



THE BARBADOS
LIGHT & POWER
 COMPANY LIMITED

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 MAY 08 2009
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APPLICATION

PURSUANT TO SECTION 16
 OF
 THE UTILITIES REGULATION ACT
 CAP. 282 OF THE LAWS OF BARBADOS

FOR A REVIEW OF ELECTRICITY RATES

VOLUME 1

FAIR TRADING COMMISSION
 served by Mr. Peter Williams
 Barbados Light & Power Co. Ltd.
 Date: May 8, 2009
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APPLICATION FOR REVIEW OF ELECTRICITY RATES**

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GENERAL MEMORANDUM

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INTRODUCTION

1. The Barbados Light & Power Company Limited ("the Company") has worked assiduously over the past twenty six years to improve service quality and reliability, while maintaining basic electricity rates since the last increase was granted by the Public Utilities Board in 1983 ("The 1983 PUB Decision")¹.
2. Over the years, a significant portion of the earnings of the Company has been reinvested in new plant and equipment² required to meet the increasing demand for electricity and to improve the efficiency of the Company's operations. A recent example is the installation of two 30 megawatt low speed diesel generators in 2005 at a cost of approximately Bds\$140 million. This installation has played a crucial role in helping to moderate oil price increases through the efficient operation of the plant on the lowest grade residual fuel, also referred to as heavy fuel oil (HFO), which is the least expensive fuel oil on the market. Savings in fuel costs are automatically passed on to customers through the Fuel Clause Adjustment.
3. Regrettably, the present basic electricity rates are now inadequate to allow the Company to continue to meet its operating and maintenance expenses which have increased over the years, as well as to attract new capital to replace older plant that is due for retirement. The Company therefore finds it necessary to seek the approval of the Fair Trading Commission ("the Commission") for a review of its rates for the following reasons and so that the Company can:
 - (i) earn the revenue required to meet the Company's expenses involved in supplying a service which is safe, adequate and reasonable and allow it to continue to deliver a secure and reliable supply of electricity to all customers in an environment where the cost of inputs to the Company's operations have risen substantially;
 - (ii) attract new capital and satisfy lenders of the Company's ability to repay loans and to maintain the confidence of investors by providing them with

¹ Decision by the Public Utilities Board dated May 12, 1983

² Memorandum on Rate of Return – Schedule F



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- a fair and reasonable return, in order that the Company can buy the plant and equipment required for the delivery of service to customers;
- (iii) design rates such that the price of electricity to customers is closer to the cost of supplying the service, thereby providing correct price signals to all customers;
 - (iv) provide new rate options for commercial customers on a pilot basis; and
 - (v) provide a feed-in tariff for small customer-owned renewable energy sources into the grid on a pilot basis.
4. The Company's objective is to ensure that customers are provided with a reliable supply of electricity at reasonable rates. This is achieved when the Company is provided with the ability to raise funds to invest in new plant and equipment and customers who use the service pay their fair share of the reasonable costs associated with the service. The Company remains cognizant of the essential nature of the service it provides and this application for a review of electricity rates ("the Application") proposes rates that are designed to lessen the impact on those with low levels of consumption. Inadequate rates and inappropriate rate structures do not benefit anyone, customers or investors, and can result in significant costs to the economy through insufficient investment and resulting declines in the availability and reliability of electricity supply.
5. The Company believes that a robust, secure and reliable electric system is vital to the economic prosperity and future development of Barbados. Despite the challenges, the Company remains committed to providing such a system and continuing to render the highest level of service possible to its customers.

COMPANY OVERVIEW

6. The Company strives to be an efficient organization with a strong focus on meeting customer needs. Electricity customers in Barbados have been served by the Company and its predecessor, the Barbados Electric Supply Corporation since 1911.
7. The Company is a wholly owned subsidiary of Light & Power Holdings Limited (LPH), a company that at December 31, 2008 was approximately 60% locally

owned by some 2,700 Barbadian shareholders, including the National Insurance Board of Barbados which owns approximately 23%³. Leucadia National Corporation of the United States, through its ownership of CI Power Company Limited is the other significant investor. LPH is listed on the Barbados Stock Exchange.

8. The Company operates under a franchise granted to it under Schedule 2 of the **Barbados Light and Power Company (Extension of Franchise) Act** 1982, to supply energy for all public and private purposes as defined by the **Electric Light and Power Act** and for a period of forty-two years from 1st August 1986.
9. At December 31, 2008 the Company was serving a total of 118,798 customers through its island-wide distribution network, had a peak demand of 164,000 kilowatts and recorded year-end sales of 944,035,752 kilowatthours.

ELECTRICITY PRICES - 1983 TO 2008

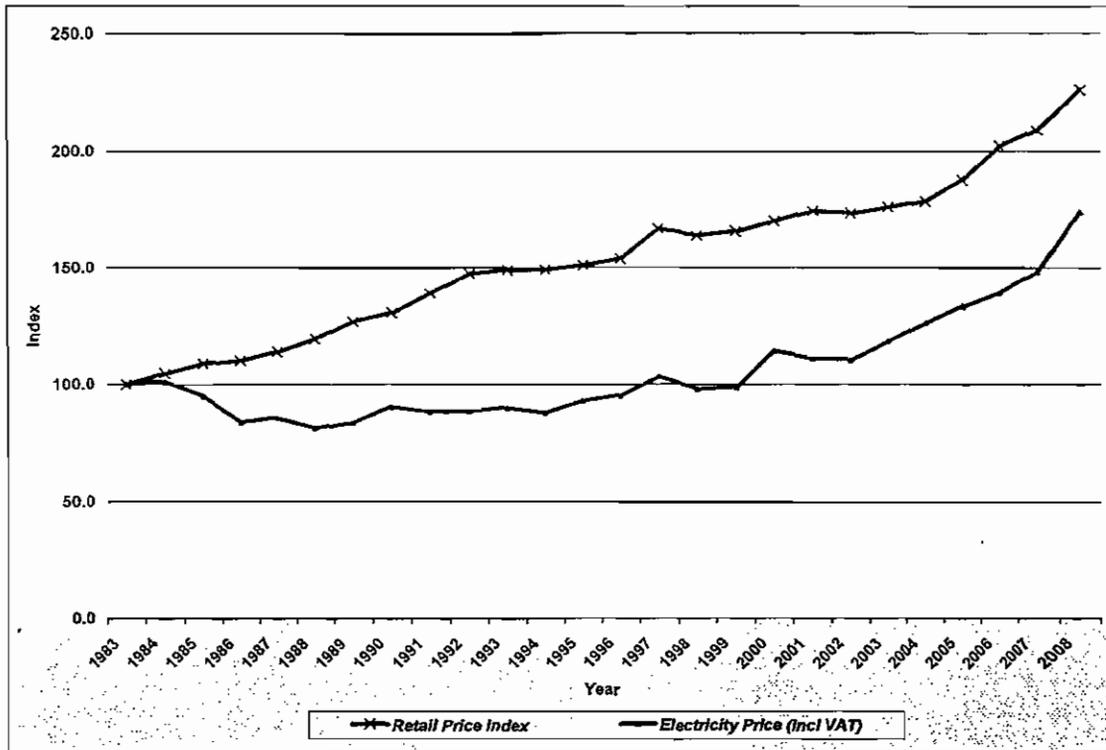
10. Since the last increase in electricity rates granted in the 1983 PUB Decision, gains in efficiency and growth in sales have allowed the Company to maintain the same basic rates for electricity. A comparison of electricity prices in 2008 vis-à-vis the Consumer Price Index (CPI) is shown below in Figure 1. This indicates that while the basic price of electricity has remained unchanged, the price of electricity has increased by about 75% including VAT, due solely to increased fuel prices. Base rates excluding fuel, which are the essence of this rate filing, have remained unchanged since 1983. The CPI by comparison has risen by approximately 125% since 1983.⁴

³ Light & Power Holdings 2008 Annual Report to Shareholders

⁴ Light & Power Holdings 2008 Annual Report to Shareholders.

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Figure 1.



11. In 1997, the Government of Barbados introduced a 15% Value Added Tax (VAT), which was applied to all electricity sales. Generally, commercial customers, but not domestic, are VAT registered and typically are able to recover the input VAT.

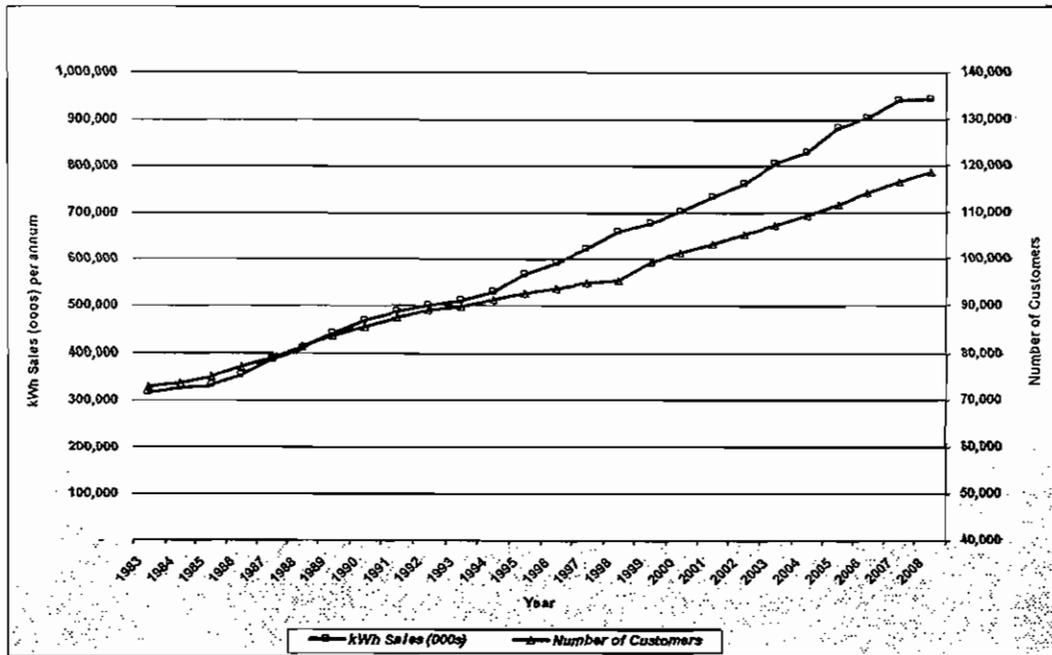
12. Save for Trinidad and Tobago, which has an abundance of natural gas, electricity rates in Barbados are among the lowest in the Caribbean as attested by annual surveys carried out by the Caribbean Electric Utility Services Corporation (CARILEC) and summarized in the KEMA Benchmark Study report, a copy of which accompanies this Application.⁵

13. The decades of the 1960's and the 1970's saw significant growth in electricity demand as the Company expanded supply to all parts of the island. During the period 1983 to 2008, growth in the number of customers and consequently the demand for electricity has been significant. As shown in **Figure 2**, the Company served 72,962 customers in 1983, but by December

⁵ Benchmark Study Report 2002 – 2006 for The Barbados Light & Power Co. Ltd., April 2009, prepared by KEMA Inc.

31, 2008 it was serving 118,798 customers, a 63% increase. Electricity sales during the same period rose from 317.4 million kWh to 944.0 million kWh, an increase of just under 200%.

Figure 2.

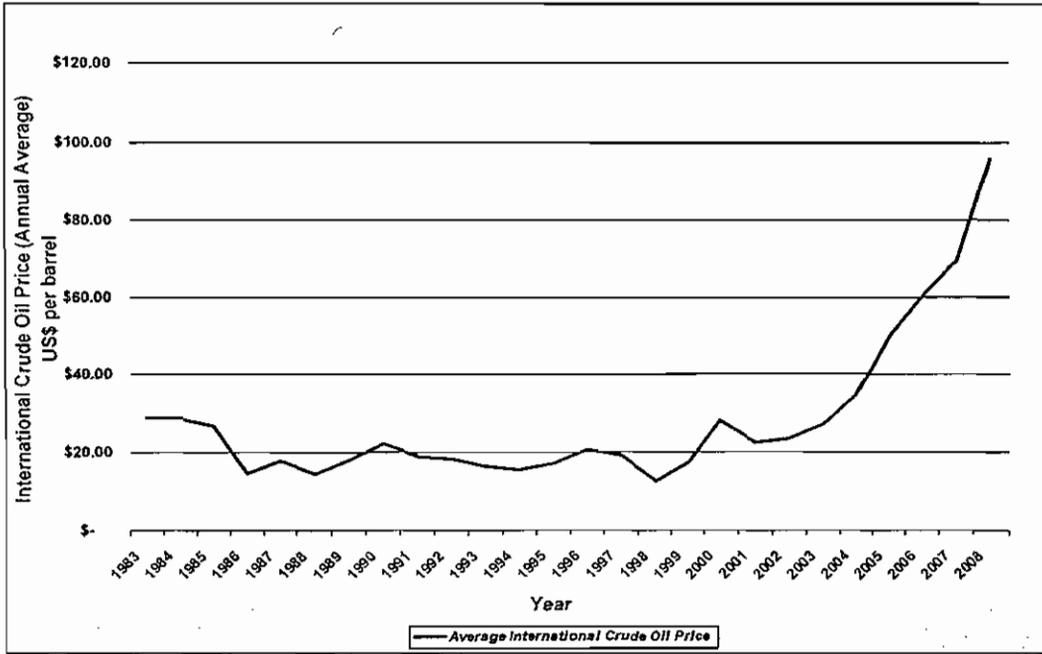


14. The Company has installed a mix of base load and peaking plant to meet the demand of electricity consumers. The Company's low speed diesel generators, the first two of which were installed in 1982, achieve high efficiency, and operate reliably on HFO. Dramatic increases in international oil prices over the past five years, as shown in **Figure 3**, have resulted in increases in the price of electricity in Barbados and throughout the region.

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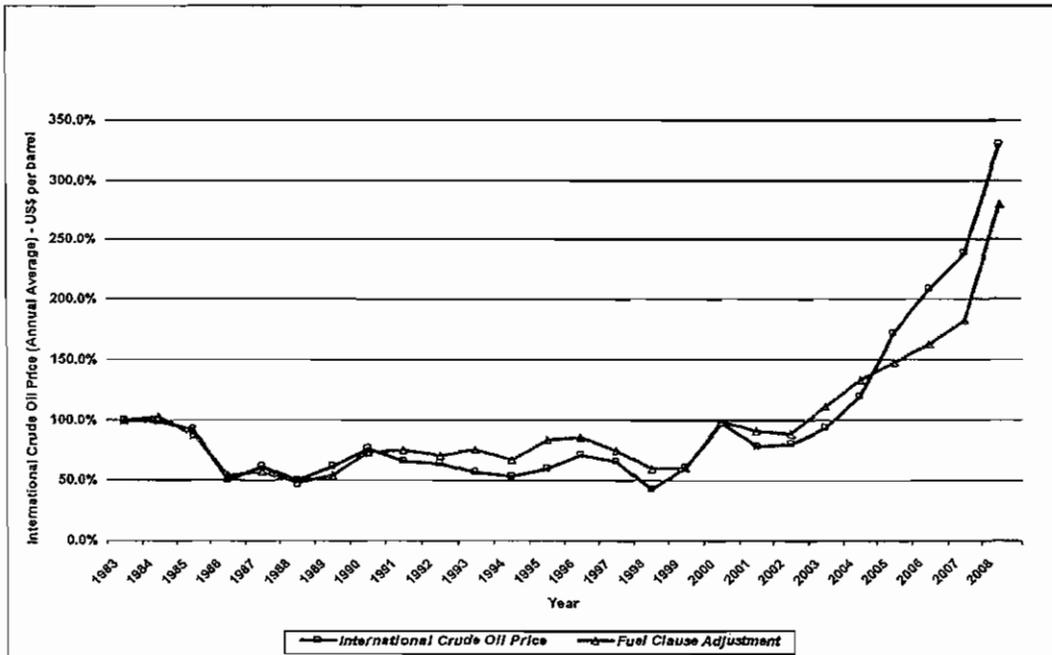
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Figure 3.



- The Company's installation of two low speed diesel generators in 2005 played a critical role in helping to moderate the effect of these oil price increases. During 2008, 81% of electricity was produced by the Company using HFO, which as indicated is the least expensive liquid fuel oil on the market. This is up from the 2004 figure of about 60% for electricity production on HFO. Savings in fuel costs are automatically passed on to customers through the Fuel Clause Adjustment. As shown in **Figure 4**, while the average international crude oil price for 2008 was 230% above that for 1983, the Fuel Clause Adjustment had increased by about 180%, due to the Company's efforts to maximize operations on the less expensive residual fuel.

Figure 4.



16. Besides oil, there are several other inputs into the electricity business that have increased significantly during the past few years. Perhaps the most dramatic increases have been in metals, such as aluminium and copper⁶. These metals are the primary inputs into the manufacture of transformers, cables and conductors. The Company seeks competitive bids for the materials it purchases. In 2002, the Company purchased copper service wire at \$4.18 per meter. By 2008 the cost of this wire had risen to \$9.82 per meter. Similarly, aluminium high voltage underground cable, which cost \$8.59 per meter in 2004, was purchased at \$14.27 per meter in 2008. A 40 foot southern pine electric utility pole, which cost \$529.45 in 2003, cost \$666.36 by 2008. These price increases are representative of increases seen in other key items of plant and equipment required for the generation, transmission and distribution system. Overall, these have resulted in increased cost of operations for the Company.

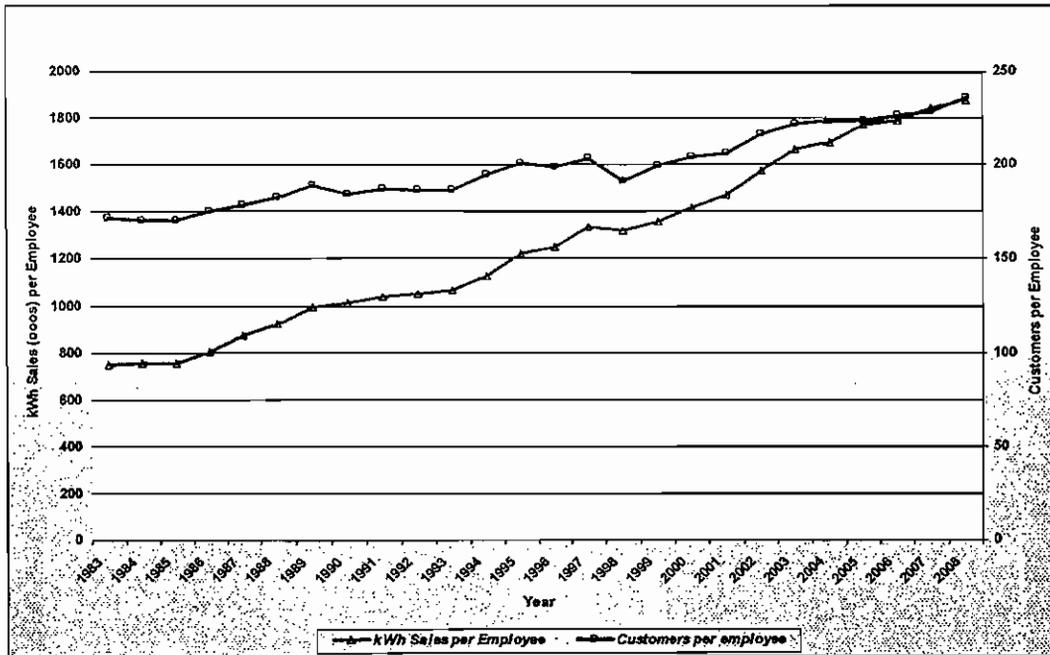
17. Wages have also increased during the period, as has occurred in other businesses in Barbados over the past 26 years. The Company has been able to moderate the impact of these wage increases without compromising service to customers, by increases in productivity as illustrated by **Figure 5**.

⁶ London Metal Exchange (LME) Website - <http://www.lme.co.uk/>

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That figure shows that in the period 1983 to 2008, the number of customers served per employee increased from about 170 customers per employee to 236. In terms of electricity sales, in 1983 the Company sold approximately 750,000 kWh for every employee and by 2008 this more than doubled to over 1,800,000 kWh.

Figure 5.



THE COMPANY'S OPERATING PERFORMANCE

Service Reliability

18. It has been estimated that the cost of an electricity outage to the economy is a multiple of the cost of electricity that would otherwise have been supplied during that outage⁷. Countries with unreliable electricity systems cannot expect to maintain a healthy and vibrant economy in this modern technological era. The Company continues to strive for increasing levels of system reliability, which have been in the order of 99.9% during the past few years as shown in Table 1.

⁷ Economic Evaluation of Projects in the Electricity Supply Industry 2003 -- H. Khatib: IEE Power & Energy Series - ISBN 0 86341 304 B

Table 1.

YEAR	System Reliability
2000	99.9274%
2001	99.9422%
2002	99.9402%
2003	99.9585%
2004	99.8395%
2005	99.9686%
2006	99.8846%
2007	99.9656%
2008	99.9120%

19. The Company adheres to strict maintenance schedules to ensure that its plant and equipment are kept in good order and achieve high levels of availability and reliability. The low speed generators installed in 1982 have achieved among the highest number of running hours for this type of plant around the world, still have high levels of availability and continue to operate as base load plant.
20. The Company must continue to invest to prevent degradation of system reliability. Once reliability suffers, it will take years to overcome the damage done to the economy.

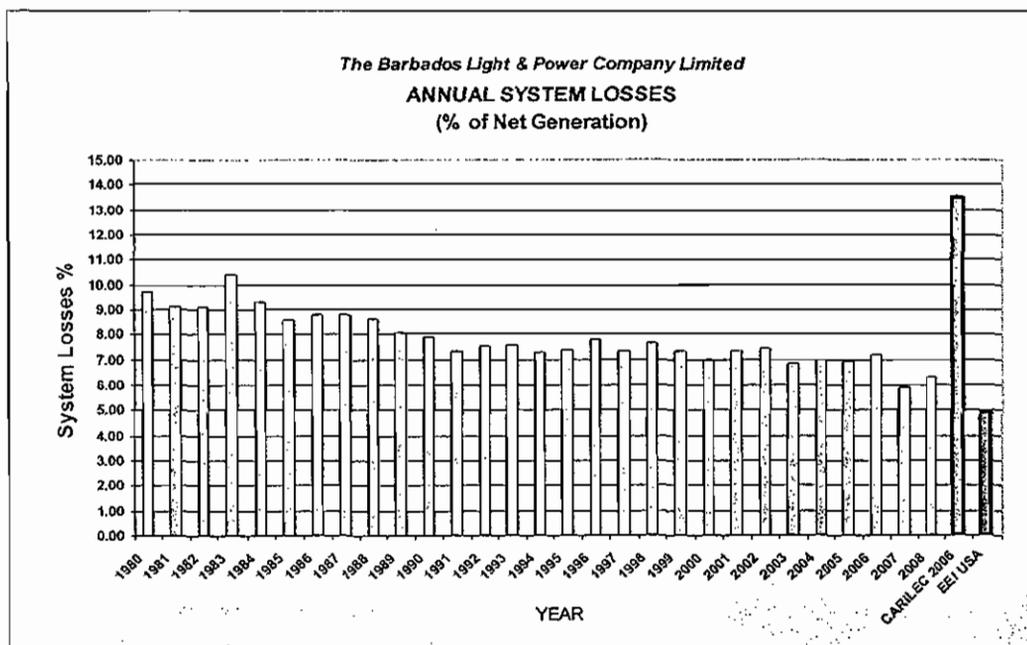
System Efficiency

21. As the cost of energy continues to increase, the improvement in the efficiency of the electricity network remains a high priority for the Company. System losses, which are a measure of the efficiency of the transmission and distribution (T&D) network, are inherent in the operation of an electricity system. The Company's electricity system losses have steadily reduced as higher levels of efficiency were being achieved. These losses are now among the lowest in the region and comparable to those of efficient utilities in North America and Europe as shown in **Figure 6.**⁸

⁸ Benchmark Study Report 2002 - 2006 for The Barbados Light & Power Company Ltd., April 2009, prepared by KEMA Inc.

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Figure 6.



Standards of Service

22. Effective June 1, 2006 the Fair Trading Commission established Guaranteed Standards of Service and Overall Standards of Service⁹ for the Company. Results for the Standards of Service for the years 2006 through 2008 are included in Schedules M-1 to M-4. To date the Company has had a high level of compliance with regard to these standards.

THE COMPANY'S FINANCIAL PERFORMANCE

23. As stated earlier, the present basic electricity rates are now inadequate to allow the Company to continue to meet its operating and maintenance expenses which have increased over the years and to attract new capital to replace plant that is due for retirement.

24. The Company has submitted several memoranda in support of its Application for a review of electricity rates. In compiling these memoranda the Company has sought to comply with well-recognised regulatory practices, principles and policies.

⁹ Memorandum on Service Standards – Schedule M

Test Year

25. The Company's application is based on the audited financial results for the year ending December 31st, 2008 (**the Test Year**)¹⁰ adjusted for known and measurable changes. The term "Test Year" refers to a 12 month period, usually beginning on the first day of a calendar or fiscal year, for which operating data is available and reflects as closely as possible the conditions (such as sales and cost) a utility is expected to face when the rates being requested will come into effect.
26. The Company corresponded with the Commission in relation to the selection of the Test Year for the rate review Application and after providing its views on the factors to be taken into account to determine the Test Year it requested that it be allowed to use an audited 2008 Test Year to support its application. On November 3, 2008 the Commission acceded to the Company's request.

Rate Base

27. Rate Base is the value of utility plant financed by the Company and investors that is prudently incurred and "used and useful" in public service. The "used and useful" concept is defined as only that plant currently providing or capable of providing utility service to the consuming public.
28. In its application, the Company's proposes a Rate Base of \$544,198,726¹¹, which is computed for the Test Year on the audited financial statements for the year ended December 31, 2008 using original (historic) cost. The Company has included in the Rate Base only plant which it has determined to be "used and useful".

¹⁰ Memorandum on Test Year – Schedule B

¹¹ Memorandum on Rate Base – Schedule C

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Depreciation Rates

29. The depreciation rates, capital balances and remaining lives being used in the Application are in accordance with the terms of the Order made by the Commission following the Depreciation hearing held from January 27 to 30, 2009¹².

Income Statement

30. The Memorandum on Income Statement¹³ explains the income statement for the Test Year ended December 31, 2008.
31. The Income Statement is based on the audited financial statements for the year ended December 31, 2008 and records all electricity revenue (basic and fuel adjustment clause revenue) and miscellaneous income. From this the expenses (fuel expenses, operating and maintenance expenses, depreciation, finance costs and taxation) incurred in those revenues are deducted to arrive at the net income.

Self Insurance Fund

32. The Company continues to manage the financial risk associated with the substantial investment in plant and equipment. In addition to commercial insurance on its assets, the Company has a Self Insurance Fund¹⁴ which was established when commercial insurance for the overhead transmission & distribution facilities became prohibitively expensive after Hurricane Andrew struck Florida in 1992.
33. The Fund received governmental and legislative approval, when in 1998 the Government of Barbados amended the **Insurance Act (1996-32)** and passed the **Insurance (Barbados Light and Power Company Limited) (Self Insurance Fund) Regulations, 1998** ("the Regulations").
34. Commercial insurance is still largely unavailable to provide comprehensive insurance for T&D assets and business interruption and what insurance is

¹² Fair Trading Commission, Order No.1 of 2009 dated February 25, 2009

¹³ Memorandum on Income Statement -- Schedule D

¹⁴ Memorandum on Self Insurance Fund - Schedule E

available is very expensive. The original rationale for the Fund remains very compelling today. Compared to commercial insurance placement, the Fund appears to be a cost effective way through which customers and investors are protected from the risk of hurricane and other catastrophe. The Fund is managed in accordance with the Regulations.

35. The annual contribution to the Fund together with commercial insurance premiums are included in the Test Year expenses.

Inadequacy of Existing Rates

36. On the existing rates, the Company is not receiving an adequate return for its investment. For the Test Year 2008 the Return on Rate Base is calculated to be 6.07%¹⁵. A continued decline in earnings would negatively impact on the Company's ability to satisfy the concerns of lenders who the Company will have to approach for new loans required for expansion of the system and to replace aging plant. This will adversely affect the operation of the business.
37. As stated earlier, a significant portion of the earnings of the Company has been reinvested in new plant and equipment required to meet the increasing demand for electricity and to improve the efficiency of the Company's operations. The Company has therefore maintained a very conservative debt/equity ratio. In 2007 the Company's capital structure was made up of 21.4% debt and 78.6% equity (2008 - 19.2% Debt and 80.8% Equity). The Company expects that in the forecast period its debt will increase resulting in an overall reduction in the weighted average cost of capital.¹⁶ This projected change in capital structure is factored into the Company's application.
38. The revenue requirement is the total amount, which must be billed and collected in rates from utility customers for the utility to recover its costs and earn a fair and reasonable return. The Company's revenue requirement has been developed with the intent to provide an opportunity to recover its prudently incurred costs for providing utility services and to earn an appropriate return on invested capital, including a fair return on equity.

¹⁵ Memorandum on Revenue Requirement – Schedule G-1

¹⁶ Memorandum on Rate of Return - Schedule F

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Rate of Return

39. The Company requests that the Commission adopt an overall Rate of Return on Rate Base of 10.48%¹⁷, which is the Company's Weighted Average Cost of Capital (WACC) stated on a regulatory basis, including the weighted combination of the Company's cost rates for debt and other sources of funds, and a fair rate of return on equity.
40. The Return on Equity ("ROE"), the cost of debt, and the WACC were determined by a "Study of the Cost of Capital and Rate of Return Recommendation" prepared by the Company's consultants, Christensen Associates Energy Consulting, LLC (CAEC)¹⁸. The Rate of Return is made up of debt cost to the Company of 5.25% and a return on equity of 13.5% based on a Cost of Capital / Rate of Return Study using North American electric and gas utilities.
41. The Rate of Return is also supported by comparisons with the returns earned by Barbadian and Caribbean companies.
42. The Company has used a capital structure of 35% Debt and 65% Equity in the calculation of the Weighted Average Cost of Capital in the preparation of the Application. It considers this D/E ratio to be more representative than the actual test year capital structure. This also results in an effective lower overall cost of capital than if the Company had used the actual capital structure and this will be of benefit to customers. As a comparison, the average debt / equity ratio for Caribbean utilities in 2006 was 36% Debt / 64% Equity, very close to that being proposed by the Company. The Company is seeking approval for a capital structure of Debt 35%, Equity 65%, to be used in the determination of the Rate of Return.
43. If approved, the rate of return recommended in the Study will enable the Company to fulfill its obligations to its customers while providing it with an opportunity to earn a fair and reasonable return.

¹⁷ Memorandum on Rate of Return – Schedule F

¹⁸ "Study of the Cost of Capital and Rate of Return Recommendation" prepared by Christensen Associates Energy Consulting, LLC, May 20, 2008 – Affidavit RC2

Revenue Requirement

44. The revenue requirement is the total allowable cost of providing electricity service in the Test Year, including a 10.48% Rate of Return on Rate Base.
45. Details of the test year revenues on existing rates of \$474,016,811 are set forth in Schedule D-1 of the Memorandum on Income Statement¹⁹. The revenue requirement of \$502,238,415 and the resulting revenue deficiency of \$28,221,603 are both set out in Schedule G-1 of the Memorandum on Revenue Requirement. Based on figures for the Test Year 2008, the Company requires an additional \$28,221,603 in annual revenue to be collected from customers through rates and is seeking that the new rates will apply to all bills issued on or after October 1, 2009 in order to achieve the required Rate of Return on Rate Base.

TARIFFS & TARIFF STRUCTURES**Existing Tariffs & Tariff Structure**

46. Electricity customers are presently served in six (6) tariff groups:
- Domestic Service (DS): residential use
 - Employee – Company employees and retirees.
 - General Service (GS) – small business, churches, commercial rental accommodation, temporary supplies.
 - Secondary Voltage Power (SVP): commercial customers (and some large residential who use more than 2000 kWh per month) who receive power from secondary side of a BLPC owned transformer.
 - Large Power (LP): large commercial customers who receive power at high voltage and have their own transformer equipment.
 - Street Lights (SL)

The existing tariffs and other service charges that were approved by the 1983 PUB Decision are set out in Schedules J-1 to J-8.

47. In the Decision of the Public Utilities Board of December 28, 1979 the PUB stated that *"the Board has examined the rate structure proposed by the Company and notes that its design does not discourage excessive use of*

¹⁹ Memorandum on Income Statement – Schedule D

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electricity. The Board considers that the structure should be changed and orders that the rate structure shall be altered as set out in the Order attached hereto." This 1979 decision of the PUB saw the introduction of a Domestic tariff with inclining block rates designed to encourage energy conservation and also served to provide a measure of relief to the smaller - typically lower income - customer groups. The Company considers that inclining block rates are a positive feature of the DS rate structure and proposes that these be retained.

48. Sales revenues from the Domestic Service customer group presently provide a rate of return lower than that provided by the revenues from commercial customers²⁰. This situation predated the 1983 PUB Decision as evidenced by the statement by the PUB in its decision of March 14, 1974 that "*It is clear from the evidence that hitherto, the domestic consumer has not borne the cost of service provided by the Company*".²¹ This situation was not changed by the 1983 PUB Decision.
49. The existing rate structure, together with Government subsidies on diesel fuel, has encouraged some manufacturing concerns to generate their own electricity. At December 31, 2008, there were some twenty (20) manufacturing concerns using small generators, producing about 30,000,000 kWh, or approximately 3% of the island's electricity demand for their own use.
50. Customers who self-generate still rely on the Company to provide back-up supply in the event that their generators are out of service. The present electricity rate structure does not allow adequate recovery of the cost incurred in providing supply for such customers since the Company must still maintain equipment and plant to serve the customer who is making intermittent use of the Company's supply. The existing Demand Charge in the Large Power and Secondary Voltage Power categories is inadequate for any significant recovery of costs from these customers.
51. Diesel subsidies create "uneconomic bypass" whereby inefficient usage decisions are made by customers. In discussions, some customers who self generate have told the Company that they do not want to be in the electricity

²⁰ Cost of Service Report 2008 - Christensen Associates Energy Consulting, April 2009, Affidavit MO2

²¹ Decision of the Public Utilities Board March 14, 1974

business, but the savings generated by the subsidies provide an overwhelming incentive to generate their own electricity.

52. If the situation continues whereby manufacturing customers who benefit from subsidized diesel fuel generate their own electricity while remaining connected to the grid, thus using the grid as a 'back-up', other commercial and residential customers will bear higher cost for service.

Proposed Tariffs & Tariff Structures

53. The Memorandum on Proposed Tariffs²² presents the electricity tariffs that are being proposed by the Company in its application to the Commission and the rationale for the rate design.
54. The memorandum sets out the revisions to the existing tariffs, introduces a new Time-of-Use (TOU) tariff and two new tariff riders for Interruptible Service and Renewable Energy. It also sets out the proposed revisions to the existing fuel clause and the service charges for certain activities carried out by the Company ("Service Charges") and discusses several aspects of the rate design process.
55. The design of the proposed tariffs were guided by an Embedded Cost of Service Study, which CAEC carried out for the Company for the test year 2008. As part of the study, load research was carried out in 2007 and 2008 using data collected from special meters installed by the Company at a sample of 405 customers distributed by tariff category and providing hourly demands (kW) for the period of October 8, 2007 through July 1, 2008. A copy of the Cost of Service Study report ("the COS Report") is attached to the Affidavit of Michael O'Sheasy as Exhibit "MO2". A marginal cost analysis was also undertaken by CAEC to assess the impact on rate design.

Existing Rates of Return by Tariff Group

56. The COS Report identified the current rates of return on rate base for each tariff group as shown in Table 2.

²² Memorandum on Proposed Tariffs – Schedule K

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Table 2.

		Realised Return	Rate of Return (ROR)
i)	Overall	\$33,053,648	6.07%
ii)	Domestic Service	\$4,146,009	2.58%
iii)	General Service	\$1,517,226	4.02%
iv)	Secondary Voltage Power	\$13,822,475	6.12%
v)	Large Power	\$13,956,153	12.40%
vi)	Streetlights	\$(388,214)	-5.42%

57. From the foregoing it can be seen that each tariff group provides a different rate of return, with the SVP and LP tariffs presently providing higher returns than the other tariff groups.
58. While rate rebalancing is necessary to ensure that the Company can offer competitive rates to commercial customers without cross subsidies, only partial rate rebalancing is being proposed at this time. Rate shock, where domestic customers see a steep rise in their bills, could result if full rebalancing was attempted. However, partial rebalancing will provide domestic customers with a better price signal of the true cost of electricity than does the current tariff, thereby encouraging conservation and efficiency.
59. In seeking a level of rebalancing, the Company is cognizant of the need to provide a basic supply of electricity at reasonable rates to low-income earners. The proposed rates are therefore designed to lessen the impact of the overall revenue increase to customers in the lower income bracket.

Proposed Rate of Return by Tariff Group

60. In designing the proposed tariffs, the Company has taken into account the findings in the COS Report, but has not at this time moved to full cost-to-serve. Table 3 shows the rates of return that are expected to be provided by each tariff group.

Table 3.

		Target Return	Target rate of return (ROR)
i)	Overall	\$57,031,500	10.48%
ii)	Domestic Service	\$12,582,384	7.82%
iii)	General Service	\$ 3,393,366	9.00%
iv)	Secondary Voltage Power	\$24,821,227	10.99%
v)	Large Power	\$16,234,523	14.42%
vi)	Streetlights	\$0	0.0%

Tariff Structures

61. As described in the Memorandum on Proposed Tariffs, the COS Report also provided information on the following three main cost-drivers that are relevant to the provision of electricity service.

- a) **Customer-related costs:** These are the fixed costs associated with having a customer connected to the electric system regardless of whether the customer uses any electricity or not. These include, but are not limited to, costs associated with the metering and service installations, meter reading, customer service and billing.
- b) **Energy-related costs:** These are costs that vary with the amount of energy used. These can be further divided into fuel costs and base energy costs (non-fuel and other operation & maintenance expenses that vary with energy usage).
- c) **Demand-related costs:** These costs are associated with the generating facilities, transmission and distribution lines, substations, transformers and other facilities required to meet individual customer peak demand and the combined peak demand of all customers throughout the year.

62. Consistent with the utility's cost to serve, the proposed rates are made up of two or more of the following four components, as appropriate:

- a) **The Customer Charge** to recover the customer-related costs.
- b) **The Base Energy Charge** to recover the variable non-fuel energy-related costs. The demand-related costs are rolled into the energy charge for Domestic Service, General Service and Employee

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customers since, as is common in the electric utility industry, the meters used for customers in these tariffs do not register customer demand.

- c) **The Demand Charge** to recover expenses associated with the demand-related costs.
- d) **The Fuel Charge** to recover the total cost of fuel.

63. The COS Report indicates that the fixed charge for customers in the DS and GS tariff groups does not cover the cost of providing the service. The present fixed charge for service is \$3 per month. The Company proposes to re-title the fixed charge as the "Customer Charge" and implement an inclining block structure such that customers who use on average less than 100kWh per month will pay a Customer Charge of \$6 per month, 101kWh to 500kWh per month will pay \$10 per month, and from 501 kWh per month and up will pay \$14 per month. This will more closely reflect the cost to serve the customers in these groups. The lower charge for the lowest usage level is intended to lessen the impact of the increase on lower usage customers.
64. The Company proposes to introduce a Customer Charge for the SVP and LP tariff groups.
65. Presently all customers pay a Basic Energy Charge. An inclining block structure is being retained in the DS tariff category to encourage energy conservation and efficiency. Those with the lowest monthly usage will pay the lowest overall per unit rate (cents/kWh) for electricity. Customers who use higher amounts will pay incrementally higher rates for each ensuing block of consumption. New blocks are proposed as set out in the Memorandum on Proposed Tariffs.
66. The Company also proposes to introduce an inclining block structure for the GS tariff group to encourage conservation and energy efficiency.
67. Company research shows that a basic level of electricity demand for residential use is around 100 kWh per month. The Company therefore proposes to continue with the first block at the current level of 100 kWh per month. As set out in the Memorandum on Proposed Rates in Schedule K, the

Company proposes to maintain the charge for the first 100 kWh per month at about the present level to lessen the impact of the proposed rate increase for the smallest users who are typically the most vulnerable from an economic standpoint.

68. The COS Report also indicates that to better align tariff pricing components with cost rebalancing should occur between the Energy (cents/kWh) charge and Demand (\$/kVA) charge in the commercial Secondary Voltage Power and Large Power tariffs. With the present rate structure of a demand charge below cost and an energy charge that must make up the shortage, a commercial customer who has a reasonably steady demand for electricity, and therefore a high load factor, pays more than the true cost to serve. In contrast, a customer who uses power infrequently and has a high peak demand pays less than the true cost of service. Again as was the case for the Domestic customers, if full rebalancing were attempted rate shock would occur and some commercial customers would see a steep rise in their bills and others significantly lower bills. A partial rebalancing is therefore proposed. Those customers with good load factors will see a reduction in the base energy component of their bills, while those who have a very poor load factor will see an increase, but these would be more moderate than if full 'cost of service' rates were to be applied.
69. As a consequence of the foregoing, those commercial customers who presently 'self generate' and use the grid as a back-up for those occasions when their generators are out of service will pay closer to the cost of service for the grid providing this standby service.

Fuel Clause Adjustment

70. Increases and decreases in the cost of fuel oil used by the Company to produce electricity are passed on to customers through the Fuel Clause Adjustment ("the FCA"). Fuel prices are beyond the Company's control and changes do not result in a gain or loss to the utility.

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71. The Commission conducted a review of the FCA, which included public consultations, and on January 19, 2007 made its "Fuel Adjustment Charge Findings Report"²³ available to the public.
72. The present Base Energy Charge for all tariffs contains 2.64 cents/kWh of fuel cost. The report recommends that *"the base fuel charge of 2.64 cents should be removed from the energy charge, and all the fuel charge should be incorporated in the fuel adjustment charge."*
73. The Company concurs with this recommendation and proposes that the 2.64 cents/kWh which is presently in the base energy charge be incorporated into the FCA so that customers can easily identify the true cost of fuel and the true non-fuel cost (base rates) incurred to provide electricity service.
74. Energy from renewable sources will off-set fuel costs. It is being proposed that the energy supplied to the grid from these systems be treated as purchased power and passed through the FCA.
75. The Company proposes that the FCA be amended to include the changes mentioned at paragraphs 73 and 74. A proposed methodology for computing the FCA is included in Schedule K-6.

Service Charges

76. The Application also contains proposals for other incidental charges, such as new service connection fees and reconnection fees. These are shown in Schedule K-8.

Street Lighting

77. The Company recognizes that street lighting provides a common amenity, keeping our community safe and lighting our streets for drivers and pedestrians. The Company has installed energy efficient streetlights. Energy consumption for all streetlights represented just over 1% of the total electricity

²³ Fuel Adjustment Charge Findings Report by the Fair Trading Commission, 19 January 2007 – Document No. FTC/URD/FACREP/0107

consumption for Barbados during 2008. The Company therefore proposes to moderate the rate increase under this head.

Employee Tariff

78. In the 1983 PUB Decision, the PUB stated that *"the Board recognizes that some discount is in order and will order that the basic rate to be charged to employees will be 8 cents per kWh in addition to the fuel charge"*.
79. The Company proposes that employees of the Company and its retirees continue to receive a discounted rate. The Company further proposes that this be changed from a single rate for all energy used to an inclining block rate structure in order to encourage energy conservation. The first block will reflect a 2.64 cent/kWh increase and the upper two blocks will be at the same prices as the two upper levels for the DS tariff with a 10% early payment discount, since payments are generally payroll deductions.

Time-of-Use Tariff

80. The Company proposes to introduce a Time-of-Use ("TOU") tariff on a pilot basis for a period of three years for customers who qualify under the LP tariff. During the pilot the TOU tariff will be available to a limited number of customers to allow the Company to assess the impacts of this tariff. TOU participants who can move their load from peak to off-peak periods can save money while the utility's costs are reduced.

Interruptible Service Rider

81. It is proposed to introduce as a pilot project for a period of three years an Interruptible Service Rider. It will be available to SVP and LP customers who have flexibility in their use of electricity and who have a minimum billing demand of 300 kVA and minimum monthly interruptible demand of 100 kVA. During the pilot, this rider will be available to a limited number of customers to allow the Company to assess the impacts of this tariff rider.
82. Interruptible loads provide the Company with the opportunity to reduce the overall demand on the system. As long as the interruptible demand can be

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relied upon, it is expected that the Company will be able to reduce its investment in the long term. This benefit can be passed on to the customers with interruptible loads through a capacity credit.

Renewable Energy Rider

83. Energy from renewable sources is growing in importance throughout the world. Energy from wind and solar is intermittent and does not provide capacity that can be dispatched to meet customer demand when it occurs. However, the introduction of these sources does offset the use of fuel oil and as such would contribute to greater energy independence. The Company, as part of its long-term strategy, will explore opportunities to reduce Barbados' exposure to the volatility that accompanies continued dependence on oil as a primary energy source.
84. The Company therefore proposes to introduce on a pilot basis for a period of three years a "Renewable Energy Rider" for energy supplied to the grid by the connection of small customer owned renewable energy sources, such as wind and solar. This rate is designed to reflect the avoided cost of energy supplied from the grid and the cost of the metering and meter reading associated with this type of service.
85. During the pilot, the Company proposes to limit the maximum number of systems connected to the grid, the maximum size of an individual installation and the overall installed capacity. These limits are intended to give the Company the opportunity to assess the impact that these systems will have on the grid.

Impact of Proposed Tariffs

86. As part of the tariff design process, the Company gave careful consideration to the potential impact of its proposals on customers in the various tariff categories. The Company has used the COS Report as a guide in developing the new tariffs, but has not moved to full cost of service in order to reduce the possibility of 'rate-shock'. The expected impact is discussed in more detail in the Memorandum on Proposed Tariffs at Schedule K.

PROPOSED STANDARDS OF SERVICE

87. On October 29, 2008 the Commission issued a Consultation Paper entitled "Review of The Barbados Light & Power Company Ltd. Standards of Service", ("the Consultation Paper"). The consultation has not yet been concluded.
88. As explained in the Memorandum on Standards of Service²⁴, until the Commission issues its decision on the revised Standards of Service, the Company proposes that the existing Standards of Service remain. The Company considers that these are consistent with the electricity rates being applied for in this application.

FORECAST ON PRESENT & PROPOSED RATES

89. While the Company looks forward to an environment in which there will be sales growth, it will simultaneously encourage its customers to use energy wisely and to conserve wherever possible. They can do so by replacing incandescent lights with more efficient compact fluorescents and by selecting more energy efficient appliances when replacing old units. Over the last several years the Company has held seminars on energy efficiency and recommended conservation measures. The Company's guiding philosophy is that for it to be successful, its customers must be successful and operate in an efficient manner.

Sales Projections

90. The Company has prepared a forecast for electricity sales for the five-year period 2009 to 2013 as set out in the Memorandum on Sales Projections²⁵.
91. Barbados has become more developed. All Barbadians now have access to electricity supply. Growth in electricity demand has been tapering. As increasing emphasis is placed on energy efficiency and conservation, this trend is likely to continue. Table 4 shows the decline in the growth in electricity sales since 1960.

²⁴ Memorandum on Standards of Service – Schedule M

²⁵ Memorandum on Sales Projections – Schedule H

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Table 4

Period	Average Growth Rate
1960 to 1969	15.0%
1970 to 1979	9.1%
1980 to 1989	4.9%
1990 to 1999	4.4%
2000 to 2004	4.2%
2005 to 2008	3.3%

92. Based on analysis conducted by the Company, a growth rate of 2.0% for the first two years of the projected period and a slightly higher growth rate of 2.5% in latter years has been forecast. This is summarised in Table 5.

Table 5

Forecast Year	Projected Sales Growth %
2009	2.0
2010	2.0
2011	2.5
2012	2.5
2013	2.5

Capital Expansion Programme

93. The Company has an excellent record of planning ahead to meet the demands for electricity customers.
94. The electric utility industry is capital intensive and capacity additions typically cost several millions of dollars. In addition, because of the scale of plant and the planning and approval process that must be followed, it can take several years from conception to commissioning of new generating, transmission, and distribution plant.

95. The Company's expansion planning philosophy is to install generating plant that provides the overall greatest benefit to the economy of Barbados. The Company has demonstrated this over the years by installing a mix of efficient low speed diesels, which have a high capital cost, but use the least expensive HFO for base load service and gas turbines which operate on distillate fuels for peak and intermediate duty service.
96. The Memorandum on Capital Expansion 2009-2013²⁶ sets out the Company's planned capital expenditures covering the purchase of new plant and equipment intended to allow it to maintain the reliability of the system and replace older and less efficient, generating units with more modern plant. This expansion programme will provide long-term benefits to electricity customers. However, new plant comes at a significant cost, and the Company has projected that in the absence of a rate adjustment there would be a significant shortfall in the revenue needed to fund this capital expansion. It takes over two years for new generating plant to be installed and commissioned. The new plant which is required by 2012 will have to be ordered by late 2009.
97. Given the volatility of oil prices experienced in recent years, the Company considers that a safe, secure, reliable, long-term supply of natural gas at competitive and stable prices would be of significant benefit to electricity consumers and to the economy of Barbados. There are also environmental benefits which accrue from the use of natural gas, the cleanest of all the fossil fuels. The Company is vigorously exploring the possibility of importing gas from Trinidad & Tobago via pipeline, but cannot state with certainty if and when this will materialize.
98. With increasing uncertainty over future oil prices and increased emphasis on environmental considerations, renewable energy technologies are becoming more attractive. The Company is presently cooperating with Government and other interested parties to explore opportunities for renewable energy projects.

²⁶ Memorandum on Capital Expansion 2009-2013 – Schedule I

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99. The Company's present plans call for the installation of efficient medium speed diesel engines which can operate on HFO, but can be converted to use natural gas if and when imported natural gas becomes available in sufficient quantities.

Financial Forecast

100. Two Five Year Financial Forecasts have been prepared for the years 2009 through 2013; the first based on the existing rates and the second based on the rates which the Company is proposing should take effect from October 1, 2009. These forecasts are explained in the Memorandum on Five Year Financial Forecasts²⁷.
101. The first Five Year Financial Forecast based on existing rates shows that, in the absence of a rate increase, the Company's revenues would be insufficient to meet its financial and service obligations. The second forecast, based on the proposed rates and projected growth in electricity demand, shows that the Company is being given the opportunity to improve its rate of return, but will fall short of the requested rate of return during the five year period.

MEETING CUSTOMER NEEDS OF THE FUTURE

102. The Company continues to expand and improve its generation, transmission, and distribution facilities to meet the growing demand for electricity.
103. New underground transmission circuits and modern substations are being planned to ensure that the Company continues to provide a reliable service to customers throughout the island.
104. The Company seeks to keep up-to-date with procedures and practices, and efficiencies that are offered by modern information system technologies. In this regard, a new Customer Care & Billing System was introduced during 2008 to offer better service options to electricity customers. The Company also received certification under the international standard, ISO 9001:2000 for

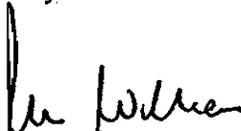
²⁷ Memorandum on Five Year Financial Forecasts – Schedule L

its Quality Management System, and is presently working to implement the relevant environmental and occupational health & safety standards.

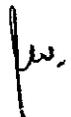
105. The Company has demonstrated by its conduct that it has taken all steps to avoid seeking an increase in rates over the last 26 years and its bona fides is therefore evident. The Company has made every effort to minimize charges through increased productivity and better use of available resources. The Company has also financed expansion largely by reinvested earnings while achieving what some would consider a low rate of return for our shareholder. It has achieved universal service and contributed to the reputation of Barbados for sound infrastructure, good service and reliability. External forces have caused the tides to change significantly. Proud as the Company is of its record, circumstances merit an increase in rates at this time. The continuation of a secure and reliable supply of electricity makes the Application unavoidable.

Dated the 6th day of May 2009

Paper prepared by:



Peter W.B. Williams
Managing Director
The Barbados Light & Power Co. Ltd.



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B

MEMORANDUM ON TEST YEAR

1. The term "Test Year" refers to a 12 month period, usually beginning on the first day of a calendar or fiscal year for which operating data is available and reflects as closely as possible the conditions (such as sales and cost) which the utility is expected to face when the rates being established will be in effect. In the text "Accounting for Public Utilities" by Robert Hahne and Gregory E. Aliff of Deloitte & Touche LLP (2007 edition) the authors stated at paragraph 7.03:

"Selection of the Test Year

Test period conditions are typically based upon one of the following test year selections:

- (1) historic data;*
- (2) current data (partial historic and partial projected); or*
- (3) projected data.*

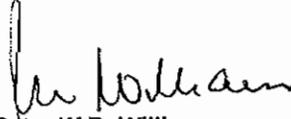
The selection of the timing of the test year may be the most significant single factor in the rate-making process. The more outdated the test year levels of operations, the more critical is the need for significant restatement to produce representative levels of future conditions. As the test year selection moves from historic data toward projected data, the restatement problem moderates and the level of pro forma adjustments to restate the test year is reduced."

2. The Company corresponded with the Fair Trading Commission ("the Commission") in relation to the selection of the Test Year for use in the rate review Application and after providing its views on the factors to be taken into account to determine the Test Year, it requested that it be allowed to use an audited 2008 Test Year to support its Application. On November 3, 2008 the Commission acceded to the Company's request. The Company has therefore selected 2008 as the Test Year for the measurement of total costs incurred in conducting operations over a twelve month period. In its Application, the Company has used audited historical results for the year, January 1st to December 31st, 2008.

3. Audited Financial Statements prepared by PricewaterhouseCoopers for the year ending December 31, 2008 are provided in **Appendix V** to the Application.

Dated the 6th day of May 2009

Paper prepared by:



Peter W.B. Williams
Managing Director
The Barbados Light & Power Co. Ltd.

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MEMORANDUM ON RATE BASE

1. Rate Base is the value of utility plant financed by the Company and investors that is prudently incurred and "used and useful" in public service and is valued on the original or historic cost basis¹. In the Company's application, the calculation of the Rate Base, as shown in Schedule C-1 is computed for the Test Year² based on the audited financial statements for the year ended December 31, 2008. The Company has only included in the Rate Base plant which it has determined to be "used and useful". The accumulated provision for depreciation is deducted from the historic cost to determine net total plant. There are also deductions from rate base for funding sources other than investors such as customer contributions for construction work not yet started and net accumulated deferred income taxes. The Company's proposed rate base of \$544,198,726 as shown in Schedule C-1 provides for the inclusion of cash working capital, materials, supplies, prepayments and a limited amount of construction work in progress (CWIP).

UTILITY PLANT IN SERVICE

2. The historic cost of utility plant of the Company is categorized as:

▪ Generating plant assets	-	\$462,652,568
▪ Transmission and distribution assets	-	\$400,266,388
▪ General property assets	-	\$ 74,728,505
TOTAL	-	\$937,647,461

3. Details of these categories of utility plant are shown in Schedule C-2.

Generating Plant - **\$462,652,568**

4. Generating Plant comprises the equipment and facilities used in the production of electricity.

¹ The 1983 rate decision was based on reproduction cost new.

² The test year is discussed in the document 'Memorandum on Test Year'

Transmission and distribution assets - \$400,266,388

5. Transmission and distribution assets are the facilities and equipment used to deliver the electricity produced from the generating stations to customers across the island.

General Property Assets - \$74,728,505

6. General Property assets consist of vehicles, furniture, computers and other office equipment as well as lands and buildings not already included in generating plant or distribution substations. Assets costing \$12,744,820 as described in Schedule C2-1 are deemed not "used and useful" and have been omitted from the rate base.

Valuation of utility plant

7. The Company bases its accounts on Federal Energy Regulatory Commission's (FERC) Uniform System of Accounts. Utility plant is stated at historic cost. Cost represents expenditures that are directly attributable to the acquisition of the plant and includes the cost of materials, direct labour, project supervision, engineering services and interest during construction. Additions to utility plant are included in the asset's carrying value or recognized as a separate asset.
8. The Company has used the audited year-end balances for 2008 to arrive at the cost to be included in rate base.

Treatment of capital expenditure

9. In its application the Company has capitalized investment at December 31, 2008 for all plant in service as of that date. Contributions received from customers towards construction of utility plant are credited to the cost of construction or are shown as deferred credits in those cases where construction has not yet started. Interest charges are accrued during the period of construction of property, plant and equipment and are capitalized until the asset is brought into service, at which time capitalization of interest stops and depreciation starts.

ACCUMULATED DEPRECIATION - (\$427,007,102)

10. Depreciation is the cost associated with the consumption or using up of physical capital, including generation and power delivery facilities. Depreciation policy shows up in two major dimensions of depreciation cost:
- a) the rate of capital depletion, reflected as the annual charge for depreciation in the Statement of Income; and
 - b) the accrued level of capital depletion used to determine the net value of capital resources referred to as the accumulated depreciation in the rate base.
11. Land is not a depreciable asset. No depreciation is provided on CWIP until the assets involved have been put into service.
12. The Company has used the audited year-end balances for 2008 to arrive at the accumulated depreciation to be included in rate base.
13. The accumulated depreciation applied to the 2008 Test Year has been calculated using rates and capital balances as approved by the Fair Trading Commission in Order 1 of 2009.

CONSTRUCTION WORK IN PROGRESS - \$4,192,837

14. CWIP represents new utility plant that is not yet in service.
15. CWIP can vary significantly as 'lumpy' investments are made in new plant, especially very costly generating plant. New plant can take two to three years to install and commission from the time that a contract is signed with the supplier until the time that it is put into commercial operation.
16. The Company requests that it be allowed a return on a reasonable amount of CWIP. In its application the Company is asking that those items of plant and equipment which are due to be in service within a 12 month period immediately following the end of the Test Year should be considered "used and useful" and be included in Rate Base.

17. Since the rates that are being applied for are expected to be applicable in the year following the Test Year, allowing into Rate Base those items in CWIP which are to be in service in the 12 month period immediately following the end of the Test Year helps to mitigate regulatory lag.
18. Schedule C-3, Construction Work in Progress, details the projects under construction as of December 31, 2008 of \$76,922,241, of which \$4,192,837 is scheduled to be in service in the 12 month period immediately following the end of the 2008 Test Year. This latter amount has been included in Rate Base.

RECONCILIATION OF FIXED ASSETS

19. Schedule C2-2 provides a reconciliation of fixed assets in the Rate Base with fixed assets used in financial reporting. The adjustment for General Property Assets is explained in paragraph 6 of this Memorandum and Schedule C2-1. The adjustment for Construction Work In Progress is explained in paragraph 18 of this Memorandum and Schedule C-3.

CASH WORKING CAPITAL - **\$12,892,572**

20. Cash working capital for the Company as shown in Schedule C-4 is the average amount of capital (in excess of that used to finance net utility plant and other separately identified rate base components) necessary to operate the business. Cash working capital included in the rate base provides return on the capital used to purchase inputs when the cost of such inputs cannot be recovered in revenue immediately. The Company needs money to operate between the time the Company must pay its suppliers and its employees for their work and the time the service is paid for by the customers. Essentially, cash working capital bridges the time gap between cash outflows to fund resource inputs, and cash inflows (revenues) for service provided to customers.
21. Across the regulated electric utility industry, a commonly applied guideline to determine the working capital amount is one-eighth of the utility's operations and maintenance (O&M) expenses. This methodology is often referred to as the '45-Day Rule' or formula approach. The 45-Day Rule has withstood the

test of time and accordingly has been widely adopted by both utilities and regulatory agencies in the United States as a standard cost efficient approach.

22. The PUB accepted the 45-day rule in previous rate cases for the Company. The Company has continued to use the 45-day rule (1/8 O&M) to determine the cash working capital needs. The Company's cash working capital determination reflects known and measurable charges to the 2008 Test Year O&M expenses.

MATERIALS & SUPPLIES AND PREPAYMENTS - \$37,190,248

23. Materials & Supplies as shown in Schedule C-5 include the cost of materials and supplies purchased for use in the utility business for construction, operation and maintenance purposes. All utilities maintain such supplies for use in their normal day-to-day operations. This is especially important in an island environment where replacement parts have to be acquired from overseas. Materials & Supplies include stocks of fuel, lubricants, generation plant spares, substation equipment spares, poles and accessories etc. Materials and supplies when issued are charged to the appropriate construction or operating expense account on the basis of a unit price determined by the use of average method of inventory accounting in conformity to accepted accounting standards consistently applied. ✕
24. The level of Materials & Supplies changes daily. As with all inventory, different items may be needed at different times. It is thus possible that a level of Materials & Supplies at any given point in time would not be an accurate reflection of the ongoing inventory levels. The appropriate level included in rate base is generally an average level of thirteen months. This method has been chosen for inclusion in the rate base. Pending recovery of these costs from its customers, the Company is entitled to earn a return on the funds used to finance these inventories.
25. Materials & Supplies inventories are valued at cost, which is determined on an average cost basis. Generation spares are carried at cost less provision for obsolescence.

26. Prepayments are also shown in Schedule C-5 and represent an investment of funds that is generally included in the rate base if that investment has not been recognized elsewhere, such as in cash working capital. Prepayments are not recognized in cash working capital under the "45-Day Rule" formula approach because there is no related O&M expense. Prepayments are made in advance of the period to which they apply and include items such as prepaid maintenance and plant and materials. The Company's prepayments to be included in rate base were computed based on an average level of thirteen months, consistent with the materials and supplies method.

**CUSTOMER CONTRIBUTIONS FOR CONSTRUCTION WORK NOT YET
STARTED - (\$1,634,684)**

27. When a customer applies for service and the existing plant is unable to provide that service because of distance or load, then that customer may be asked to make a contribution towards the additional work required to effect service. Contributions may also be required when customers request changes to existing plant e.g. realignment of poles. When the funds are paid into the Company they are credited against the cost of construction of the relevant plant. At the end of 2008 any contributions received, where work had not yet started, are deferred and shown as a deferred credit. Such customer provided funds are deducted from the Company's rate base.

ACCUMULATED DEFERRED INCOME TAX LIABILITY - (\$19,082,605)

28. The major regulatory treatment of corporate income taxes is the normalization method of accounting for the benefits that arise from tax policy. The Company employs capital intensively and tax policy in the form of accelerated depreciation can produce significant non-investor provided cash flow benefits. As a consequence, the manner in which these benefits are captured within the regulatory process is important. The general view in this respect is that accumulated deferred income tax liabilities represent a source of interest free funds or loans supplied by the government that the utility is free to use in support of rate base investment. Therefore, the rate base must be reduced by the accumulated deferred income tax liability, net of accumulated deferred income tax assets, to avoid the Company receiving a return on funds that are cost free. This is also referred to in the section on taxation in the

"Memorandum on Income Statement." Schedule C-6 provides the calculation for Accumulated Deferred Income Tax Liability.

29. This Memorandum and the related Rate Base schedules may contain rounding differences.

Dated the 6th day of May 2009

Paper prepared by:



**Hutson Best
Chief Financial Officer
The Barbados Light & Power Company Limited**

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C-1

THE BARBADOS LIGHT & POWER COMPANY LIMITED

C-1 CALCULATION OF THE RATE BASE

	Sch.	\$
A) Utility Plant In Service		
Cost of Plant		937,647,461
Accumulated Depreciation		<u>(427,007,102)</u>
	C-2	510,640,358
B) Construction work in progress (CWIP)		<u>4,192,837</u>
C) Total Net Plant	C-2-2	<u>514,833,195</u>
D) Current Asset and Liability Adjustment		
Cash Working Capital	C-4	12,892,572
Materials & Supplies and Prepayments	C-5	37,190,248
Customer Contributions for Work Not Yet Started		(1,634,684)
Accumulated Deferred Income Tax Liability	C-6	<u>(19,082,605)</u>
Total		<u>29,365,531</u>
Total Rate Base		<u><u>544,198,726</u></u>

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C-2



C-2-1

THE BARBADOS LIGHT & POWER COMPANY LIMITED
C2-1 UTILITY PLANT NOT USED AND USEFUL

Description	Ref	Cost at 31/12/ 2008 \$
Land at Bellavista - St Joseph	Note 1	260
Land at Cleavers Hill - St Joseph	Note 1	120
Land at Lower Estate - St George	Note 2	4,668,890
Land at Checker Hall - St Lucy	Note 2	631,898
Land at Trents - St Lucy	Note 2	7,443,652
	C2-2	12,744,820

Note 1: Land is no longer being used in the course of business

Note 2: Land to be used for future developments

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C-2-2

THE BARBADOS LIGHT & POWER COMPANY LIMITED
 RECONCILIATION WITH FINANCIAL STATEMENTS
 C-2-2 RECONCILIATION WITH FIXED ASSETS

Plant in Service:	2008		Sch.	Rate Base
	Actual	Adjustment		
	\$	\$		\$
Generation Plant	462,652,568			462,652,568
Transmission and Distribution Plant	400,266,388			400,266,388
General Property	87,473,324	(12,744,820)		74,728,504
Total Plant in Service	950,392,280	(12,744,820)	c-2-1	937,647,460
Construction Work in Progress				
Generation	13,838,115	(13,681,627)		156,488
Transmission & Distribution	62,366,188	(59,047,777)		3,318,411
General Property	717,938			717,938
Total Construction Work in Progress	76,922,241	(72,729,404)	c-3	4,192,837
Total Gross Assets	1,027,314,521	(85,474,224)		941,840,297
Less: Accumulated Depreciation				
Generation Plant	(239,030,732)			(239,030,732)
Transmission and Distribution Plant	(150,653,689)			(150,653,689)
General Property	(37,322,681)			(37,322,681)
Total Accumulated Depreciation	(427,007,102)			(427,007,102)
Net Fixed Assets	600,307,419	(85,474,224)		514,833,195

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C3

THE BARBADOS LIGHT & POWER COMPANY LIMITED
C3 CONSTRUCTION WORK IN PROGRESS

DESCRIPTION	BALANCE 31:12:2008	ADJUSTMENT	Ref	RATE BASE
GENERATION				
New Generating Station Trents, St Lucy	13,087,470	(13,087,470)		-
Ash Handling System Low Speed Diesel 'B' Station	27,389		Note 3	27,389
GT07 - Gas Turbine Trents	377,011	(377,011)		-
Oil Spill Response Equipment	129,099		Note 3	129,099
Wind Turbine Project	217,146	(217,146)		-
Total Generation Construction Work in Progress	13,838,115	(13,681,627)		156,488
DISTRIBUTION				
St. Lawrence Phase 2 Underground Cable	96,845	(96,845)		-
Fontabelle #2 11 kV Underground Cable	403,617	(403,617)		-
Carlton Sub -24 & 11 kV UG Connection	95,703		Note 3	95,703
Warrens Business Park 11kV UG	52,680		Note 3	52,680
Northern Underground 132kV & 24kV Cables	56,012,963	(56,012,963)		-
Marhill Street / Belmont 24kV Underground Cable	1,529,587	(1,529,587)		-
South Coast 11kV U/G Feeder	920,321	(920,321)		-
Spring Garden 69/24kV Transformer #2 - Cable	308,256		Note 3	308,256
Refurbish Mobile Transformer	615		Note 3	615
Spring Garden - 69kV Switch GL	228,764		Note 3	228,764
North Indoor 24kV Substation - Civil Work	2,213,103		Note 3	2,213,103
North Indoor 24kV Substation -Equipment	419,289		Note 3	419,289
Belmont Indoor Sub - Civil wk	74,844	(74,844)		-
Wotton-Indoor Sub-Civil Wk-GL	9,600	(9,600)		-
Total Construction Distribution Work in Progress	62,366,188	(59,047,777)		3,318,411
GENERAL				
Information Security project	306,217		Note 3	306,217
Implementation of eApps	411,721		Note 3	411,721
Total Construction General Work in Progress	717,938	-		717,938
Total Construction Work in Progress	76,922,241	(72,729,404)		4,192,837
		C2-2		C1

Note 3: Projects will be in service by December 31, 2009

14/6

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C4

THE BARBADOS LIGHT & POWER COMPANY LIMITED
C-4 CASH WORKING CAPITAL

	Sch	Test Year 2008
Cash Working Capital		\$ 12.5%
Operating & Maintenance (exl. Taxes other than on income)		
Generation		47,105,023
Distribution		11,737,996
Insurance		12,466,600
General		
Customer Services	9,025,362	
Information Systems	3,748,580	
Finance	2,721,956	
Administration	6,527,927	
Marketing & Corporate Communications	2,113,565	
Human Resources	<u>7,693,567</u>	
		<u>31,830,957</u>
Cashflow expenses		<u>103,140,576</u>
Cash Working Capital (12.5%)	C-1	<u><u>12,892,572</u></u>

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C5

THE BARBADOS LIGHT & POWER COMPANY LIMITED
C-5 MATERIALS & SUPPLIES AND PREPAYMENTS

Month	Sch	Test Year 2008 \$
Dec-07		39,000,796
Jan-08		38,096,747
Feb-08		37,368,167
Mar-08		35,825,751
Apr-08		37,127,958
May-08		38,040,956
Jun-08		40,945,569
Jul-08		38,015,499
Aug-08		37,970,983
Sep-08		36,877,348
Oct-08		34,069,752
Nov-08		36,271,848
Dec-08		33,861,853
Calculated using a thirteen (13) month average	C-1	<u><u>37,190,248</u></u>

A/B

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C-6

THE BARBADOS LIGHT & POWER COMPANY LIMITED

C-6 CALCULATION OF ACCUMULATED DEFERRED TAXES

	Accum Deferred tax as per financial statements 31/12/2008	Adjustment	Sch.	Accum. Deferred Tax Test Year 2008
Written down value of tax depreciable assets (including WIP) at 31/12/08	566,318,545			566,318,545
Less tax written down values on depreciable assets 31/12/08	<u>366,287,766</u>			<u>366,287,766</u>
	<u>200,030,779</u>			<u>200,030,779</u>
Tax on assets timing difference 31/12/08 Tax rate 15%		30,004,617		30,004,617
Other timing differences at 31/12/08	<u>(77,635,795)</u>	<u>4,822,380</u>		<u>(72,813,415)</u>
Tax on timing differences Tax rate 15%		(11,645,369)	723,357	(10,922,012)
Accumulated deferred tax balance at 31/12/08	<u>18,359,248</u>	<u>723,357</u>	D-3	<u>19,082,605</u>
Accumulated Deferred tax balance				
Accumulated deferred tax balance at 31/12/07	20,287,308	-		20,287,308
Deferred tax charge for the year	(1,928,060)	723,357	D-3	(1,204,703)
Accumulated deferred tax balance at 31/12/08	<u>18,359,248</u>	<u>723,357</u>	D-3	<u>19,082,605</u>

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D

MEMORANDUM ON INCOME STATEMENT

1. The Memorandum on Income Statement explains the Income Statement for the Test Year ended December 31, 2008. The Income Statement provided in Schedule D-1 records all electricity revenue (basic and fuel adjustment clause revenue) and miscellaneous income and from this the expenses (fuel expenses, operating and maintenance expenses, depreciation, finance costs and taxation) incurred in those revenues are deducted to arrive at the net income.
2. The Income Statement is based on the audited financial statements for the year ended December 31, 2008.

OPERATING REVENUE

3. The Operating Revenue consists of:

Basic revenue	-	\$198,801,101
Fuel revenue	-	\$272,291,548
Miscellaneous revenue	-	\$ 2,216,908
Investment income	-	\$ 319,131
TOTAL	-	\$473,628,688

Basic Revenue - **\$198,801,101**

4. The Company derives electricity sales revenue from commercial and residential tariffs and street lights.
5. This electricity sales revenue is recognized on the accruals billed basis. It records revenue, other than fuel clause revenue, as billed to its customers, net of value-added tax and discounts and does not recognize any unbilled portion, which exists at year end as this is not material on a year-to-year basis.

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Fuel revenue - \$ 272,291,548

6. Fuel revenue is recognized on the basis of the amount actually recoverable for the financial year. Fuel cost, less 2.64 cents per kilowatt-hour which is collected through the Basic Revenue, is recoverable from the customers through the Fuel Clause Adjustment. The adjustment to fuel revenue is explained at Schedule D-7.
7. The unbilled portion of fuel revenue between meter reading and the end of the year is not material on a year-to-year basis.

Miscellaneous Revenue - \$2,216,908

8. Miscellaneous revenue primarily consists of pole rents, reconnection fees, new service connection fees, European Investment Bank subsidy refund and sale of ash produced by the generating plant.

Investment Income - \$319,131

9. Investment income consists of earnings on short-term deposits and miscellaneous rental income.

OPERATING & MAINTENANCE EXPENSES

10. The Company is organised by the following departments: generation, distribution, customer services, marketing and corporate communications, information systems, finance, human resources and administration. Operating and maintenance (O&M) costs are the costs incurred by these departments and are recorded on an accruals basis. The accruals basis represents costs incurred in the year whether paid or not. The expenses have been adjusted for unusual amounts incurred in the test year to develop the test year in Schedule D-1. The adjustments are detailed and explained in Schedule D-7.

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0139

11. Operating expenses consist of:		
Fuel Expense	-	\$297,612,203
Generation Expenses	-	\$ 51,061,116
Distribution Expense	-	\$ 11,737,996
General Expenses	-	\$ 35,425,842
Insurance	-	\$ 12,466,600
Depreciation	-	\$ 37,260,519
TOTAL	-	\$445,564,276

12. Schedule D-2 provides a statement of the Operating & Maintenance expenses by department.

Fuel expense - **\$297,612,203**

13. Fuel expense represents the cost of fuel and additives consumed by the generators in producing electricity during the financial year.

Generation expenses - **\$51,061,116**

14. The Generation Department is responsible for the supply of electricity to the grid and ensures that peak demands are met. It operates and maintains the generation units at the Company's three generating locations. The costs incurred are for labour, materials and supplies on the generation units. The adjustment to Generation Expenses is explained at Schedule D-7.

Distribution expenses - **\$11,737,996**

15. The Distribution Department ensures that there is a safe, efficient and reliable supply of electricity from the substations linked with the generating stations to the customer. Its responsibilities include maintenance of power lines, the Supervisory Control & Data Acquisition (SCADA) system, substations, transformers, meters, streetlights and tree trimming. The department also responds to emergency calls from customers. The cost incurred is for labour, materials and supplies.

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General expenses - **\$35,425,842**

16. General expenses consist of the following:

Customer Services	-	\$ 9,025,362
Information Systems	-	\$ 3,827,550
Finance	-	\$ 2,521,974
Administration	-	\$ 6,698,736
Marketing & Corporate Communications	-	\$ 2,341,951
Human Resources	-	\$ 7,693,566
Taxes other than on income	-	\$ 3,316,703
TOTAL	-	\$35,425,842

Customer Services department - \$9,025,362

17. This department is responsible for the service application, meter reading, billing, uncollectible bills, revenue collection, disconnections, reconnections and the call center. The cost incurred is primarily for labour.

Information Systems department - \$3,827,550

18. This department provides for the maintenance on all the application systems, maintenance of the website and other intranet-related applications, network support on all internal and external communications and maintenance to all hardware connected on the corporate network. The adjustment to Information System department expenses is explained at Schedule D-7.

Finance department - \$2,521,974

19. This department is responsible for all financial, treasury and management accounting functions in the Company. It does all financial and tax preparation and reporting. The adjustment to Finance department expenses is explained at Schedule D-7.

Administration department - \$6,698,736

20. This department coordinates the entire administration of the Company. It provides purchasing and stores functions and administers the Company's Health Safety Environment & Quality (HSEQ) management system. The adjustment to administration department is explained at Schedule D-7.

Marketing & Corporate Communications department - \$2,341,951

21. This department is responsible for communicating with internal and external customers and stakeholders. The adjustment to the Marketing & Corporate Communications department expenses is explained at Schedule D-7.

Human Resources department - \$7,693,566

22. This department coordinates the human resource function in the Company including training, development and employee relations.

Taxes other than on income - \$3,316,703

23. This includes property taxes paid to the Land Tax Department as well as the license fee paid to the Accountant General.

Insurance - **\$12,466,600**

24. Insurance expense includes the cost of general property insurance and the payment to the Self Insurance Fund.

Depreciation - **\$37,260,519**

25. The Company uses the remaining life method, which is a generally accepted straight-line method. This method recovers the original cost of the plant, adjusted for net salvage, over the remaining life of the plant. The rates used are those approved by the Fair Trading Commission in Order 1 of 2009 and applied to the 2008 Test Year. Schedule D-5 provides the Statement of Depreciation Expense.

0142

Finance Costs - **\$6,501,609**

26. Finance cost consists of interest on borrowings, finance charges on the borrowings, interest on customer deposits, less interest during construction.

Finance costs consist of:

Interest on long-term loans	-	\$6,426,495
Interest on customer deposits	-	\$1,645,984
Interest during construction	-	(\$1,770,852)
Finance charges	-	\$ 96,310
Bank Charges	-	\$ 103,672
TOTAL	-	\$6,501,609

27. Interest costs are the cost incurred on the Company's borrowings and are computed based on the repayment schedule of the respective borrowings. Finance charges incurred on these borrowings are amortised over their lives. Schedule D-6 provides the Statement of Interest Expenses.

28. All customers, except Barbadian residents categorised under the Domestic Service tariff, are required to provide security for payment. However, Barbadian residents under this tariff may be asked to provide security if they are delinquent in paying their bills. Interest accrues on customer deposits at 8%.

29. Interest incurred during construction is capitalized on qualifying capital projects. To the extent that Construction Work In Progress (CWIP) is included in rate base, interest will not be capitalized on the related amount.

30. Interest will continue to be capitalized on CWIP not included in rate base.

Statement of exchange losses (or profits) - \$0

31. There were no exchange losses or profits during the financial year.

Taxation - (\$1,080,211)

32. Taxation expense in the statement of income comprises:

Current tax	-	\$0
Deferred tax	-	(\$1,928,060)
Deferred investment tax credit	-	(\$1,195,962)
Deferred manufacturing tax credit	-	\$2,043,811
TOTAL	-	(\$1,080,211)

33. Schedule D-3 details the deferred taxes, investment tax credit, and manufacturing tax credit.

Current Tax - \$0

34. Current tax is the expected tax payable to the Commissioner of Inland Revenue on the taxable income for the period using tax rates enacted. The current tax is zero due to the investment allowances and manufacturing allowances claimed on fixed asset additions. This is shown in Schedule D-3.

35. As of December 31, 2008, the Company had tax losses of \$63,782,020 available to be carried forward and applied against future taxable income, which expire from 2014 to 2017.

Deferred income tax - (\$1,928,060)

36. For the purposes of determining tax liability, government has allowed accelerated depreciation, where the rates are higher in the earlier years of the life of the asset and lower in the later years. Accelerated depreciation alters the timing, but does not eliminate corporation tax liabilities over the life of an asset.

37. For each financial reporting period, the corporation taxes reported reflect straight line depreciation on booked depreciation rates, whereas the actual corporation taxes payable are based on accelerated depreciation as required by the tax laws. The difference between the corporation tax provision and actual taxes payable is recorded as a deferred expense in the Income

0144

Statement and on the Company's Balance Sheet as a deferred income tax liability.

38. The Public Utilities Board ("the PUB") in its 1983 decision¹ stated that *"the issue of deferred taxes and the deferred investment tax credit must be settled once and for all. The matter has arisen in the last four rate cases, and considerable time has been spent during the course of those hearings debating the issue whether deferred taxes are to be allowed as a proper cost of service. It is a matter of record that in the 1980 Review decision the Board permitted the company to include as an operating expense a sum which represented the deferred portion of income taxes, and the Board went to great lengths to deal with the conceptual basis of deferred taxes in that decision."*
39. The PUB further stated in its 1983 decision² that, *"applying the principles enunciated above to the evidence in this case, the Board finds that the Company has demonstrated that there are in fact temporary timing differences in the circumstances of this case and exhibits D/S8 and D/S9 clearly demonstrate the fact of such temporary timing differences. The Board therefore permits the Company to recover \$4,288,000 for deferred income taxes as claimed in D S/1 as an operating expense."*
40. Deferred income tax assets are recognized to the extent that it is probable that future taxable profits will be available against which the assets can be utilised. The Company's deferred income assets primarily related to utilised tax losses resulting from the investment tax credit (ITC) and manufacturing tax credit discussed below.

Deferred investment tax credit - (\$1,195,962)

41. The ITC is a 20% investment allowance associated with the acquisition of plant and equipment. The ITC effectively reduces the cost of the related asset and, for that reason, it is preferable that it should be deferred and amortized over the productive life of the related asset. The flow-through

¹ PUB Decision Dated 12th May 1983 - Page 16

² PUB Decision dated 12th May 1983 - Page 21

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method to account for the investment tax credit, whereby the ITC is recognized as a reduction of tax expense of the year that taxes payable are reduced, has also been accepted. However, from a rate regulation perspective the deferral method is much fairer to all customers receiving utility service over the productive life of the asset, which generated the ITC, as opposed to only the current customers of the year of allowance generation.

- 42. The Company, in this Application, has utilised amortization of accumulated deferred ITC as a reduction in the cost of service, to the benefit of customers. The accumulated deferred ITC is included in the capital structure for determining the utility's allowed rate of return.

Deferred manufacturing tax credit - \$2,043,811

- 43. The manufacturing tax credit is a 50% allowance associated with the construction of plant and equipment, which is earned ratably over the related income tax life. Although the amount of the credit is different, the manufacturing tax credit is conceptually the same as the ITC. The Company has accounted for it in the same deferral manner as for the ITC for financial reporting purposes and proposes that the manufacturing tax credit be accorded the same regulatory treatment.
- 44. This Memorandum and related Statement of Income schedules may contain rounding differences.

Dated this 6th day of May, 2009

Paper prepared by:



Hutson Best
Chief Financial Officer
The Barbados Light & Power Company Limited

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D-1

THE BARBADOS LIGHT & POWER COMPANY LIMITED

D-1 INCOME STATEMENT FOR YEAR ENDING 31 DECEMBER 2008

	Balance as per Financial statements Dec 31, 2008	Adjustments	Sch	Test Year at existing rates	Rate Increase	Test Year at proposed rates 2008
Revenues						
Base revenue	198,801,101			198,801,101		
Fuel Revenue	272,291,548	388,123	D7-1	272,679,671		
Misc Revenue	2,216,908			2,216,908		
Investment Income	319,131			319,131		
Total Revenues	473,628,688	388,123		474,016,811	28,221,603	502,238,415
Operating and maintenance expenses						
Fuel	297,612,203			297,612,203		297,612,203
Insurance	12,466,600			12,466,600		12,466,600
Depreciation	37,260,519			37,260,519		37,260,519
Generation	51,061,116	(3,956,093)	D7-2	47,105,023		47,105,023
Distribution	11,737,996			11,737,996		11,737,996
General						
....Customer Services	9,025,362			9,025,362		9,025,362
....Information Systems	3,827,550	(78,970)	D7-3	3,748,580		3,748,580
....Finance	2,521,974	199,982	D7-4	2,721,956		2,721,956
....Administration	6,698,735	(170,808)	D7-5	6,527,927		6,527,927
....Marketing & Communications	2,341,951	(228,386)	D7-6	2,113,565		2,113,565
....Human Resources	7,693,567			7,693,567		7,693,567
....Taxes other than on income	3,316,703			3,316,703		3,316,703
	35,425,842					
Operating expenses before taxes	445,564,276	(4,234,275)		441,330,001	-	441,330,001
Taxes						
Deferred taxes	(1,928,060)	723,357	D7-7	(1,204,703)	4,233,241	3,028,538
Deferred investment tax credit	(1,195,962)			(1,195,962)		(1,195,962)
Deferred manufacturers tax credit	2,043,811			2,043,811		2,043,811
Total taxes	(1,080,211)	723,357		(356,854)	4,233,241	3,876,387
Total expenses	444,484,065	(3,510,918)		440,973,147	4,233,241	445,206,388
Operating income	29,144,623	3,899,041		33,043,664	23,988,363	57,032,027
Finance costs	6,501,609	(199,982)	D7-4	6,301,627	-	6,301,627
Net income for the year	22,643,014	4,099,023		26,742,037	23,988,363	50,730,400

D-2

THE BARBADOS LIGHT & POWER COMPANY LIMITED
D-2 STATEMENT OF OPERATING & MAINTENANCE EXPENSES BY DEPARTMENT

	Balance as per Financial statements Dec 31, 2008	ADJUSTMENT	Sch.	Test Year 2008
	\$			\$
FUEL EXPENSES				
Bunker C (fuel) HFO	180,289,093			180,289,093
Natural Gas	562,796			562,796
Diesel Fuel	55,844,136			55,844,136
Av-Jet fuel	55,971,477			55,971,477
Heavy duty fuel oil	4,944,701			4,944,701
Total Fuel	297,612,203			297,612,203
GENERATION EXPENSES				
Generation Supervision	6,704,986	(74,000)	D-7-2	6,630,986
Operators wages	4,159,247			4,159,247
Water	986,246			986,246
Lubricants	3,051,550			3,051,550
Production Supplies	67,037			67,037
Common Facilities - Station cleaning	574,622			574,622
Provision for Obsolete Stock	1,348,267			1,348,267
Ash Handling	258,508			258,508
Maint. of Common Facilities	1,151,400			1,151,400
Maintenance of Lands/Buildings	271,928			271,928
Maintenance of Boiler Plant	1,529,483			1,529,483
Maintenance of Prime movers	24,907,333	(3,882,093)	D-7-2	21,025,240
Maintenance of Generators	142,355			142,355
Maintenance of Electrical Plant	1,933,973			1,933,973
Maintenance Auxiliaries Power Plant	2,127,257			2,127,257
Maintenance of Instrumentation	325,817			325,817
Subsurface oil recovery	15,853			15,853
Safety	165,909			165,909
Security	348,415			348,415
Training	236,105			236,105
Studies	401,372			401,372
System Planning	353,454			353,454
Total Generation O&M	51,061,116	(3,956,093)	D-1	47,105,023
DISTRIBUTION EXPENSES				
Distribution Supervision	2,440,308			2,440,308
Training	499,987			499,987
Maintenance of Substation Buildings	179,281			179,281
Maintenance Substation Equipment	552,883			552,883
Maintenance of Overhead Lines	1,888,040			1,888,040
System Control - SCADA	1,327,381			1,327,381
Maintenance of Underground System	602,328			602,328
Maintenance of Street Lighting	480,273			480,273
Trouble Calls	1,551,144			1,551,144
Maintenance of Transformers	608,425			608,425
Maintenance of Meters	393,800			393,800
Customer Claims	207,815			207,815
Inspection and Surveying	444,235			444,235
System Planning	25,284			25,284
Service Planning	264,599			264,599
Drawing Office	272,214			272,214
Total Distribution Expenses	11,737,996			11,737,996

THE BARBADOS LIGHT & POWER COMPANY LIMITED
D-2 STATEMENT OF OPERATING & MAINTENANCE EXPENSES BY DEPARTMENT

	Balance as per Financial statements Dec 31, 2008	ADJUSTMENT	Sch.	Test Year 2008
CUSTOMER SERVICES EXPENSES				
Customer Services Supervision	1,710,381			1,710,381
Meter Reading	1,247,076			1,247,076
City Office - Collections	1,607,959			1,607,959
Uncollectible bills	498,267			498,267
Billings	725,616			725,616
Garrison Office - Collections	618,998			618,998
Customer Accounts	362,669			362,669
Customers Information	564,833			564,833
Studies	4,393			4,393
Reconnection & Disconnection	537,272			537,272
Training	44,743			44,743
Inspections	531,718			531,718
Power Quality Assurance	571,436			571,436
Total Customer Services Expenses	9,025,362			9,025,362
INFORMATION SYSTEMS EXPENSES				
IS Supervision	475,089	(78,970)	D-7-3	396,119
IS System Maintenance	1,075,087			1,075,087
IS System Operations	749,885			749,885
Training	109,575			109,575
IS Software Licenses	774,673			774,673
IS Hardware Maintenance	321,863			321,863
IS Supplies	44,061			44,061
Mapping/Website maintenance	274,894			274,894
Studies	2,425			2,425
Total Information Systems Expenses	3,827,550	(78,970)	D-1	3,748,580
FINANCE EXPENSES				
Finance Supervision	760,249			760,249
Financial Accounting	408,293			408,293
Treasury Accounting	456,009	199,982	D-7-4	655,991
Management Accounting	278,569			278,569
Internal Audit	243,754			243,754
Audit Fee	300,530			300,530
Training	74,571			74,571
Total Finance Expenses & Finance charges	2,521,974	199,982	D-1	2,721,956
ADMINISTRATION EXPENSES				
Admin Supervision	1,835,637	(5,650)	D-7-5	1,829,987
Tourism Promotion Expenses	275,000			275,000
Regulatory Fees	450,000			450,000
Rate case expenses	1,078,033	(165,158)	D-7-5	912,875
Training	52,848			52,848
Legal fees	13,047			13,047
Health Safety Environment Quality (HSEQ)	315,877			315,877
Hurricane Assistance	59,339			59,339
Purchasing expenses	1,101,124			1,101,124
Stores expenses	1,517,831			1,517,831
Total Administration Expenses	6,698,735	(170,808)	D-1	6,527,927

THE BARBADOS LIGHT & POWER COMPANY LIMITED
D-2 STATEMENT OF OPERATING & MAINTENANCE EXPENSES BY DEPARTMENT

	Balance as per Financial statements Dec 31, 2008	ADJUSTMENT	Sch.	Test Year 2008
MARKETING & COMMUNICATIONS EXPENSES				
Marketing & Comm. Supervision	832,340			832,340
Key Accounts	373,356			373,356
Demand Side-Management	2,864			2,864
Training	56,830			56,830
Information Centre	131,532			131,532
Studies	41,850			41,850
Cust Comm. & Public Relations	903,178	(228,386)	D-7-6	674,792
Total Marketing & Communications	2,341,951	(228,386)	D-1	2,113,565
HUMAN RESOURCES EXPENSES				
Human Resources Supervision	1,105,578			1,105,578
Admin Office Expenses	837,932			837,932
Admin Building Maintenance	1,554,084			1,554,084
Advertising	91,867			91,867
Employee Benefits	2,767,068			2,767,068
Training	756,117			756,117
Payroll	358,328			358,328
Quality Improvement	22,998			22,998
Studies	199,593			199,593
Total Human Resources Expenses	7,693,567			7,693,567
OTHER EXPENSES				
Taxes other than on income	3,316,703			3,316,703
Insurance				
- Insurance - General	4,810,328			
- Insurance - Self	7,656,272			
	12,466,600			12,466,600
Total Other Expenses	15,783,303	(4,234,275)	D-1	15,783,303

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D-3

THE BARBADOS LIGHT & POWER COMPANY LIMITED
D-3 DEFERRED TAXES, INVESTMENT TAX CREDIT &
MANUFACTURING TAX CREDIT

CALCULATION OF DEFERRED TAXES

	Deferred tax as per financial statements 31/12/2008	Adjustment	Sch	Adjusted Deferred Tax Test year 2008
Asset timing differences				
Written down value of tax depreciable assets (including WIP) 31/12/07	554,040,686			554,040,686
Less tax written down values 31/12/07	<u>375,372,535</u>			<u>375,372,535</u>
	178,668,151	-		178,668,151
Written down value of tax depreciable assets (including WIP) at 31/12/08	566,318,545			566,318,545
Less tax written down values 31/12/08	<u>366,287,766</u>			<u>366,287,766</u>
	200,030,779	-		200,030,779
Timing difference on asset timing differences 31/12/08	<u>21,362,628</u>			<u>21,362,628</u>
Deferred tax charge - tax rate 15%	<u>3,204,394</u>	-		<u>3,204,394</u>
Other timing differences				
At December 31, 2007	(43,419,438)	-		(43,419,438)
At December 31, 2008	<u>(77,635,795)</u>	4,822,380		<u>(72,813,415)</u>
Net change	<u>(34,216,357)</u>	4,822,380		<u>(29,393,977)</u>
Deferred tax charge on other timing differences - tax rate 15%	<u>(5,132,454)</u>	723,357		<u>(4,409,097)</u>
Deferred tax charge for the year	<u>(1,928,060)</u>	723,357	D-1	<u>(1,204,703)</u>

CALCULATION OF DEFERRED INVESTMENT TAX CREDIT (ITC)

	Deferred ITC Allowance as per financial statements 2008 \$	Adjustment	Sch	Deferred ITC Allowance Test Year 2008 \$
Net additions at December 2008	<u>46,250,215</u>	-		<u>46,250,215</u>
20% Investment tax allowance on net additions for the year 2008	<u>9,250,043</u>	-		<u>9,250,043</u>
Annual allowance for 2008 @ tax rate 15%	1,387,507			1,387,507
Annual allowance over average asset lives	<u>2,583,469</u>			<u>2,583,469</u>
Deferred investment tax credit at December 31, 2008	<u>1,195,962</u>	-	D1	<u>1,195,962</u>

CALCULATION OF DEFERRED MANUFACTURING TAX CREDIT (MTC)

	MTC Allowance as per financial statements \$	Adjustment	Sch	Deferred MTC Allowance Test Year 2008 \$
Manufacturing allowance 2008 (50%) @ Depreciation tax rate	25,451,995			25,451,995
Manufacturing allowance 2008 (50%) @ Depreciation book rate	<u>11,826,585</u>			<u>11,826,585</u>
	13,625,410	-		13,625,410
Tax @ 15% on tax rate allowance	3,817,799			3,817,799
Tax @ 15% on book rate allowance	<u>1,773,988</u>			<u>1,773,988</u>
Deferred Manufacturing tax credit at December 31, 2008	<u>2,043,811</u>	-	D-1	<u>2,043,811</u>

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THE BARBADOS LIGHT & POWER COMPANY LIMITED
D-4 CORPORATION TAX COMPUTATION

INCOME YEAR	2008	2008
ASSESSMENT YEAR	2009	2009
	Balance as per financial statements \$	Adjusted balance \$
Profit before taxes as per Financial Statements	21,562,803	26,385,183
ADD: Depreciation	37,260,519	37,260,519
Contributions to Tourism Development Corp	275,000	275,000
Environmental certification (HSEQ) expense	102,174	102,174
Provision not allowable:		
- Increase in bad debt provision	70,000	70,000
- Increase in Obsolete Stock Provision	1,348,267	1,348,267
	<u>39,055,959</u>	<u>39,055,959</u>
LESS: Capital Allowances		
- Investment	9,250,046	9,250,046
- Annual	56,421,429	56,421,429
- Industrial Building:-Annual	113,061	113,061
- Manufacturing	25,451,995	25,451,995
Balancing allowance	1,614,560	1,614,560
Tourism Development Fund Allowance	412,500	412,500
Environmental certification (HSEQ) allowance	153,261	153,261
	<u>(93,416,852)</u>	<u>(93,416,852)</u>
ADJUSTED TAXABLE LOSS	<u>(32,798,091)</u>	<u>(27,975,710)</u>
LESS: LOSSES B/FWD	<u>(30,983,930)</u>	<u>(30,983,930)</u>
TAX LOSS C/FWD	<u><u>(63,782,021)</u></u>	<u><u>(58,959,640)</u></u>

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D-5

THE BARBADOS LIGHT & POWER COMPANY LIMITED
D-5 STATEMENT OF DEPRECIATION EXPENSE

	TEST YEAR EXPENSE 2008 \$
GENERATION	
GARRISON	
GAS TURBINE No. 2	961,570
SPRING GARDEN	
STEAM BUILDING	60,146
STEAM EQUIPMENT	1,581,843
FUEL TANK	19,031
LSD D10 & D11 - BUILDING	369,401
LSD D10 & D11 - EQUIPMENT	1,725,986
LSD D12 - BUILDING	150,463
LSD D12 - EQUIPMENT	695,071
LSD D13 - BUILDING	162,763
LSD D13 - EQUIPMENT	1,024,983
LSD D14 & D15 - BUILDING	788,666
LSD D14 & D15 - EQUIPMENT	4,183,833
SEAWELL	
GAS TURBINE No. 3 BUILDING	74,250
GAS TURBINE No. 3	867,443
FUEL TANK	41,573
GAS TURBINE No. 4	883,628
GAS TURBINE No. 5	932,885
GAS TURBINE No. 6	787,691
TOTAL GENERATION	<u>15,311,226</u>
SUBSTATION BUILDINGS	363,328
SUBSTATION EQUIPMENT	2,390,364
POLES & ACCESSORIES	4,068,116
OVERHEAD CONDUCTORS	1,446,335
UNDERGROUND CABLES	3,450,976
TRANSFORMERS	2,237,706
SERVICES	1,410,438
STREET LIGHTS	603,428
METERS	568,365
TOTAL DISTRIBUTION	<u>16,539,056</u>
BUILD - H/HALL & SP. GDN	132,076
BUILD - OTHER	342,020
TRANSPORT - HEAVY	323,785
TRANSPORT - LIGHT	171,198
FURNITURE & EQUIPMENT	582,238
COMPUTER EQUIPMENT	489,334
COMPUTER SOFTWARE	3,369,586
LAND	-
TOTAL GENERAL PROPERTY	<u>5,410,237</u>
TOTAL	<u><u>37,260,519</u></u>

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D-6

THE BARBADOS LIGHT & POWER COMPANY LIMITED
D-6 STATEMENT OF INTEREST EXPENSES

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	31-Dec-08	Adjustment	Ref	Test Year 2008
Finance charges				
Finance Charges on Loans	96,310	(96,310)	D-7-4	-
Bank Charges	103,672	(103,672)	D-7-4	-
Interest on customers' deposits	1,645,984			1,645,984
Interest on loans				
European Investment Bank - Protocol 11 6.23% repayable 2008/2011	891,576			891,576
European Investment Bank - Protocol 111 4.27% repayable 2008/2013	1,825,127			1,825,127
FirstCaribbean International Bank (Cayman) 5.98% repayable 2008/2015	952,258			952,258
Royal Bank of Canada 7.00% repayable 2009/2021	1,754,795			1,754,795
National Insurance Board - Debenture Stock Certificates 5.00% repayable 2020	1,002,740			1,002,740
Subtotal	8,272,462	(199,982)	D-7-4	8,072,480
Interest during Construction	(1,770,853)			(1,770,853)
Total	6,501,609	(199,982)	D-7-4	6,301,627

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EXPLANATIONS AND COMMENTS ON ADJUSTMENTS

The below information provides an explanation for the adjustments made by the Company to operating income.

REVENUE **388,123**

1. This primarily represents an adjustment to fuel expense not included in the calculation of the fuel charge in 2008. This adjustment has been reflected in the 2009 calculation.

OPERATING AND MAINTENANCE EXPENSES

Generation Department **(\$3,956,093)**

2. The Company recognizes certain costs incurred during the year as unusual and therefore not likely to recur within the next 5 years. Accordingly, a normalization adjustment of \$3,882,093 million was made. A further adjustment of \$74,000 for termination payments to employees was also deducted.

Information Systems **(\$78,970)**

3. Expenses in the Information systems department has been adjusted for termination payments to employees

Finance Department **\$199,982**

4. Bank and financing charges of \$199,982 have been transferred from finance costs to operating and maintenance expenses.

Administration **(\$170,808)**

5. Annually, the Company incurs routine regulatory expenses which are billed by the Fair Trading Commission. In addition, the Company is incurring costs associated with the current rate review process. These expenses are both captured under the Administration department. The Company is proposing to

spread the costs associated with the rate review process over a five (5) year period. An amount of \$912,876 has been included in the Test Year for rate making purposes.

Rate review expenses	\$	
Actual expense incurred in 2008		1,078,033
Less adjustment for amortization purposes		<u>(165,157)</u>
Adjusted rate review expenses		<u>912,876</u>

An additional amount of \$5,650 representing membership fees was also deducted.

Marketing & Communication **(\$228,386)**

- 6. The Marketing & Communication department has responsibility for maintaining the Company's corporate image in the community. This involves donations and covenants to recognized charities and organizations. Costs totaling \$228,386 covering such payments during the year have been removed from test year expenses.

Taxation **\$723,357**

- 7. Adjustments to the test year income statement operating expenses and revenue have a direct impact on the income before tax. The adjustment to income before tax of \$4,822,380 in schedule C-6 recalculates the tax loss which flows through to the timing differences in the deferred tax calculation.

Dated this 6th day of May, 2009

Paper prepared by:



**Hutson Best
Chief Financial Officer
The Barbados Light & Power Company Limited**

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MEMORANDUM ON SELF INSURANCE FUND

INSURANCE

Insurance & the Protection of Assets

1. Prudent management requires that a company protect its assets against catastrophe and other risks. A reliable electricity service is one of the cornerstones of the economy and as such The Barbados Light & Power Company Limited ("the Company") needs to be able to recover quickly from any natural disaster. In order to protect its customers and investors the Company has a responsibility to insure its assets to provide the means by which the Company would be able to restore its system and resume operations as soon as possible after a catastrophe.

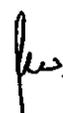
Transmission & Distribution System (T&D)

2. A major component of a utility's assets is its Transmission & Distribution (T&D) network. This asset category is made up of the following:
 - a) Installed overhead lines, poles, transformers, stays, services (the wires from the nearest pole to the customers' meter), and meters.
 - b) Underground cables, substations and substation equipment, and T&D property in warehouse storage.

The items in category (a) are highly vulnerable to windstorm, are considered high risk and therefore present a real challenge to protect by insurance.

Traditional Treatment of T&D Insurance

3. Prior to 1990 the property insurance programme for a utility's property assets simply included T&D within the overall value of all plant and equipment. There was no additional charge to the premium cost to include T&D. Some insurance companies included a maximum that could be claimed for T&D, but the category was simply part of the overall insurance at the normal rate.



4. In its 1986 Annual Report, the Company reported that - *"A number of electric utilities in the US are establishing mutual insurance companies to provide self coverage because they are unable to purchase insurance from traditional sources to cover certain risks. The similar difficulties the Company experienced with respect to insurance against the risk of hurricane are in the process of being resolved."*¹

Hurricane Andrew - Its Impact on the Insurance Market

5. On August 24, 1992, Hurricane Andrew struck Florida with devastating impact. Beside the damage to buildings and homes, this well documented hurricane severely damaged the overhead T&D system of Florida Power & Light (FPL) and other electric utilities in the state. Insurance companies were called on to pay out unprecedented sums in claims. As a result, within months of Hurricane Andrew, commercial insurance for electric utility overhead T&D networks in the Caribbean and parts of the United States became prohibitively expensive, and even at the high rates offered, insurers were only willing to provide coverage for a portion of the value of the asset.
6. Insurers quickly removed the first layer of risk by introducing high deductibles, restricting cover for business interruption, increasing premiums, and separating out coverage for T&D. Reinsurance for T&D was no longer available. Any insurance company wishing to insure T&D would have to pay 100% of any of the claims and could not lay off part of the risk to others. As a result rates quickly increased and the maximum amount available to any one utility was very limited, ranging from US \$10 million to US \$20 million. What was even more incredible was the rate being charged for T&D. It became standardized at 20% of the insurance amount and has remained about the same up to present day while rates for other assets have gone through various cycles during this period. Effectively, the insurance company was offering a premium equivalent to paying a total loss every 5 years. This rate is on average 30 times higher than the rate for insurance on other property assets such as buildings and plant.

¹ 1986 Annual Report for The Barbados Light & Power Company Limited

T&D Insurance Coverage – BLPC Experience

7. In its 1993 Annual Report, the Company reported that - "Catastrophic Loss Insurance was the primary expense affecting the Company in 1993. With insurance premiums rising from \$700,000 in 1982 to \$2.7 million in 1992, the Company's brokers estimated premiums would increase to the incredible amount of \$9 million in 1993. Even so, the brokers were unable to find an insurance company to cover the transmission and distribution lines, which left the Company, like other Caribbean electric utilities, vulnerable in the event of a hurricane. To remedy this situation, the Company is negotiating an insurance plan for risks that presently are not acceptable in the traditional insurance market."²

Caribbean Hurricane Experience

8. In terms of natural disasters, hurricanes pose one of the greatest threats to property in the Caribbean region. Barbados, being the most easterly of the chain of islands and relatively far south, has been spared the repeated devastation experienced by some of our more northerly neighbours. The last hurricane to hit Barbados was Janet in September 1955, when 38 persons lost their lives and 1800 houses were destroyed.³ More recently, Barbados has had close brushes by hurricanes, with the strongest being Hurricane Ivan in 2004. In the Caribbean region, the Caribbean Development Bank (CDB) estimated the damage caused by Ivan at more than US\$3 billion, including US\$1.85 billion in the Cayman Islands and US\$815 million in Grenada.⁴ Ivan also caused over US\$14 billion in damages in the United States.⁵

² 1993 Annual Report of The Barbados Light & Power Company Limited

³ 1955 Monthly Weather Review

⁴ Tropical Cyclone Report, Hurricane Ivan – Stacey R. Stewart, National Hurricane Center, December 16, 2004 (Updated May 27, 2005)

⁵ Tropical Cyclone Report, Hurricane Ivan – Stacey R. Stewart, National Hurricane Center, December 16, 2004 (Updated May 27, 2005)

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THE SELF INSURANCE FUND**Establishment of the Self Insurance Fund**

9. Faced with the situation where only a limited amount of commercial insurance was available to cover the T&D assets against hurricane, and what was available was prohibitively expensive, the Company decided to establish a Self-Insurance Fund ("the Fund"). The Fund was established in 1993 and in the initial stages was simply a bank account in which monies were placed while the Company sought the support of the Government of Barbados to enact the appropriate legislation. In the early years of the Fund, the Company also established a US\$ 5 million credit facility with a commercial bank to provide additional liquidity in the event of a T&D property loss. This facility was discontinued as the Fund grew.

Legislative Support

10. The Fund received governmental and legislative approval, when in 1998 the Government of Barbados amended the Insurance Act (Act 1996-32) and passed the ***Insurance (Barbados Light and Power Company Limited) (Self Insurance Fund) Regulations, 1998*** ("the Regulations").⁶ The Regulations provided the legislative framework to allow the Company to create a Self Insurance Fund for losses caused by catastrophe perils to the T&D assets that were not insured and for losses by the catastrophe perils for the self insured portion (deductibles) of the commercial insurance programme for the Buildings, Plant, and Equipment. These catastrophe perils include:
- a) Hurricane
 - b) Tropical Storm
 - c) Tornado
 - d) Volcanic eruption
 - e) Earthquake
 - f) Flood, overflow of sea and rain accompanying these perils.

⁶ Statutory Instrument Supplement No. 44 – Supplement to Official Gazette No. 70 dated 31st August 1998.

11. In 2005, the Regulations were amended by the **Insurance (Barbados Light and Power Company Limited) (Self Insurance Fund) (Amendment) Regulations, 2005**⁷ to allow other risks to be self-insured, including fire, explosion, riot, strike, malicious damage, and machinery breakdown for both property and financial loss (business interruption).
12. The Company presently fully self insures the T&D property and subsequent business interruption and a relatively small portion of other assets (generation plant, equipment, buildings, and other contents of the buildings) and subsequent business interruption. The Company makes contributions to the Self Insurance Fund to meet these uninsured exposures.

The Trust Deed – Self Insurance Fund

13. The Company created a Trust Deed dated December 31, 1998, which formally established the Fund within the legislative framework. The Trust Deed was subsequently amended on July 2, 2007. The Company reports on the status of the Fund to the Supervisor of Insurance as required by the legislation.

Tax Treatment of the Fund

14. The Government of Barbados also amended the Income Tax Act by the **Income Tax (Amendment) Act 1998-8** to allow for permitted contributions paid over to the Fund to be treated as allowable expenses for tax purposes. To date the Fund has only been used for the purposes permitted under the legislation. If the Fund were to be utilized for any purpose other than that set out in the legislation, then those amounts so used would be subject to tax.

Financial Accounting

15. The Fund is authorized by legislation and must be accounted for separately from the Company's normal business activities.

⁷ Statutory Instrument Supplement No. 9 – Supplement to Official Gazette No. 19 dated 3rd March 2005

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MANAGEMENT OF THE FUND**Limit on Contributions to the Fund**

16. The legislation places a limit on the annual payments to the Fund. The maximum annual payment shall be twenty (20) percent of total replacement cost of the assets being self insured plus the self insured portion of the commercial insurance programme OR five (5) percent of the total assets of the Company; where the replacement cost is not easily determined.

Independent Advice on Contributions to the Fund

17. As part of the ongoing due diligence, the Company's insurance/risk management advisors have periodically compared the likely cost of commercial insurance on the T&D assets to the option of maintaining the Fund. The most recent assessment⁸ confirms that *"the high commercial cost of T&D insurance continues to justify the decision to self insure this exposure"*. The annual contribution to the Fund is made up of the contribution from the Company and the earnings from the Fund's investments.

Contribution to the Fund – 2008

18. Of the Bds\$7.6 million contribution made by the Company to the Fund in 2008, \$6.0 million covered T&D assets. This sum represents approximately 1.0% of the Reproduction Cost New (RCN) of the self-insured T&D assets, which are valued in excess of \$600 million. The contribution was therefore well below the maximum limit placed on the annual payment. The remaining contribution of Bds\$1.6 million covered self insured portion of the commercial insurance programme for the other assets.

⁸ CGM Gallagher Insurance Brokers (Barbados) Limited letter of March 2, 2009 to The Barbados Light & Power Co. Ltd., Re: T&D Insurance

Maximum Size of the Fund

19. The legislation also places a limit on the size of the Fund. The monetary limit of the Fund shall be the total replacement cost of the assets which are being self insured and the self insured portion of the Company's commercial insurance programme OR ten (10) percent of the total assets of the Company, where the replacement cost is not easily determined.

20. The total of BDS\$109.4 million held by the Fund at December 31, 2008 represents 18.2 % of the RCN of the T&D assets, which as already stated are valued in excess of \$600 million. The amount held by the Fund is therefore well below the maximum prescribed by the Regulations.

Investment of the Fund

21. The legislation allows the Fund to invest directly in foreign currency denominated investments. The main reason for this is that, in the event of a hurricane or other catastrophe, the Company will need to purchase significant amounts of equipment and materials from overseas suppliers using foreign exchange. The investments are managed by the Trustees who make investment decisions within the scope allowed in the legislation.

Withdrawals

22. The Trust Deed provides that any request for withdrawals from the Fund to cover the risks as legislated requires the approval of the Trustees and has to conform to the requirements of the Regulations.

ADEQUACY OF THE FUND

Fund Security & Solvency

23. The Fund is reviewed by risk consultants periodically who make recommendations to ensure the continued security and solvency of the Fund.

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Exposure of the Fund – Multiple Events

24. In the early stages, the Company was at risk that a catastrophe could have occurred before the Fund was well established. Even today however, there is still a risk that multiple hurricanes over a period of a few years could deplete the Fund before the Company has the opportunity to 'rebuild' the Fund to a satisfactory level. The Company's insurance / risk management advisors made investigations to protect the Fund by two approaches:

(1) Second Event Coverage

A Second Event policy would pay a claim for the loss of T&D if that event was a Second Event in a period of 3 or 5 years and the existing Fund had been totally used up for the First Event. There was very limited support by the insurance industry and any price indication was little different from the existing high rates on T&D. It was therefore not justifiable to purchase this insurance.

(2) Excess of Loss Insurance

This would provide a layer of insured protection either above the Fund or above a percentage of the Fund. The insurance industry usually prices the cost of high layers at much lower premiums simply because the probability of a loss reaching the high layer is much lower. However, in the case of insurance for T&D assets, the insurance industry priced the high layer at the same price of the insurance for the primary levels, which were already uneconomic to purchase.

Fund Exposure - US Experience

25. In 2004, hurricanes Charley, Frances, Ivan & Jeanne hit Florida. FPL suffered approximately US\$1 billion damage as a result of hurricanes. FPL had approximately US\$327 million in its self-insurance reserve. In just two months, FPL's self-insurance fund that had been building since Hurricane Andrew was overwhelmed by costs exceeding twice the fund's balance. The regulator awarded the recovery of the uninsured amounts over 36 months as a special surcharge from customers.⁹

⁹ Florida Public Service Commission - Final Order Approving Storm Cost Recovery Surcharge: Order No PSC-05-0937-FOF-EI / Docket No. 041291-EI

Fund Exposure - Jamaica Experience

26. In the case of Jamaica Public Service (JPS), the amount set aside annually was increased in 2006 *"in light of the experience of increased frequency and intensity in tropical cyclones affecting the Caribbean in the past five years, a review of the provisions that were made in the 2004 tariff was done. The review suggests that the provisions that were made for the hurricane sinking fund was too conservative and therefore the Office [Office of Utilities Regulation] has decided that it would be prudent to increase the provision for the fund, not only in terms of its rate of growth but also in terms of the size of the fund."*¹⁰

Risk Exposure - Cayman Islands Experience

27. The Cayman Islands' experience with Ivan is also instructive. A report by the Economic Commission for Latin America and the Caribbean (ECLAC)¹¹ at the request of the Government of the Cayman Islands with the support of the United Nations Development Programme (UNDP) reported that *"preliminary estimates made by CUC [Caribbean Utilities Company] show that insured damage to power plant units, transmission and distribution subsystems, building, materials inventories and other items reach an amount of CI\$ 33.9 million [US\$ 40 million]. Further estimates by CUC indicate that its insured business interruption losses in the following 24 months due to the lower billings over the recovery period will be CI\$ 35 million [US\$ 42 million]."* The report further states that *"taking into consideration the uninsured transmission and distribution components, the total impact of the hurricane on the electrical sector of the Cayman Islands has been estimated at CI \$ 68.9 million [US\$ 82 million]."*

The Business Interruption Risk

28. Another facet of risk is that of 'business interruption'. Business interruption is the loss of critical functions caused by natural or manmade hazards such as terrorism, fires and explosions, earthquakes, windstorms, bomb threats, hazardous waste spills, workplace fatalities, and product tampering, among

¹⁰ Office of Utilities Regulation - JPS Annual Tariff Adjustment Determination Notice: June 1, 2006

¹¹ "The Impact of Hurricane Ivan in the Cayman Islands" – ECLAC / UNDP January 10, 2005

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others, which impact on a company's market share, profits, growth rate, shareholder value, sales volumes, and corporate reputation. To limit loss of earnings due to business interruption, most companies obtain insurance coverage to compensate them for the inherent financial consequences.

The Cost of Business Interruption

- 29. Business interruption is a risk for electric utilities that are exposed to a potential hurricane event. The utility must continue to meet its fixed costs as well as its commitment to its investors in circumstances where there is a loss of electricity demand due to damages to customer premises or negative impact on the normal business operations of customers after a hurricane event – e.g. low hotel occupancy.

- 30. The Company has had a recent assessment undertaken by Caribbean Risk Managers Limited (CaribRM) who concluded that the Business Interruption risk to the Company could be as much as Bds\$37.8 million, depending on the severity of the hurricane. It should be noted that this estimate of loss relates to the Business Interruption exposure following damage to the T&D and not the Business Interruption exposure arising from damage to the other assets, which continues to be commercially insured.

MITIGATING THE RISK

T&D Facilities

- 31. The Company recognizes that in addition to self-insuring, there are other measures that it can take to protect its assets. The Company has therefore decided to better secure its substation and transmission facilities. All new transmission lines are being placed underground and substations constructed within the last twenty five years have been of the 'indoor' design where all the switchgear and controls are housed in a hurricane resistant building.

Underground T&D Considerations

32. Notwithstanding the above, the majority of the electrical distribution system is still overhead. Placing all the distribution system underground would be prohibitively expensive.

CARILEC Hurricane Action Plan

33. To aid in the restoration of supply following a hurricane, the Company has established Hurricane Procedures and also participates in the Caribbean Hurricane Action Plan (CHAP) coordinated by the Caribbean Electric Utility Service Corporation (CARILEC). This plan is a mutual aid scheme and the Company engineers and linesmen have participated in several successful restoration efforts in other islands of the Caribbean and have thereby gained a lot of experience in the reconstruction of a distribution system after a hurricane. The ECLAC Report¹² on the Cayman Islands following Hurricane Ivan states that *"thanks to the existing sub-regional Hurricane Action Plan of CARILEC, teams from Barbados, Belize, Bermuda and Turk & Caicos electrical enterprises cooperated in the restoration plan of action. This enabled a faster pace in restoring power supply."*

EXPERIENCE OF OTHER UTILITIES

34. The Company has not been alone in dealing with the issue of insurance coverage for T&D assets. Other utilities, including FPL, replaced their T&D property insurance coverage with a self-insurance program due to the high cost and limited coverage available from third-party insurers.
35. Some Caribbean utilities, including JPS¹³ and St. Lucia Electricity Services (LUCELEC)¹⁴, have since established self-insurance funds. Other Caribbean utilities decided either to purchase partial cover, whatever they could afford, or not to insure their T&D networks at all. In such circumstances the utility is exposed. The assets are not protected and if the utility has difficulty in

¹² "The Impact of Hurricane Ivan in the Cayman Islands" – ECLAC / UNDP January 10, 2005

¹³ JPS 2005 Annual Report

¹⁴ LUCELEC 2006 Annual Report – Note 8 to Financial Statements

securing funds to rebuild the network, the impact could be devastating on customers and the overall economy. In the absence of either commercial insurance or self insurance, customers are not paying for the risk associated with the service they receive.

Rate Levies - Alternatives to Self Insurance

36. When a hurricane has occurred under the foregoing circumstances, utilities in some instances have been allowed a special 'levy' through an addition to the tariff over a short span of 2 to 3 years. This was the case for CUC following the passage of Hurricane Ivan¹⁵. Customers are then required to provide in a short time the funds required for rebuilding the system and this exposes them to 'rate shock'. Levies have also been applied by regulatory commissions in instances where self insurance funds were inadequate to cover the cost of rebuilding the system.¹⁶ Others have allowed the cost of reconstruction to be recovered through a general increase in tariffs.¹⁷ In the Conclusion and Recommendations section of its report entitled *After the Disaster: Utility Restoration Cost Recovery*¹⁸ The Edison Electric Institute of the United States recommends that "Given the lack of commercially available storm insurance at affordable rates, the industry should adopt a self-insurance mechanism for storms, either within individual companies or possibly on an industry basis."

CONCLUSION

37. Commercial insurance is still largely unavailable to provide comprehensive insurance for T&D assets and business interruption and what insurance is available is still very expensive. The original rationale for the Fund is still very compelling today. Compared to commercial insurance placement, the Fund appears to be a cost effective way in which customers and investors are protected from the risk of hurricane and other catastrophe. The Fund is managed in accordance with the Regulations.

¹⁵ Caribbean Utilities Corporation 2006 Annual Report – Hurricane Ivan Cost Recovery Surcharge

¹⁶ Florida Power & Light – Storm Charge Tariff Sheet 8.040 Effective May 1, 2008

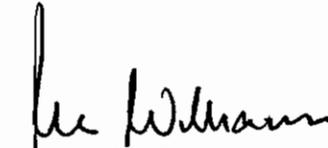
¹⁷ Florida Public Utilities Company Quarterly Report, May 14 2008 – Storm Related Expenditures

¹⁸ Edison Electric Institute, February 2005 – After the Disaster: Utility Restoration Cost Recovery

38. The annual contribution to the Fund and the commercial insurance premiums are included in the application.

Dated this 6th day of May, 2009

Paper prepared by:



Peter W.B. Williams
Managing Director
The Barbados Light & Power Co. Ltd.

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MEMORANDUM ON RATE OF RETURN

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INTRODUCTION**Purpose of Fair & Reasonable Rate of Return**

1. The Barbados Light & Power Company Limited ("the Company") in its application for a review of electricity rates has stated that one of its main objectives is to ensure that customers are provided with a reliable supply of electricity at reasonable rates. To achieve this objective the Company must have the ability to raise funds to invest in new plant and equipment and customers who use the service must pay their fair share of the reasonable costs associated with the service. The Company must also be able to satisfy lenders of its ability to repay loans and to maintain the confidence of investors by providing them with a fair and reasonable return.
2. The rate of return serves to compensate investors for capital used to finance plant, equipment, supplies and other functions necessary to provide utility services. A utility's rate of return is considered as a measure of the utility's profitability and can be estimated by determining the utility's cost of capital. Investor-supplied capital is an allowable cost.

Principles of a Fair Rate of Return

3. The rate of return is an essential element in the process of rate regulation. The overall return to be earned on a company's rate base is an important part of overall revenue requirement.
4. Two US Supreme Court decisions are today accepted by regulatory authorities as having provided the main standards and principles to be used for rate of return determination. The first decision is **Bluefield Water Works and Improvement Co. v. Public Service Commission of West Virginia** 262 U.S. 679 (1923). In this decision the Court stated:

"What annual rate will constitute just compensation depends upon many circumstances and must be determined by exercise of fair and enlightened judgment, having regard to all relevant facts. A public

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utility is entitled to such rates as will permit it to earn a return on the value of the property which it employs for the convenience of the public... The return should be reasonably sufficient to assure confidence in the financial soundness of the utility and should be adequate under efficient and economical management, to maintain and support its credit and enable it to raise the money necessary for the proper discharge of its public duties."

5. The **Bluefield** case is accepted as having established the following general standards for a rate of return, namely, that (a) the return should be sufficient for maintaining financial integrity and capital attraction and (b) a public utility is entitled to a return equal to that of investments of comparable risks.
6. In the second case, that of **Federal Power Commission v. Hope Natural Gas Company** 320 U.S. 591 (1942), the Court stated that:

"The return to the equity owner should be commensurate with returns on investments in other enterprises having corresponding risks"

The Court thus re-affirmed the earlier **Bluefield** standards.
7. Returns that adhere to these principles and standards accord with the fairness criterion that balances consumer and investor needs, and provide the means for the Company to fulfill its duties to the public. Good utility regulation recognizes that inadequate authorized return levels violate these criteria and essentially constitute the confiscation of the capital committed by investors.

Realized Return on Rate Base for Test Year 2008 (Existing Rates)

8. The Rate of Return on Rate Base realized by the Company under existing rates for the Test Year 2008, adjusted for known and measureable changes, was 6.07%.

Requested Rate of Return on Rate Base

9. As part of its preparation for the filing of the Application the Company retained the services of and sought advice from its consultants Christensen Associates Energy Consulting LLC (CAEC) to enable the Company to determine the overall Rate of Return on Rate Base for which it should seek the Commission's approval. Mr. Robert Camfield of CAEC led the team which

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undertook the "Study of the Cost of Capital and Rate of Return Recommendation" ("the Study") dated May 20, 2008. A copy of the Study is attached to the Affidavit of Robert Camfield as Exhibit "RC2". CAEC analyzed and reviewed the relevant data and recommended that the Company seek approval for an overall Rate of Return on Rate Base of 10.48%. This represents the Company's Weighted Average Cost of Capital (WACC) stated on a regulatory basis, including the weighted combination of the Company's cost rates for debt and other sources of funds, and a fair rate of return on equity. The Return on Equity ("ROE"), the cost of debt, and the WACC were determined by the Study. The Study evaluated the cost of capital for alternative equity investments with risks similar to those of the Company, and is based on the 2007 experience of major North American capital markets. If approved, the rate of return recommended in the Study will enable the Company to fulfill its obligations to the public while providing the Company with an opportunity to meet its obligations to investors, including interest on its outstanding debt and a fair return on the capital committed by its equity investors. The recommended rate of return on rate base is very similar to that estimated by NERA Economic Consulting in its Regulatory Audit ¹ of the Company in 2006.

10. The Company's financial technical and other data were made available to CAEC to enable CAEC to undertake the assignment. The Company is relying on Mr. Camfield's evidence as the main expert evidence on this aspect of the Company's application and the views expressed in this Memorandum have taken into account the matters discussed in the Study and the analyses, opinions, findings and conclusions therein. It is also relying on the knowledge and experience of the Company's management in the conduct of the Company's business.
11. The existing rate of return on rate base of 6.07% constitutes a significant shortfall for the Company when compared to the rate of return of 10.48% recommended as fair and reasonable in the Study.

¹ Regulatory Audit of The Barbados Light & Power Co. Ltd.: Final Report prepared for the Fair Trading Commission of Barbados – NERA Economic Consulting, April 2006



Maintaining Shareholder Investment

12. Increasing globalization of capital flows means that investors can place capital worldwide. Investors benchmark various investment opportunities of comparable risks with respect to the expected returns obtainable elsewhere. The Company is operating within this investment environment and has to compete for funds accordingly. Unless investors are provided with reasonable rates of return for the use of their capital, they are likely to invest elsewhere leaving the Company with fewer and more costly alternatives in its efforts to raise the required capital.

Revenue Requirements

13. The Company's revenue for the 2008 Test Year, adjusted for known and measureable changes, is calculated at \$474,016,811.² The Company is requesting an increase of \$28,221,603 in revenue, which would represent an increase of about 5.95%³ in overall electricity prices including the Fuel Clause Adjustment, based on actual 2008 fuel costs. If this request is granted it will provide the Company with the opportunity to earn the requested rate of return of 10.48%, which the Study has concluded is a fair and reasonable return on rate base.

SOURCES OF FUNDS

14. The Company's present sources of funds, used in the Cost-of-Capital computation, include debt, customer security deposits⁴, and shareholder equity. The Study also includes provision for 'non-traditional' elements of Deferred Investment Tax Credit and Deferred Manufacturers' Allowance. These funds have been "costed" in the Study at the calculated WACC, stated on a traditional basis before the inclusion of these regulatory capital elements.

² Income Statement for Year Ending December 31, 2008 - Schedule D-1

³ Statement of Revenue Requirement - Schedule G-1

⁴ The Barbados Light & Power Company Limited - Security Deposit Leaflet

COST OF DEBT

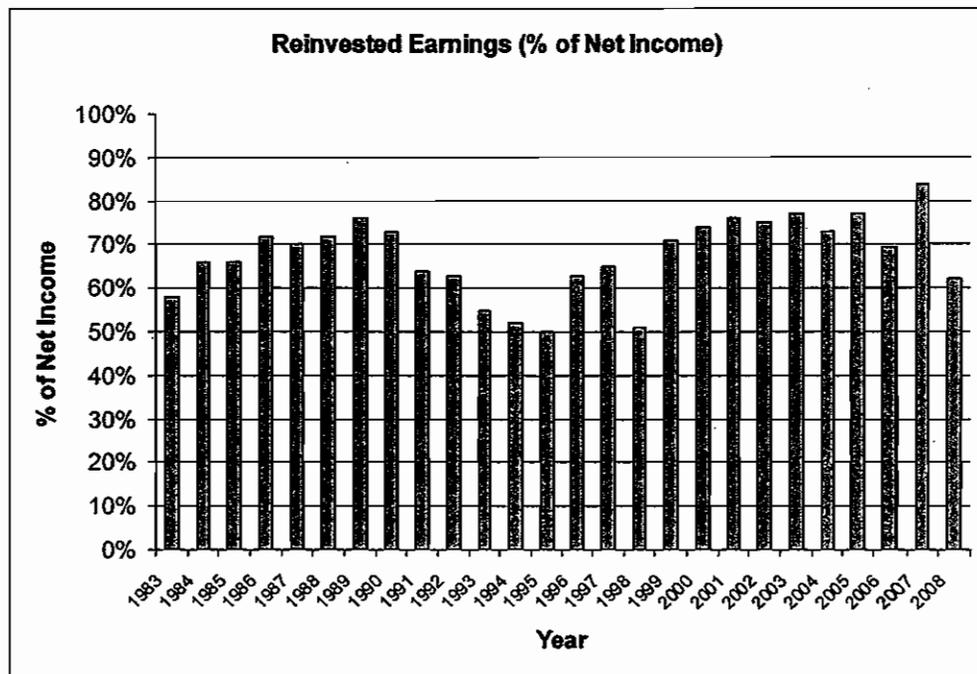
Company's Cost of Debt

15. The Company's application is based on a cost of 5.25% for the Company's outstanding long-term debt as calculated in the Study. This cost rate is derived from the actual interest on the Company's long-term debt, which carried an average balance of \$115.4 million for 2007 as shown in the Study.

Shareholder Reinvestment & Debt Management

16. The Company has maintained a relatively low debt load through significant reinvestments by the shareholder in the Company⁵, as shown in **Figures 1 and 2**. This low debt load has allowed the Company to satisfy lenders that it can meet its commitments and has also meant that it has been able to obtain reasonable terms on its borrowings.

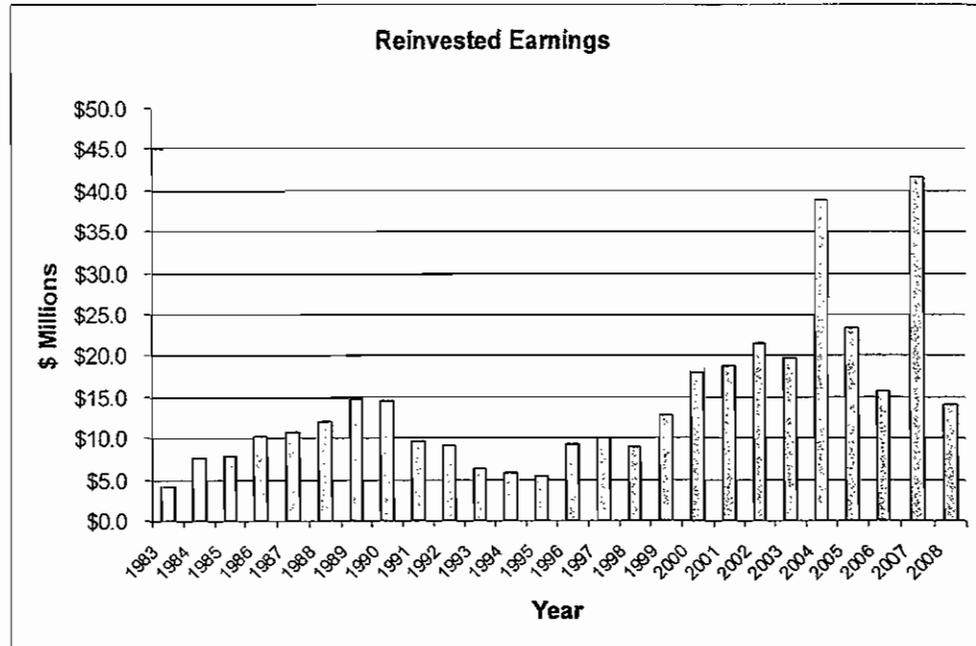
Figure 1 (% of Net Income Reinvested 1983 to 2008)



⁵ The Barbados Light & Power Co. Ltd. Financial Statements 1983 through 2007

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Figure 2 (\$ Millions of Earnings Reinvested 1983 to 2008)



RETURN ON EQUITY

Determination of the Equity Capital

17. The application for a review of electricity rates is made against the background of the accepted regulatory principle that investors should be allowed the opportunity to earn a Return on Equity comparable to what they could earn on other investments of similar risk.⁶ While the cost rate for debt can be directly observed, the return on equity cannot be so easily discerned, and must therefore be estimated. The Study applies capital valuation methods as set forth by and defined within the longstanding principles of financial economics.

Cost of Capital Methodologies

18. Formal cost of capital models are most useful when applied to capital markets that satisfy standards of transaction and information efficiency, and liquidity depth. Accordingly, the Study draws upon the experience of North American capital markets, including samples of U.S. and Canadian utilities and a sample of low-risk comparatively small-sized U.S. non-utility companies. The

⁶ Federal Power Commission v. Hope Natural Gas Company (320 U.S. 591, 1944)

Study applies four well-recognized Cost of Capital methods (models), namely: (1) Capital Asset Pricing Model, (2) Discounted Cash Flow, (3) Risk Premium Analysis, and (4) Comparable Earnings based upon historical realized returns of comparable-risk companies, where such returns serve as a basis for the expected level of future earnings performance. Model results obtained from North American markets are then adjusted for factors that account for differences in investment risk between the cost of equity capital for the Company and the samples.

Cost of Capital - Results of Analysis

19. The application of the four methods results in a spread of returns for US and Canadian utilities of 9.34% to 13.36%, excluding one result at 16.07%. The Study further recommends that, given the small size of the Company in comparison to the US and Canadian utilities and the difference between investments in North America and Barbados, an adjustment should be made to reflect the factors that affect the cost of equity including issuance cost, size risk, and sovereignty risk. The Study concludes that, adjusting for these factors results in a Company-specific cost of equity in the range of 13.13% to 13.87%.

Recommended Cost of Equity

20. The Study results in a recommended ROE of 13.50%. This ROE level is considered reasonable for the capital committed by equity investors in the Company and is incorporated in the Company's WACC of 10.48%.

COST OF EQUITY: BARBADOS & CARIBBEAN COMPARISONS

The Barbados Equity Market

21. While a number of investment opportunities are present in Barbados, many of these are not exchange-traded financial assets, which means that the investment community as a whole cannot readily gauge and, through regular purchase and sale of shares, value the underlying business assets. In addition, the Barbados equity market is a developing market and, as evidenced by the Barbados Stock Exchange, is very thinly and intermittently

traded⁷. Generally speaking, the Exchange does not yet represent a sufficiently liquid market to readily reveal the underlying value of assets to investors. In summary, capital valuation methods cannot be readily applied to Barbados's equity market with a sufficient and full level of confidence to adequately gauge the underlying cost of equity. So, while the Company had access to a review of the local equity market⁸, this review was used for comparative purposes only because of the above limitations.

Results of Local Market Comparison

22. For the purpose of general comparison, the review of 20 listed companies on the local market⁹ showed an average ROE of 13.50% for the year 2007, with a range from a low of 3.1% to a high of 32.65%.

Caribbean Utility Comparisons

23. Few Caribbean utilities are subject to independent regulation and a wide sample of 'approved' rates of return is generally not available. Additionally, variations over time and across countries in currency exchange rates, inflation rates, and other economic indicators mean that these approved rates are not directly comparable to the Barbados situation. However, the following references do provide some guidance in terms of the levels of return on rate base that have been authorised or recommended for the named Caribbean utilities:

- a) The Government of the Cayman Islands, under Condition 25 of the license dated April 3, 2008¹⁰ granted to the Caribbean Utility Company Limited, established a Rate Cap and Adjustment Mechanism in which the base range of Return on Rate Base Values was set at between 11% and 13%.
- b) An "Independent Expert Report on Belize Electricity Full Tariff Review Proceedings, 2005"¹¹ carried out by NERA Economic Consulting

⁷ Dividend Policy Among Publicly Listed Firms in Barbados, Justin Robinson, UWI Cave Hill Campus – Journal of Eastern Caribbean Studies Volume 31, No.1, March 2006

⁸ Signia Financial Group Inc. Review of Local Market Returns 2007

⁹ Signia Financial Group Inc. Review of Local Market Returns 2007

¹⁰ **Main Agreement: Caribbean Utilities Company Ltd. and The Governor in Cabinet of the Cayman Islands, April 3, 2008**

¹¹ Independent Expert Report on Belize Electricity Full Tariff Review Proceedings, 2005: Dennis Colenutt, NERA Economic Consulting, June 17, 2005

recommended a minimum rate of return of 10% and a maximum rate of return of 15%.

- c) The Electricity Supply Act (Cap 9.02) of St. Lucia¹² sets the Target Rate of Return for St. Lucia Electricity Services Limited (LUCELEC) as *“that level of annual rate of return to be attained on equity of the Company which shall be not less than the average 12 month deposit rate paid by commercial banks in Saint Lucia plus an additional 10% (which shall be 1000 basis points). However, such return on equity shall be at a rate not less than 15% per year (such figure to be expressed to 3 decimal places).”*

DIVIDEND PAYOUT

Dividend Payout Ratio

24. It is considered good practice to maintain a relatively stable dividend payment, which means that the payout ratio will vary from year to year based on earnings. The Company's dividend payout ratio has varied through the years, with an average of about 25% over the past 10 years. As illustrated in **Figures 1 and 2** of this document, a significant amount of shareholder earnings has been reinvested to provide the funds required for new plant and equipment.

Local Market Dividend Payout Ratios

25. A review of the local stock market for 2007¹³ indicates payout ratios ranging from a low of 17.5% to a high of 64.2% with an average of 36.7%.

Dividend – 2008 Test Year

26. As shown in Schedule O, Statement of Dividends, the Company paid a dividend of \$8,562,000 for the 2008 Test Year. This equates to a payout ratio of about 38%.

¹² Laws of St. Lucia, Electricity Supply Act Cap 9.02, Revised Edition Showing the Law as at 31 December 2001

¹³ Signia Financial Group Inc. Review of Local Market Payout Ratios 2007

CAPITAL STRUCTURE**Debt / Equity Ratio**

27. The Debt / Equity (D/E) ratio of the Company has varied over the years, and in 2007 the Company's capital structure was made up of 21.4% debt and 78.6% equity (2008 year-end: 19.2% Debt/80.8% Equity). As discussed below, the Study and the WACC proposed in the Company's filing incorporates lower equity participation of 65% for regulatory purposes, which adjusted to include other 'non-traditional' sources of capital, works out to be 58.17%.

Future Borrowing Needs

28. The Company is entering a period during which significant investment in new plant will be required to replace plant that is due to be retired and to meet the increased demand for electricity. It is anticipated that the Company's debt will increase during the period covered in the Financial Forecast¹⁴. The Company considered therefore that the present capital structure would not be appropriate in calculating the WACC and has therefore used a capital structure that, (a) better matches the Debt / Equity ratio for the period during which the proposed new tariffs will apply, and (b) the Company considers to be more reasonable from a regulatory point of view.

Proposed Capital Structure for Ratemaking Purposes

29. The Company has used a capital structure of 35% Debt and 65% Equity in the calculation of the Weighted Average Cost of Capital. It considers this D/E ratio to be more representative than the actual Test Year capital structure. This also results in an effective lower overall cost of capital than if the 2008 actual capital structure is used. This will be of benefit to ratepayers. By way of comparison it should be noted that, the average debt / equity ratio for Caribbean utilities in 2006 was 36% Debt / 64% Equity¹⁵, very close to that being proposed by the Company. The Company therefore seeks the approval of the Commission for the proposed capital structure to be used in the determination of the Rate of Return.

¹⁴ Financial Forecast based on Proposed Rates - Schedule L2

¹⁵ KEMA Benchmark Study Report 2002-2006 for The Barbados Light & Power Co. Ltd.

WEIGHTED AVERAGE COST OF CAPITAL - RETURN ON RATE BASE**Weighted Average Cost of Capital**

30. The WACC is calculated using the cost of debt, the expected return on equity, and the proportion in which these sources of funds are used in the overall capital structure of the Company. For a regulated electric utility this is equivalent to the Rate of Return on Rate Base that the utility should be achieving to meet its obligations to its lenders and shareholders.

Weighted Cost of Capital – Existing Capital Structure

31. Using strictly long-term debt and equity and the Company's actual capital structure for 2007 would result in a WACC of 11.73%, as shown in **Table 1** which is taken from the Study.

Table 1

**WEIGHTED AVERAGE COST OF CAPITAL FOR
ACTUAL CAPITAL STRUCTURE
Based on Total 2007 Balances**

Capital Component	Observed Balances (\$ 000)	Capitalization Shares	Cost Rates	Weighted Cost Rate
Long Term Debt	\$115,406	21.44%	5.25%	1.13%
Short-Term Debt	\$0	0.00%	0.00%	0.00%
Common Equity	\$422,804	78.56%	13.50%	10.61%
Total	\$538,210	100.00%		11.73%

Revised Capital Structure

32. However, since the Company's request is based on a 35% / 65% Debt to Equity ratio this capital structure is used in place of the capital structure based on 2007 balances. As can be seen below, reducing equity participation from 79% to 65% lowers the WACC by approximately 1.1%, as shown in **Table 2** taken from the Study. This effectively reduces the requested revenue requirement by approximately \$6.0 million.

Table 2

**WEIGHTED AVERAGE COST OF CAPITAL FOR
ADJUSTED CAPITAL STRUCTURE
Based on Total 2007 Balances**

Capital Component	Implied Balances (\$ 000)	Capitalization Shares	Cost Rates	Weighted Cost Rate
Long Term Debt	\$188,374	35.00%	5.25%	1.84%
Short-Term Debt	\$0	0.00%	0.00%	0.00%
Common Equity	\$349,837	65.00%	13.50%	8.78%
Total	\$538,210	100.00%		10.61%

Other Adjustments

33. An adjustment has also been made for other sources of capital. Customer deposits held to secure electricity accounts are included at cost. The inclusion of non-traditional elements such as the manufacturers' allowance, when "costed" at the debt/equity-based WACC level, results in a slightly lower overall WACC of 10.48% as shown in **Table 3** which is taken from the Study.

Table 3

**RATE OF RETURN RECOMMENDATION FOR 2008
WEIGHTED AVERAGE COST OF CAPITAL FOR
PROPOSED REGULATORY CAPITAL STRUCTURE
Based on Total 2007 Balances**

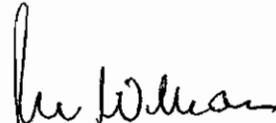
Capital Component	Balances (\$ 000)	Capitalization Shares	Cost Rates	Weighted Cost Rate
Long Term Debt	\$188,374	31.32%	5.25%	1.65%
Short-Term Debt	\$0	0.00%	0.00%	0.00%
Common Equity	\$349,837	58.17%	13.50%	7.85%
Customer Deposits	\$20,010	3.33%	6.46%	0.22%
Deferred Investment Tax Credits	\$30,099	5.00%	10.61%	0.53%
Deferred Manufacturers' Allowance	\$13,052	2.17%	10.61%	0.23%
Total	\$601,371	100.00%		10.48%

CONCLUSION

34. The WACC for the Company as determined by and recommended in the Study is 10.48%. The Company is requesting that this be used as the Rate of Return on Rate Base for the purpose of setting electricity prices.

Dated this 6th day of May, 2009

Paper prepared by:



Peter W.B. Williams
Managing Director
The Barbados Light & Power Company Limited

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MEMORANDUM ON REVENUE REQUIREMENT

- 1. The revenue requirement is the total amount which must be billed and collected in rates from utility customers for the utility to recover its costs and earn a fair and reasonable return. The Company's revenue requirement has been developed with the intent to provide an opportunity to recover its prudently incurred costs for providing utility services and to earn an appropriate return on invested capital, including a fair return on equity. The revenue requirement has been determined based on the following rate-making formula and its components:

Rate Base

x	Allowed Rate of Return	
=	Operating Income (Required Return)	
+	Operating Expenses, Depreciation and Taxes	=
=	Revenue Requirement	

- 2. The Company's determination of its revenue requirement, based on the 2008 test year, is set forth in Schedule G-1
 - Rate base is calculated as shown in Schedule C-1 and is discussed and described in the "Memorandum on Rate Base." The proposed rate base is \$ 544,198,726.
 - The Company's requested overall rate of return of 10.48% is calculated as shown in Schedule F. An overview of its components is given in the "Memorandum on Rate of Return," and also addressed in the affidavit of Robert Camfield in support of this application.
 - Operating income of \$57,032,027 is calculated as shown in Schedule G-1, and corresponds with the amount of operating income set forth in Schedule D-1, in the adjusted test year income statement column for the revenue requirement increase.
 - Test year operating expenses, depreciation and taxes total \$440,973,146 an overview of which is given in the "Memorandum on Income Statement" and shown in Schedule D-1.

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3. Adjustments to the test year income statement to reflect the increase in revenue requirement and related charge in income taxes are set forth in Schedule G-1.
4. Test year revenues on existing rates of \$474,016,811 are set forth in Schedule D-1. The revenue requirement of \$502,238,415 and the resulting revenue requirement deficiency, which is \$28,221,603, are both set forth in Schedule G-1.
5. This Memorandum and related revenue requirement schedule may contain rounding differences.

Dated this 6th day of May, 2009

Paper prepared by:



Hutson Best
Chief Financial Officer
The Barbados Light & Power Company Limited

G-1

THE BARBADOS LIGHT & POWER COMPANY LIMITED
G-1 Statement of Revenue Requirements

	Ref	\$
Rate Base	C-1	544,198,726
Proposed Rate of Return (ROR)	F-1	10.48%
Operating Income required		<u>57,032,027</u>
Operating Expenses, Depreciation & Taxes	D-1	<u>445,206,388</u>
Total Revenue Required	D-1	502,238,415
Current revenue	D-1	474,016,811
Requirement deficiency grossed up for taxes	D-1	<u><u>28,221,603</u></u>

<u>Current rate of return</u>		
Rate Base		544,198,726
Current operating income		33,043,664
Current rate of return		6.07%

Current Operating Income	D-1	33,043,664
Required Operating Income	D-1	57,032,027
Additional revenue required before tax		<u><u>23,988,362</u></u>

<u>Proof</u>		
Additional revenue required		\$ 23,988,362
Less income tax @ 15%		4,233,249
Net operating income deficiency		<u><u>23,988,362</u></u>
% Increase in Revenue Requirement		5.95%

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MEMORANDUM ON SALES PROJECTIONS

SALES FORECAST FOR 2009 TO 2013

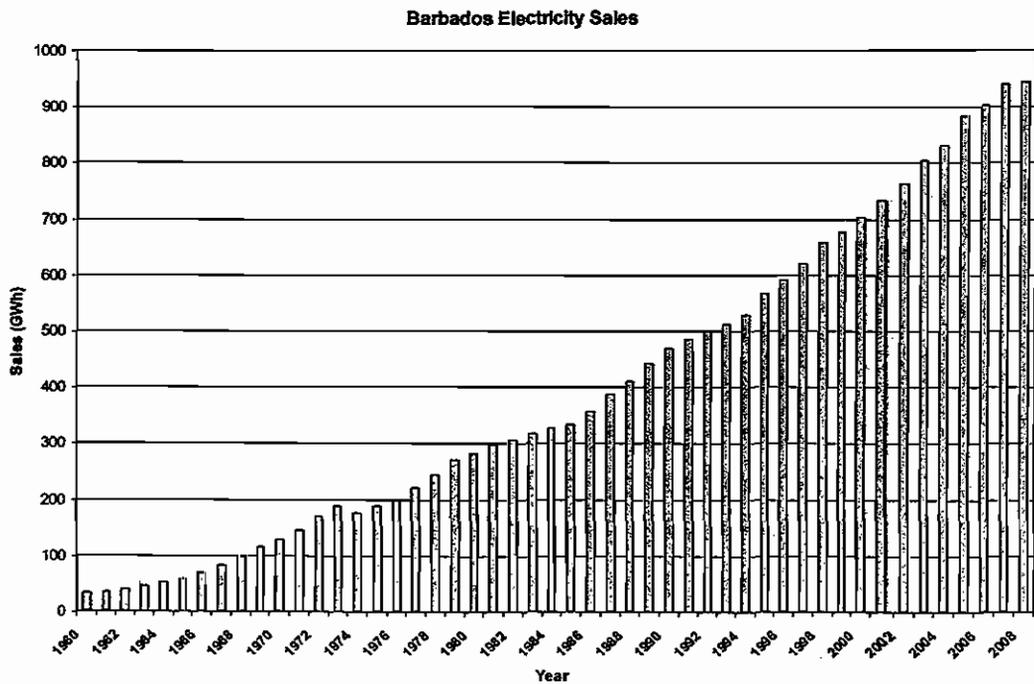
1. This memorandum sets out the sales projections for the period 2009 to 2013, the period during which the proposed tariffs will apply.

HISTORICAL ELECTRICITY SALES

Sales Growth - 1960 to 2008

2. Electricity sales have grown steadily over the years as Barbados has become more developed. Figure 1 shows electricity sales in gigawatt hours (GWh) for every year since 1960.

Figure 1.



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FORECASTING METHODOLOGIES

3. The Company has used three forecasting methods in developing the electricity sales projections for the period 2009 to 2013.
 - An econometric model that uses historical billed sales. Forecast estimates are obtained for the four main tariff groups namely Domestic Service, General Service, Secondary Voltage Power and Large Power. These are combined to derive an aggregated forecast.
 - An econometric model that uses historical net generation data. The resulting estimates for net generation are then converted to overall sales and the relationship by tariff for Model 1 is then used to project sales for the different tariffs.
 - A simple trend analysis of historical electricity sales from 1960 to 2008, which is extrapolated for the future period 2009 to 2013.
4. Using information from the foregoing methodologies and incorporating information from Government sources and agencies, the Central Bank of Barbados and property developers among others a projection is made for the sales that the Company considers to be reasonable.

THE ECONOMETRIC MODEL**Econometric Model - Forecast Drivers**

5. The sales forecast is developed by analyzing and modelling the relationship between energy sales and the predictors of future sales. These predictors are referred to as forecast drivers. Economic trends as measured by Gross Domestic Product (GDP) are utilised as the key driver for future electricity consumption. Assumptions on the future growth of GDP for 2009 and 2010 were obtained from the Research Department of the Central Bank of Barbados.

Econometric Model

6. Two dynamic single-equation Autoregressive Distributive Lag (ARDL) models that estimate the dynamic relation between current and past electricity data at

different lag intervals and the current and historical values of GDP are used to forecast electricity sales for the individual tariff groups. One of the equations (for Model 1) uses current and historical electricity sales for each individual tariff group, while the second (for Model 2) uses the current and past net generation data. The econometric models estimated are as follows:

$$\text{Model (1)} \quad \Delta S_{it} = \alpha_{ij} + \beta_{ij} \Delta S_{i,t-j} + \gamma_{ij} \Delta GDP_{i,t-j} + v_{ij}$$

$$\text{Model (2)} \quad \Delta S_{it} = \alpha_{ij} + \beta_{ij} \Delta S_{i,t-j} + \gamma_{ij} \Delta NG_{i,t-j} + v_{ij}$$

$$\text{where } \Delta NG_{it} = \alpha_{ij} + \beta_{ij} \Delta NG_{i,t-j} + \gamma_{ij} \Delta GDP_{i,t-j} + v_{ij}$$

where Δ is the first difference operator, S is electricity sales, GDP is real gross domestic product, NG is net generation, i is the individual sector, j is the number of lags (one to five for S and zero to five for GDP and NG), α , β , and γ are parameters to be estimated and v is assumed to take the classical properties of 'white noise' error terms.

Forecast

7. The econometric modelling procedure outlined above was employed to forecast electricity sales from 2009 through to 2013. The estimates for the period 2009 through to 2013 were obtained for Model 1 utilising billed sales up to 2008, for Model 2 using net generation up to 2008, historical rates of growth of GDP and estimates of GDP growth through to 2013.
8. The GDP growth assumptions employed in the modelling over the forecast period are presented in Table 1. Estimates were obtained from the Central Bank of Barbados through to 2011. GDP growth after 2011 was estimated.

Table 1

Forecast Year	GDP Growth
2009	-2.1
2010	1.0
2011	2.1
2012	2.3
2013	2.6

9. The results from the two econometric models, Model 1 and Model 2, are shown in Table 2.

Table 2

Forecast Year	Projected Sales Growth % Model 1 (using sales by tariff)	Projected Sales Growth % Model 2 (using net generation)
2009	0.8	0.6
2010	-0.1	0.8
2011	0.8	1.4
2012	1.1	0.6
2013	0.9	1.0

TREND ANALYSIS

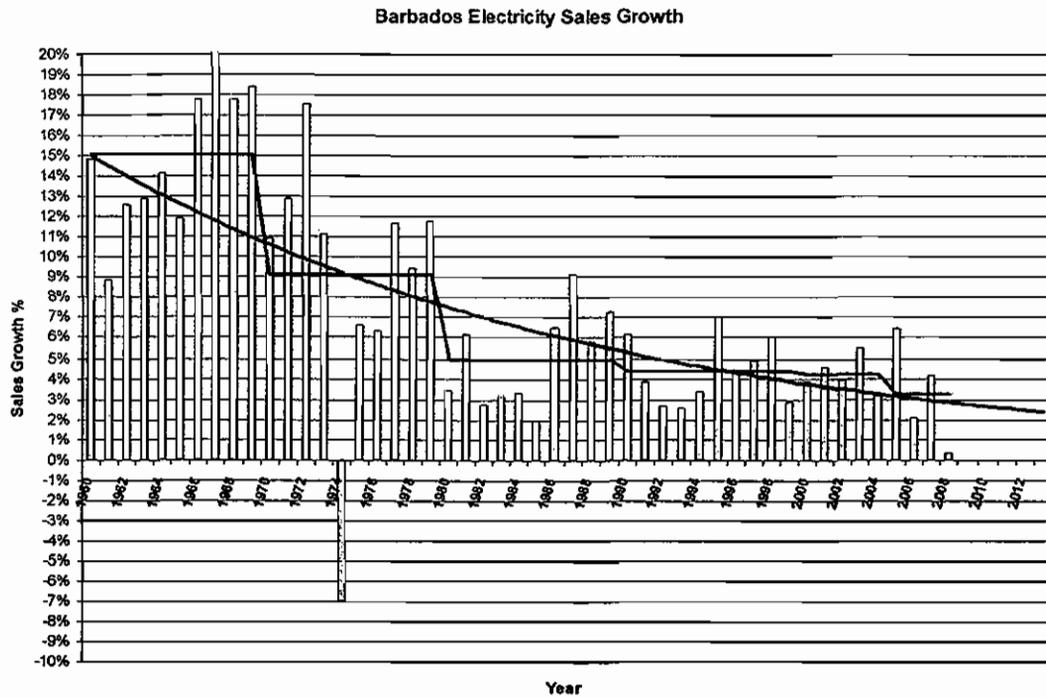
10. While sales have increased substantially since 1960, sales growth has declined during this same period as shown in Table 3. During the years when fewer persons had electricity and the Company's distribution system was being expanded, annual growth was high. Today, electricity service is universally available and the growth in sales has diminished.

Table 3

Period	Average Annual Growth Rate
1960 to 1969	15.0%
1970 to 1979	9.1%
1980 to 1989	4.9%
1990 to 1999	4.4%
2000 to 2004	4.2%
2005 to 2008	3.3%

11. Figure 2 shows the annual growth in electricity sales and the overall trend.

Figure 2



12. Looking at the trend suggests that electricity sales growth in the period 2009 to 2013 is likely to be in the region of 2.5% to 3.0%.

CONCLUSION - SALES PROJECTIONS (2009 to 2013)

13. The Company continues to strive to improve the accuracy of its forecasting process by monitoring trends on forecasting approaches, and tracking developments that may affect the forecast. Information available that may impact on customer’s energy usage is incorporated to determine the most plausible estimate of future electricity sales.
14. The present economic uncertainty throughout the world presents challenges with regard to preparing a robust forecast.

AW

15. The models used in the analysis suggest different growth rates.
- The econometric model, Model 1, forecasts growth ranging from -0.1% to 1.0%, while Model 2 forecasts growth ranging from 0.6% to 1.4%
 - Simple trend analysis suggests growth ranging from 2.5% to 3.0%.
16. Sales growth in 2008 over 2007 was a very modest 0.3%.
17. After taking all of these factors into consideration, the Company thought it prudent for the purpose of the Application to adopt more optimistic projections than those which some of the data suggests. The Company therefore proposes a sales growth rates of 2.0% for the first two years of the projected period and growth rates of 2.5% in latter three years. This is summarised in Table 4.

Table 4: Sales Projections 2009 to 2013

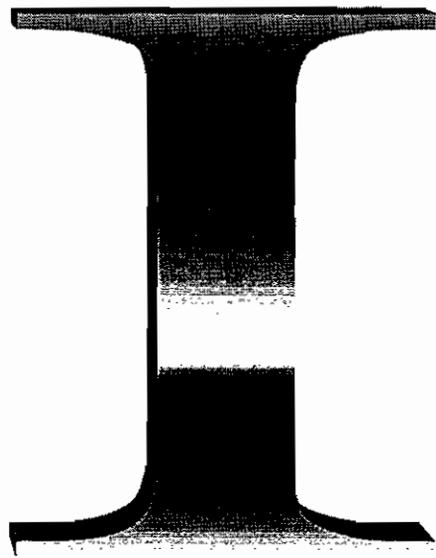
Forecast Year	Projected Sales Growth %	Projected Sales MWh
2009	2.0	962,916
2010	2.0	982,175
2011	2.5	1,006,729
2012	2.5	1,031,897
2013	2.5	1,057,695

Dated this 6th day of May, 2009

Paper prepared by:



Stephen Worme
Chief Marketing Officer
The Barbados Light & Power Co. Ltd.



MEMORANDUM ON CAPITAL EXPANSION 2009 - 2013

OVERVIEW OF CURRENT SITUATION

1. The Barbados Light & Power Company Limited ("the Company") as at December 31, 2008 served a total of 118,798 customers with a peak demand of 164MW and had an installed capacity of 239.1 MW of generating plant. Power is transmitted from the generating stations at 69,000 volts and 24,000 volts to 16 substations across the island (See Appendix 1).

Existing Generating Plant

2. The Company operates a variety of generating plant including steam turbines, low speed diesel engines and gas turbines at three generating stations (Spring Garden, Seawell and Garrison). The base load steam and low speed diesel units operate on residual fuel oil, (Heavy Fuel Oil (HFO), or Bunker 'C'). The gas turbines operate on diesel or aviation fuel (Jet-A1). Some natural gas is available locally and is burnt in the steam boilers, but this accounted for less than 1% of the fuel used in 2008. Table 1 provides details of the Company's total installed capacity.
3. The Company's oldest low speed diesel (LSD) generating units were installed in 1982. The maintenance contractor and parts supplier, Burmeister & Wain Scandinavian Contractors, (BWSC) has informed the Company that these generating units have achieved among the highest number of running hours for this type of plant anywhere in the world.

Retirement of Generating Plant

4. Between 1911 and 2000 the Company retired approximately 17MW of generating capacity. Between 2001 and 2008 approximately 50MW was retired. Prior to 2000, installation of new generating capacity was driven primarily by the increase in electricity sales and peak demand. Since 2000, the replacement of generating plant which was retired has figured prominently



in the Company's capital investment plans, resulting in the installation in 2005 of two 30MW low speed diesel generators.

5. The steam turbine generators, which were installed in 1976, are now approaching the end of their economic life. They are scheduled for retirement in 2012. This retirement will result in a reduction of approximately 40 MW of HFO burning plant in the forecast period.

Table 1. Installed Generating Capacity - 2008

Generating Unit	Maximum Continuous Rating	Year Installed	Fuel Type
MW			
<u>Steam Turbines (Spring Garden)</u>			
GEC Unit S1	20.0	1976	HFO
GEC Unit S2	20.0	1976	HFO
Sub-Total		40.0	
<u>Low Speed Diesels (Spring Garden)</u>			
MAN B&W Unit D10	12.5	1982	HFO
MAN B&W Unit D11	12.5	1982	HFO
MAN B&W Unit D12	12.5	1987	HFO
MAN B&W Unit D13	12.5	1990	HFO
Waste Heat Turbine Unit WH01	1.5	1985	Note 1.
Low Speed Diesel D14	30.0	2005	HFO
Low Speed Diesel D15	30.0	2005	HFO
Waste Heat Turbine Unit WH02	2.0	2005	Note 1.
Sub-Total		113.5	
<u>Gas Turbines (Garrison)</u>			
ABB Stal Unit GT02 (Garrison)	13.0	1990	Diesel
		13.0	
<u>Gas Turbines (Seawell)</u>			
ABB Stal Unit GT03 (Seawell)	13.0	1996	Diesel
ABB Stal Unit GT04 (Seawell)	20.0	1999	Jet A1
ABB Stal Unit GT05 (Seawell)	20.0	2001	Jet A1
ABB Stal Unit GT06 (Seawell)	20.0	2002	Jet A1
Sub-Total		73.0	
TOTAL INSTALLED CAPACITY		239.1	

Notes

- 1 Unit uses heat recovered from exhaust gases and therefore requires no additional fuel.

Fuel

6. Since its inception the Company has used liquid fuel for the generation of electricity. The installation of the low speed diesels has mitigated the rise in the Fuel Clause Adjustment to our customers because of their high efficiency and ability to burn the least expensive fuel available to us. Oil prices rose to an all time high in 2008, but recently due to recessionary economic conditions worldwide, the price of oil has fallen to levels not seen since 2004. However due to the volatility of oil prices and long-term energy concerns, it is critical that an alternative fuel source be introduced to reduce our total reliance on oil. The effects of burning fossil fuels on the environment are also a cause for concern worldwide and the Company wishes to place greater emphasis on the use of 'cleaner' technologies. Natural Gas is the 'cleanest' of the fossil fuels available to us and initiatives have been proposed to import natural gas from Trinidad & Tobago into Barbados.

Renewable Energy

7. The Company recognizes the importance of developing the use of renewable energy on the island and is therefore supportive of initiatives to encourage these potential sources of 'clean energy' into the mix.
8. The Company has submitted a planning application to the Town & Country Development Planning Office (TCDPO) for the development of a 10MW wind farm at Lamberts, St. Lucy. The Company is awaiting a decision on its application.
9. The Company became a member of the Solar Electric Power Association in 1995 and has installed two 2,000 watt Solar Photovoltaic (PV) grid tied units, one at its Seawell substation in January 2000, and the other at the Future Centre Trust in St. Thomas in June of 2005. These installations have worked well over the years.
10. It should be noted however that Solar PV and wind turbines do not provide firm capacity and therefore need to be supported by conventional generating plant



Existing Transmission & Distribution (T&D) Network

11. With the continuing increase in the cost of energy, the efficient transmission and distribution of electricity remains a high priority for the Company. At the end of 2008 the Company's system losses stood at 6.3%, which are among the lowest in the region and comparable to utilities in North America and Europe.
12. The Company has embarked on a program to move its major transmission lines underground and to enhance the reliability of its substations by placing exposed switchgear indoors. Provision is also being made to have dual transformers installed at certain substations to further enhance reliability.
13. The Company currently operates an underground double circuit transmission line which links the Spring Garden and Seawell generating plants. Work is progressing on the installation of another underground double circuit transmission line which will ultimately link the proposed Trens power station to Spring Garden and Seawell.

Supervisory Control And Data Acquisition (SCADA)

14. The Company installed its first fully computerized SCADA system in 1984. With this system, the Company is able to monitor and control its major substations and monitor the status of its generating plant. The system was upgraded in 1995 and later replaced with a significantly enhanced system in 2003. In addition to monitoring and controlling all of the substations, the current SCADA system can provide a graphical indication of areas affected by feeder outages. Multiple events can now be analyzed, and power quality information at the feeder level can be retrieved. Through this SCADA system, the Company has introduced remotely controllable devices to the distribution network, affording the Company the ability to better sectionalize the network and isolate areas affected by faults.

System Protection

15. Protective relays and circuit breakers are the key components of an electric system protection. The main function of this system protection is to cause the prompt removal from service of any element of a power system that has experienced a short circuit or is operating in an abnormal manner and which, if allowed to continue, would cause damage or otherwise interfere with the normal operation of the system.

16. The Company has started to upgrade its system protection with the introduction of modern high speed digital relays and fiber optic communication on major transmission lines. The introduction of this technology will enhance the protection currently in use on 'ringed' feeds or dual sources of power to major substations. The objective is to reach the stage where a single outage on a transmission line should have no effect on the substation and the customers connected to it.

Demand Side Management- Energy efficiency

17. In a report prepared in 2000, BC Hydro International stated that several Demand Side Management (DSM) programmes if properly implemented, could provide overall benefits to Barbados. The Company is still very interested in continuing the work on this initiative.

GENERATION EXPANSION

Planning Criteria

18. The goal of the Company's expansion plan is to determine the least-cost solution required to provide electricity service which meets the specified levels of reliability. The Company's aim is to achieve the right balance between cost and system reliability. A more reliable system can be achieved with more plant but at increased cost. The Company uses loss-of-load probability (LoLP) as its main planning criteria for generation reliability.



19. The need for new generating plant is based on maintaining an acceptable level of reliability and doing so at the least cost to the consumer. The following input data were used to determine the need for and type of new plant to be purchased:
- Target levels of system reliability.
 - Electricity sales projections.
 - Expected growth in peak demand.
 - System load factor.
 - The existing generating plant types and the options available for new plant (candidate plant).
 - Proposed retirement schedule for existing plant.
 - Availability, reliability, fuel type and efficiency of existing and candidate plant.
 - Estimated capital cost of candidate plant.
 - Operating and Maintenance (O&M) cost of existing and candidate plant.
 - Fuel price projections.
20. A measure of the reliability of a transmission system is its ability to satisfy the N – 1 criterion (that is, the system remains stable, and within continuous rating notwithstanding the outage of any one circuit).
21. As part of its planning process, the Company in 2004 retained PB Power Ltd., electrical utility consultants, based in the UK, to prepare a Generation expansion study (the 2005 Study) which would take account of the likely availability of large volumes of natural gas from Trinidad & Tobago and the power which would result from the wind power project. A copy of the 2005 Study was made available at the Depreciation Hearing held before the Fair Trading Commission in January 2009.
22. In July 2007 the Company instructed PB Power Ltd to update the 2005 Study to assist the Company in developing a generation and transmission expansion plan for the period 2008 - 2027 with the clear objective of achieving the dual goals of least-cost and target levels of system reliability (the 2008 Study). To achieve this, PB Power was required to update the

previous scenarios which were produced using (a) liquid fuel and (b) natural gas, as the base fuels. To each scenario, the options of wind and bagasse power were added individually and collectively. Finally all of the above scenarios were subjected to sensitivity analysis by varying the projected sales growth of the Company above and below the base case.

23. For the purposes of the 2008 Study, the key planning criteria were:
- A study horizon of 20 years with detailed network analysis for the first 10 years (2008 – 2017),
 - A generation reliability criteria of 1 day/year LoLP.
 - A maximum allowable individual generating unit size of 20% of the projected peak demand,
 - N -1 planning criteria for the transmission network to ensure full system operation following a loss of a cable or transformer,
 - Electricity sales growth scenarios of 2%, 4% and 6%.

Sales and Peak Demand Growth 1983 –2008

24. Between 1983 and 2008, sales of electricity increased by an average of 4.4 % per annum while peak demand increased by 4.1 %. The average annual growth rates in sales and peak demand over the last 5 years were 3.2 % and 3.0 % respectively as shown in the following table.

YEAR	SALES (GWh)	Sales GROWTH %	PEAK DEMAND MW	PEAK GROWTH %
1983	317.4	3.2%	59.7	0.3%
1984	327.9	3.3%	61.7	3.4%
1985	334.3	2.0%	64.2	4.1%
1986	356	6.5%	67.9	5.8%
1987	388.6	9.2%	73.8	8.7%
1988	411.1	5.8%	76.1	3.1%
1989	441	7.3%	83.9	10.2%

YEAR	SALES (GWh)	Sales GROWTH %	PEAK DEMAND MW	PEAK GROWTH %
1990	468	6.1%	87.2	3.9%
1991	486.1	3.9%	89.9	3.1%
1992	499.1	2.7%	91.5	1.8%
1993	511.9	2.6%	93.9	2.6%
1994	529.1	3.4%	97.6	3.9%
1995	566.3	7.0%	104.2	6.8%
1996	591.5	4.4%	109.8	5.4%
1997	620.5	4.9%	113.3	3.2%
1998	657.8	6.0%	117.7	3.9%
1999	676.8	2.9%	123.2	4.7%
2000	704	4.0%	124.85	1.3%
2001	737.1	4.7%	130.5	4.5%
2002	766.1	3.9%	134.7	3.2%
2003	805.9	5.2%	141.6	5.1%
2004	831.3	3.2%	143	1.0%
2005	884.7	6.4%	154.2	7.8%
2006	903.4	2.1%	157	1.8%
2007	940.8	4.1%	162.4	3.4%
2008	944.0	0.3%	164.0	1.0 %
Average 1983 – 2008		4.4%		4.1%
Average 2004 - 2008		3.2%		3.0%

Sales Growth Projections

25. For the purposes of the expansion study the Company selected three (3) sales growth scenarios, namely:
- (a) A base case scenario of 4% annually;
 - (b) High growth scenario of 6% annually;
 - (c) Low growth scenario of 2% annually.
26. These scenarios are shown in Figure 1 below:

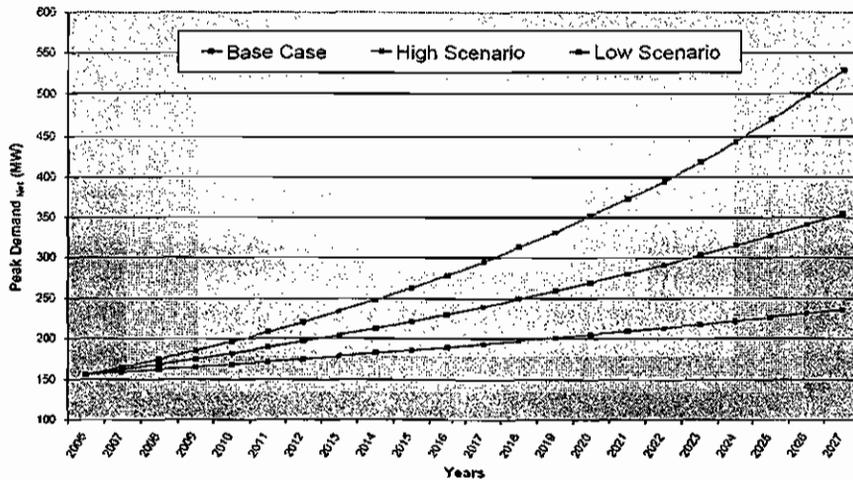


Figure 1. Comparison of Growth Scenarios

27. Uncertainty over the future of oil prices and the projected slowdown in world economies suggest that the most likely near term scenario is one of low load growth. Further analysis as detailed in the Memorandum on Sales Projection at Schedule H also supports this lower projected growth. The five year expansion plan presented here is therefore based on the low load growth scenario.

ENERGY OPTIONS**Biomass**

28. The Government of Barbados had established a project unit that was working on the development of a biomass (sugar cane bagasse) fired power generating plant that was expected to produce between 15MW and 20MW of firm capacity for export to the grid. The Cane Industry Restructuring Project (CIRP) team initially advised the Company that this project would be operational by 2010. By letter dated May 5, 2008, the Board of the CIRP advised the Company that the project has been put on hold until further notice. Since this plant, if constructed, could be considered as 'firm capacity' we have developed scenarios in the 2008 Study which included this option. However, since there is currently considerable uncertainty surrounding the project and the timing of the commissioning of the plant, it has not been included in the expansion plan.

Wind Power

29. The Company has completed most of the preparatory work for the development of a 10MW wind farm to be located at Lamberts, St. Lucy. Based on the studies conducted, the wind farm will, on average, generate electricity at around 30% of its rated capacity. This amounts to approximately 28 million kWhr per annum or approximately 3% of our sales in 2008. Because of the nature of the wind, it is not practical to characterize the unit as firm capacity. Therefore while its energy contribution is taken into account, its presence does not offset the need for additional firm capacity but merely offsets fuel cost.

30. A planning application for this project was submitted to the TCDPO on July 11, 2004. The environmental impact assessment of the project was submitted to the TCDPO on April 20, 2007. Correspondence was received from the TCDPO in December of 2008 requesting that the Company hold a third round of public consultation meetings for the project. The Company has requested a meeting with TCDPO to discuss that department's requirements for this third round of public consultation.

Solar PV

31. Barbados is blessed with an abundance of sunshine throughout the year. This has resulted in a very successful solar water heating industry. It is estimated that there are over 30,000 solar water heating systems installed across the island. Solar PV as a source of electricity is a proven technology. Unfortunately, the cost of solar PV equipment has for many years restricted the widespread adoption of this form of electricity production. Recent advances in technology have moderated this trend making Solar PV a more attractive alternative in some instances.

32. Recent estimates suggest that without subsidies or environmental credits the life-cycle cost of electricity from grid tied solar PV systems is around 2 to 3 times the retail rate for electricity.

Waste-to-Energy

33. Waste-to-Energy (WTE) is technically proven and should be considered in the energy mix for Barbados. On its own, WTE is not a least cost option for the production of electricity. However the production of electricity as a by-product of a waste treatment facility can be economic if a "tipping fee" is included to cover the cost of garbage collection and incineration. The Company would be supportive of any Government effort to introduce this form of energy production.

Landfill Gas

34. Some 10 years ago, the Company offered to build a 1.5 MW landfill gas-to-energy plant at the Mangrove Landfill to capture the methane gas that is produced and vented daily. Nothing has come of this initiative but the Company is still willing to discuss this opportunity.

Other

35. The Company is keeping abreast of other options e.g. wave, tidal, ocean current technologies and Ocean Thermal Energy Conversion (OTEC), which



are now being tested for the production of electricity, but they are, so far, not commercially viable or are now being tested outside the research facilities.

GENERATION EXPANSION PLAN 2009 - 2013

Liquid Fuel Plan

36. The 2008 Study identified the least cost expansion plan for a 2% growth under a liquid fuel scenario, as shown in Table 2 below.

Table 2: Original Liquid Fuel Expansion Plan

	2007	2008	2009	2010	2011	2012	2013
Sales (GWh)	921	939	958	977	997	1017	1037
Demand (MW _{Net})	159	162	165	168	172	175	179
New Capacity	-	-	GT07 (20MW)	-	D16 (30MW)	-	D17 (30MW)
Retirements	-	-	-	-	-	S1 & S2 (40MW)	-

37. In the 2008 Study, the load demand forecast was calculated using a 2% sales growth and making the following assumptions:
- End of year sales, 2007 – 921 GWh
 - System losses – 7.3%
 - Load factor – 71.5%
38. Since the commencement of the 2008 Study in 2007, the following changes have occurred:
- (i) Actual sales for 2007 were 940.8 GWh, exceeding the forecast value by 2%.
 - (ii) 2008 year-to-date sales growth was 0.3%, and it is projected that growth in 2009 will be 2.0%
 - (iii) GT07 was postponed because of the uncertainty surrounding the availability of natural gas and the slowdown in sales observed.

39. Additionally, a review of the average system losses and load factor over the past five years, suggest that these have improved as follows:
- o Avg. System losses (2004 to 2008) – 6.7%
 - o Avg. Load factor (2004 to 2008) – 73.7%
40. The system expansion plan for the liquid fuel 2% growth case was therefore remodeled by the Company using the most recent sales projections and updated five-year averages for system losses and load factor.
41. The revised least cost expansion plan for the liquid fuel scenario is shown in Table 3 as Option 1. In essence this option recommends the installation of 1x30MW LSD in 2012 and a similar unit in 2013. However, the size of these units and their limited operating experience on fuels other than HFO presents a significant risk in light of the current economic climate and the uncertainty over future oil prices. Efforts to bring natural gas to Barbados in sufficient quantities to be used for electricity generation are still ongoing. It was therefore considered prudent to consider other more flexible options. A second risk mitigation option was therefore evaluated, replacing the 30MW units with 16MW medium speed diesel (MSD) units to hedge against the possibility of lower than anticipated sales and to leave the window of opportunity open for burning natural gas if it became available after 2012. This is represented as Option 2 in Table 3.

Table 3: Revised Liquid Fuel Expansion Options

Option	2012	2013	2014	2015	Installed (MW)	Δ NPV
1	1x 30MW LSD	1x 30MW LSD	-	-	60	100% (Least Cost)
2	1x 16MW MSD	2x 16MW MSD	-	1x 16MW MSD	64	101.82%

42. Table 4 details the proposed liquid fuel expansion plan.



Table 4: Proposed Liquid Fuel Expansion Plan

	2007	2008	2009	2010	2011	2012	2013
Sales (GWh)	940.8	944	963	982	1002	1022	1042
Demand (MW _{Net})	159	164	167	170	174	177	181
New Capacity	-	-	-	-	-	D16 16MW	D17,D18 32MW
Retirements	-	-	-	-	-	S1& S2 (40MW)	

43. Medium speed diesel units are capable of operating on either HFO or natural gas in dual-fired configuration. LSD units can also be configured to run dual fired on natural gas. However the cost of conversion from HFO to natural gas is higher and there is very little operating experience or track record on which to evaluate their historical performance.
44. Option 2 increases the Net Present Value (NPV) of the 20-year expansion program by 1.8% over the least-cost option 1, but leaves the opportunity open for consuming natural gas if it becomes available after 2012 and defers the investment for 16MW of capacity from 2013 to 2015. If the projected demand is not realized, it would also be possible to delay the installation of this unit without adversely affecting the overall system reliability.
45. Option 2 has therefore been used in the preparation of the five-year capital expansion plan for the liquid fuel scenario.

MAJOR CAPITAL PROJECTS – GENERATION (Schedule I -1)

Ash Handling

46. In 2008 the Company received certification to ISO 9001 – 2000 Quality Standard and is currently seeking certification to establish and maintain a

management system that satisfies ISO 14001- 2004 Environmental Standard and BS OHSAS 18001:2007 Occupational Health & Safety Management Standard. This project is required to upgrade the existing ash handling system at Spring Garden to reduce the negative effects of residual ash generated as a result of fuel burnt in the new LSD station.

47. Projected expenditure – Ash Handling
- | | |
|------|-----------|
| 2009 | \$500,000 |
|------|-----------|

Fire Protection Systems

48. The fuel storage tanks at the Seawell Generating site are not equipped with adequate fire protection systems. The Company proposes to install an additional fire protection system to satisfy this requirement.

49. Projected expenditures – Fire Protection Systems:
- | | |
|------|-------------|
| 2009 | \$1,000,000 |
|------|-------------|

Oil Spill Response Equipment

50. The presence of a natural watercourse on the Spring Garden generating site, coupled with the fact that this watercourse drains directly onto the nearby beach, necessitates the installation of adequate equipment to contain and remove any oil spills that may occur on that site.

51. Projected expenditure - Oil Spill Response Equipment
- | | |
|------|-----------|
| 2009 | \$100,000 |
|------|-----------|

Environmental Compliance

52. The proximity of the Spring Garden generating plant to the pristine west coast beaches requires the Company to ensure that systems are in place to prevent or control the discharge of pollutants into the marine environment. To ensure that the Company's operations remain in compliance with the standards outlined in the Marine Pollution Control Act, the Company will be installing

equipment which is designed to remove oil and several other pollutants from water discharged during the normal process of generating electricity.

53. Projected expenditure - Environmental Compliance Spring Garden
- | | |
|------|-----------|
| 2009 | \$227,000 |
|------|-----------|

Purge Air System for Gas Turbines

54. Operation of gas turbines on liquid fuel results in the accumulation of residual fuel in their burner systems. This results in choking at the burner tips which leads to uneven temperatures in the combustion chambers. The Company proposes to install the appropriate purge systems on the gas turbines at Seawell to mitigate this occurrence.

55. Projected expenditure - Purge System
- | | |
|------|-----------|
| 2009 | \$812,100 |
|------|-----------|

Alternative Cooling Water System

56. The Company proposes to install in 2009 an alternative cooling water system for the new LSD station. The existing arrangement for cooling water does not incorporate any level of redundancy; therefore problems on the existing cooling water system would render both units inoperable while the problem is rectified.

57. Projected expenditures – Alternative Cooling Water System:
- | | |
|------|-------------|
| 2009 | \$1,500,000 |
|------|-------------|

10MW Wind Farm at Lamberts

58. A key strategic priority of the Company is to secure the country's energy supply. To this end the Company shall intensify its efforts to:

1. reduce the level of dependence on a single type of fuel;
2. incorporate risk management and portfolio planning techniques in its planning process; and

3. provide a framework that facilitates integration of distributed generation into the grid.

59. In keeping with this strategic priority, the Company continues to work towards the establishment of a wind farm at Lamberts in St. Lucy. If a favourable decision is rendered on the Company's application for a wind farm, the Company intends to commence work on this project in 2010. Based on information currently available on similar units, it is expected that the units would be available for commissioning in 2011. This 10MW wind farm is expected to produce approximately 28 million KWhrs per annum. As stated earlier it does not provide firm capacity but could result in an annual saving of imported fuel of approximately Bds\$5.6 million based on oil prices in May 2008.

60. Projected Expenditures - 10MW Wind Farm at Lamberts:

2010	\$ 16,717,700
2011	\$ 16,717,700

Diesel Generating Plant

61. The expansion plan calls for the commissioning of one 16 MW Diesel generating plant (Unit D16) in 2012 if the Company is to maintain the level of reliability already established. It is therefore expected that the tendering process for the purchase of this unit will be completed in 2009 and a contract awarded for the installation of the unit, provided the Company is able to obtain financing for the project.

62. The existing steam turbine generating units are scheduled to be retired at the end of 2012. An economic assessment performed by PB Power has demonstrated that this is the optimum time for retiring the units. This will result in a loss of 40MW of base load generating capacity. To cater to this planned loss as well as the projected load, and to maintain the established level of reliability, the expansion plan calls for an additional two (2) 16MW Diesel generating units (D17 and D18) in 2013.

63. Projected Expenditures – Diesel Generating Plant:

2010	\$11,940,000
2011	\$50,148,000
2012	\$62,088,000
2013	\$19,104,000

64. The Company will keep under constant review its load growth projections and energy supply options to determine the timing of the installation of additional diesel generating units. If nothing has changed significantly, work would commence on preparation of the next unit (D19) which would be required in 2015. This additional generation would result in the following additional expenditure in 2013, with additional expenditure beyond the forecast period.

65. Projected expenditure:

2013	\$11,940,000
------	--------------

Trents Site Development

66. The new generating units proposed will be installed at our Trents site in St. Lucy. Work commenced in 2008 to prepare this site to accept new generating plant. This work was suspended but will resume early in 2011 to ensure that the site is ready for the first unit.

67. Projected Expenditures – Trents Site Development:

2011	\$12,339,000
2012	\$4,441,700

Fuel Pipeline

68. The projected generation expansion is based on the installation of diesel generating plant capable of burning liquid fuel as well as natural gas if and when it arrives. Until the natural gas becomes available, it will be necessary to make liquid fuel available at the Trents site. It would be uneconomic to truck fuel across the island to supply these units. The Company therefore plans to establish a bunkering facility on a portion of its property at Checker Hall, St. Lucy and to install a pipeline from there to Trents.

69. Projected Expenditures – Fuel Pipeline:

2011	\$2,000,000
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TRANSMISSION AND DISTRIBUTION EXPANSION

Schedule I- 2 details the capital expansion program for T&D.

Overview

70. The Company required the consulting firm PB Power to examine the transmission infrastructure across the island, with particular emphasis on the central and northern areas in light of the projected growth, the possible location of that growth, and the decision to establish a new generating site in the north of the island. This new site would quickly become our main generating site if imported natural gas becomes available. The transmission network will be designed to be sufficiently resilient to withstand an extended outage on any one line.
71. The establishment of a major generating site at Trens in St. Lucy requires the installation of significant Transmission and Substation infrastructure in the north of the island, so as to ensure that the power generated there could be adequately and reliably dispatched.
72. In the interest of enhanced reliability, security and reduced maintenance costs, the Company has decided that all new transmission lines would be placed underground.
73. Work commenced on a 132 kV double circuit underground transmission line from our St. Thomas substation located opposite the St. Thomas Church to Trens in St. Lucy in 2006 and will be completed in 2009.
74. Initially, the transmission lines will be operated at 24kV. As more generation is added at Trens these will be operated at 132kV. It was deemed appropriate to install cables suitable for operation at the higher voltage at the outset

because of the difficulty and expense associated with installing underground cables and obtaining adequate rights of ways.

75. To cater to the projected growth in the north of the island, it was necessary to build a substation at Upper Carlton in St. James (Carlton) and upgrade the existing substation at Maynards in St. Peter (North). 24kV transmission cables linking St.Thomas to Carlton and North substations have been commissioned.

St. Thomas to Trents 132kV

76. As stated earlier, the establishment of a generating site in the north of the island at Trents, St. Lucy, necessitated the introduction of significant transmission facilities to link this new generation to the existing plant. This will ultimately be achieved by constructing enhanced transmission facilities from the Warrens substation to St. Thomas and continuing on to Trents. Since it is envisaged that the generation will be installed over a period of several years, it was determined that providing enhanced transmission capabilities between St. Thomas and Trents would be adequate initially. The existing transmission line from Spring Garden to St. Thomas would provide the necessary link to the existing plant. Work on the 132kV transmission line between St.Thomas and Trents commenced in 2006. It is envisaged that the majority of this work will be completed in 2009.

77. Projected expenditures – St Thomas to Trents 132kV:

2009	\$15,523,000
2010	\$254,000
2011	\$2,000,000

Other Transmission Circuits

78. The Company is committed to placing new transmission circuits underground in an effort to improve their overall reliability. Furthermore, every effort will be made to replace existing overhead transmission lines wherever practical. To this end the Company will be replacing the existing Garrison to Belmont overhead line with an underground cable between 2011 and 2012. Most of

the ductwork for this circuit is already in place. The existing Marhill St. to Belmont overhead Transmission line will also be replaced by an underground circuit in 2012. Most of the ductwork for this project is already in place. This work should enhance the reliability of the supply to the City and its environs.

79. As additional generation is added at Trents, it will be necessary to establish a link between the Warrens substation and the St. Thomas substation. Based on current projections, it is envisaged that this work will commence in 2013. To enhance the reliability of the Carlton Substation, the Company proposes to upgrade the existing North to St. Thomas overhead line and route it through Carlton. This work is scheduled for completion in 2011. The proposed wind farm is scheduled for commissioning in 2011. Energy from these units will be fed into the grid at 24kV, requiring the construction of a 24kV transmission line from Lamberts to Trents. This work is scheduled to commence in 2010 and be completed in 2011.
80. Work on the high voltage cables needed to connect the second 69kV transformer at Spring Garden is scheduled for completion in 2009. The existing Regency Park to Wotton transmission line will also be replaced by an Underground circuit in 2011.
81. Projected Expenditures – Other Transmission Circuits:
- | | |
|------|-------------|
| 2009 | \$203,000 |
| 2010 | \$200,000 |
| 2011 | \$2,150,000 |
| 2012 | \$2,150,000 |
| 2013 | \$1,160,000 |

Distribution Feeders

82. Over the period in review, the Company proposes to upgrade and enhance various sections of its Distribution network. A number of 11kv circuits will be connected to the substation at Carlton. A new 11kv feeder will be added to the Temple Yard Substation, St. Michael to enhance the supply of power to the Fontabelle area. The 11kv feeders currently supplying the North of the

island as well as those supplying Bridgetown and the Harbour areas will be upgraded.

83. Projected Expenditures – Distribution Feeders:

2009	\$3,072,000
2010	\$1,000,000
2011	\$450,000
2012	\$450,000
2013	\$350,000

Distribution Routine Capital

84. This item caters to the routine expansion and enhancement of all aspects of the Distribution network. Some of the major areas covered here include:

- a. provision of service wire, meters and labour to provide new installations;
- b. installation of additional street lights for Government and individuals;
- c. relocation of poles, lines and stays and upgrading of the low tension network;
- d. replacement and upgrade of poles. Pole treatment and upgrade of the distribution feeders;
- e. purchase of distribution transformers; and
- f. purchase of replacement vehicles.

85. Projected Expenditures – Distribution Routine Capital:

2009	\$13,795,000
2010	\$ 13,545,000
2011	\$ 13,795,000
2012	\$ 13,945,000
2013	\$ 14,045,000

SUBSTATION EXPANSION

New Spring Garden Feeder

86. Tourism development located on the site formerly occupied by the Paradise Hotel will require the addition of a breaker and the creation of a new underground circuit from the Spring Garden site. The existing overhead circuit cannot adequately support the projected load of this establishment.

87.	Projected Expenditure – New Spring Garden Feeder	
	2009	\$100,000

Carlton Substation

88. To enhance the reliability of the Carlton Substation, the Company proposes to upgrade the existing North to St. Thomas overhead line and route it through Carlton. Since the existing transmission lines to Carlton are underground, it will be necessary to match the impedances of the overhead and underground circuits through the introduction of series reactors. This work is scheduled for completion in 2013.

89.	Projected Expenditure – Carlton Substation:	
	2013	\$1,585,000

Belmont Substation

90. Belmont substation provides a vital link between the City substations and the transmission network that runs from Seawell to Spring Garden. It is also used to transmit power from the gas turbine located at Garrison to the grid. This substation's 24kV structure is exposed to the elements and hence is very vulnerable to disruption during inclement weather making it less reliable than indoor switchgear. This substation is also more than 30 years old and it is almost impossible to source replacement parts for the existing indoor switchgear. A new indoor substation is required. Preparatory work on the construction of this substation will commence in 2010 and the substation will be commissioned in 2011, provided the Company is able to obtain financing for the project.

91. Projected Expenditures – Belmont Station:

2010	\$1,600,000
2011	\$800,000

Wotton Substation, Christ Church

92. Wotton substation was commissioned in 1984. The indoor switchgear there needs to be replaced. The Company proposes to build a new substation on the Wotton site which would be ready for commissioning in 2011. This is required to enhance the reliability of supply and to meet the demands of additional load in the areas serviced by that substation.

93. Projected Expenditures – Wotton Substation:

2010	\$600,000
2011	\$700,000

St. Thomas Substation

94. The installation of new generators at Trents will require the commissioning of the transmission lines linking Trents to St. Thomas. This will necessitate the installation of a terminating structure for the cables and the commissioning of two (2) 24kV circuit breakers. In preparation for additional generating capacity at Trents, Work on a 132 kV substation at St. Thomas should commence in 2013.

95. Projected Expenditure – St Thomas Substation:

2010	\$200,000
2013	\$4,000,000

Trents Substation, St. Lucy

96. The installation of the first generating unit at Trents in 2012 will require the construction of a 24kV substation to dispatch the power generated. As additional generation is installed at Trents, it will be necessary to construct a 132 kV substation to ensure that power can be dispatched from the site reliably. Work should start on this in 2013.

97. Projected Expenditures – Trents Substation:

2011	\$2,400,000
2012	\$1,000,000
2013	\$5,500,000

Other Substation Work

98. The Company proposes to install a new 24kV switchgear at its North substation to accommodate the enhancements required in the transmission network in that area. An additional 69kV breaker will be installed at Spring Garden to complete the installation of the second 69kV to 24 kV transformer. This work will be completed in 2009. At the Warrens substation, work will commence on the installation of a 24 kV breaker to St.Thomas as well the installation of a second transformer to enhance the reliability of this substation. A second transformer will also be installed at Carlton.

99. The mobile transformer, which is used in the event that there is a problem on a main transformer at a substation, is due for major refurbishment. This work will be completed in 2009.

100. Projected expenditures – Other Substation Work

2009	\$172,000
2010	\$500,000
2011	\$1,000,000
2012	\$1,000,000

Fiber Optic Communication System

101. The Company is committed to improving the reliability of its transmission system by replacing as many overhead lines with underground cables as practical and enhancing the protection system for these transmission circuits. To this end it will be installing fiber optic cables between substations to support the introduction of new 'unit protection' for the lines. This fiber will also be used to provide communication for the SCADA system providing greater performance and security for this vital function.



102. Projected Expenditures – Fiber cable

2009	\$300,000
2010	\$300,000
2011	\$50,000
2012	\$250,000
2013	\$250,000

GENERAL PROPERTY**Lands**

103. It will be necessary for the Company to purchase additional parcels of land adjacent to existing substations at Belmont and St. Thomas to allow for the construction of additional facilities at these locations as described earlier.

Test Equipment

104. The Company tests all new meters before they are installed at its customers' premises. The Company also has in place a meter recertification program for meters to be retested and certified every 10 years. The Company owns two (2) test benches that are used for this purpose. One of these has been in use for over 35 years, and even though its accuracy is certified to international standards annually, it cannot be used to test the new digital meters the Company is purchasing. This test bench will therefore be replaced in 2009.

IT Enhancements

105. In an effort to better respond to the needs of its customers, the Company proposes to introduce a Mobile Dispatch System for its fleet of vehicles. This system would facilitate the efficient exchange of information between the control room and the vehicles and will assist in the efficient deployment of trouble crews through the use of the Global Positioning System which would be used to provide real-time location of each vehicle.

106. Over the period under review, the Company proposes to introduce a number of systems to enhance the operation of the business. Specifically the Company will be introducing Electronic Content Management to better capture, manage, store, preserve and deliver information and documentation used to facilitate the Company's business processes. A corporate business intelligence system will also be introduced so as to provide support for better business decision making. In an effort to maintain and further develop the integration of the IT systems, the Company will be introducing a corporate work flow system and an outage management system. These will allow for a better response to customers applying for service and those experiencing difficulty with their supply. The hardware and software infrastructure will need to be enhanced to accommodate these applications; hence additional servers and related software will be required.

107. Projected Expenditures – General Property:

2009	\$3,573,00
2010	\$4,529,000
2011	\$3,065,000
2012	\$1,728,000
2013	\$1,122,000

Schedule I-3 details the capital expansion program for General Property.

CONCLUSION

108. The cost of fuel used in the generation of electricity is the single largest component of the Company's operating expenses. Uncertainty over the future of oil prices and the possible availability of an alternative in the form of natural gas as an alternative fuel have influenced the decision making process. Generation of electricity in sufficient quantities to adequately satisfy the needs of the island, in the short term, can only be achieved by burning fossil fuels. The Company has therefore chosen to install Medium Speed Diesels for future expansion primarily because these units will provide the greatest flexibility in the use of fuel. In the immediate future, the Company will burn

HFO but the diesels can be easily reconfigured to burn natural gas if and when this should become available.

109. The introduction of a new generating site at Trents requires that the transmission network linking that area to the grid be significantly enhanced. To this end two 132kV underground transmission lines will be installed between Trents and St. Thomas. These will be supplemented with the recently commissioned 24 kV transmission lines from St. Thomas to North and Trents via the new Carlton substation. The introduction of the wind farm will also require the construction of a new 24 kV transmission line from the site of the farm to Trents. In the south of the island work will be required to upgrade aging substations and replace older switchgear and protective devices.
110. To better serve its customers and improve its business processes, the Company will be upgrading its IT infrastructure.
111. The Company recognizes the need to diversify its fuel supply. The Company has therefore proposed the introduction of a 10 MW Wind farm to its grid. The Company is also interested in the proposed fuel cane and waste-to-energy projects. The latter two of these renewable resources have the potential to defer the installation of oil burning plant if they are brought on line within the next five years.
112. There is considerable interest surrounding Solar Photovoltaic and Micro Wind Turbines for individual use. The Company has collected several years of experience and data on PV systems and will be reviewing and expanding its involvement with these systems in the future. The Company will facilitate the

grid-connection of customer owned renewable energy systems through the establishment of a technical interconnection standard and has included in this application a Renewable Energy Tariff for those customers who use this means to provide excess energy to the grid.

Dated this 6th day of May 2009

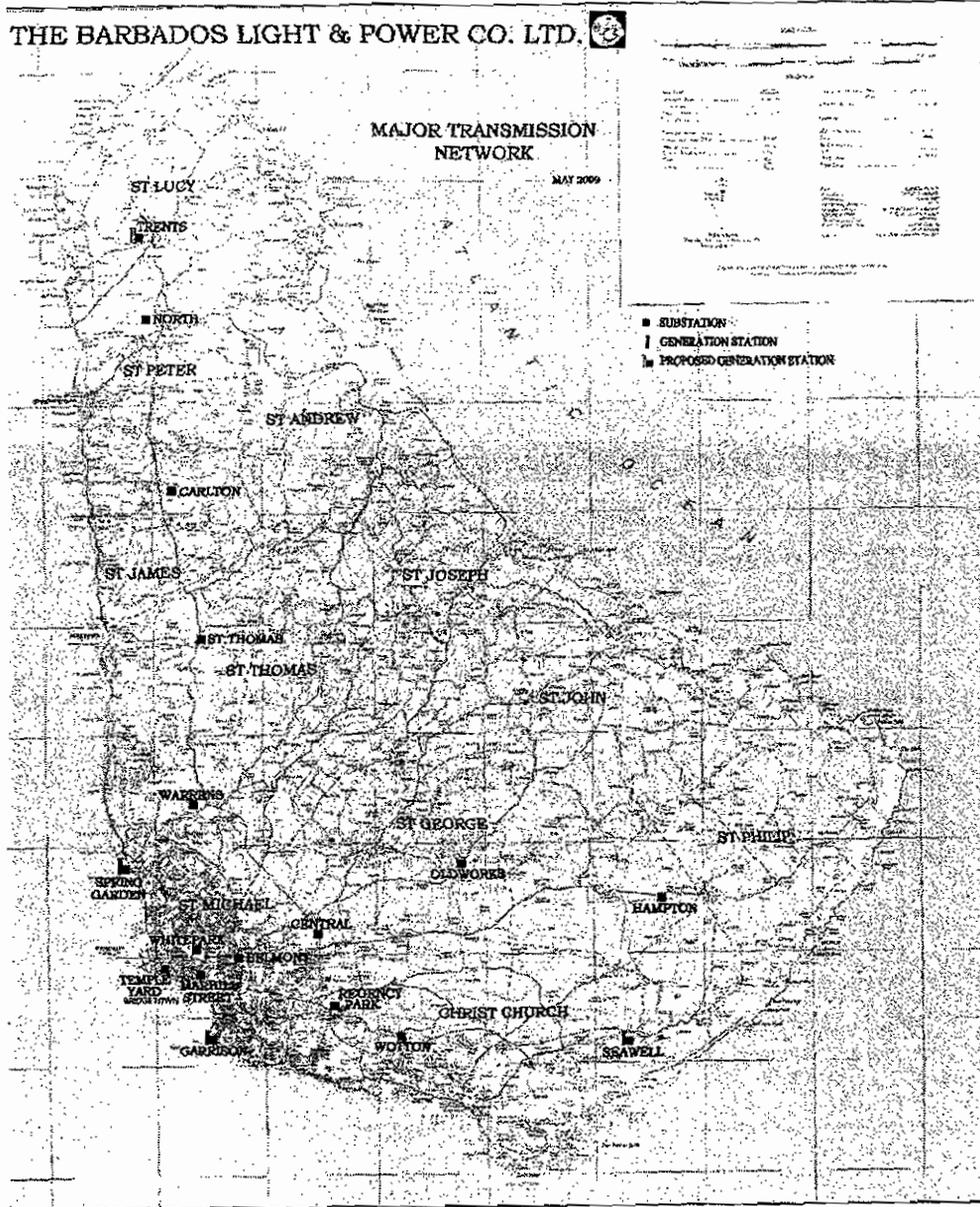
Paper prepared by:



Mark King
Chief Operating Officer
The Barbados Light & Power Co. Ltd.

APPENDIX 1

MAJOR DISTRIBUTION SUBSTATIONS



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**BARBADOS LIGHT & POWER CO. Ltd.
CAPITAL EXPANSION PROGRAM 2009 - 2013**

PROJECT TITLE	2009	2010	2011	2012	2013
GENERATION					
Ash Handling System	500.0				
Alternative Cooling Water System D14/15	1,500.0				
Oil Spill Response Equipment	100.0				
Environmental Compliance	227.0				
Lamberts Wind Farm		16,717.7	16,717.7		
Fuel Pipeline (Checker Hall to Trents)			2,000.0		
Fire Protection System-Seawell	1,000.0				
Trents Site Development			12,339.7	4,441.7	
D16 (16MW MSD)		11,940.0	26,268.0	9,552.0	
D17 (16MW MSD)			11,940.0	26,268.0	9,552.0
D18 (16MW MSD)			11,940.0	26,268.0	9,552.0
D19 (16MW MSD)					11,940.0
Purge Air System for Gas Turbines	812.1				
Spring Garden Office Extension	200.0				
TOTAL	4,339.1	28,657.7	81,205.4	66,529.7	31,044.0
EXPANSION SCHEDULE				D16	D17&D18
RETIREMENT SCHEDULE				S1&S2	

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1883

1883

**BARBADOS LIGHT & POWER CO. Ltd.
CAPITAL EXPANSION PROGRAM 2009 - 2013**

SCHEDULE 2

PROJECT TITLE

2009 2010 2011 2012 2013 2014

TRANSMISSION & DISTRIBUTION

SUBSTATIONS

SPRING GARDEN 24 KV SUB EXTENSION (11 kV S/Gear)	100					
CARLTON S/In 24/11 KV SUBSTATION - Equipment & Reactor		500			1,585	
NORTH (Maynards) 24 / 11KV SUBSTATION - 24kV & 11KV Indoor Switchgear		200				
ST. THOMAS 24 KV Switchgear including Connection to TRENTS		700	300			
BELMONT 24 / 11KV SUBSTATION - Construct Indoor Sub - Civil Works		900	500			
BELMONT 24 / 11KV SUBSTATION - Switchgear		400	200			
WOTTON - Upgrade 24 / 11KV SUBSTATION - Building & Civil Works		200	500			
WOTTON - Upgrade 24 / 11KV SUBSTATION - Equipment (New switchgear)						
SPRING GARDEN - Additional 69KV Breaker	42					
ST. THOMAS 132KV SUBSTATION - Equipment & Transformers 132/24 & 132/69 kV					4,000	4,000
WARRENS 24 KV BKR. TO ST. THOMAS			200			
TRENTS GENERATING STN 24KV SUBSTATION - Civil Works (for completion in 2012)			700	1000		
TRENTS GENERATING STN 132KV SUBSTATION - Civil Works					1500	1500
TRENTS GENERATING STN 24 SUBSTATION - Equipment & Transformer			1700			
TRENTS GENERATING STN 132 SUBSTATION - Equipment & Transformer					4000	
NEW SUBSTATIONS BEYOND 2010: - Building & Civil Works			500			
NEW SUBSTATIONS BEYOND 2010: - Equipment & Transformer			500			
ADDITIONAL 15/20 MVA TRANSFORMERS & Breakers (1 + Warrens 2012 + Carlton 2014)				800		800
RETROFIT / REFURBISH MOBILE TRANSFORMER	130					
FIBER OPTIC COMMUNICATION SYSTEM	300	300	50	250	250	50
TOTAL	572	3,200	4,950	2,250	11,335	6,350

TRANSMISSION LINES

GARRISON - BELMONT 24KV (Underground through George St.)			600			
MARHILL ST. - BELMONT (Underground from St. Michael's Row to Belmont)					1,000	
WARRENS - ST. THOMAS 132KV (U/G double circuit plus 24KV UG)						1,160
ST. THOMAS - CARLTON 24KV & 132KV (U/G 24KV/single & 132KV double circuit) }			4,122			

**BARBADOS LIGHT & POWER CO. Ltd.
CAPITAL EXPANSION PROGRAM 2009 - 2013**

SCHEDULE 1.2

PROJECT TITLE

	2009	2010	2011	2012	2013	2014
CARLTON - NORTH 24KV O/H LINE TURN IN & CABLING			400			
NORTH SUB - TRENTS GENERATING STN 132KV (U/G double circuit) & 24KV	11,401	254	2,000			
LAMBERTS: 24 KV O/H- WINDFARM		150	150			
REGENCY PARK / WOTTON - Underground			500			
SP.GND 69 KV 2ND TRANS. CONNECTIONS	153					
OTHER TRANSMISSION LINES	50	50	500	500		
TOTAL	15,726	454	4,150	2,150	1,160	

DISTRIBUTION FEEDERS

WARRENS BUSINESS PARK 11KV (Underground including connection to Sub.)	310					
CARLTON / 24/11KV UG Connections	196					
CHANCERY LANE 11KV (Ex Seawall) U/G & O/H	500					
NORTH SUB. FEEDERS	800	400				
BELMONT 24 KV AND 11 KV C/OVERS U/G		100				
WOTTON 24 KV & 11 KV C/OVERS U/G		100				
FONTABELLE # 2 - Underground	786	100	100	100	100	
ST. LAWRENCE GAP Phase 2 - Underground	50	50	50	50	50	
SPEIGHTSTOWN - Underground	50	50				
NEW PARADISE BEACH FDR.	180					
UNDERGROUND REDEVELOPMENT	100	100	150	150	200	200
DISTRIBUTION FEEDERS	100	100	150	150	150	150
TOTAL	3,072	1,000	450	450	350	350

DISTRIBUTION ROUTINE

	2009	2010	2011	2012	2013	2014
SERVICE DROPS	2,100	2,100	2,100	2,100	1,400	1,400
STREET LIGHTS	500	500	500	650	650	650
HT & LT EXTENSIONS CONTRIBUTORY	100	100	100	100	100	100
HT & LT EXTENSIONS NON-CONTRIBUTORY	750	750	750	750	750	750
STRENGTHENING & RECONSTRUCTION HT & LT	4,125	4,125	4,125	4,125	4,125	4,125

**BARBADOS LIGHT & POWER CO. Ltd.
CAPITAL EXPANSION PROGRAM 2009 - 2013**

SCHEDULE 2

PROJECT TITLE	2009	2010	2011	2012	2013	2014
DISTRIBUTION TRANSFORMERS	1,600	1,600	1,600	1,600	2,500	2,500
CAPICITORS	65	65	65	65	65	65
SUBSTATION EQUIPMENT (including SCADA Batteries)	100	100	100	100	100	100
RURAL & SMALL EXTENSIONS	55	55	55	55	55	55
EQUIPMENT & INSTRUMENTS	100	100	100	100	100	100
COMMUNICATIONS EQUIPMENT	50	50	50	50	50	50
MOTOR TRANSPORT	850	850	850	850	850	850
STRENGTHENING U/G CABLES	1,500	1,500	1,500	1,500	2,000	2,000
METERS	1,500	1,500	1,500	1,500	900	900
PROTECTION RELAYS & EQUIPMENT	150	150	150	150	150	150
DISTRIBUTION AUTOMATION	250	250	250	250	250	250
TOTAL	13,795	13,545	13,795	13,945	14,045	13,795

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**BARBADOS LIGHT & POWER CO. Ltd.
CAPITAL EXPANSION PROGRAM 2009 - 2013**

SCHEDULE 1-3

PROJECT TITLE

2009 2010 2011 2012 2013 2014

GENERAL PROPERTY

DISTRIBUTION

LAND - BELMONT: 24KV Indoor Substation

LAND- ST. THOMAS - 132 KV SUBSTATION

MOBILE DISPATCH

METER TEST BENCH

INFORMATION SYSTEMS

Furniture and Fittings

Personal Computers

Computer Hardware

Software

Fibre Optic Network Dev

Business Intelligence

Electronic Content Management

Outage Management

Workflow

CC&B Upgrade

Fire Suppression System

VoIP

Mobile Workforce

eApps

Information Security

AMI

100

400

300

450

1.5

172

354.4

295

50

150

100

100

50

150

200

700

3,573

1.5

187

318.4

160

50

310

1002

50

800

150

800

200

4,529

1.5

127

258.4

171

50

100

497

1000

50

50

60

100

200

3,065

1.5

187

288

171

50

150

50

50

330

100

100

1,728

1.5

127

288.4

255

50

150

100

50

50

100

1,122

TOTAL

0238