
Office of Utilities Regulation

Revised Determination Notice

Dynamic Environmental Management Limited – Water and Sewerage Rates

February 2, 2015



OFFICE OF UTILITIES REGULATION

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West Indies**

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DOCUMENT TITLE AND APPROVAL PAGE

1. DOCUMENT NUMBER: 2015/WAS/001/REV.001

2. DOCUMENT TITLE: Dynamic Environmental Management Limited – Water and Sewerage Rates Revised Determination Notice

3. PURPOSE OF DOCUMENT

This document replaces the previously issued Dynamic Environmental Management Limited – Water and Sewerage Rates Determination Notice 2014/WAS/006/DET.004.

4. ANTECEDENT PUBLICATIONS

Publication Number	Publication Title	Publication Date
2014/WAS/006/DET.004	Dynamic Environmental Management Limited – Water and Sewerage Rates Determination Notice	December 19, 2014

5. Approval

This document is approved by the Office of Utilities Regulation and the decisions therein are effective as at January 1, 2015.

On behalf of the Office:



.....
Deputy Director General
Maurice Charvis

2015-02-02
.....
Date

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Preamble

This reissued document addresses and corrects for inconsistencies identified in Dynamic Environmental Management Limited – Water and Sewerage Rates Determination Notice 2014/WAS/006/DET.004 issued on December 19, 2014. It also provides clarification/explanation on a few issues raised by Dynamic Environmental Management Limited subsequent to the issuance of the Office’s decision. Specifically, corrections were made to paragraphs 5.16, 5.18.5 and 8.5 and tables 8, 10 and 12. The document also reflects minor typographical and stylistics edits. The changes do not in any way alter the substance of the previously issued determination and in particular, do not change any of the rates and charges. The effective date of the determination therefore remains January 1, 2015, as previously specified.

Executive Summary

- I Dynamic Environmental Management Limited (DEML) submitted a tariff application on February 26, 2014 to the Office of Utilities Regulation (OUR/ Office) for the Caribbean Estates, Morris Meadows, Portmore Country Club and Vineyards Estates housing developments to which it provides water and sewerage services. This application was subsequently updated by way of a submission dated March 3, 2014. Along with its application, DEML provided audited financial statements for the company, operations data and a business plan outlining the company's progress over the years and the major works it is proposing to undertake in the near term.
- II DEML proposed a two part tariff to recover its operating expenses and its capital investment along with a Price Adjustment Mechanism (PAM). Table 1 below outlines the rates proposed.

Table 1: Summary of DEML Rates

Details	DEML Current Rates	Proposed Rate
Water Charges	\$87.05	\$119.56
Sewerage Charge	\$87.05	\$119.56
Service Charge	\$569.89	\$681.10
Reconnection Fee	\$3,517.33	\$4,026.08
Connection Fee	\$2000	\$3,000.29

Sewerage service is proposed to be billed at 100% of water consumption and at rates equivalent to those for water until DEML accounts are separated into its two main costs functions, water and sewerage.

- III The OUR's practice in reviewing tariff application is to hold public consultations to obtain the views of interested stakeholders and residents in the relevant service areas. Consequently, two public consultations were held within the areas served by DEML. Stakeholders were also afforded the opportunity to write to the OUR on issues they considered relevant to DEML's tariff application.

- IV In arriving at its decision, the Office reviewed DEML's proposal, and has also taken into consideration the views expressed by stakeholders (oral and written). DEML was also afforded an opportunity to review the draft determination notice and the comments provided in its response have been duly considered in arriving at the Office's final determinations.
- V Several adjustments were made by the OUR to DEML's proposed capital and operating costs. Consequent on these adjustments, it was determined that the relevant regulatory capital cost invested by DEML is \$26.11M and the assessed projected operating cost is \$85.6¹M.
- VI The Office has determined for all four (4) housing developments a service charge of \$549 a flat volumetric rate of \$96.58 per 1000 liters for both water and sewerage services, and a reconnection fee of \$3,733.08.
- VII A monthly PAM will be applied to the rates charged by DEML for all four (4) housing developments. The PAM is an indexation mechanism that is applied to the base rate for water and sewage services to preserve the real revenues of the company. The PAM captures changes in foreign exchange, consumer price index, and electricity charges.
- VIII The Office has developed quality of service standards to regulate the services delivered by the company. These standards are categorized as either overall or guaranteed standards. The overall standards are general in nature and the performance of the company against these standards is taken into consideration whenever the rates are reviewed. The guaranteed standards, on the other hand, address specific areas of service delivery in the relationship between the company and its customers. Breach of the guaranteed standards attracts a compensatory payment equivalent to the reconnection fee which must, within forty-five (45) days, be automatically credited to the customer's account by DEML.
- IX The rates as herein determined by the Office, become effective January 1, 2015 and will remain in effect for a period of thirty-six (36) months, or for such longer period as the Office may determine.
- X DEML must submit at least two (2) years of audited financial statements prior to the next review of the rates along with quarterly reports on its operations as specified by the OUR.

¹ The figure for operating cost exclusive of depreciation

XI DEML must submit proof of insurance of its fixed assets, six months after the effective date of this Determination Notice.

Chapter 1: Introduction

- 1.1 One of the aims of the policy of the Government of Jamaica for the water sector is to increase access to safe and potable drinking water and to ensure adequate sewerage services. The government policy also promotes greater private sector participation and involvement in the water sector.
- 1.2 DEML is a limited liability company incorporated in April 2005. The company provides water and sewerage services to the Vineyards Estates, Caribbean Estates, Portmore Country Club and Morris Meadows housing developments.
- 1.3 DEML's last application for a tariff review for all four (4) housing developments was made on June 6, 2011 in response to which the Office issued "Dynamic Environmental Management Limited Review of Rates" Document No. WAS2011003_DET003 dated January 5, 2012 ("2012 Determination Notice"). The decisions in the 2012 Determination Notice were set for a minimum of twenty-four (24) months.
- 1.4 DEML submitted a tariff application on February 26, 2014 to the OUR for the Caribbean Estates, Morris Meadows, Portmore Country Club and Vineyards Estates housing developments to which it provides water and sewerage services. This application was subsequently updated by way of a submission dated March 3, 2014. Along with its application DEML, provided audited financial statements for the company, operations data and a business plan outlining the company's progress over the years and the major works it is proposing to undertake in the near term.

Customer Base

- 1.5 Currently, DEML provides potable water to 2,266 active customers and sewerage services to 2,194 sewerage customers in St. Catherine. The breakout is as shown in Table 2 below:

Table 2: Total Customer Base

Name of Housing Development	# of Accounts Water	# of Accounts Sewerage
Vineyards Estate	420	419
Caribbean Estates	983	981
Portmore Country Club	392	385
Morris Meadows	471	409
Total	2,266	2,194

Description of Services

Potable Water Services

- 1.6 DEML operates four (4) water supply systems comprising wells, steel bolted tanks, chlorinators, booster pumps, trunk mains and standby generators. Potable water is transferred to customers via house taps. DEML produces 54,279M³ of water per month through a network of pipelines in the various housing developments. The highest volume of water produced is for customers at Caribbean Estates where production for this scheme alone is 26,321M³ per month.
- 1.7 The sources of water for the Vineyards Estates and Portmore Country Club housing developments are from wells located on the sites which have been handed over to DEML. Caribbean Estates and Morris Meadows housing developments' water sources are from, the Cookson Number 4 Well and an on-site well at Morris Meadows. DEML also purchases water from the National Irrigation Commission (NIC) and NF Barnes Construction Company Limited.

Sewerage services

- 1.8 DEML provides sewerage services to ninety seven percent (97%) of its customers. The Vineyards Estates and Morris Meadows developments have their own wastewater treatment plants, while the Portmore Country Club sewage terminates into the Caribbean Estates wastewater treatment plant. All wastewater treatment plants are located on the respective housing development except the Caribbean Estates Wastewater Plant that is located in Greater Portmore.

Chapter 2: Legal and Regulatory Framework

- 2.1 DEML is a regulated utility pursuant to the Office of Utilities Regulation Act and operates under the following licences (collectively referred to as the Licences) issued by the Minister of Water based on the recommendation of the OUR:
- 2.1.1 Dynamic Environmental Management Limited Water Supply Licence (Caribbean Estates and Portmore Country Club) 2008;
 - 2.1.2 Dynamic Environmental Management Limited Sewerage Service Provider Licence (Caribbean Estates and Portmore Country Club), 2008;
 - 2.1.3 Dynamic Environmental Management Limited Water Supply Licence (Morris Park) 2007;
 - 2.1.4 Dynamic Environmental Management Limited Sewerage Provider Licence (Morris Park) 2007;
 - 2.1.5 Dynamic Environmental Management Limited Water Supply Licence, 2005; and
 - 2.1.6 Dynamic Environmental Management Limited Sewerage Provider Licence, 2005.
- 2.2 The Licences, inter alia, prescribe the rates that may be charged by DEML and the procedure for determining same. The Licences provide,

“Price Controls

1. *The Licensee is subject to conditions in Schedule 3.*
2. *The rates to be charged by the Licensee in respect of the prescribed utility services shall be subject to such limitation as may be imposed from time to time by the Office.”*

“Standards of Service

The Licensee shall comply with any scheme introduced by “the Office” from time to time to enhance customer service and Quality of Service generally.”

- 2.3 Schedule 3 of the Licences provide as follows:

“The rates for the supply of services by the Licensed Business shall be set such that they provides a reasonable opportunity for the Licensee to make a reasonable return on capital employed after taking into account all reasonable costs incurred in the provision of the services.

Revenue Requirement = operating costs + depreciation+ taxes + return on investment.”

Each component is defined in the Licences. Schedule 3 sets out the tariff review process as follows:

“Initial Tariff

On the granting of this License the Licensee shall submit a proposal to the Office for the initial tariffs to be charged in respect of services [and the Rate Review Process as set out herein under shall be applicable].

Subsequent Tariff

“At such intervals as the Licensee may determine but no more than once every two years, the Licensee may submit an application for a tariff review. The Application must be supported with data and information as the Office will determine.”

“Rate Review Process

Licensee shall file with the Office proposed rate schedules and shall demonstrate that the rates proposed for the various rate categories will generate the required revenue requirement for the test year.

The Office shall accept such filing within ten (10) working days following certified delivery of the filing with the Office unless the filing is clearly deficient to the extent that it will not allow the complete evaluation of the Licensee’s application including the proposed rate schedules. If the Office determines that the filing is deficient it shall reject such filing within the said ten working days and shall notify the Licensee clearly identifying the deficiencies.

Upon acceptance of the rate filing the Office shall initiate a rate proceeding to conduct its review of the Licensee’s proposed rates in which the Office shall have full discretion to accept, modify or reject the proposed rates. The Office shall have full discretion to determine the format and procedure of such proceedings and in making its decision shall observe reasonable standards of procedural fairness and the rules of natural justice and act in a timely manner. The Office’s review shall consist of an evaluation of the revenue requirements including prudent operating costs, depreciation expenses, taxes and a return on investment...”

- 2.4 In setting DEML’s tariff, the OUR is also obliged to consider Section 3.3.2.5 of the Jamaica Water Sector Policy which provides as follows:

“The OUR will be responsible for setting tariffs at a level which allows the service providers to fully recover efficient cost levels (including both capital and operating

costs). The service providers will be responsible for increasing the efficiency of their operations, thus reducing costs to the lowest efficient levels. Where exceptional circumstances dictate the need for additional funds for systems improvements or rehabilitation, the OUR will take this into account in setting tariffs.”

Chapter 3: DEML's Proposal

- 3.1 DEML proposed that the Rate of Return Methodology be used to determine their initial base rates consistent with methodology specified in the Licences and previously applied by the OUR. The rate of return methodology states that the rates for the supply of service shall be set such that it provides a reasonable return on capital employed after taking account of all reasonable costs incurred in the provision of the services.

The methodology is specified as follows:

Revenue Requirement = Cost of Service

$$R = O + D + T + kB$$

Where:

R = revenue requirement,

O = operating expense,

D = depreciation allowance,

T = taxes,

k = a fair rate of return,

B = rate base.

$$\text{Price/Tariff} = \frac{\text{Revenue Requirement for service}}{\text{Quantity Demanded}}$$

Test Year

- 3.2 DEML indicated that the test year is based on the year for which the last audited financial statements are available that is, 2012.

Rate Proposal

- 3.3 DEML proposed a rate structure consisting of a volumetric rate, a service charge, and a Price Adjustment Mechanism (PAM). The company indicated that sewerage charges will be billed at 100% of water charges.

Table 3 below outlines the service charges and volumetric rates proposed by DEML.

Table 3: DEML's Rate Proposal

Rate Proposal	Service Charge	Volumetric rate	
		Water rate/1000 liters	Sewerage rate/1000 liters
Caribbean Estates	\$681.10	\$119.56	\$119.56
Morris Meadows	\$681.10	\$119.56	\$119.56
Portmore Country Club	\$681.10	\$119.56	\$119.56
Vineyards Estates	\$681.10	\$119.56	\$119.56

A Reconnection Fee of \$4,026.08 and Connection Fee of \$3,000.00 were proposed for all four (4) housing developments.

Price Adjustment Mechanism (PAM)

3.4 The PAM is an indexation mechanism that is applied to the base rate and charges for water and sewerage services to preserve the real revenue of a company. The PAM captures the movement of the consumer price index, foreign exchange (J\$/US\$) and kilowatt hour charge (kWh). The company proposed that the PAM mechanism approved in the 2012 Determination Notice be continued throughout this tariff period.

Capital Expenditure

3.5 DEML proposed total capital expenditure projects of \$16.1M to be completed over a five year period. The capital works include the relining of a third pond that is currently leaking at Vineyards Estates. The company also proposed the construction of changing room and bathroom facilities at Morris Meadows and Caribbean Estates sewerage ponds as stipulated by the Ministry of Health. It also indicated that perimeter fencing is required at the Caribbean Estates sewerage pond, since the original fence was stolen. DEML also reported that plans were underway to purchase six, 4 inch meters, a pick-up truck, computers, office furniture and equipment, and a security system.

3.6 The company claimed that \$4.79M represents the cost (principal plus interest) to secure a loan to complete these projects over a five year period.

3.7 Table 4 below outlines the total capital expenditure projects and costs that DEML proposed to undertake during the tariff period.

Table 4: Propose Capital Expenditure

Projects	Vineyard Estates	Caribbean Estates	Morris Meadows	Portmore Country Club	General	Total
Re-Lining Sewage Pond	\$4,760,330					\$4,760,330
Installation of changing Perimeter		\$567,936.00	\$233,968.00			\$801,904
Purchasing of 4" meters	\$889,488.00	\$889,488.00	\$444,744.00			\$2,223,720
Purchasing of 4" meters - NEPA-Influent and Effluent	\$889,488.00	\$699,137.57	\$889,488.00	\$190,350.43		\$2,668,464
Pick-up					\$2,500,000	\$2,500,000
Office Furniture & Computer					\$200,000	\$200,000
Security					\$150,000	\$150,000
					\$300,000	\$300,000
Total	\$6,539,306.06	\$4,121,561.57	\$1,568,200.00	\$725,350.43	\$3,150,000.00	\$16,104,418

Return on investment

3.8 DEML stated that it used a rate of 10.26% in calculating the return on investment. This, it pointed out, is the same rate as was determined by the OUR for the National Water Commission (NWC) in October 2013. DEML argued that this is justified as both itself and NWC operates in the same market. The return on investment should therefore, be relatively the same.

Operating Expenses

3.9 DEML explained that these costs form the basis for determining the appropriate rates to be charged as they represent actual costs adjusted to reflect normal operating conditions and such charges that are known and measurable. Operational expenses included administrative cost, cost of sales, banking and financial, sales and marketing and operations and maintenance expenses.

Operations and Maintenance

3.10 DEML projected that operations and maintenance expenses of \$15.21M will be spent across all schemes. This cost category is made up of costs associated with: supplies, security, repair and maintenance, vehicle and travel, licenses, permits and leases and quality testing expenses.

Administrative Costs

3.11 This cost category consists of salaries for seven (7) staff members, health insurance, pension, safety gears, management fee and statutory payments. Administrative costs amounting to \$17.61M were proposed.

Sales and Marketing Costs

3.12 Total sales and marketing costs of \$130,667 was proposed. This figure included costs associated with Yellow Page directory advertising, printing of business cards etc.

Property and Utility Costs

3.13 The proposal for property and utility cost was \$4.93M. This included rental cost, office utility, telephone and stationery and office supplies.

Direct Cost of Sales

3.14 This was the highest cost category proposed by DEML. The proposal for this was \$56.68M. The company outlined that this category consists of production wages for the current twelve (12) field staff, one (1) senior operations officer, and an independent meter reader. Electricity cost, water purchase cost and the cost of purchasing chlorine and reagent were also included.

3.15 *Utility Costs* – DEML’s major utility costs includes:

Electricity - DEML outlined that its proposed cost for electricity was based on average consumption for January – December 2013. Electricity cost proposed was \$20.76M.

Water - The company reported that water purchase cost was based on average water consumption for Caribbean Estates, Portmore Country Club and Morris Meadows for the period January – December 2013. It also made provision of 5% to account for the cost of water loss due to repairs to the network and other unavoidable losses. Water purchase cost was proposed at \$22.57M.

Banking and Other

3.16 There was a provision of \$4.83M for this cost category. DEML indicated that this was attributed to insurance expense that covers the insurance of the generator, pump and chlorinator, audit and legal fees, finance charges as well as bank charges.

Other Costs

3.17 *Depreciation*- DEML proposed charging depreciation on assets it purchased by and those handed over to it by the developers to be used in the provision of the services. DEML proposed \$7.59M as depreciation expenses.

Property Tax - DEML proposed property tax of \$994,500. This it indicated represents the tax for Bernard Lodge Sewerage Ponds and for the Ponds at Vineyards Estates.

Other Taxes – This included asset tax of \$75,000 and company annual return of \$ 8,000.

Total Operating Cost

Total operating expenses proposed by DEML is shown in Table 5 below:

Table 5: Proposed Operating Expenses

Type of cost	DEML Proposed
Direct Cost of Sales	\$56,684,077.14
Production Wages	\$12,274,758.86
Electricity	\$20,765,015.18
Water Purchase	\$22,568,296.50
Chlorine	\$1,076,006.60
Sales And Marketing	\$130,667.04
Property & Utilities	\$4,933,820.63
Rental Cost	\$1,557,405.79
Office Utility expenses	\$1,188,637.18
Telephone	\$1,351,283.64
Stationary & Supplies	\$836,494.02
Operations	\$15,207,633.06
Supplies	\$1,591,648.20
Security	\$353,225.25
Repair and Maintenance	\$8,422,046.44
Vehicle and Travel	\$1,412,531.00
Licenses, Permits & leases	\$2,256,016.18
Quality Testing Expenses	\$1,172,166.00
Banking & Other	\$4,825,243.72
Bank Charges	\$1,170,464.66
Audit & legal	\$800,000.00
Insurance	\$1,150,779.06
Finance Charges	\$1,704,000.00
Administrative Cost	\$17,614,879.08
Salaries	\$6,873,003.89
Health Insurance	\$1,893,370.44
Pension	\$957,388.14
Uniform/ training and safety requirements	\$3,201,385.27

Management Fees	\$2,391,999.82
Depreciation	\$7,592,087.57
Total Expenses	\$106,988,408.24

Rate Proposal

3.18 The company proposed a rate structure consisting of a volumetric rate and service charge. The company also requested that the monthly PAM mechanism continues throughout the new tariff period. Table 6 below outlines the service charge and volumetric rate proposed by DEML.

Table 6: Rate Increase Required

Details	Rate
Water Charges	\$119.56
Sewerage Charges	\$119.56
Service Charges	\$ 681.10
Reconnection Fee	\$ 4,026.08
Connection Fee	\$3,000.0

*Sewerage charges were proposed to be billed at 100% of water charges.

Chapter 4: Public Consultation

- 4.1 Consistent with its practice and statutory obligations, the OUR consulted with the residents and affected stakeholders in the relevant communities in order to obtain comments on DEML's rate application. These meetings were held on April 8 and 10, 2014 at Caribbean Estates for the Portmore residents, and at FIWI Place for the Vineyards Estates residents. The meetings provided an opportunity for customers to:
1. Hear firsthand the changes that DEML proposed to its rate structure;
 2. Provide feedback on the DEML's proposals; and,
 3. Share their experiences regarding the quality of service being received.

Stakeholders were also invited to submit comments in writing.

Predominant Customer Concerns

Composition of Cost Structure

- 4.2 DEML customers raised concerns regarding the composition of the cost structure submitted by the company in its tariff application. The customers noted that DEML's proposed increase had been applied to the rates that were adjusted for inflation and became effective in January 2014, and not the base rate as was determined by the OUR in 2012. The customers further pointed out that applying the requested increase to the January 2014 rates would result in an unreasonably greater level of increase, if the OUR granted an increase.
- 4.3 Queries were also raised regarding the inclusion of charges associated with the National Irrigation Commission (NIC) and N.F. Barnes Construction & Equipment Co. (N.F. Barnes) for the purchase of bulk water as part of DEML's cost structure; the level of increase being sought which they argued was higher than the single digit inflation level.
- 4.3.1 **Response:** The OUR in responding to the first part of this query indicated that computation of rate adjustment is carried out in keeping with Schedule 3 of the Licences which provide that adjustments are applied to a test year. The test year represents the twelve (12) month period for which the most recent audited financial statements was received. For the current review, the test year is therefore 2012. Accordingly, any adjustment that would be made to the rates would be applied to the old base rates to arrive at a new set of base rates. However, the effective increase will be calculated from the last billed rates inclusive of any inflationary adjustment.
- 4.3.2 As regards, the charges for NIC and NF Barnes, DEML indicated that it was expected that the OUR would consider and determine the legitimacy of these charges which it considered to be appropriate expenses.

Bank Charges and Capital Investment/ Funding of business operations

4.4 A number of residents raised the issue of whether they were being asked to finance DEML's bank charges. They were also interested in knowing the level of DEML's capital investment in the business as they expressed the view that DEML was asking the customers to capitalize the business. Accordingly, the customers suggested that they should be offered shares in the company. Customers also requested that DEML's audited financial statements be made available for their review.

4.4.1 **Response:** DEML advised that all relevant information including those relating to its cost structure and financing of the company had been submitted to the OUR as part of its application. It therefore expected that the OUR, in conducting the review, would ensure that only prudent costs are passed on to customers.

Capital Expenditure Items

4.5 Customers were interested in knowing whether capital expenditure items will result in a reduction in rates when one-time payments are made. Customers also queried the basis for expenditure on changing rooms and pick-up trucks since these items were included in the rate application submitted in 2011.

4.5.1 **Response:** DEML advised that expenditure on capital items will be financed over several years and will therefore attract financing costs, which will have to be passed on to customers. In relation to the changing room and pick-up trucks, DEML advised that these capital expenditure items were not purchased as the amount granted by the OUR in the 2012 Determination Notice was less than the amount requested. The company was therefore, unable to make these expenditures.

Reconnection Fee

4.6 Customers questioned the basis on which the reconnection fee is higher than the connection fee.

4.6.1 **Response:** DEML advised that the higher cost for reconnection resulted from the fact that two activities were involved, one to disconnect and the other to reconnect.

Water Quality

4.7 Customers stated that in their view, the water distributed by DEML is of a very poor quality and questioned whether it was fit for human consumption. They further explained that due to the poor water quality, their faucets had become dis-coloured and the washers needed to be changed regularly.

4.7.1 **Response:** DEML recognized that the water has a high calcium content which may account for the faucets becoming dis-coloured. They explained however that the water is safe for drinking as routine tests are conducted to ascertain water quality by all the relevant agencies, including the Ministry of Health and the Scientific Research Council.

Infrastructure and Maintenance

4.8 Residents were interested in knowing the type of fencing that would be used for the sewerage plants. They also queried the difference between routine and scheduled maintenance as these activities attracted different costs.

4.8.1 **Response:** DEML advised that the fencing for the sewerage plants is comprised of concrete posts with barbed wires. It was further explained that since the site is a habitat for crocodiles, it must contain a concrete base as per NEPA's stipulations.

4.8.2 In relation to maintenance costs, DEML advised that routine maintenance is carried out on a daily basis by in-house staff to ensure that equipment, such as motors, are working properly. Scheduled maintenance, on the other hand, was outsourced and included activities such as maintaining the sewerage plants, especially during the rainy season.

Operational Efficiencies

4.9 Customers highlighted DEML's report which indicated that 38% of treated water is unaccounted for. They were therefore interested in knowing what measures were being employed by the company to reduce losses, and whether customers were being asked to pay for the company's inefficiencies.

4.9.1 **Response:** DEML advised that the company had experienced challenges in identifying leaks and illegal connections in a timely manner. However, DEML agents advised that with the efforts that have been made, there had been a decrease in the level of unaccounted for water.

Interruption of Service

4.10 Customers in Caribbean Estates advised that when the electricity supply is interrupted, within half an hour there is no water. They stated that this happened as recently as in February 2014.

4.10.1 **Response:** DEML advised that there should be no interruption in service as a result of a failure in the public electricity supply as the tank which serves the area is equipped with a standby generator. As such, the interruption could not have resulted from the loss of power.

Licence Timeline

4.11 Residents of Caribbean Estates were interested in knowing the period for which DEML is licensed to operate.

4.11.1 **Response:** DEML advised that their licence for Caribbean Estates, which was granted in 2007, is for twenty (20) years.

Chapter 5: Office Evaluation of Application

Introduction

- 5.1 In making its determinations, the Office has given due consideration to several issues:
- Efficient cost recovery;
 - Adequate service delivery;
 - Sustained financial viability;
 - A rate structure that is simple but reflects the cost of usage while not unfairly burdening consumers; and
 - A universal rate to be applied to all housing developments currently served by DEML.
- 5.2 The Office also gave due consideration to the issues raised at the public hearings as well as those that were submitted from interested stakeholders through various communication channels.
- 5.3 Schedule 3 of the Licences, inter alia, prescribes the rates that may be charged by DEML and the procedure for determining same. The Licences outlined that:

“The rate for the supply of services by the “Licensed Business” shall be set such that it provides a reasonable opportunity for “the Licensee” to make a reasonable return on capital employed after taking into account all reasonable costs incurred in the provision of the service.

- 5.4 *The revenue required is specified in the formula:*

$$\text{Revenue Requirement} = \text{Cost of Service}$$
$$R = O + D + T + kB$$

*Where; R = revenue requirement,
O = operating expense,
D = depreciation allowance,
T = taxes,
k = a fair rate of return,
B = rate base.*

$$\text{Price/Tariff} = \frac{\text{Revenue Requirement}}{\text{Quantity Demanded}}$$

Operating Costs

- 5.5 *This entails all prudently incurred costs which are not directly associated with investment in capital plant this includes but is not limited to costs related to employees, rent and property costs and taxes which “the Licensees” are required to pay other than income taxes of the licensee.*

Depreciation

- 5.6 *The depreciation component will be calculated by applying annual depreciation rates, as agreed with the Office from time to time, to the gross value of the individual plant asset account.”*

Customer Base

- 5.7 DEML indicated that it provides potable water to 2,266 active water customers and sewerage services to 2,194 customers in the parish of St. Catherine. The Office has accepted this information and has used an average customer base of 2,266 as at December 31, 2013.

Operating Costs

- 5.8 The deemed operating cost should reflect the known and measurable cost of providing acceptable quality of service to existing and potential customers. The Office’s position is that the deemed operating cost should be that of the test year² adjusted for costs that are known and measurable within a twelve (12) month period and reflecting the reasonable cost of providing acceptable quality of service to customers. For the tariff period, DEML indicated that its main operating expenses are: Administrative Costs, Banking and Finance Costs, Operations and Maintenance Costs, Cost of Sales, Property and Utility and Sales and Marketing Costs.

Administration Cost

- 5.9 DEML proposed total administration costs of \$17.61M. This cost category consists of administrative salaries, health insurance costs, uniform, training and management fees, pension and statutory payments.
- 5.10 Administrative staff consists of three customer service representative, a customer service and human resources officer, one general manager, and a quality control officer. It was further communicated that all six (6) office staff provides services to all the housing developments. The Office considers the sum proposed for administrative salary reasonable and consequently has no objection to this item. Administrative Staff cost approved is \$6.87M.

² Test year represents DEML audited financials for the year January – December 2012.

- 5.11 Health insurance of \$1.89M was approved as specified by DEML. This represents test year amount for insurance cost increased by 14% which DEML indicated was the order of increase over the past year. Uniform allowance, training and statutory payments proposed by DEML was accepted as proposed as the Office considers them reasonable.
- 5.12 Pension contribution is calculated at 5% of total base salary. With adjustments to salaries, total pension approved for DEML is \$810,558 per annum as opposed to \$957,388 per annum proposed.
- 5.13 In earlier determinations, DEML indicated that the directors had taken the decision that they would oversee the operations of the company in its initial stage. DEML communicated that the directors would not be paid a salary, but would instead be paid a management fee. The Office considered that proposal and determined that a board fee for attending meetings was appropriate.
- 5.14 In this tariff application, DEML proposed a sum of \$2.4M for directors' fees. DEML proposes to pay each director monthly, \$49,833.33 for attending board meetings and performing responsibilities in respect of: overseeing Human Resources, Facilities Management, maintaining Quality Control and New Business and Commercial Operations. The Office considers the payment of fees to directors for attending board meetings to be a legitimate activity. The Office notes, however, that DEML has employed staff members to carry out activities in respect of Human Resources Management, Facilities Management, Quality Control and New Business and Commercial Operations. To allow additional payments to directors for the carrying out of said activities would include an element of duplication. The Office has therefore taken the decision to adjust what was previously approved in the last tariff determination for directors/management fees by the rate of inflation of 11.1% and approve this for payment to directors for meeting attendance.
- 5.15 Total directors' fee approved by the Office is therefore \$2.14M. That is, each director will be paid a monthly fee of \$44,560.
- 5.16 DEML claimed that uniform, training and safety requirements are provided for all employees at a cost of \$3.21M. DEML outlined that safety requirements includes a sum of \$1.62M representing the cost of four (4) oxygen tanks. As regards uniform and training, the Office decided to use the cost incurred in the test year financials with an 11.1% adjustment for inflation. In respect of the oxygen tanks, the Office has allowed the \$1.62M requested by DEML for the purchase of four (4) oxygen tanks as required by the Ministry of Health to be recovered during the three year tariff period (\$539,006 per year). To be clear, for regulatory purpose, these tanks are not to be treated as part of DEML's asset base for computing depreciation and rate of return. The total sum approved for uniform, training and safety gear is therefore \$1.45M for the base year.

- 5.17 Based on the adjustment indicated above, the Office has determined that total administrative cost allowed to DEML is \$15.1M as against the \$17.6M proposed.

Cost of Sales

- 5.18 DEML proposed that the cost of sales includes production wages, electricity cost, chlorine costs and the cost associated with purchasing water for Morris Meadows and Caribbean Estates. DEML proposed \$56.68M for this cost item. The breakouts are discussed below.

Electricity Cost

- 5.18.1 Electricity expense which is a component of cost of sales and is a large contributor to the total operating cost incurred by DEML, in total, accounts for approximately 24% of total operating cost. DEML stated that the cost of electricity proposed was based on the average consumption from January – December 2013 for all its schemes. The company outlined that the cost to supply electricity to their total customer base is \$20.77M. The Office has opted to use actual bill usage by the company (April 2013-March 2014) in providing service to customer to determine average monthly charges for DEML.
- 5.18.2 The average monthly electricity charge incurred by the company is estimated to be approximately \$1.63M. Thus, the Office has determined that the average annual electricity cost faced by DEML is \$19.56M.

Water Purchase Cost

- 5.18.3 DEML has included as part of its cost of sales the cost of purchasing bulk water from the NIC and N.F. Barnes. DEML claimed water purchase cost is \$22.57M. This water is treated and resold to customers of Caribbean Estates and Morris Meadows. The company reported that it is also in negotiations with Portmore Country Club Homeowners Association regarding the rights to the water from a well they owned. DEML advised that it is projecting to pay an amount equal to that charged by N.F. Barnes, less production cost.
- 5.18.4 DEML indicated that the average water production for Caribbean Estates, Portmore Country Club and Morris Meadows was based on actual figures for the period January to December 2013. The company further outlined that based on past increases from the NIC; a 25% increase in water rate was forecasted for April 2014. A 5% allowance was made to account for the cost of water loss during repairs to the networks and other unavoidable costs.
- 5.18.5 In determining water purchase costs, the Office examined actual invoices obtained from the company and a monthly volume of water purchased from both the NIC and

N.F Barnes were calculated. The average monthly volume of water purchased was multiplied by the current per unit cost³ of purchasing water from both entities. This data was used in the calculation of the cost of water purchased by DEML. Based on this analysis, the Office has revised the cost associated with water purchase to \$20.48M.

Table 7: Calculation of Annual Water Cost

Details	Portmore Country Club	Morris Meadows	Caribbean Estates	Total
Average Production M ³	7,355	10,402	26,443	
Cost Per M ³	\$25.75	\$25.75	\$47.25	
Total Monthly Water Production M ³	\$189,400	\$267,852	\$1,249,432	
Annual Water Cost M ³	\$2,272,800	\$3,214,224	\$14,993,184	\$20,480,208

Production Wages

5.18.6 The Office reviewed the cost that DEML proposed for production wages. The company explained that production wages accounts for the wages of twelve (12) field staff, one (1) senior operations officer and the cost of an independent meter reader. The cost proposed for this was \$12.27M. However, in investigating the costs proposed by DEML the Office observed that the 2012 audited figures for direct wages were substantially lower than that which was proposed by DEML. In determining the appropriate allowance for this item, the Office opted to use the test year financial statement adjusted for inflation as well as to make allowance for salary for the Senior Operations Officer and Electrical/Mechanical Technician who were employed by DEML in 2013 and 2014. Applying that approach, the amount approved by the Office for Production /Direct Labour costs amounts to \$9.34M.

Chlorine

5.18.7 Chlorine cost of \$1.08M was accepted by the Office. This represents the cost associated with reagents used to test for residual chlorine as well as the price for chlorine (gas) for a year. Chlorine (gas) is purchase at least fifteen (15) times for the year by DEML. A unit cost of \$36.32 and \$14,806.60 is estimated for reagents and chlorine respectively. In this context the total sum appears reasonable.

5.18.8 With the above adjustments, the revised provision for cost of sales as determined by Office is \$50.46M.

³ Actual Invoices for water purchased from NIC and N. F. Barnes was received from DEML.

Operations and Maintenance Costs

- 5.19 In this cost category, DEML included costs associated with general repair and maintenance, the purchasing of supplies, security cost, quality testing expenses, licenses, permits and lease costs, and vehicle and travel cost. DEML proposed \$15.21M for this cost category.
- 5.20 The Office is of the view that in a company that provides water and sewerage services with infrastructure that is less than ten (10) years old, repair and maintenance are essential to sustain the useful life of such an infrastructure. DEML proposed sum of \$8.42M for repair and maintenance was substantially higher than the \$5.32M⁴ that was spent in the test year. Under the circumstances, the Office has decided to increase the test year figure by inflation of 11.1% to derive a realistic repair and maintenance cost. Total repair and maintenance cost is \$5.9M. Supplies expenses were adjusted based on inflationary changes to the test year figure. All other costs amounting to \$5.6M in this category appears reasonable and are allowed as proposed.⁵
- 5.21 The total operating and maintenance expense approved by the Office is \$11.47M.

Banking and Other Costs

- 5.22 DEML stated that banking and other costs are approximately \$4.83M. This cost category consists of bank charges, finance, audit and legal fees as well as insurance. The Office observes however that finance charges and bank charges proposed by the company are substantially higher than those which were incurred by the company over the years and stated in its test year financial statements. DEML also provided the office with copies of its current account for January and February 2014 as supporting evidence for its bank charges. However, the current account statement for DEML contains overdraft interest for which the Office believes customers should not be asked to compensate DEML. The Office has therefore adjusted the test year finance and bank charges figure for inflation of 11.1%. Allowance was also made for the repayment of a 36 months NCB loan that the company had obtained in 2013.
- 5.23 Audit fees and legal fees of \$479,977 were allowed as legitimate expenses. Insurance costs proposed of \$1.15M have been accepted. The Office believes that the assets of the company should be insured. DEML should provide the Office with detailed costs of the total amount incurred from insuring its generators, pump, and chlorinator for both water and sewerage at all sites six (6) months after the effective date of this Determination Notice. After making the necessary adjustment as stated above total banking and other related costs to be included in the rate base, is \$4.02M.

⁴ This figure includes general repair and maintenance along with costs associated with pond bushing, sewerage removal etc.

⁵ Table 7 above gives a detail listing of all costs in this cost category.

Sales and Marketing Costs

5.24 It is important that DEML along with the OUR assist the customers in the service areas to become aware of the level of service delivery that they should expect from their service provider. As part of its license obligation, DEML is required to promote the terms and conditions of service, including the quality of service standards to its customers. However, with the exception of Portmore Country Club, the various developments are approximately 100% occupied. This means that there is therefore no need for a large sales and marketing promotion campaign.

5.25 Even so, the Office accepts that there is likely to be a need for the company to provide its customers with information and to promote its activities. DEML proposed a cost of \$130,000. In testing the appropriateness of this figure for inclusion, the Office obtained quotation for the printing of 10,000 tri-fold brochures at least twice a year for all DEML customers, and the cost for graphic design. The result indicates that the amount proposed by DEML is not unrealistic. The Office has therefore allowed the \$130,000 for this cost category.

Property and Utilities Costs

5.26 DEML projected that the costs for this category is \$4.93M which includes, rental cost, and the costs for office utilities, stationeries and printing and telephone. The Office has adjusted the rent and property costs to reflect costs displayed on current rental invoices. Adjustments were also made to the stationery and printing and telephone costs. Both cost categories were adjusted from the test year by projected inflation of 11.1%. Office utility expenses remain as proposed. With these changes the revised property and utilities expenses amount to \$4.4M.

Annual Operating Costs

5.27 With the adjustments detailed above, the annual operating costs to be included in the revenue requirement total \$85.6M. Table 8 below compares the Office's determined operating costs components with that proposed by DEML.

Table 8: Office Determined Operating Cost

Category	DEML Proposed (\$)	Office Determined (\$)
Direct Cost of Sales	\$56,684,077	\$50,459,015
Production Wages	\$12,274,758	\$9,338,175
Electricity	\$20,765,015	\$19,564,626
Water Purchase	\$22,568,296	\$20,480,208
Chlorine	\$1,076,006	\$1,076,007
Sales And Marketing	\$130,667	\$130,667
Property & Utilities	\$4,933,820	\$4,397,592

Rental Cost	\$1,557,405	\$1,576,830
Office Utility expenses	\$1,188,637	\$1,188,637
Telephone	\$1,351,283	\$816,703
Stationary & Supplies	\$836,494	\$815,422
Operations	\$15,207,633	\$11,470,534
Supplies	\$1,591,648	\$364,029
Security	\$353,225	\$353,225
Repair and Maintenance	\$8,422,046	\$5,912,566
Vehicle and Travel	\$1,412,531	\$1,412,531
Licenses, Permits & leases	\$2,256,016	\$2,256,016
Quality Testing Expenses	\$1,172,166	\$1,172,166
Banking & Other	\$4,600,283	\$4,022,875
Bank Charges/ Finance Charges	\$1,170,465	\$2,392,118
Audit & legal	\$800,000	\$479,978
Insurance	\$1,150,779	\$1,150,779
Administrative Costs	\$17,614,879	\$15,106,285
Salaries	\$6,873,004	\$6,873,004
Health Insurance	\$1,893,370	\$1,893,370
Pension	\$957,388	\$810,559
Uniform/ training and safety requirements	\$3,201,385	\$1,445,130
Management Fees	\$2,392,000	\$2,138,880
Statutory Payments	\$2,297,732	\$1,945,341
Total Operating Expenses	\$107,840,948	\$85,586,968

Taxes

5.28 The corporate tax rate is 33 1/3%. The Office has however incorporated a tax provision in the determination of the pre-tax return on capital. There is therefore no explicit provision for corporate taxation in this determination as to do so would amount to double counting.

5.29 DEML also included provision for property and asset taxes Bernard Lodge Sewerage Ponds and the Vineyards Estates. The Office accepts the annual figures of \$994,500 and \$75,000 respectively, proposed by DEML as stated in DEML's tax receipts, a further amount of \$8,000 proposed by DEML for asset tax was also accepted.

Depreciation

5.30 The Office has included depreciation on the used and useful assets that have been invested by the company. DEML proposed a total depreciation charge on its asset of

\$7.59M. This figure included depreciation charges on assets transferred from the developers as well as those acquired by DEML.

- 5.31 The Licences outlined that depreciation will be calculated by applying annual depreciation rates, as agreed by “*the Office*” from time to time, to the gross value of the individual plant asset account. The Office believes that depreciation should only be calculated on the use and useful assets that are invested in the company by DEML. That is depreciation charges are applicable on assets acquired by DEML as outlined in the company’s audited balance sheet. Following this principle, the Office has determined that the depreciation charge is \$2.71M⁶.

Asset Base

- 5.32 The Office has a responsibility to ensure that service providers are provided with resources to guarantee that assets used in providing service are maintained and can be replaced.

- 5.33 The total value of assets proposed by DEML is \$30.83M⁷.

- 5.34 The Office has decided to rely on the test year balance sheet coupled with known and measurable changes the company made to its fixed asset to derive the company’s asset base. Based on the test year balance sheet, the total net book value of fixed assets was \$15.23M.

- 5.34.1 DEML further indicated that the following changes are proposed to its fixed asset:

- (a) The company has rehabilitated another sewerage pond at the Vineyards Estates at a cost of \$8.7M. The Office has allowed this inclusion in the rate base. DEML also provided an invoice for the purchasing and installation of a generator at Vineyards Estates in 2013 costing \$2.4M. The Office has also included this as part of the rate base.
- (b) DEML proposes to construct changing room and bathroom facilities at Morris Meadows and Caribbean Estates sewerage ponds as required by the Ministry of Health; replace stolen perimeter fencing at the Caribbean Estates sewerage pond and purchase six (6) 4 inch meters as specified by NEPA’s new requirement. The company also proposes to procure a vehicle as well as replace computers and office furniture. The Office takes the position however that these assets

⁶ See Appendix

⁷ These assets are assets that DEML lists as acquired assets.

should be financed by shareholders or through loans and recovery and returns allowed after they have been commissioned.

- 5.34.2 A significant portion of the company’s asset base was transferred by the developers N.F. Barnes. Based on the company’s license, the asset base means the net value of the net investment in the license business. The Office does not include assets that are transferred, in determining the rate base and a fair rate of return, as it is of the view that the customers have already paid for these assets in the price of their housing units.
- 5.34.3 After making the necessary additions outline above the Office has used an asset base of \$26.11M in determining a fair return on DEML’s investment. Table 9 below outlined the assets that were included in the derivation of the asset base.

Table 9: Office Determined Asset Base

Asset Type	Office Determined (\$ NBV)
Generator (VIN)	2,126,557.80
Motor Vehicle	400,000.00
Bicycles	39,326.00
Office Furniture and Fixtures	307,715.00
Machinery and Equipment	11,038,918.00
Computers	55,489.00
Sewerage Pond	12,144,059.49
Total Assets at NBV	26,112,065.29

Allowed Rate of Return/Return on investment

- 5.35 This is calculated based on the approved rate base of the Licensee and the *required rate of return* which allows the Licensee the opportunity to earn a return sufficient to provide for the requirement of consumers and acquire new investments at competitive costs. The allowed rate of return is the Licensee’s Weighted Average Cost of Capital (WACC) and is calculated as the weighted average cost of both the long-term debt and the equity components of the capital structure.
- 5.36 DEML is allowed to obtain a reasonable return on its investment through the tariff that is charged to its consumers. This return is compensation for capital which is invested in the

regulated asset base and is computed by the application of a rate of return to the asset base of the company. Both the rate of return and the asset base of DEML are approved by the OUR. The approved rate of return and specified in the Licences will give DEML a reasonable opportunity to earn a return that will enable it to provide high service quality to its customers.

Office determined Cost of Debt

5.37 The OUR as in previous determinations will continue to use the actual cost of the long term debt in the computation of the revenue requirement. In computing the cost of debt, the OUR relied on information submitted by DEML on its long term loan portfolio. The gearing ratio of DEML is comparable to international standards in water and sewerage sectors. This is also consistent with the 2012 Determination Notice.

5.38 To compute the actual cost of long term debts, the weighted average loan interest rate is applied to the debt portion. DEML indicated that it currently has two loans with loan balances of \$4.2M and \$ 3.9M and interest rates ranging from 15.75% to 19%.

Thus the weighted average cost of debt is:

$$\frac{\sum_{i=1}^n I_i \times B_i}{\sum_{i=1}^n B_i} = \frac{I_1 \times B_1 + I_2 \times B_2 + \dots + I_n \times B_n}{B_1 + B_2 + \dots + B_n}$$

where I_1, \dots, I_n be the

interest rate on n loans; and B_1, \dots, B_n , the balances.

Thus:

$$\frac{(4,200,000 \times 15.75\%) + (3,941,607 \times 19\%)}{8,141,607} = 17.32\%$$

The Office determines that the applicable weighted average interest rate on long term debt is 17.32%.

Cost of Equity

5.39 The cost of equity proposed by the NWC was estimated with the use of the Capital Asset Pricing Model (CAPM). This methodology is widely used and was accepted by the OUR in deriving the NWC’s cost of equity. This methodology serves as a benchmark for the calculation of a Cost of Equity for DEML.

The CAPM is represented as follows:

$$\text{Cost of Equity(nominal)} = R_f + \beta_E (\text{MMRP} + \text{CRP})$$

Where:

R_f = Risk free rate

β_E = Equity beta

MMRP = Mature Market Risk Premium

CRP = Country Risk Premium

5.40 Risk Free Rate – This is the nominal interest rate that can be obtained by investing in financial instruments with no default risk. The Office has decided to use the current risk free rate on a 10 year United States Treasury Bond as at December 2013. The applicable risk free rate is therefore 2.90%⁸.

5.41 Equity Beta- Beta is a measure of the correlation between the company’s risk and general market risk. The OUR believes that “Deriving an estimate of an equity beta for an investment in a country (or set of countries) whose stock market is small, non-existent, or has a short history is imprecise. Since this is the case for Jamaica, then it is recommended to use an average asset beta of water utilities in the world.” In this regard the OUR has adapted the Damodaran estimates for water utility asset beta. The current available Damodaran revised estimates as at January 2014 shows that the global asset beta is 0.50.

5.42 From this asset beta an equity beta was calculated for DEML using the capital structure 30% debt 70% equity. That is:

$$\beta_E = \beta_A + (\beta_A) \times \left(\frac{D}{E}\right)$$

Where:

β_E is the equity beta

β_A is the asset beta

D is the percent of a company financing from debt

E is the percent of company financing from equity

The applicable equity beta is therefore 0.714

⁸ <http://www.federalreserve.gov/releases/h15/update/>

Mature Market Risk Premium

- 5.43 The market risk premium or equity risk premium is the return in excess of the risk free rate that an investor requires for investing in risky assets in this case equity. The premium should be positive reflecting the greater riskiness associated with the investment relative to a risk free security. The premium will also increase as the riskiness associated with the investment increases. The OUR has employed a nominal market risk premium of 5.0% based on data and papers published by Damodaran using an implied equity premium.

The Office determines that the applicable Mature Market Risk Premium is 5.0%

Country Risk Premium

- 5.44 The country risk represents the return investors require for taking on additional risks associated with a specific country relative to its more stable political and economic counterparts. Country risk incorporates or approximates the set of macro and social-political conditions unique to a country or region. Macroeconomic factors such as political instability, volatile exchange rates and economic instability (however caused) lead investors to be wary of overseas investment opportunities. These factors can adversely affect operating profits as well as the value of assets and thus require a premium for investing. The Country Risk Premium (CRP) is therefore higher for developing markets than for developed nations. The difference in yield curve was used to measure the country risk for Jamaica. As such, the OUR will use the CRP as at December 31, 2013.

The Office determines that the applicable CRP is 5.58%.

Therefore:

$$\begin{aligned} \text{The Cost of Equity(nominal)} &= R_f + \beta_E (\text{MMRP} + \text{CRP}) \\ &= 2.90\% + 0.714(5.0\% + 5.58\%) \\ &= 10.45\% \end{aligned}$$

The Office determines that the Nominal Post-tax Cost of Equity is 10.45 percent in US dollar terms. Expected inflation for 2014 in the US is projected to be 1.73%⁹

Conversion to Jamaican Dollars

Thus:

$$\text{The cost of Equity}_{JS} = (1 + \text{cost of equity}_{US}) * \frac{(1 + \text{Expected Inflation}_J)}{(1 + \text{Expected Inflation}_{US})} - 1$$

⁹ <http://www.tradingeconomics.com/united-states/forecast>

$$\text{Post-tax Cost of equity Nominal JS} = \frac{(1+10.45\%) * (1+9.0\%)}{(1+1.73\%)} - 1$$

$$= 18.34\%$$

Weighted Average Cost of Capital - This is calculated as the weighted average cost of both the long term Debt and the Equity component of the capital structure.

$$\text{WACC Post -tax Nominal} = \text{Debt Ratio} \times \text{Cost of Debt} * (1-T) + \text{Equity Ratio} \times \text{Cost of Equity}$$

$$30\% * 17.3\% * (1-0.333) + 70\% * 18.34\%$$

$$= 16.29\%$$

Revenue Requirement

5.45 The revenue requirement is derived from the summation of the total operating costs (including depreciation & loan interest) and return on investment. **The Office has determined that the total revenue requirement is \$95.3M** as is detailed in Table 10 below.

Table 10: Revenue Requirement Components

+ OPEX	\$85,586,968
+ Depreciation	\$2,711,321
WACC(nominal post tax)	16.29%
Rate Base	\$26,112,065
Return on investment	\$4,253,655
Gross up for corporate taxes	\$2,126,824.53
+Pretax Return	\$6,380,479
Property Tax and Asset Tax	\$1,077,500
Total Revenue Requirement	\$95,756,269

The **revenue requirement of \$95.8M** will be recovered through Fixed and volumetric charges.

Chapter 6: Rate Structure

- 6.1 In the development of these rates, the Office had to satisfy itself, that the revenues generated from fixed service charge and volumetric rates would be sufficient to cover the revenue requirement of \$95.8M.
- 6.2 In its application, DEML proposed a two-tiered rate structure. It proposed a fixed charge (the service charge) which is to be paid monthly regardless of consumption and a flat volumetric rate (that varies with water consumption). The company also proposed that sewerage rate be billed as 100% of water consumption and water charges.
- 6.3 Increasingly, the Office is taking the position that rates for each type of service provided by a regulated company should be reflective of the costs involved in service delivery. The Office is also cognizant however, that this often requires data that is not yet available. Consequently, the Office has decided that it will approve the proposed rate structure for a period of thirty-six (36) months, until the company can generate sufficient data which would allow the company to disaggregate the costs involved in providing water and sewerage services.

Service Charge

- 6.4 DEML proposed a service charge of \$681.10. The company indicated that this flat rate covers overheads incurred for the preparation of bills inclusive of meter reading. The Office is of the view that the service charge should be set at a level that allows for reasonable cost recovery of these overheads, but does not place a high burden on customers that have lower consumption levels. DEML did not specify the costs that were used to calculate its service charge proposed, and therefore the Office has decided to apportioned some of the company's cost that are directly involved in the preparation of bills for customers to derive a reasonable service charge.¹⁰

Table 11: Calculation of Monthly Service Charge

Details	Fixed Service Charges*	Variable Costs	Total
Cost of Sales	\$ 52,624.00	\$ 4,152,293.93	\$ 4,204,917.93
Administrative Cost	\$ 572,750.32	\$ 686,106.78	\$ 1,258,857.10
Sales and Marketing	-	\$10,888.92	\$10,888.92
Property and Utility	\$ 235,063.51	\$ 131,402.54	\$ 366,466.02
Operations Expense	\$ 148,045.00	\$ 807,832.79	\$ 955,877.79
Banking and Legal	\$ 167,619.79	\$ 167,619.79	\$ 335,347.63
Depreciation	\$ 67,783.03	\$ 158,160.41	\$ 225,943.44
Total Operating Cost	\$ 1,243,885.66	\$ 6,114,305.15	\$ 7,358,896.67
Current Customers	2,266	2,266	2,266

¹⁰ Calculation of service charge is based on costs that are faced by the company as a result of generating customers' bills on a monthly basis.

Monthly Service Charge	\$548.93		
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A monthly service charge of **\$549** is determined by the Office.

Water Rates

6.5 The Office has determined that the effective volumetric rate for DEML for all four (4) housing developments served is \$96.58 per 1000 litres. This rate was derived from taking into account all costs that are faced by the company from operating its sewerage and water services and allowing the company to earn a reasonable return on its investment. Table 12 below shows the calculation of the volumetric rate.

Sewerage Rates

6.6 In the 2012 Determination Notice, the Office outlined the reasons why it could not determine independent sewerage rates. As indicated in Section 6.2 above, the Office will continue the practice of allowing DEML to bill sewerage services at 100% of water charges until sufficient data is available. Further, since all customers have both services, this allocation of total cost is not discriminatory towards consumers of any of the specific services. A re-allocation of more or less to sewerage service should therefore see a corresponding compensating adjustment in the water rate.

Table 12: Calculation of Variable/Volumetric Rate

Details		Monthly Costs
Variable Operating Expenses		\$6,114,305
Property Tax and Asset Tax		\$89,791
Pre-Tax Return on investment		\$531,706.66
Total Revenue Requirement		\$6,735,803
Total Number of customers		2266
Cost Per Lot		\$2972.55
Split 50/50 for Water & Sewage		\$1,486
Assume an average monthly usage:	15,389¹¹	
Volumetric Cost per 1000 liters:		\$96.58

This rate becomes effective as at January 1, 2015.

¹¹ Calculated based on the first quarter of 2014 consumption pattern

Connection Fee

- 6.7 DEML has proposed a connection fee of \$3,000 to its systems on the signing of a contract for service. The company outlined that this cost is made up of administrative and labour charges, material cost and the cost for transportation to the desired destination. The Office recognizes that labour costs and parts will be utilized to connect individual premises to the water and sewage networks. However, the transportation cost proposed by DEML seems to be relatively high, given the close proximity of majority of its customer base to its dispatch point. The Office has decided to reduce the transportation cost for connecting customers of DEML.
- 6.8 The Office has decided that the connection fee is therefore \$2,700.
- 6.9 This connection fee will not apply to commercial customers who may be supplied with service by DEML. Commercial customers are required to pay the full connection charges, which shall include the direct operating cost and the capital costs associated with the outlaying the necessary infrastructure.

Table 13: Derivation of Connection Fee

Details	DEML Proposed Costs	Office Determined Costs
Administrative Charges	\$794.63	\$794.63
Labour Charges	\$776.80	\$776.80
Materials(2cap,1 elbow, 2 coupling, etc	\$428.86	\$428.86
Transportation	\$1,000.00	\$700
Total	\$3,000	\$2,700

Reconnection Fee

- 6.10 DEML proposed a reconnection fee of \$4,026.08 per customer for reconnection of disconnected service. The Office recognizes that there are costs involved with the reconnection of supply. However, \$4,026.08 is higher than the reconnection fee charged by most regulated water providers in Jamaica for the reconnection of domestic supply. The Office believes that efficiency in the provision of service is important and also similar constructs could be used by DEML as other water companies for reconnection and disconnection. DEML has not shown any exceptional circumstance that would justify the Office going above the average charge by other regulated entities. Table 14 below outlines the detailed costs that are associated with the reconnection fee.

Reconnection fee approved for DEML is \$3,733.08

Table 14: Derivation of Reconnection Fee

Details	DEML Proposed Costs	Office Determined Costs
Administrative Charges	\$1,059.50	\$1,059.50
Labour Charges	\$1,553.60	\$1,553.60
Materials(2cap,1 elbow, 2 coupling, etc.)	\$419.98	\$419.98
Transportation	\$1,000.00	\$700
Total	\$4,026.08	\$3,733.08

Price Adjustment Mechanism (PAM)

6.11 The PAM is an indexation mechanism that is applied to the base rate for water and sewage services to preserve the real revenue of the company. The PAM captures changes in foreign exchange, consumer price index and electricity charge. The formula used to calculate a PAM is specified as

$$PAM = [wfe * \Delta FE + wcp_i * \Delta CPI + w_{ec} * \Delta kWh] * 100$$

6.12 Where wfe is the weight for foreign exchange, wcp_i is the weight for CPI and w_{ec} the weight for the average price of electricity per kWh and Δ is the percentage change in the respective variables, that is, current value of each variable less the base value.

6.13 The weights are derived from the proportion of DEML’s total operating cost that is affected by the three variables. The Office has calculated the weights as being:

$$\begin{aligned} CPI &= 0.54 \\ FX &= 0.21 \\ kWh &= 0.25 \end{aligned}$$

6.14 The base values of the PAM indices are shown as follows:

Electricity 39.46 kWh
 Exchange Rate J\$110.84 to US\$1
 CPI 215.70 (all division)

These were the new base values as at May 2014 after the allowed expenses were estimated.

- 4 7 1 3
- 6.15 The current CPI value should be that published by the Statistical Institute of Jamaica at the end of the preceding month. The foreign exchange rate should be the average monthly rate as reported by the Bank of Jamaica. The average price of electricity is the total electricity bill for the preceding month divided by the total kWh of energy used.
 - 6.16 The Office has also determined that the PAM should be applied on a monthly basis. DEML is required to provide the Office with reports of the calculated PAM rates on a quarterly basis.
 - 6.17 There will be an annual review of the PAM (ANPAM) at the time of its anniversary to reset the base rates.

Chapter 7: Regulatory Impact Analysis

- 7.1 Tables 15 and 16 below outline the total effect that the change in rates approved for DEML will have on consumers that uses 14,000 litres and 23,000 litres.

Table 15: Customer consuming 14,000 litres of water per month

14000 litres	Current Bill	New Bill	Change
Service Charge	\$569.89	\$549	
Water Charge	\$1,218.70	\$1,352	
Sewerage Charge	\$1,218.70	\$1,352	
*PAM as at November 2014	236.67	288.23	
Total Bill	\$3,243.96	\$3,541.47	
Percentage Change			9.2%

Table 16: Effect on a customer consuming 23,000 litres

23,000 litres	Current Bill	New Bill	Change
Service Charge	\$569.89	\$549	
Water Charge	\$2002.15	\$2,221	
Sewerage Charge	\$2002.15	\$2,221	
PAM as at November 2014	\$360.08	\$442.10	
Total Bill	\$4,934.27	\$5,433.78	
Percentage Change			10.12%

Chapter 8: Quality of Service Standards

Quality of Service Standards

Guaranteed Standards

8.2 The Guaranteed Standards Scheme represents a prescribed minimum level of service that the company must provide in delivering service to its customers. DEML's failure to meet the standards can result in compensatory payments to the affected customers by way of a credit to their accounts. Compensation for breaches of the standard is applied by way of submission of a claim form or automatically.

Review of Existing Guaranteed Standards

8.3 A review of DEML's performance against the Guaranteed Standards indicates that the company has generally been adhering to the established standards, with only few breaches being reported in areas such as meter repair and replacement.

8.4 In reviewing the Guaranteed Standards, no new service area was identified to be included in the scheme. However, one change was made regarding customers having to submit a claim form for GS 10 (Payment of Compensation); which will attract automatic compensation as at the effective date of this tariff.

8.5 To ensure service delivery to residents is maintained at a prescribed level, the following Guaranteed Standards shall take effect as at effective date of this Determination Notice:

Table 17: Guaranteed Standards for New Tariff Period (2014 – 2016)

Code	Guaranteed Standard	Mode of Compensation
GS1 – Connection of New Customers	DEML is required to connect all new customers, where water supply is available at the property boundary, within three (3) working days after signing the contract for connection.	Automatic
GS2 – Issue of First Bill	DEML must issue (print and mail/deliver) a bill to a customer based on a meter reading within thirty (30) days after the account is established.	Claim
GS3(a) – Response to complaints	DEML must, within three (3) working days acknowledge	Claim

Acknowledgements	customers' written complaints.	
GS3(b) – Response to complaints	DEML must, within fifteen (15) days of receipt of a complaint, complete investigations and inform the customer of the results.	Claim
GS3(c) – Investigations involving 3 rd party	DEML must within thirty (30) working days complete investigations involving a 3 rd party.	Claim
GS4(a) Wrongful Disconnection	DEML shall not disconnect the service of an account which is either not in arrears or is the subject of an investigation internally or by the OUR.	Automatic
GS4(b) Reconnection after Wrongful Disconnection	Where DEML has wrongfully disconnected a service account, it shall be reconnected within five (5) hours.	Automatic
GS5 – Repair or Replacement of Faulty Meter	DEML must, within ten (10) working days of identifying or being notified of a defect, repair or replace any malfunctioning meter	Automatic
GS6 – Meter Change	DEML must provide customers with the details of the date of a meter change, meter readings for old and newly installed meters on the day of change and the serial number of the old meter.	Claim
GS7 – Meter Readings	DEML must render a bill based on meter reading each month.	Automatic
GS8 – Billing Adjustment	Customer must be billed for adjustment within one (1)	Claim

	month of identification of error, or subsequent to repair or replacement of faulty meter.	
GS9 – Reconnection after Payment of Overdue Amount	DEML must with twenty-four (24) hours of receipt of all payments (reconnection fee, etc.) reconnect customers disconnected for debt.	Automatic
GS 10 – Payment of Compensation	DEML must credit customer’s account within one (1) billing period after a breach of any of the prescribed Guaranteed Standards.	Automatic

Compensation

8.6 The applicable compensation is the sum equivalent to the Reconnection Fee.

Chapter 9: Summary of Major Decisions

In summary, the Office has made the following determinations:

1. The sewerage and water rates are based on a two-tiered rate structure comprising a fixed component and a flat rate which is based on consumption.
2. The service charge is \$549
3. The variable component is a volumetric rate of \$96.58 per 1000 litres.
4. Sewerage rates are 100% of water rates.
5. A monthly PAM will be applied to the rates charged by DEML.
6. A connection fee of \$2,700 becomes payable at the signing of a service for residential consumption.
7. Reconnection fee is \$3,733.08
8. DEML shall submit all reports to the OUR in keeping with the requirements outlined in its license.
9. DEML shall adhere to the Guaranteed Standards as outlined above. Breaches of any of these standards will result in a compensatory payment equivalent to the Reconnection Fee.
10. The rates as determined herein become effective on **January 1, 2015** and will remain in effect for **thirty-six (36 months)** or for such longer period as the Office may determine.

Appendix

Table 1: Depreciation Charges

Details	Assets at Cost	Depreciation Charge for year
Generator (VIN)	2,362,842.00	236,284
Motor Vehicle	1,000,000.00	200,000
Bicycles	74,065.00	14,813
Office Furniture and Fixtures	544,526.00	54,453
Machinery and Equipment	16,657,027.00	1,764,037
Computers	725,905.00	135,959
Sewerage Pond	12,231,016.49	305775.09
Total	33,595,381.49	2,711,321

Table 2: Details of Operation and Maintenance costs

Year 1	Supplies	Security	Repairs & maintenance	Vehicles & Travel	Licenses, Permits & leases	Quality Testing Expenses	Total
Month 1	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 793,016.18	\$ 137,173.00	\$1,600,385.12
Month 2	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 3	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 4	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 5	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 6	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 7	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 137,173.00	\$ 940,368.94
Month 8	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 9	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 10	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94

Month 11	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Month 12	\$ 30,335.75	\$ 29,435.44	\$ 492,713.83	\$ 117,710.92	\$ 133,000.00	\$ 89,782.00	\$ 892,977.94
Total	\$ 364,029.00	\$ 353,225.25	\$ 5,912,566.00	\$ 1,412,531.00	\$ 2,256,016.18	\$172,166.00	\$11,470,533.43