchased from the utility? Why?

BL&P's Analysis and Recommendations

A review of the avoided cost of the system suggests that up to a level of 5MW of renewable site generation, the avoided cost of the fuel varies between 1.5 and 1.6 times FCA.

This estimate assumes that a large share of renewable generation will be photovoltaic, which has a more peak coincident load profile than does wind generation. One way of recognising this factor in the future would be to move to time-based payments that would

result in higher credits for photovoltaic systems than for wind. This should be considered for the future.

During the pilot, from a cost and practical perspective, customers chose meter configuration 1, which uses one meter to measure generator output and a bi-directional meter to measure hourly flows to and from the grid. This arrangement can also achieve the Billing Alternative 2 method of buy all, sell all.

The RER has been generally well accepted and has been developed to facilitate the development of distributed renewable systems without compromising the utility's revenue base. It is designed for customers who want to offset their energy consumption with renewable systems and not for customers who install renewable systems for the main purpose of selling electricity onto the grid. These types of customers are considered Independent Power Producers (IPPs) for which a separate arrangement would be required. The BL&P therefore offers the following recommendations for the future of the RER (see Appendix 1 for explanatory notes):

1. The existing terms and conditions of the RER (with credit of 1.8 times FCA) be extended until 31 December 2012.
2. The following changes to the RER be implemented from January 1, 2013;
 - a) The RER be implemented on a permanent basis.
 - b) The RER credit be reduced from 1.8 times FCA to 1.6 times FCA.
 - c) The billing arrangements for the RER be revised so 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 system in excess of 1.5 times the amount of energy used by the customer will be credited at the FCA.

- d) In the event that the FCA reduces 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.
- e) 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 a cheque be issued for that amount.

FTC's Question 5:

What are your views on the BL&P's proposed arrangement for issuing credit cheques?

FTC's Question 6:

How often would you wish to receive payment to your account for the energy sold to the grid?

- f) 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.
- g) The RER will be available up to a maximum combined installed capacity of 5MW.
- h) 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.

The Commission is of the view that the RER is not a rate but a contract between the BL&P and the customer. As stated earlier, the Commission's role is to ensure that the terms and conditions of that contract are fair and reasonable. The period of the contract may therefore be adjusted, with the Commission's approval, independent of a rate case.

FTC's Question 7

For what period should the contract for the RER be fixed?

FTC's Question 8:

What is your motivation for participating in the RER?

SECTION 4 – THE BL&P’S RESPONSES TO THE FTC’S RER QUERIES

On review of the BL&P’s Pilot Programme Report the Commission’s staff forwarded a number of comments to the BL&P for their feedback.

FTC’s Comment:

It is noted that the avoided cost of the systems suggest that up to a level of 5MW of renewable site generation, the avoided cost varies between 1.5 and 1.6 times FCA -

- a. Kindly provide the information that supports this.*
- b. Kindly confirm that the proposed maximum generator capacity per individual customer is 150KW.*

BL&P’s Response:

- a. The table below shows the estimated fuel cost avoided by renewable sources (assuming an installed capacity of 5MW and 90% photovoltaic and 10% wind) compared to the average fuel cost over the period January 2011 to May 2012. The avoided cost factor varied mostly between 1.5 to 1.6. The average over the period was 1.58 and the Company decided that it would approximate to the multiple of 1.6 for the RER credit.

Month	Average Avoided Fuel Cost / Average Fuel Cost
January 2011	1.58
February 2011	1.65
March 2011	1.61
April 2011	1.58
May 2011	1.55
July 2011	1.52
August 2011	1.52
September 2011	1.58
October 2011	1.47
November 2011	1.66
December 2011	1.70
January 2012	1.57
February 2012	1.55
March 2012	1.53
April 2012	1.62
May 2012	1.64
Average	1.58

- b. It is proposed that the maximum renewable generator capacity for each individual customer be based on 1.5 times the customer's monthly energy consumption, with the maximum generator size being 150kW. For example, a customer who has an average monthly energy consumption of 240kWh would typically require a 1.6kW photovoltaic system to meet their full consumption needs (using the conversion of 150kWh per month per kilowatt

of installed photovoltaic system capacity). Under the proposed RER this customer would be allowed to install a photovoltaic system with an installed capacity of up to 2.4kW, since a system of this size could produce up to 360kWh, which is 1.5 times the customer's average monthly energy usage. Similarly, a customer with an average monthly consumption of 1,500kWh would be allowed to install a photovoltaic system with a capacity up to 15kW that could produce up to 1.5 times their monthly consumption, while a customer with an average monthly consumption of 15,000kWh would be allowed an installed photovoltaic capacity up to 150kW. Customers using more than 15,000kWh would only be allowed to install a photovoltaic system up to 150kW, since the 150kW system is the maximum size proposed for the rider.

FTC's Comment:

The maximum proposed combined installed capacity is 5MW - What is the maximum combined capacity of generation that the BL&P would propose to be sold to the grid by customers under this RER programme?

BL&P's Response:

The maximum combined installed capacity of 5MW proposed relates to the combined installed capacity ceiling for customers on this RER who want to interconnect and feed the excess energy produced by their renewable energy system into the grid.

FTC's Comment:

The RER analysis and recommendations speak to conditions under which the FCA credit of 1.6 times the FCA would be increased - How would this be done and would it mean that there will be different FCA credit rates for different customers?

BL&P's Response:

This relates to the proposal that energy delivered to the grid up to a maximum of 1.5 times the amount of energy the customer consumes within the period will be purchased at 1.6 times the FCA. All energy that is delivered to the grid in excess of 1.5 times the customer's consumption will be purchased at the FCA.

The conditions under which the credit that is paid to the customer could be increased will only occur if the customer's usage is such that when the FCA drops below a certain point (and this is only expected to occur very seldom) where the amount the customer would have to pay to us is more than they would have to pay us if they were on a stand-alone system and still taking any excess they may require from us.

So, in other words, the maximum amount they would have to pay us would be the amount that a person with a stand-alone system using the same amount of energy would have to pay us. This will be worked out by calculating both options and, if necessary, adjusting the credit amount to ensure they pay no more than if they were on a stand-alone system. We expect this to happen very rarely but think it is a necessary condition to provide so that customers would have the confidence that they would never be worse off, from a financial perspective, by interconnecting into the grid.

SECTION 5 – CONSULTATION PROCESS AND TIMETABLE

This consultative document generally includes a series of specific questions on which the Commission is particularly seeking comments. To ease the task of analysing comments, respondents should reference the relevant question numbers in the document. If they consider it appropriate, respondents may wish to address other aspects of the document for which the Commission has not prepared specific questions. Failure to provide answers to all questions will in no way reduce the consideration given to the entire response. Commercially sensitive material should be clearly marked as such and included in an annex to the response.

The Commission invites and encourages written responses in the form of views or comments on the matters discussed in the Paper from all interested parties including the BL&P, Government ministries, non-governmental organisations, consumer representatives, residential consumers, manufacturing businesses and academics.

Consultation Timetable

The Consultation period will begin on **November 23, 2012** and end on **December 14, 2012 at 4:00 p.m.** All written submissions should be submitted by this deadline.

The Consultation Paper is available from the Commission's Office and may also be downloaded from the Commission's website at www.ftc.gov.bb.

Respondents to the Consultation may submit responses in electronic format. The Commission would prefer that emailed responses be prepared as Word documents, attached to an email cover letter and forwarded to: info@ftc.gov.bb.

Responses may also be faxed to (246) 424-0300.

Mailed or hand delivered responses should be addressed to:

**Chief Executive Officer
Fair Trading Commission,
Good Hope,
Green Hill,
St. Michael**

Confidentiality

The Commission is of the view that this consultation is largely of a general nature. The Commission expects to receive views from a wide cross-section of stakeholders and believes that views and comments received should be shared as widely as possible with all respondents.

Respondents should therefore ensure that they indicate clearly to the Commission any response or part of a response that they consider to contain confidential or proprietary information.

Analysis of Responses

The Commission expects, as in most consultations, to receive a range of conflicting views. In such circumstances, it would be impossible for the Commission to agree with all respondents.

At the end of this Consultation process the Commission will issue its response to the BL&P's proposals and advise the Company if any revisions to the revised RER are required before permanent implementation.

APPENDIX I

BL&P'S EXPLANATORY NOTES FOR RER RECOMMENDATIONS

1. We have recommended that the existing RER (which pays a credit of 1.8 times FCA) be extended to 31 December 2012 to give us time to put the necessary billing arrangements in place and to give the customer enough time to plan for the new changes.
2. We have recommended that the billing be arranged such that:
 - all energy used by the customer is purchased from the BL&P
 - all energy produced by their renewable source(s) be purchased by the BL&P

This will allow the utility to still earn the base portion of revenue so that it can continue to cover the cost of the facilities that still have to be in place for the customer to be connected to the grid and thus minimise the impact of these connections on non-participating customers which the revenue loss would otherwise have created.

3. We have recommended that the RER be reduced from 1.8 times FCA to 1.6 times FCA because this has been determined to be the average avoided cost of fuel based on an analysis over the last year.
4. We have recommended that the limit of capacity from customer-owned wind and photovoltaics be increased from 1.6MW to 5MW for the following reasons:
 - to allow for participation of more customers on the RER.
 - the avoided cost of 1.6 times FCA is applicable up to 5MW
 - photovoltaic and wind are intermittent sources and there is going to be a limit in the amount of these that could be in service at any time without negatively impacting on system stability. This will be examined in

greater detail during the IRP and at this point 5MW is considered to be a reasonable amount to allow unless guided differently by the results of the IRP.

5. This RER is only intended for persons who are installing renewable systems mainly to offset their own electricity consumption and not for those who are installing them to sell electricity onto the grid.

Persons whose purpose is to sell energy to the grid significantly beyond their internal usage are considered to be IPPs and alternative arrangements will have to be made for interconnection of these systems.

We have therefore recommended that the maximum amount of the credit calculated at 1.6 times the FCA be limited to 1.5 times (to allow for monthly fluctuations in usage) the amount of the customer's total use.

This limit will allow for a greater number of customers to participate; if this were left open-ended, the limited overall capacity available for this rider could be taken up by persons installing larger systems and limit the participation of other customers who may just want to install them to offset all or part of their usage.

6. We have recommended that any excess beyond 1.5 times the customer's usage be credited at 1 times the FCA.
7. We have recommended that where the FCA drops to the point that the amount the customer pays is more than they would have paid if they were offsetting their usage with a stand-alone system that the credit be increased to make these two options equivalent.

This is proposed to give customers a sense of certainty that the return would not be less by investing in a grid connected system compared to a stand-alone system. Significant investment in stand-alone systems can result in a significant

loss in sales which in turn will negatively impact on non-participating customers in the future.

8. We recommend that the RER be fixed for three years or until the next rate to give persons a sense of certainty for their investment.
9. We recommend that the size of new installations be limited to 1.5 times the customers' overall usage, using 150kWh being equivalent to 1 kilowatt, up to a maximum of 150kW for reasons indicated in note (5) above.
10. We recommend that any credit over \$500 be automatically refunded semi-annually. However, any customer who has a credit of less than \$500 at the end of the calendar year can request the amount be refunded. Doing refunds too often can create a significant administrative burden.

APPENDIX II

LIST OF QUESTIONS

1. In the event that the RER credit is reduced from 1.8 times the FCA to 1.6 times the FCA, how would this impact your participation in the RER?
2. What would encourage you to participate in the RER Programme?
3. Which type of metering system would you prefer and why?
4. Which type of billing arrangement would you prefer - 1) treating all generation not consumed on site as sold to the grid and all consumption not self-generated as purchased from the utility (i.e. only excess sold to grid) or; 2) treat all generation on site as being sold to the utility and all consumption as purchased from the utility? Why?
5. What are your views on the BL&P's proposed arrangements for issuing credit cheques?
6. How often would you wish to receive payment to your account for the energy sold to the grid?
7. For what period should the contract for the RER be fixed?
8. What is your motivation for participating in the RER?

