Regulating Electricity, Promoting Our Energy

DECISION DOCUMENT

DECISION

Document Reference: 2015/001/D

Weighted Average Cost of Capital (WACC)

For

DOMINICA ELECTRICITY SERVICES LTD

April 2015

Independent Regulatory Commission

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INDEPENDENT REGULATORY COMMISSION

Decision

Electricity Supply Act No 10 of 2006

DOMLEC Transmission, Distribution and Supply Licence 2014

This document sets out the Decision of the Independent Regulatory Commission **2015/001/D** – **"Weighted Average Cost of Capital for Dominica Electricity Services Ltd"** - taken by the Commission at its meeting on April 23, 2015.

The Commission now **ORDERS** that this Decision, made pursuant to the Electricity Supply Act No 10 of 2006 and DOMLEC Transmission, Distribution and Supply Licence 2014 will become effective on the date given below.

Effective date: May 1, 2015

By Order

………………………………
LANCELOT MCCASKEY
EXECUTIVE DIRECTOR
On Behalf of the Commission
April 23, 2015

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WEIGHTED AVERAGE COST OF CAPITAL FOR DOMINICA ELECTRICITY SERVICES LTD

Part 1 Decision

Introduction and Background

The Commission issued two new Licences, a Generation Licence and a Transmission Distribution and Supply Licence, to Dominica Electricity Services Ltd (DOMLEC), both of which became effective on January 1 2014. These two Licences complete the process for aligning the regulatory framework for DOMLEC with the principles and intent of the Electricity Supply Act 10 of 2006 (ESA) and established a regime of separate licensing for each of the business sectors of public electricity supply undertakings – generation, transmission distribution and supply.

The Transmission, Distribution and Supply Licence (the Licence) sets out the provisions for conducting tariff reviews and, at Condition 33, specifically addresses the procedure for the initial tariff review as follows:

> *DOMLEC shall, within 7 days of the Commencement Date, submit a timetable for the filing of an application to the Commission for a tariff review, and that the date for such a filing shall not be later than 9 months after the Commencement Date without the approval of the Commission. The application for a tariff review shall be in the format set out in the Commission's Decision Tariff Regime for Dominica Electricity Services Limited - Document Ref 2009/004/D and the tariff review shall be conducted in accordance with the process set out in that Decision.*

The Commission has been of the view that in order to ensure timely completion of its review of any application for a tariff review submitted by DOMLEC it would be minded to consider certain critical issues in separate proceedings leading up to the tariff review itself. These issues, which are critical inputs to the tariff determination, are:

- Depreciation Policy
- Determination of Weighted Average Cost of Capital (WACC)
- Determination of Asset Base
- Approval of Investment Programme

The Commission will, if requested by DOMLEC, conduct its review of and make determinations on these issues prior to the formal submission of the tariff review request on the presumption and condition that the Commission's Decisions on these issues will be used by DOMLEC as the input in the tariff request.

The Depreciation Policy was addressed and completed with the Commission's Decision Document Ref: 2014/001/D, June 2014 - "Depreciation Policy for Dominica Electricity Services Ltd".

The overall rate of return is the WACC which is the average cost of long term debt and the approved rate of return on equity. The return is the compensation which the company receives for the capital that is invested in the regulated asset base and is calculated by applying the WACC to the asset base. Both the WACC and the regulated asset base have to be approved by the Commission.

The Commission in its letter dated June 3, 2014 advised DOMLEC as follows:

1. That, pursuant to Condition 33 of the Licence, the date for DOMLEC to file for a tariff review is changed from October 1, 2014 to May 1, 2015.
2. That in the meantime, as far as practicable, DOMLEC and the Commission continue to work on DOMLEC's:
   - Weighted Average Cost of Capital (WACC);
   - DOMLEC's Asset Base to be used in the Tariff Application; and,
   - DOMLEC's long and medium term investment plans.

These are all to be completed and submitted to public consultations prior to the filing.

In this regard, The Commission issued its First Consultative Document on February 21, 2015 and held a public consultation on March 13, 2015 followed by the issue of a second Consultative Document March 30, 2015 and a public consultation on April 14, 2015. Comments emanating both from the consultations and written submissions have been considered and this document sets out the Commission's decision on the determination of the Weighted Average Cost of Capital (WACC) that DOMLEC will apply to the regulatory rate base in the tariff determination for DOMLEC at the tariff review to be conducted in 2015.

The Commission now sets out its Decision with respect to DOMLEC's Weighted Average Cost of Capital and, for the avoidance of doubt, further confirms that this determined rate is that which shall be applied to the company's regulated asset base at the ensuing tariff review.

Decision

DECISION 1 - Capital Structure

In considering the appropriate capital structure for DOMLEC, the Commission is mindful of its duty to balance the competing interests of all stakeholders. The fact that debt is a cheaper source of financing than equity suggests that the interests of customers are better served with the lower cost option. Despite the arguments that the Commission should not be concerned with the actual state of DOMLEC's position the Commission believes that it would be equitable to allow DOMLEC to reach the desired capital structure over time and in an orderly manner. Accordingly the Commission has **Determined:**

DOMLEC's capital structure shall be 40% debt and 60% equity for the tariff period 2015 - 2017

The Commission, however, puts DOMLEC on notice that it will be seeking, in subsequent reviews, to adjust the capital structure to reflect a higher component of debt.

DECISION 2 – Cost of Debt

The Commission notes that no differences of opinion arose in the method of determining the Cost of Debt and accordingly the Commission has **Determined;**

> **DOMLEC's cost of debt shall be fixed at 5.75% for the period 2015 – 2017**

DECISION 3 – Risk Free Rate

The Commission has considered very carefully the arguments raised particularly by DOMLEC on the whole issue of the determination of the cost of equity and in particular on the analysis of the elements that inform that decision. While the Commission is mindful of the arguments advanced by DOMLEC, the fact that Prof Damadoran's work is not only highly recognized but that it can be applied in the current proceeding as truly independent guides the Commission to believe that its reliance on the work of this academic offers the best guidance at this time. Accordingly the Commission's Determination relating to the Risk Free Rate is:

> **The risk free rate shall be the US 10 Year Treasury Bond rate as at December 2014 – that is 2.17%.**

DECISION 4 – Risk Premium due to size

The question of size is one which the Commission considered very carefully, particularly in view of the insistence and arguments submitted by DOMLEC that there is a very real risk in the Dominican context associated with size. The Commission has not been persuaded that a specific premium should be introduced to adjust for this perceived risk. The Commission believes that the DOMLEC's risk profile in this area is in any event well covered by virtue of the coverage afforded by the new Licenses that were granted to DOMLEC and became effective January 2014, the use of the ECSE 10 year bonds in the calculation of the risk premium, the large proportion of local investors in DOMLEC plus the very important bench marking of DOMLEC against Jeffery S Tarbell's factors that typically reflect the increased risk of small companies. Accordingly:

> **The Commission has determined that there will be no risk premium due to DOMLEC's size**

DECISION 5 – Comparator (Proxy) Companies to determine β

The Commission accepts DOMLEC's arguments that it would be inappropriate to use the initially proposed LUCELEC and GRENLEC as proxy companies given the immaturity of the ECSE at this time. In any event, DOMLEC quite rightly pointed out that the sample size would have been too small. The Commission however has grave misgivings about the sample used by DOMLEC in its submission. The Commission also accepts that the selection it made for the second round of consultation comprised companies that were not representative. Having taken all of this into consideration, the Commission revisited the data produced by Prof Damdoran and eventually selected a listing of 35 companies as the comparators. These are listed in the Appendix 1 to this Decision. Accordingly:

The Commission will use the group of 35 companies in power sector used by Professor Damodaran as the proxy utilities (See Appendix 1)

DECISION 6 – Mature Market Risk Premium

The Commission has noted that there were no dissenting opinions regarding its proposals to rely on Prof. Damadoran's "equity risks approach" on the mature market risk premium and accordingly the Commission Determines that:

The Mature Market Risk Premium to be 5.21% .

DECISION 7 – Cost of Equity

Using the standard formulae and methodologies for DCF and CAPM, the Commission has Determined that:

DOMLEC's cost of equity for the tariff period shall be 10.44%.

DECISION 8 – Weighted Average Cost of Capital (WACC)

The calculation of DOMLEC's WACC follows a standard formula as represented in the table below**:**

Calculation of DOMLEC's WACC

Capital Structure	40/60
Cost of Debt	5.75
Cost of Equity	10.44
WACC	8.56%

The Commission has therefore determined that:

The WACC to be applied to DOMLEC's regulatory asset base shall be 8.56%.

Part 2 - Statement of Results

Introduction and Background

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The Commission has been of the view that in order to ensure timely completion of its review of any application for a tariff review submitted by DOMLEC it would be minded to consider certain critical issues in separate proceedings leading up to the tariff review itself. These issues, which are critical inputs to the tariff determination, are:

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The overall rate of return is the WACC which is the average cost of long term debt and the approved rate of return on equity. The return is the compensation which the company receives for the capital that is invested in the regulated asset base and is calculated by applying the WACC to the asset base. Both the WACC and the regulated asset base have to be approved by the Commission.

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3. That, pursuant to Condition 33 of the Licence, the date for DOMLEC to file for a tariff review is changed from October 1, 2014 to May 1, 2015.
4. That in the meantime, as far as practicable, DOMLEC and the Commission continue to work on DOMLEC's:
   - Weighted Average Cost of Capital (WACC);
   - DOMLEC's Asset Base to be used in the Tariff Application; and,
   - DOMLEC's long and medium term investment plans.

These are all to be completed and submitted to public consultations prior to the filing.

The Commission is mindful that in discussions with DOMLEC which were held in preparation for this rate case the Commission agreed that the consultation on the WACC would be to settle on the **methodology** to be used by DOMLEC. This would at least allow for timely review of the WACC proposals during the full tariff review. DOMLEC's submission however constitutes and is a fulsome request to set the value of the WACC to be applied to the regulatory rate base to compute the return at the tariff review proceeding scheduled for May 2015. This is also reinforced by Article 8 of DOMLEC's "*Application To The Independent Regulatory Commission Of Dominica For Approval Of Weighted Average Cost Of Capital (WACC) Dominica Electricity Services Limited*." The Commission has decided that it will consider DOMLEC's request now submitted in full, the outcome of which will lead to a determination of DOMLEC's WACC.

In this regard, The Commission issued its First Consultative Document on February 21, 2015 and held a public consultation on March 13, 2015 followed by the issue of a second Consultative Document on March 30, 2015 and a public consultation on April 14, 2015. Comments emanating both from the consultations and written submissions have been considered and this document sets out the Commission's decision on the determination of the Weighted Average Cost of Capital (WACC) that DOMLEC will apply to the regulatory rate base in the tariff determination for DOMLEC at the tariff review to be conducted in 2015.

Policy and Legal framework

The Commission's duties and functions with regard to tariff making are provided for pursuant to provisions in three principal instruments – (i) the Act, (ii) the Licence and (iii) Commission's Determination "Tariff Regime For Dominica Electricity Services Ltd Document Ref: 2009/004/D 9" (the Determination). The Act provides at Section 18

The Commission shall be independent in the performance of its functions and duties under this Act and shall not be subject to the direction and control of the Government or of any person, corporation or authority, except that the Commission shall have due regard to the public interest and overall Government policy, as embodied in legislation.

At Section 19

The Commission shall have sole and exclusive authority to regulate all electricity entities that are subject to this Act and shall have full powers to regulate all licencee with regard to all economic and technical *aspects of regulation in accordance with this Act especially with regard to the determination of tariff or electricity charges.*

At Section 20

(1) The Commission shall, without limiting the generality of this section, have a duty to perform and exercise its functions and powers under this Act in the manner which it considers best calculated to:

(a) encourage the expansion of electricity supply in Dominica where this is economic and cost effective and in the public interest;

(b) encourage the operation and development of a safe, efficient and economic electricity sector in Dominica;

(d) facilitate the promotion of sustainable and fair competition in the electricity sector where it is efficient to do so;

(e) protect the interests of all classes of consumers of electricity as to the terms and conditions and price of supply;

(g) ensure that the financial viability of efficient regulated electricity undertakings is not undermined;

Firstly the Act gives the Commission full authority to act independently in the performance of its duties under the Act – specifically having regard to public interest considerations and government policy, as embodied in legislation. In providing for its functions the ESA (S20) mandates the Commission to act in a manner which it considers best calculated to achieve a number of policy objectives and in this regard clauses (a), (b), (d), (e) and (g) of S 20 reproduced above are instructive.

The Act provides a framework for the Commission to set and review the tariffs charged by a supplier of electricity in Dominica. The Act sets out the authority and procedure for tariff making in Sections 23 and 24. These are as follows:

Section 23. *(1) An electricity service provider shall not -*

(a) offer service unless it has, prior to offering such services, filed its proposed tariffs with the Commission and such tariffs rates and charges have come into effect pursuant to

(b) make changes on tariffs, or other terms of the service after proposed tariffs have been filed with the Commission, except as authorized under this section.

(2) An electricity service provider shall submit tariff proposals in conformity with this section in writing to the Commission with respect to the tariffs it intends to apply for the use of its systems, facilities and services.

(3) Proposed tariffs filed under subsection (2) shall contain all relevant information concerning rates and charges for services, including deposits, non-recurring charges and monthly charges as well as terms and conditions applicable to the provision of services, including disputes or claims over billing or provision of services.

(4) A Licencee shall make tariffs available to the public by publishing such tariffs in the Gazette and in two local newspapers.

(5) All proposed tariffs filed with the Commission shall be kept complete, accurate and up to date.

(6) After a proposed tariff has been filed with the Commission and has come into force and effect, no changes may be made in the rates, charges or other terms of service relating to all the services provided under the tariff, except upon the filing and review of tariffs as provided in this Act.

(7) Proposed Tariffs shall:

(a) be accompanied by all accounting and costing information as the Commission may require; and

(b) comply with all other requirements and conditions as shall be applicable to the licensee concerned.

Section 24. *(1) All tariffs proposed by a licensee shall conform with the principles and provisions governing tariff formulation established by the Commission pursuant to the legislation for the time being and shall be submitted to the Commission for review as to their conformity with such principles and provisions.*

(2) The Commission shall, within 60 days of the submission of a tariff proposed under subsection (1), make a determination to:

(a) approve the tariff without amendment;

(b) conditionally approve the tariff subject to amendments specifically proposed by the Commission being accepted by the licensee; or

(c) reject the tariff proposal outright, stating clearly in writing the reasons for such rejection, which reasons may include a determination that the tariff is not ripe for review.

(3) In the event the Commission makes a determination under subsection (2) (b) the licencee may submit a revised tariff within 30 days of the determination; and the Commission shall make a new determination in accordance with one of the three options specified in subsection (2) within 30 days of such submission.

(4) In the event of an outright rejection of the proposed tariff under subsection (2) (c), the Licencee may file a new tariff at any time; or may file a petition to the Commission for reconsideration of such rejection.

(5) A petition shall be filed within 30 days of the rejection and shall state the Licencee's basis for reconsideration, which may include a fundamental change in circumstances from the conditions that prevailed when the tariff was originally rejected by the Commission.

(6) In the event the Licencee files a petition for reconsideration under subsection (4), the Commission shall act upon such petition within 30 days and make a

determination in accordance with one of the three options set forth in subsection (2).

(7) If the Commission fails to act on a tariff submission pursuant to this section within the timeframes for determination specified in subsections (2), (3) and (6), the tariff shall be deemed approved until such time as the Commission makes a determination.

Using the authority given to it under Section 24 (1), the Commission promulgated Decision Document 2009/004/D "Tariff Regime For Dominica Electricity Services Ltd" which by Order of the Commission became effective on April 30, 2010. This document sets out in clear and unambiguous terms the governing principles for the development and setting of the tariff which the Dominica Electricity Services Ltd (DOMLEC) will use from time to time.

Further, in granting new licences to DOMLEC in October, 2013, the Commission ensured that the provisions of this Tariff Regime became firmly embedded in the Transmission, Distribution and Supply Licence through Condition 32 of the said licence, and forms part of the licence.

The Licence at Condition 32 addresses the Price Control Mechanism:

Tariff Principles
The Commission shall determine the Licensee's rates for electric power pursuant to its powers under the ESA and on the principles set out in the Commission's Decision Document: Tariff Regime for Dominica Electricity Services Ltd.; Document Ref. 2009/004/D as amended from time to time.

While the Determination sets out in detail the methodology and process for determining the tariff for DOMLEC.

The following sections of the Determination are particularly instructive.

<u>Regulatory Policy objectives</u>
The Commission's regulatory policy is to establish a tariff which balances the interests of the consumers and investors alike where the investors have the opportunity to realize a fair return on investment while customers can expect an efficient, responsive and economical service in an environment where the rights of all stake holders are preserved. The Commission will not guarantee a rate of return to the investors but will seek to create a regulatory environment where the incentives are such that the company through efficient operational practices and continual efficiency improvements will have the opportunity to achieve the desired rate of return during any tariff period.

<u>Tariff Principles</u>
There are basically two models for a tariff structure which could apply in the Dominica situation.

1. *A tariff which includes all the costs including the costs of fuel, based on a projected cost of fuel over the tariff period; or*
2. *A two part tariff comprising (i) a non fuel base rate and (ii) a fuel charge, which*

fully recovers the cost of fuel (subject to efficiency factors) and no more.

Both methods use the same techniques and parameters for estimating revenue requirements the exception being that in the first case fuel is included in the revenue requirements while it is not in the second case. The options for treating with fuel costs are discussed separately. The Commission has accepted option No. 2 and will allow a 100% pass-through of fuel costs. The average tariff that will be in effect from time to time shall be consistent with the following:

RR= OC +FC +GO
Where:
RR = Revenue Requirement
OC = Operating Cost
FC = Financing Cost
GO = A provision to recover or return the cost of Obligations imposed by government which were not known or anticipated at the tariff review.

The "Average Rate" then becomes the Revenue Requirement ($) divided by the forecast sales (kWh).

Average Rate = Revenue Requirement ($) / Sales (kWh)

Revenue Requirements

The Utility's revenue requirement is calculated as the sum of its estimated costs of providing service, where a fair return is included as one of those costs. These forecasted funding levels have to be sufficient to get the required work done without adversely impacting quality of service, or compromising reliability, customer service or safety: any disallowance resulting in deferral of projects or work activities must be carefully considered and weighed against these criteria.

The Revenue Requirement consists of the sum of Operating Costs and Financing Costs required for providing electricity service.

$$RR = Operating\ \ Costs + Financing\ Costs$$

Where RR = Revenue requirement
Operating Costs = Costs of labour, non-generation fuel, ***depreciation****, income taxes, deferred costs*
Financing Costs = Cost of capital which includes cost of debt and equity.

The critical exercise is to determine the forecast of the revenue requirements based on a sustainable and defensible estimate of the expenses for the base year. One approach is where the base year is the year for which the most recent published annual reports and audited financial statements are available and from which the Test Year (the forecasted year), representing a forecasted statement of expenses and costs that are known and measurable is derived.

In any event, in all cases, the expenses that are ultimately approved for inclusion will be those that are determined by the Commission to be prudent.

The non-fuel revenue requirement is developed based on a combination of demonstrated historic costs and forecast costs. The fuel revenue requirement is by definition a 100% pass-through of actual cost and will change monthly according to an agreed-to formula.

The revenue requirement for the Base Rate is then:

$$Base\ Rate\ RR = NFOC + FC + GO + RF$$

Where:

RR = Revenue Requirement
NFOC = Non-Fuel operating Costs (this includes non-generation fuel)
FC = Financing Costs
GO = Government Obligations, and
RF = Regulatory Fees

The WACC is a fundamental element of the revenue requirements and goes to the core of the principles for balancing the interests of the company and that of the consumer.

The Determination sets out the principles for determining the WACC:

<u>Cost of Capital Rate</u>
The Cost of Capital Rate is the weighted average of the cost of rates for the various items in the utility's capital structure, i.e. debt, preferred equity, and common equity.

This estimate is the rate of return investors will receive and it is applicable to the Rate Base. DOMLEC, in making its tariff submission, is required to make detailed proposals along with supporting analysis to the Commission on its derivation of the WACC to be applied in its revenue requirements determination.

Weighted Average Cost of Capital

The cost of capital is a weighted average of the cost of debt, preferred equity, and common equity, where the weights are the market-value percentages of debt, preferred equity, and common equity in a firm's capital structure. The overall cost of capital, which is called the firm's "weighted average cost of capital" (WACC), is specified by the following formula:

$WACC = w_d k_d + w_c k_s + w_p k_p$ (1)

where,

w_d = *the fraction of debt in capital structure,*
w_c = *the fraction of equity in capital structure,*
w_p = *the fraction of preferred stock in capital structure,*
k_d = *cost of debt,*
k_s = *cost of equity,*
k_p = *cost of preferred stock.*

To apply the formula, one must estimate the cost of debt, preferred stock and common equity using methodologies accepted by both financial economists and regulators. In addition, one must estimate the capital structure mix of debt, preferred stock, and common equity. With these inputs, the WACC can be calculated from the above equation.

The cost of debt, interest payment, and the cost of preferred stock, dividend payment, are fixed by a contract and therefore are relatively easy to measure. The measurement of the cost of common equity, on the other hand, is more involved since return to common equity is not fixed, and thus is not known with certainty.

Instead, return on equity must be estimated. The estimation of return on equity is based on the principle that rational investors will not invest in a particular investment opportunity if the expected return is less than the return expected from alternative investments of comparable risk. Therefore, return on equity is calculated by measuring the expected returns on alternative investments of comparable risk.

Estimating the return on equity may give rise to two types of errors. First, the use of any specific model may give rise to errors or biases unique to that model. To reduce errors that may result from the application of any one model, several financial models have been employed to estimate the cost of equity. The final cost of equity figure used in calculating an overall rate of return is the average of the results of the models applied. Second, the measurement of the cost of equity for any individual company may involve errors. To reduce errors that may result from the estimation of the cost of equity for a single company, the models are applied to a group of companies of similar risk.

Next, the selection of comparable companies for DOMLEC is explained.

Comparable Companies

The comparable group of companies is an important factor in both the Discounted Cash Flow (DCF) model and the Capital Asset Pricing Model (CAPM). To select a comparable group that provides reasonable risk proxies, analysts rely on companies' bond ratings and safety ranks. Bond ratings and safety ranks are viewed by investors as measures of investment risk. For the U.S., the Value Line Investment Survey provides bond ratings and safety ranks for a large number of public companies in various industries. Value Line bond ratings and safety ranks are used to exclude companies that have a speculative bond rating. In the absence of similar information for Dominica, companies will have to be identified for which information is available.

Models for Estimating Cost of Equity Capital

There are two widely accepted models for estimating the cost of equity capital. The first, the Discounted Cash Flow (DCF) model assumes that the current market price of a company's stock is equal to the discounted value of all expected future dividends. There are various formulations of the DCF model based on different projections of future dividend growth. The version of the DCF typically applied is the constant growth or the Gordon Model.The second, the Capital Asset Pricing Model (CAPM) assumes that the cost of equity investment is equal to the risk-free rate of interest plus the risk premium on the market portfolio adjusted by the company-specific risk factor, beta.

An average of the costs of equity derived from the DCF and CAPM models could then be used as the appropriate value for Cost of Equity.

DOMLEC's Proposal

Filing requirements

The Determination provides at "*Schedule D*" the information requirements to be met by DOMLEC in submitting its proposals specific to the Cost of Capital determination. The Commission has **determined** that DOMLEC has satisfied the filing requirements in this regard.

Expert advice

In support of its request for a Determination on the WACC, DOMLEC relies on a study carried out by Mr. William Vinhage of Vinhage and Associates as the main piece of expert evidence. Mr. Vinhage's report "Determination on Equity (ROE) Range for Dominica Electricity Services Ltd", dated October 20, 2014, which was included with the submission, seeks to assist the utility to establish, using the methodology prescribed in the Determination, the ROE element of the WACC. The Commission has noted that Vinhage and Associates which is a Florida based company has a client list which includes Grenada Electricity Services Ltd (GRENLEC) from the Caribbean region and WRB Enterprises of Florida. Mr. Vinhage has over 20 years experience of consultancy services and professional experience in the following areas:

- Strategic Planning & Analysis
- Project/Program Process & Impact Evaluations and Financial Analysis
- Statistical and Econometric Analysis and Forecasting
- Development of Financial/Operational Measurement and Tracking Systems
- Financial Planning, Budgeting & Analysis
- Competitive Intelligence & Benchmarking
- Development of Utility Revenue Requirements, Cost of Service and Tariff Design
- Process Design, Coordination, Mapping & Analysis

He has also had utility experience with Progress Energy and Tampa Electric Company.

The Commission is of the view that Mr. William Vinhage has the competencies to carry out the expert work on behalf of DOMLEC.

The Commission has not received any adverse comments on the qualifications and or expertise of Mr. Vinhage and it, therefore, now confirms its initial conclusions on his competencies.

Summary of DOMLEC's proposal

DOMLEC's conclusions are presented below:

- *The requested Return on Equity ("ROE") of 14.5% was guided by the Study undertaken by Vinhage & Associates. The Study evaluated the cost of capital for alternative equity investments with risks similar to those of the Company, and is based on the 2013 experience of major North American capital markets.*
- *The Company's cost of debt is 5.75%.*
- *The 13 months average capital structure is 33.1% debt and 66.9% equity.*

- *The Company is requesting approval from the IRC that its Weighted Average Cost of Capital (WACC) be set at 11.6%, including the weighted combination of the Company's cost rates for debt and a fair rate of return on equity.*

Table 1 below which is reproduced from the Company's submission provided the detail that supports the request.

The Commission has taken note of the following representations made by DOMLEC:

Caribbean Utility Comparisons

Few Caribbean utilities are subject to independent regulation and a wide sample of 'approved' rates of return is generally not available. 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, 2008 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) The Electricity Supply Act of St. Lucia as amended in 2006 sets the Allowable Rate of Return for St. Lucia Electricity Services Limited (LUCELEC) as "an annual return on average contributed capital based upon a spread of two percentage points and seven percentage points above the cost of the most recent Government of Saint Lucia long term bonds issued on the Regional Government Securities Market (RGSM) of the Eastern Caribbean Central Bank, with the proviso that the minimum rate of return on average contributed capital so calculated shall be ten percentage points."

c) The Office of Utilities Regulation (OUR) in Jamaica in its decision of 2009 determined that the Jamaica Public Service Company Limited (JPS) cost of equity was 16% and WACC of 11.6% with a capital structure that includes 48% debt.

d) The Fair Trading Commission (FTC) in Barbados, in its decision of 2010, approved a WACC of 10% and a capital structure that included 35% debt for The Barbados Light & Power Company. This equated to a Return on Equity of 12.75%.

Realized Return on Rate Base for 2012 and 2013

The Rate of Return on Rate Base realized by the Company under existing rates for 2012 was 10.2% and for 2013 was 10.6%.

TABLE 1

RATE OF RETURN ON RATE BASE
WEIGHTED AVERAGE COST OF CAPITAL

13 Months Average Projected for December 31, 2014 WEIGHTED AVERAGE COST OF CAPITAL: CONVENTIONAL CAPITAL STRUCTURE, POLICY BASED (PROJECTED)				
Capital Component	**Implied Balance ($EC)**	**Capitalization Shares**	**Cost Rates**	**Weighted Cost Rates**
Long Term Debt	**38,773,805**	**33.1%**	**5.75%**	**1.9%**
Short Term Debt				
Common Equity Preference Shares	**78,354,957**	**66.9%**	**14.5%**	**9.7%**
Total	**117,128,762**	**100%**		**11.6%**

The Commission's Considerations

Respondents' Comments at the Public Consultation

The Commission thanks all respondents who offered comments at the public meeting on March 13 and, in particular, it recognizes the extensive preparation made by DOMLEC, for the public meeting. The primary concerns raised by DOMLEC were in regard to the methodology and assumptions applied by the Commission in arriving at its proposed conclusion on the WACC. In particular, DOMLEC took issue with the Commission's rationale to use the ECSE 10 year bond rate as the risk free rate, citing its particular concerns at the immaturity of and relative inactivity on that market. DOMLEC's other concern related to the small number of comparator companies pointing out that the sample size is just too small to generate credible data. While there appeared to be general sympathy to DOMLEC's arguments, one respondent raised a number of issues which are reproduced below:

a) notwithstanding that the ECSE is relatively new and the number of listed stocks is small, the OECS jurisdiction cannot be completely ignored, as DOMLEC seems to be doing, because:

i. DOMLEC operates in the OECS;
ii. DOMLEC is listed on the (OECS's) ECSE, not on the NYSE or other US based exchange;
iii. The vast majority (over 99%?) of DOMLEC's shareholders are from our space (Dominica and Eastern Caribbean);
iv) DOMLEC therefore raises its funding from the Eastern Caribbean, not the US.

b) outside of losses from natural disasters (which it can mitigate with proper insurance) DOMLEC's risk is low because of the nature of its license and its monopoly on transmission and distribution, even with new entrants in the area of generation;

c) increasing the debt to equity ratio is good for the company because it reduces the overall cost of funds; is good for the consumer because it should reduce tariffs; is good for our banks because they get to lend more (at this time they are supposed to be looking for good projects to lend to); is good for shareholders because it reduces the amount of risk capital employed and increases the dividend yield. Only when debt service becomes unsustainable can it be argued that increasing debt increases shareholder risk. Enquiries at the four major banks operating in Dominica will likely confirm that they would be willing to lend to DOMLEC and that a debt to equity ratio of 1:1 would be acceptable to them. This should be enough to justify using a level of 50% debt to calculate the WACC, regardless of how DOMLEC chooses to fund its operations.

d) DOMLEC is a Dominican company which has always operated in the "small" market of Dominica. It is structured for small. The smallness of the market is therefore a given and should not be considered an additional risk.

Second consultation

At the second Consultation the following comment was received;

A respondent thought that the other issue that the IRC should consider in determining what is a reasonable percentage of debt for DOMLEC to carry in its books is what would financing institutions require of it. And if DOMLEC can persuade the IRC that a bank will not lend money to it unless it has 70% or 68% equity that is a discussion you could have. He suggested, finally, that the determination of that percentage should not be based on the actuals because they can do whatever they want; it should be based on what is reasonable for all stakeholders

He also posited that he knew that the Commission is aware of what he was about to say but thought in the interest of the rest of the stakeholders he wanted to point out that the major shareholder in DOMLEC is the major shareholder in Barbados Light and Power. And he thought that the issue of the level of equity versus debt in Dominica is the same as it is in Barbados. And there was an issue in Barbados in the public domain right now where, as you suggested earlier, when you have a higher level of equity you need to make more profit to meet the rate of return that shareholders demand; a rate that is significantly more, almost double, what the ... are charging for their debt. And as a result, in Barbados right now the company in order to meet the profit margins that it needs to service the equity holders is now going to retrench, in excess of a hundred workers. Their profits have not dropped, they are still making money but because they have a higher equity component in their capital structure they have to make more money to meet return to investment requirements. And as a result they have to cut cost.

Now, please note that Barbados Light and Power had the option to reduce its equity and take the pressure off the company but they have chosen to reduce cost. He thought that in the interest of all the stakeholders the IRC should not want such a situation to happen in Dominica. That is another reason why he suggested that 38% debt is too low.

The Commission has noted these comments and has appropriately taken them into account in its deliberations that follow.

Expert Resources

The Commission relies on works of Professor Aswath Damodaran[1].

[1] Professor Damodaran holds the Kerschner Family Chair in Finance Education and is Professor of Finance at New York University Stern School of Business

In addition to numerous publications in academic journals he has authored several highly-regarded and widely-used academic texts on Valuation, Corporate Finance, and Investment management. He is also the recipient of several awards in the field of Finance.

He was profiled in Business Week as one of the top 12 business school professors in the United States of America in 1994. Later Business Week did a poll of MBA programmes in 2011 and named Aswath Damodaran as the most popular business school professor in the country.

In its 2010 rate filing with the OUR of Jamaica, JPS of Jamaica used his work extensively in its own considerations of JPS's WACC.

The Determination sets out the overriding principles that guide the Commission's philosophy and approach to tariff making. For emphasis this is repeated below:

> *Regulatory Policy objectives*
> *The Commission's regulatory policy is to establish a tariff which balances the interests of the consumers and investors alike where the investors have the opportunity to realize a fair return on investment while customers can expect an efficient, responsive and economical service in an environment where the rights of all stake holders are preserved. The Commission will not guarantee a rate of return to the investors but will seek to create a regulatory environment where the incentives are such that the company through efficient operational practices and continual efficiency improvements will have the opportunity to achieve the desired rate of return during any tariff period.*

The challenge in the determination of the rate of return is to identify a mechanism which satisfies the reasonable expectations of customers and investors alike.
The Commission is minded that there are three issues to be settled in order to derive WACC:

1) Determination on an appropriate capital structure for DOMLEC
2) Determination on the cost of long term debt
3) Determination on the cost of equity

Capital Structure

The Determination does not explicitly provide guidance as to an appropriate capital structure for an electric utility such as DOMLEC but there are bench marks that can and will guide the Commission's approach to determining whether the proposals on capital structure requested by DOMLEC are reasonable.

Generally the cost of debt is cheaper than that of shareholders' equity; the factors that tend to influence the cost of debt is that usually there is a tax benefit in that the company will get income tax relief on the interest payments to lenders while this is not usually the case on dividends payable to equity holders; also debt holders face less risk than equity holders in that the former have first claim on the company's assets in the event of bankruptcy or default. This makes debt less risky than equity and therefore the return to equity holders are generally higher than that to debt holders. Because of this it is important to derive a prudent mix of debt and equity in order to optimize the value to consumers.

DOMLEC has requested a capital structure of 33.1% debt and 66.9% equity based on its 13 month average from December 2013 to December 2014 of which December 2013 – August 2014 is the actual and the remainder of the period projected. The company points out, using the CARILEC Benchmark Study of 2012 as its reference, that the average debt amongst Caribbean utilities is 38%.

DOMLEC reiterated its original position at the second consultation and in its written submission to maintain the capital structure at 33.1% debt and 66.9% equity argues that the size and capital costs of individual facilities operated by DOMLEC typically comprise a large share of the total system and costs when compared with larger power systems; the small market size exposes it to above average business risks of several dimensions; increasing the proportion of debt also increases the risks to stockholders and the Proposition 1 by Franco Modigliani and Merton Miller (M&M) 1958 which claims that in the absence of taxes, market returns to the total invested capital in the firm, including debt and equity, are indifferent to the degree of leverage.

Interestingly, DOMLEC's list of 15 comparator companies showed a capital structure of 51% debt on average. This is not only consistent with the view that debt is a cheaper method of financing and the firms should seek to minimize their cost of capital but also reflect the underlying principle to balance stakeholder interests where the impact of a higher portion of debt is a lower WACC.

The Commission does not believe that the proposed capital structure of 33.1% debt is equitable for consumers and would opine that at 33.1%, DOMLEC would be at the low end of the Caribbean utilities, in the context of a 38% average. The Jamaica Office of Utilities Regulation determined a capital structure for the Jamaica Public Service Company Ltd of 48% debt: 52% equity at its 2009 Tariff Review Determination[2] and 50% debt 50% equity at its 2015 Tariff Review Determination[3]. It is instructive that at the 2009 review, the OUR, in fixing the gearing at 48% did so in circumstances where the company's actual gearing was 38%. Comparisons with

[2] OUR Determination Notice – JPSCo Tariff 2009 – 2014 Document No. Ele 2009/04 : Det/03 Sept 18, 2009

[3] OUR Determination Notice Document No. 2014/ELE/008/DET.004 January 7, 2015

electric utilities in the Cayman Islands (CUC), Barbados (BLP), Grenada (GRENLEC) and St Lucia (LUCELEC) are shown in Table 2.

TABLE 2

Gearing of some Caribbean Utilities

Country	Utility	Gearing
The Cayman Islands	CUC	56%
Barbados	Barbados Light and Power[4]	35%
Grenada	GRENLEC[5]	38.43%
St Lucia	LUCELEC[6]	47.77%

DOMLEC's proposed gearing is not only out of sync with regional companies in the main but the Commission is of the view that consumers, for the reasons outlined earlier, will be disadvantaged at the requested capital structure of 33.1% debt 66.9% equity. DOMLEC's actual 2013 gearing using data from its 2013 Annual Report is provided at Table 3.

TABLE 3

Extract from DOMLEC 2013 Annual Report[7]
Financial Statements - Note 10 - Borrowings

	2013	2012
Total borrowings	$41,025,375	$46,397,839
Total equity	$75,019,297	$68,260,396
Gearing	35.4%	40.5%

The Commission will accept the data provided in the audited financial statements at the onset.

In order to balance the stakeholder interests the Commission is of the view that the gearing should approach 50% and accordingly, the Commission initially proposed that for this rate case the capital structure will be maintained at 38% debt and 62% equity to reflect, at this stage, the average amongst the regional utilities and posited that DOMLEC must take steps to realize a gearing of 42% by the end of the tariff period. In the succeeding tariff period commencing 2018 the Commission will be seeking to establish the gearing in the region of 48% - 50%.

The Commission has listened to comments made at both consultations and has noted the comments requesting that a higher component of debt than that proposed by the Commission be included in the capital structure. At the first consultation, a comment was made to the effect that there is no doubt that debt is a cheaper method of financing and that DOMLEC and the IRC

[4] FTC Decision and Order No 0002/09 effective Oct 1, 2009
[5] Derived from data in GRENLEC Annual Report 2013
[6] LUCELEC Annual Report 2013
[7] DOMLEC Annual Report 2013

should reach a decision on the capital structure which will take this into consideration irrespective of how DOMLEC chooses to finance its assets in practice.

The Commission agrees that debt is a cheaper form of financing and does not agree with DOMLEC's comment that a capital structure of 38/62 will place the Company at the risk of default or make it unattractive to investors. In fact, after considering the comments and inputs from stakeholders the Commission now Determines that the Capital Structure shall be 40/60 for this review and further puts the company on notice that it will be seeking, in subsequent reviews, to adjust the capital structure to reflect a higher component of debt.

DECISION 1

DOMLEC's capital structure shall be 40% debt and 60% equity for the tariff period 2015 - 2017

Cost of Debt

The cost of debt is quite simple to determine if the actual cost of the debt on the company's books is used. In this regard DOMLEC's request is as follows:

> *Company's Cost of Debt*
>
> 20. *The Company's application is based on a cost of 5.75% for the Company's outstanding long-term debt as reported in Note 10 of the company's 2013 audited financial statements which are included as Appendix B. This cost rate is derived from the projected interest on the Company's 13 month average long-term debt, which at December 31, 2014 is projected at EC$ 38,773,805."*

The Commission accepts this proposal and will determine that the Company's cost of debt be fixed at 5.75%.

As there were no issues raised or alternatives positions suggested by respondents, the Commission reiterates its proposed Decision 2 below

DECISION 2

DOMLEC's cost of debt shall be fixed at 5.75% for the period 2015 - 2017

Cost of Equity

As has been advanced by DOMLEC and consistent with received wisdom the characteristics of the cost of equity are such that it must be estimated. The Determination recognizes this and in so doing advances the following as guidance:

> *The measurement of the cost of common equity, on the other hand, is more involved, since return to common equity is not fixed, and thus is not known with certainty.*
>
> *Instead, return on equity must be estimated. The estimation of return on equity is based on the principle that rational investors will not invest in a particular investment opportunity if the expected return is less than the return expected from alternative investments of comparable risk. Therefore, return on equity is calculated by measuring the expected returns on alternative investments of comparable risk.*
>
> *Estimating the return on equity may give rise to two types of errors. First, the use of any specific model may give rise to errors or biases unique to that model. To reduce errors that may result from the application of any one model, several financial models have been employed to estimate the cost of equity. The final cost of equity figure used in calculating an overall rate of return is the average of the results of the models applied. Second, the measurement of the cost of equity for any individual company may involve errors. To reduce errors that may result from the estimation of the cost of equity for a single company, the models are applied to a group of companies of similar risk.*
>
> *Next, the selection of comparable companies for DOMLEC is explained.*
>
> *Comparable Companies*

The comparable group of companies is an important factor in both the Discounted Cash Flow (DCF) model and the Capital Asset Pricing Model (CAPM). To select a comparable group that provides reasonable risk proxies, analysts rely on companies' bond ratings and safety ranks. Bond ratings and safety ranks are viewed by investors as measures of investment risk. For the U.S., the Value Line Investment Survey provides bond ratings and safety ranks for large number of public companies in various industries. Value Line bond ratings and safety ranks are used to exclude companies that have a speculative bond rating. In the absence of similar information for Dominica, companies will have to be identified for which information is available.

Models for Estimating Cost of Equity Capital

There are two widely accepted models for estimating the cost of equity capital. The first, the Discounted Cash Flow (DCF) model assumes that the current market price of a company's stock is equal to the discounted value of all expected future dividends. There are various formulations of the DCF model based on different projections of future dividend growth. The version of the DCF typically applied is the constant growth or the Gordon Model.The second, the Capital Asset Pricing Model (CAPM) assumes that the cost of equity investment is equal to the risk-free rate of interest plus the risk premium on the market portfolio adjusted by the company-specific risk factor, beta.

An average of the costs of equity derived from the DCF and CAPM models could then be used as the appropriate value for Cost of Equity (**emphasis added**).

The cost of equity proposed by DOMLEC was estimated with the use of the Discounted Cash Flow (DCF) and Capital Asset Pricing Model (CAPM) methodologies. These are widely used and accepted by regulators worldwide as well as in the region for deriving the cost of equity. In computing the cost of equity and in making its case, DOMLEC has relied, as indicated earlier, on the study carried out by Mr. William Vinhage of Vinhage and Associates as the main piece of expert evidence.

Risk-free rate

The Risk-free rate is the interest rate that can be obtained by investing in financial instruments with no default risks – the choice of this rate for an international investor, who has the option of investing in other countries, could be considered as the current rate attributable to US Treasury bills as these could be considered as "safe/risk free" investments. The appropriate applicable rate, could be considered as either the date of DOMLEC's application or the date of the Commission's analysis. In this regard, given the nature of DOMLEC's investments, the Commission is of the view that 10 Year US Treasury bond is the appropriate measure of long term risk free rate and notes that DOMLEC has itself proposed a risk-free rate *of 3.55% which is the average value of the monthly yields on 30 Year US Treasury Bonds from Oct 2013 to Sep 2014 as reported by the Federal Reserve Bank.*

In light of DOMLEC's comments in respect of the inadequacy of data from the Eastern Caribbean Securities Exchange, as proffered by the Commission earlier as a suitable market for analysis for the purpose of this rate review, it was necessary for the Commission to reconsider its position and adopt the US as the mature market but retain the ECSE bond issue for the purpose of adjustment to the risk premium in a similar fashion to DOMLEC's use of it for cost of equity adjustment.

The main reasons for using a 10 Year US Treasury bond as opposed to a 30 Year US Treasury bond are advanced by Professor Damodaran of Stern School of Business NYU that it is easier estimating equity risk premiums and default spreads *against the 10 Year bond than the 30 Year bond. It is much easier to find issues of the 10 Year T-bond.*[8]

The Commission proposes a risk-free rate 2.17% that being the Ten Year US Treasury T Bond rate as recorded at the end of December 2014. The Commission is mindful of DOMLEC's assertion that the 12 month average would be an appropriate rate but after due consideration the Commission accepts the view expressed by Prof Damodaran that the spot rate would be more representative of the future outcomes. The CAPM is forward-looking and therefore the risk free rate at this point in time is appropriate as this is the end of the test year period. The Commission notes that DOMLEC reiterated its position in its second response that the US 30 Year Bond rate would be appropriate as this would be consistent with the average asset lives. The Commission is of the view that this is a spurious argument as the bond rates have no linkages to asset lives as the one reflects a financial opportunity while the other is an accounting policy. This issue was, in any event addressed in the previous round of consultation.

DECISION 3

The Commission determined that the risk free rate shall be the US 10 Year Treasury Bond rate as at December 2014 – that is 2.17%.

Dominica risk-free asset rate

The Commission has argued in these proceedings the principle that instruments issued under the auspices of the Eastern Caribbean Central Bank (ECCB) should be used as the basis for benchmarking risk in the OECS countries. While, from an international perspective, it has been argued that the OECS markets may be immature, the fact is that the Eastern Caribbean Dollar is not only stable, but it has maintained it parity since it was pegged to the US$ on July 1, 1976. The currency itself has existed since 1965. The ECCB's 2013/2014 Annual Report makes the following commentary

> *"The prevailing economic circumstances did not compromise the domestic currency, which remains adequately backed with foreign reserves. The backing ratio averaged 94.98 per cent during 2013, significantly above the statutory limit of 60.0 per cent and the prudential operating limit of 80.0 per cent. Additionally, inflationary pressures were contained as the inflation rate fell to 0.8 per cent at end-December 2013 from 2.9 per cent at end-December 2012."*[9]

There can be no debate that the ECCB's record of management of the currency and its economic management of the economies of the OECS monetary space has not only resulted in one of the most stable currencies in the world but also in manageable inflation over the long term. While the Commission is aware of the preference of international investors, when investing in

[8] www.stern.nyu.edu/~adamodar/pdfiles/papers/riskfreerate.pdf

[9] Eastern Caribbean Central Bank, Annual Report 2013/2014

developing countries, to use as the risk free rate the US 10 Year Treasury Bill rate, the Commission believes that the particular advantageous circumstances afforded by the Eastern Caribbean Currency Union and the ECCB itself makes the use of the long term bonds issued by the ECCB an appropriate instrument to inform the risk free rate within the OECS countries.

Although there has been no active bond issued for Dominica in recent times, the Eastern Caribbean Central Bank provides data on current bond activity for three of its countries, St Lucia, Antigua and Barbuda and St Vincent and the Grenadines. DOMLEC suggests that the similarity of the economies of these countries where there is a common currency and "*the amount of public debt as a percentage of Gross Domestic Product of Dominica compared to other nations in the region suggests that the debt costs of this group are a reasonable proxy …….*".

The percent of public debt related to Gross Domestic Product for 2014 in these countries are documented in Table 4.

TABLE 4

Debt / GDP[10] Ratio

Country	Debt/GDP
Antigua & Barbuda	94
St Lucia	75
St Vincent & the Grenadines	78
Dominica	76

While the Commission has accepted the principle that the risk free be determined by the USA Ten Year Treasury Bond rate it subscribes to the view that in the absence of any data for Dominica, an average of the bond issues for these countries should serve as a reasonable proxy risk free asset rate. These are summarized in ***Table 5***.

TABLE 5

Eastern Caribbean Central Bank[11]
Listing of Rates 10 year Treasury Bills
At September 2014

Country	Rate %
Antigua & Barbuda	7.750
St Lucia	7.3648
St Vincent & the Grenadines	7.4047
Average	7.51

[10] Caribbean Development Bank: 2014 Caribbean Economic Review & 2015 Outlook

[11] Source: http://eccb-centralbank.org/Currency/country_intrates.asp#table2

The Commission feels that it is reasonable and practical to use the average rate as the Dominica risk free asset rate and therefore proposes to determine this rate to be 7.51%.
The Commission notes that DOMLEC also uses this rate as the Dominica long-term bond asset rate.

DOMLEC has proposed that there is a need to provide for size in the makeup of the risk profile arguing that there is need to "*to reflect the increased risk associated with DOMLEC being a very small island utility with limited opportunity for diversification of resources, customers, et cetera to mitigate a host of risks*" and proposed a 140 basis points provision for this. DOMLEC reiterated this point at the public consultations. The Commission remains unconvinced, however, that size adjustment is appropriate for Dominica in the current circumstances and repeats the following as particular considerations:

(1) The use of a regional composite of risks to derive the risk premium would be a factor to compensate for any perception of risk at the country level due to size.
(2) 48% of the ordinary share holding of DOMLEC is owned by Dominicans
(3) With the issuance of two 25 year licenses and the attendant safeguards (including renewal options) that are inbuilt to protect the investor and with no real prospect for competition, any riskiness associated with size is fully mitigated.

Additionally, however the Commission has taken into account arguments raised in the publication "Financial Valuation: Applications and Models" by James R Hitchner[12] where it is noted that there is no consensus on the applicability of a size premium adjustment for small companies. In an area where there is no consensus amongst analysts the Commission will be remiss in its duty to accept DOMLEC's argument that there must be adjustment for size.

The referenced text cites Jeffery S. Tarbell's factors that typically reflect the increased risk of small companies. These are instructive in considering the case of DOMLEC.

TABLE 6

Jeffery S Tarbell's Factors that typically reflect increased risk in small companies

Factor	Commission's Comments
Difficult to raise financing	The Commission is not aware that DOMLEC ever had difficulty in raising financing
Lack of product, industry or geographic diversification	The Commission disagrees with DOMLEC's comments that market geography is highly concentrated and subjected to risk factors eg storm activity. This is not peculiar to small island states. Not a factor for DOMLEC it is a regulated monopoly.
Inability to expand into new markets	Not a factor for DOMLEC
Key person management risks	Not a factor – DOMLEC is part of a wider

[12] Financial Valuation: Application and Models by James R. Hitchner

Factor	Commission's Comments
	group where the skills are available
Lack of management expertise	Not a factor – DOMLEC can call on its group partners for assistance
Higher sensitivity to economic movements	Not necessarily a major issue but DOMLEC may experience demand contraction in times of low economic activity
Lack of dividend history	Not a factor for DOMLEC – dividends are paid out regularly. A company that pays dividend is a profitable company
Higher sensitivity to business risks, supply squeezes and demand lulls	DOMLEC is a regulated monopoly and is insulated from these risks by virtue of its licences
Inability to control influence regulatory or union activity	This is a factor
Lack of economies of scale or cost disadvantages	This is a factor only in so far as prices of goods supplied be impacted. DOMLEC is not affected by competitive entry as it is the System Operator
Lack of access to distribution challenges	Not a Factor for DOMLEC
Lack of relationships with suppliers and customers	Not a factor for DOMLEC
Lack of product differentiation or brand name recognition	Not a factor for DOMLEC
Lack of deep pockets necessary for staying power	DOMLEC is part of a wider group with financial resources
Lack of externally generated information, including analysts coverage, resulting in a lack of forecasts	Not a factor for DOMLEC
Lack of adequate press coverage and other avenues to disseminate company generated information	Not a factor for DOMLEC
Lack of internal controls	Not a factor for DOMLEC
Lack of infrastructure	Not a factor for DOMLEC
Possible lack of internal reporting	Not a factor for DOMLEC
Smaller - Capitalisation companies are viewed as riskier by the credit markets resulting in • Higher interest rate spreads • Lower multiples of EBITDA for financing • Lower collateralisation rates • More restrictive covenants • Less use of stock as security interest	These are not necessarily a factor for DOMLEC given the fact that DOMLEC is a monopoly with 25 year operating licences that are structured with generous provisions for renewal and continuation of the licences. Contrary to DOMLEC's comments in practice the company has been able to attract comparatively low interest rates thus minimizing its capital cost

An objective assessment of these factors would result in a conclusion that DOMLEC does not fit the profile of a company that typically reflects the prospects of increased risk because of size.
In addition, and significantly, the Commission has been interested to note that DOMLEC's share price rose from $3.25 to $4.00 per share immediately on the market becoming aware of the grant of the two new 25 Year licences granted to DOMLEC. The Commission sees this as the Market's recognition of the risk mitigation attributable to the grant of the Licence and in any event there is implicit recognition of the size issue with the use of the ECSE 10 year Bond in the analysis.

DECISION 4

Having taken all the foregoing mitigation factors into account the Commission has determined that there will be no risk premium due to DOMLEC's size.

Utility Comparable Companies

In a document originating from Stern Business School of New York University, the response to the question "What is a comparable firm?" was "*A comparable firm is one with cash flows, growth potential, and risk similar to the firm being valued*". In addition to these, most analysts have concluded that comparable companies must be in the same business or line of businesses.

DOMLEC has proposed a selection of 15 US companies as that their comparable companies against which it should be compared for the purposes of calculating β. In fact, in describing the composition of the sample DOMLEC says "*The size of electric utility companies in the US is massive in comparison to DOMLEC; the companies chosen for inclusion were selected to have a market capitalization of less than $8 Billion US which is very small by US standards. In addition the sample was chosen to reflect utilities that are somewhat vertically integrated. With the liberalization of electricity supply in recent years in the US there are unlikely to be any purely vertically integrated utilities, but this sample does reflect companies that still have a significant portion of their supply vertically integrated in the regulated business*".

The Commission is, however, sympathetic to comments that it would have been better to have a larger sample of comparable companies, as was contemplated in the previous round when only LUCELEC and GRENLEC were used, and that there should be more market based data available for such companies to enable thorough analysis. It also notes that DOMLEC trades on the ECSE market and it would have been appropriate in some ways to use information from this market. At this point the Commission is minded not to use in any extensive way data from this market for analysis because of its perceived immaturity.

It is widely accepted that in emerging markets where companies are required to be evaluated that a mature market is used. Professor Damodaran publishes data sets for companies in all sectors and a wide range of countries. This includes 80,000 companies worldwide and more than 95 sectors including the power and utilities sectors.

The Commission notes that in its rate review JPS proposed one of Professor Damodaran datasets as its comparable group of global companies. In light of comments from DOMLEC, thirty-five companies of which data could be readily accessed were selected from Professor Damodaran eighty-three power companies dataset as proxy group of companies.

DECISION 5

The Commission will use the group of 35 companies in power sector used by Professor Damodaran as the proxy utilities (See Appendix 1)

The equity beta (β)

The beta of a stock is the relevant measure of risk for well diversified investors. This systematic risk is inherent in the respective stock and it is this risk that cannot be diversified.

For the United States, analysts typically rely on the estimates of beta from the Value Line Investment survey. The Value Line derives beta estimates through a regression analysis of the relationship between yearly, monthly or weekly percentage changes in the price of a stock and the yearly, monthly and weekly percentage changes in the Stock Exchange Index over a period of five years. There is no available analysts' estimate of beta for DOMLEC therefore the Commission used the beta for the group of 35 power companies[13] that's publicly available.

Table 7
Beta

Industry	Number of firms	Beta
Power	35	0.41

Mature Market Risk Premium (MMRP)

The mature market risk premium is the expected extra return over and above the risk – free rate that well-diversified investors require to invest in risky assets in mature markets.

There are two approaches used in arriving at the MMRP, the implied equity risks approach and the historical equity risk approach. The implied equity approach does not require historical data or corrections for country risk, but does assume that the market overall is correctly priced. Professor Damodaran also pointed out that the implied equity risk premium approach has a high predictive power.

The historical equity risk approach uses the mean of historical returns above the risk-free rate in the US market. Professor Damodaran notes that while users of this method may have developed the consensus that this is the best estimate of the risk premium looking forward, there are surprisingly large differences observed being used in practice. An example, the risk premium estimated in the US markets by different investment banks, consultants and corporations range from 4% at the lower end to 12% at the upper end. Three reasons advanced for these differences were identified as:

- Time period used
- Choice of Risk-free security

[13] http://www.thestreet.com/quote/AES/details/growth-rates.html
http://www.google.com/finance?q=NYSE%3Aduk&ei=YKMyVcHeH-uJsge4_YHQBw

- Arithmetic and Geometric averages

Professor Damodaran calculates the MMRP (for the US market) at 5.21% and the Commission proposes to use this rate in its own analysis.

DECISION 6

The Commission determines the Mature Market Risk Premium of 5.21% stated by Professor Damodaran as the implied equity risks approach.

Country Risk Premium (CRP)

A country risk premium is an additional risk associated with investing in a company on the international rather than the domestic market. Investing in an emerging country is considered riskier than investing in a more developed country like the United States. This is an adjustment made to the risk premium to compensate the investor for investing in other markets particularly the developing markets. The principle of higher return for higher risks holds in that investors expect to attract a higher premium to invest in a country with higher risk.

In estimating the cost of equity in emerging markets, Godfrey and Espinosa (1996)[14] propose an adjusted CAPM which is done in two ways: First by adding to the risk-free rate the default spread, which is the difference between the yield of the emerging market bond and yield of a comparable USA market bond. Second is an "adjusted beta". It is calculated as 60% of the ratio between the standard deviation of the returns in the emerging markets and the standard deviation of returns in the USA market.

Damodaran (2003)[15] proposed a calculation of the cost of equity for a firm investing in a market with country risk as follows:

$$E(R) = Rf + \beta\,(ERP\ m) + CRP$$

Professor Damodaran posits that not all firms are equally exposed to country risk and sought to modify the model in two ways:

i. adding country risk premium to the equity risk premium $\beta\,(ERP\ m + CRP)$;
ii. adjusting the country risk premium with some weight, $\beta\,(ERP\ m) + \lambda\,(CRP)$.

There are a number of stated ways in which country risk premium can be estimated. Among these, there are two most widely used methods, the "synthetic spread" and the sovereign bond spread. The synthetic spread entails obtaining a default spread for the assigned credit rating for the country. Professor Damodaran has developed a typical default spread for each sovereign credit rating expressed by Moody's.

[14] A Practical Approach to Calculating Cost of Equity for Investment in Emerging Markets (Journal of Applied Corporate Finance, Fall 1996.)

[15] Naumoski, Aleksandar. Estimating the Country Risk Premium in Emerging Markets: The Case of the Republic of Macedonia.

In the case of Dominica, its assigned credit rating is CariCRIS[16] BBB- ; which CariCRIS equates as B- for Fitch and S & P and which would be equivalent to B3 for Moodys. This gives a spread of 9.75%.

While ratings provide a convenient measure of country risk, there are costs associated with using them as the only measure. First, ratings agencies often lag markets when it comes to responding to changes in the underlying default risk. Second, the fact that the ratings agency focusses on default risk may obscure other risks that could still affect equity markets.

Unlike the synthetic spread which utilizes sovereign credit ratings assigned by credit agencies, the sovereign bond spread is market-based. This is the difference between the yield on the emerging country sovereign bond and the yield of a comparable mature market bond

The Commission is not inclined to use the synthetic spread for the above reasons as well as it could not verify adequately the equivalency of CariCRIS rating but it will use the sovereign bond spread.

In this case the spread is the Country Risk Premium (CRP) derived as follows
CRP = Dominica long-term bond rate – US Risk free rate and equates to 5.34% (7.51% - 2.17%)

Cost of Equity

CAPM

The cost of equity using the CAPM method is given as $k = R_f + \beta(R_m - R_f)$

Where	R_f	the risk-free rate
	R_m	the market returns
	β	this is beta which is the measure of systematic risk

The corresponding results from the calculations to determine the cost of equity (using CAPM) in the scenario discussed is as follows:

$$K_{ec} = Rf + \beta(MMRP + CRP)$$

Cost of Equity (K_{ec}) = 2.17 + 0.41 (5.21 + 5.34) = 6.5%

DCF

The DCF model assumes that the current market price of a company's stock is equal to the discounted value of all expected future dividends. Although there are different projections of future dividend growth, the one which is being proposed is the constant growth or the Gordon Model[17].

[16] CarrCRIS is a regional rating agency headquartered in Trinidad and Tobago. www.cariCRISS.com
[17] www.investopedia.com/terms/g/gordongrowthmedel.asp

The cost of equity using the DCF method is $K_{ed} = D_o(1+g)/P_o + g$

Where k is the cost of equity
D_o is the present dividend
g is the constant growth
P_o is the current market price

Cost equity was calculated for the proxy group companies using the DCF method. This equated to 12.19%. By adjusting for country risk Beta x the default spread = 0.41x5.34 + 12.19 = 14.38%

Derivation of Cost of Equity (K_e)

The cost of equity is calculated by averaging the results obtained from the CAPM and the DCF methodologies. This is calculated below at Table 7,

TABLE 7

Derived Cost of Equity
Proxy Group

Models	Proxy Group
DCF	14.38%
CAPM	6.5%
Average	10.44%

The Commission is of the view that it would be appropriate to consider the average of the costs of equity for DOMLEC and that of the proxy group to be a reasonable value to assign as DOMLEC's cost of equity for this tariff review. In the instant case the average is 10.44%.

The Commission would therefore conclude that a reasonable expectation for the cost of equity by investors in DOMLEC would be 10.44%.

DECISION 7

The Commission has determined that, based on the results of the application of the DCF and CAPM methodologies, DOMLEC's cost of equity for the tariff period shall be 10.44%.

WACC

Arising from the foregoing the WACC for DOMLEC would be derived from the following inputs (Table 10)

TABLE 8

Derivation of DOMLEC's WACC

Capital Structure	**40/60**
Cost of Debt	5.75
Cost of Equity	10.44
WACC	8.56%

The Commission therefore proposes that DOMLEC's WACC shall be fixed at 8.56%.

DECISION 8

The Commission has determined that the WACC to be applied to DOMLEC's regulatory asset base shall be 8.56%.

Conclusions

DOMLEC points out in its submission that, by and large, rate cases awards for return on equity in the United States have been trending down. In fact the resource used to illustrate the point is data obtained from the Edison Electric Institute which shows a steady decline over the period Q4 2000 to Q44 2012 from about 12% to 10%. It should therefore be anticipated that the international market would follow the US and that the returns on equity would also trend downwards. The proposal on the value of DOMLEC's WACC is not inconsistent with this trend.

The Commission is of the view that for the reasons and arguments made in this document a WACC of 8.56% reasonably balances the interests of the company and consumers and is consistent with the regulatory principles enunciated in the Determination. It also believes that it exercised its duty consistent with Section 21 of the Act and acted in accordance with Section 22 of the said Act.

Summary of Decisions

DECISION 1

DOMLEC's capital structure shall be 40% debt and 60% equity for the tariff period.

DECISION 2

DOMLEC's cost of debt shall be fixed at 5.75%.

DECISION 3

The risk free rate to be the average of the US 10 Year Treasury Bond rate at December 2014 – that is 2.17%.

DECISION 4

The Commission has determined that there will be no risk premium due to DOMLEC's size.

DECISION 5

The Commission will use the group of 35 companies in power sector used by Professor Damodaran as the proxy utilities (See Appendix 1)

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DECISION 6

The Commission will use the Mature Market Risk Premium of 5.21% stated by Professor Damodaran as the implied equity risks approach.

DECISION 7

The Commission has determined that, based on the results of the application of the DCF and CAPM methodologies, DOMLEC's cost of equity for the tariff period shall be 10.44%.

DECISION 8

The Commission proposes that the WACC to be applied to DOMLEC's regulatory asset base shall be 8.56%.

References and Links

1. ALEKSANDAR NAUMOSKI, *“Estimating the Country Risk Premium in Emerging Markets: The Case of the Republic of Macedonia”*
2. Hitchner, James. R, “*Financial Valuation: Application and Models*”
3. http://eccb-centralbank.org/Currency/country_intrates.asp#table2
4. http://people.stern.nyu.edu/adamodaran
5. http://people.stern.nyu.edu/adamodaran/New_Home_Page/datacurrent.html
6. Journal of Applied Corporate Finance, Fall 1996; *“A Practical Approach to Calculating Cost of Equity for Investment in Emerging Markets”*
7. www.cariCRISS.com
8. www.investopedia.com/terms/g/gordongrowthmedel.asp
9. www.stern.nyu.edu/faculty/bio/aswath-damodaran

Appendix 1

List of Comparator Companies

Company Names	Exchange Ticker	Country	Dividend	Growth Rate	Return on	Beta
SELECTED FROM DAMODORAN SITE			yield	5 years Average	Equity	
				EPS & Dividend		
Westar Energy Inc	NYSE:WR	United States	3.80%	5.93%	9.73%	0.37
Exelon Corporation	NYSE:EXC	United States	3.71%	6.77%	10.48%	0.42
Duke Energy Corporation	NYSE:DUK		4.10%	7.48%	11.58%	0.14
Southern Company	NYSE:SO	United States	4.45%	3.75%	8.20%	0.09
The AES Corporation	NYSE:AES	United States	3.00%	1.68%	4.68%	1.23
American Electric Power Co. Inc	NYSE:AEP	United States	3.79%	4.31%	8.10%	0.30
NextEra Energy Inc	NYSE:NRG	United States	2.96%	12.10%	15.06%	0.31
First Energy Corp.	NYSE:FE	United States	4.09%	8.05%	12.14%	0.18
NRG Energy	NYSE:NRG	United States	2.31%	8.66%	10.97%	0.71
Energy Corporation	NYSE:ETR	United States	4.29%	12.25%	16.54%	0.25
Xcel Energy Inc	NYSE:XEL	United States	3.74%	29.12%	32.86%	0.22
PPI Corporation	NYSE:PPL	United States	4.46%	28.15%	32.61%	0.22
Northeast Utilities	NYSE:NU	United States	3.32%	1.36%	4.68%	0.38
Pepco Holdings Inc	NYSE:POM	United States	4.04%	1.57%	5.61%	0.24
New Jersey Resources Corp	NYSE:NJR	United States	2.90%	11.31%	14.21%	0.54
Pinnacles West Capital Corp.	NYSE:PNW	United States	3.80%	15.22%	19.02%	0.34
Hawaiian Electric Industries Inc	NYSE:HE	United States	3.89%	17.81%	21.70%	0.10
Great Plains Energy Inc.	NYSE:GXP	United States	3.67%	3.84%	7.51%	0.47
OGE Energy Corp	NYSE:OGE	United	3.10%	6.82%	9.92%	0.64

		States				
Portland General Electric Company	NYSE:POR	United States	3.06%	3.78%	6.84%	0.41
UIL HOLDINGS Corp	NYSE:UIL	United States	3.44%	3.18%	6.62%	0.58
The Laclede Group Inc	NYSE:LG	United States	3.57%	2.52%	6.09%	0.37
PNM Resources Inc	NYSE:PNM	United States	2.90%	8.37%	11.27%	0.51
Ida Corp, Inc	NYSE:IDA	United States	3.03%	7.99%	11.02%	0.52
Cleco Corporation	NYSE:CNL	United States	2.94%	6.56%	9.50%	0.47
Questar Corporation	NYSE:STR	United States	3.54%	19.38%	22.92%	0.49
Allete Inc	NYSE:ALE	United States	3.93%	5.07%	9.00%	0.64
ITC Holdings Corp.	NYSE:ITC	United States	1.82%	10.32%	12.14%	0.11
Otter Tail Corp	NasdaqGS: OTTR	United States	3.87%	10.54%	14.41%	0.98
El Pasco Electric Co.	NYSE:EE	United States	2.97%	6.43%	9.40%	0.34
The Empire District Electric Comp	NYSE:EDE	United States	4.23%	6.04%	10.27%	0.32
MGE Energy Inc	NasdaqGS: MGEE	United States	2.64%	5.94%	8.58%	0.42
Cheapeake Utilities Corp	NYSE:CPK	United States	2.15%	7.68%	9.83%	0.44
Unitil Corp	NYSE:UTL	United States	4.13%	13.64%	17.77%	0.33
Edison International	NYSE:EDE	United States	2.14%	3.38%	5.52%	0.38
					ROE	**BETA**
				Average	12.91%	0.41