



**REVIEW OF OPERATING AND MAINTENANCE  
EXPENDITURE (OPEX) FORECAST:  
SECOND REGULATORY PERIOD**

**Visayan Electric Company (VECO)**

**Prepared**

**by the**

**ENERGY REGULATORY COMMISSION**

October 19, 2009

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## 1 INTRODUCTION

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The Energy Regulatory Commission (ERC) has promulgated a Performance Based Rate-Making (PBR) methodology that applies to privately owned electricity distribution utilities (DU) in the Philippines. Under the PBR framework, a DU is entitled to a price cap to compensate it for delivering its distribution wheeling services. The reset process for setting of the price cap for the six (6) DUs entering the PBR at the third entry point includes review of the expenditure forecasts. This process, among others, will result in the setting of a maximum price path that will determine the Maximum Average Price (MAP) that a DU can charge for the provision of electricity distribution services for each year of the Second Regulatory Period (which commences on 1 July 2010 and ends on 30 June 2014).

The mechanism for the calculation of the price cap, the procedure and timelines for the introduction of this cap, are described in the Rules for Setting the Distribution Wheeling Rate (RDWR) for the Third Entry Group, which was released by the ERC on December 8, 2008<sup>1</sup>. The ERC has also formulated its position on the reset process – as set out in a Position Paper dated December 8, 2008<sup>2</sup>.

An important requirement of the reset process going forward is the review of the expenditure forecasts submitted by the DUs as part of their revenue applications filed with the ERC. These expenditure forecasts are critical to the determination of the revenue to which DUs are entitled and on which the price caps will be determined.

Section 4.13.4 of the RDWR requires that the expenditure forecasts provided by a DU be reviewed by a Regulatory Reset Expert/s in isolation or in cooperation with ERC staff as part of the PBR regulatory reset process. Geoff Brown and Associates (GB Associates) has been engaged by the ERC to provide guidance to the ERC staff to review the operating and maintenance expenditure forecasts and review the capital expenditure forecasts, as well, of the six DUs entering PBR at the third entry point.

The six DUs entering PBR at the third entry point are:

- Cabanatuan Electric Corporation (CELCOR);
- Davao Light and Power Company (DLPC);
- Ibaan Electric and Engineering Corporation (IEEC);
- La Union Electric Company (LUECO);
- Tarlac Electric Incorporated (TEI); and
- Visayan Electric Company (VECO).

This report presents the ERC's review of the operating and maintenance expenditure forecasts of VECO. These forecasts were submitted to the ERC as part of VECO's revenue and performance incentive scheme application (revenue application), on June 15, 2009.

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<sup>1</sup> *Rules for Setting Distribution Wheeling Rates for Privately Owned Distribution Utilities Entering Performance Based Regulation (Third Entry Point)*, Energy Regulatory Commission, December 8, 2008.

<sup>2</sup> *Regulatory Reset for the July 2010 to June 2014 Regulatory Period for Privately Owned Distribution Utilities subject to Performance Based Regulation, Position Paper*, Energy Regulatory Commission, December 8, 2008.

## 2 EXECUTIVE SUMMARY

### OPERATING AND MAINTENANCE EXPENDITURE (OPEX)

The ERC reviewed the expenditure forecasts submitted by VECO as part of its revenue application, as well as the additional information supplied in response to questions put forward during the clarificatory meeting conducted.

In the initial review process, the ERC adjusted the CY 2008 audited expenditure to remove abnormal and non-recurring expenditures and tested this adjusted year data for cost efficiency. The resulting adjusted CY 2008 served as the base year input to an OPEX Model which generated OPEX forecasts believed to be prudent and efficient for Distribution Utilities, VECO in this particular report.

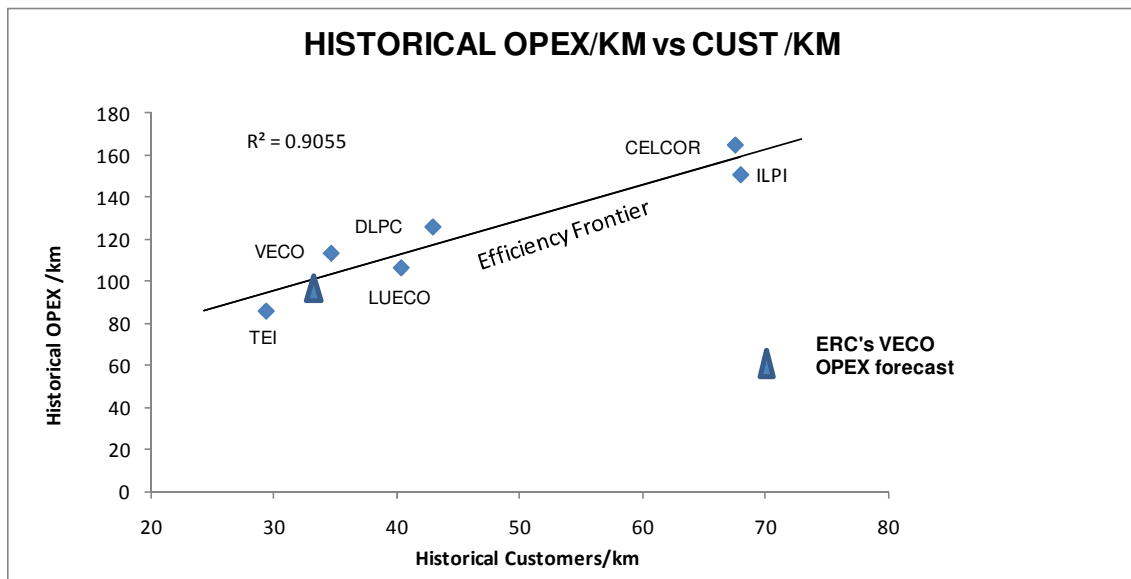
The model took into account that over the modelling period from 2010 to 2014, VECO's network asset will increase by 12.01% and customer numbers by 13.7%. It also took into account the ERC's capital expenditure forecasts for VECO amounting to PHP2,029.34 million over the next regulatory period. This is a reduction of 59% from VECO's proposal over the four year period, which has a direct impact on the quantity of new assets requiring operation and maintenance expenditure over the second regulatory period.

The modelling results show ERC OPEX forecasts for the second regulatory period to be on the average, 20% lower than the applicant's.

These resulting forecasts have been benchmarked for cost efficiency using an efficiency frontier developed using the average historical performance of five (5) DUs in the third entry point and ILPI, an entrant DU in the second entry point, given that it has sufficient information to be included in the analysis. (IEEC was omitted from the economic benchmarking as it was considered an outlier. MECO and CLPC were not included given insufficient information to include them in the analysis.)

Figure 1 shows the efficiency frontier based on normalised OPEX/line length vs. customer /line length and the position of the ERC VECO OPEX forecast relative to the efficiency frontier. It should be noted that the efficiency frontier is based on the average historical data of the six (6) DUs included in the analysis. The object of an efficiency frontier is to fall on or below the frontier to demonstrate relative efficiency. The ERC's VECO OPEX forecast is deemed to position VECO just below the efficiency frontier.

**Figure 1 : Average Historical OPEX Per Line Length and Customer Per Line Length**



In consideration of the above, the ERC made the following adjustments:

- Adjustment of VECO's 2008 base year costs amounting to a total of PhP63.5 million which is equivalent to 7% reduction in the total actual 2008 audited OPEX
- Reduction in VECO's forecast total OPEX for the second regulatory period of PhP954.22 million, equivalent to a 20% reduction, shown as follows:

**Table 1 : Forecast Operating and Maintenance Expenditure (PhP million, real 2009)**

		RY 2011	RY 2012	RY 2013	RY 2014	Total
<b>VECO Forecast Operating and Maintenance Expenditure</b>						
	Distribution and Connection Services Operating and Maintenance	366.04	380.04	395.02	414.06	1,555.16
	Administrative and General	325.25	329.10	336.23	329.09	1,319.67
	Regulated Retail Services	430.77	446.12	459.87	477.50	1,814.26
<b>TOTAL</b>		1,122.07	1,155.26	1,191.12	1,220.65	4,689.10
<b>ERC Adjustments (based on OPEX model)</b>						
	Distribution and Connection Services Operating and Maintenance	-11.79	-15.56	-26.73	-43.68	-97.76
	Administrative and General	-74.55	-77.63	-84.46	-77.15	-313.79
	Regulated Retail Services	-123.69	-131.88	-138.39	-148.71	-542.67
<b>Total Adjustments</b>		-210.04	-225.07	-249.57	-269.54	-954.22
<b>ERC OPEX forecast</b>		912.03	930.19	941.55	951.11	3,734.88

A comparison between VECO's actual and forecast OPEX and the ERC' adjusted historical and forecast OPEX over the second regulatory period is shown in the graph below.

**Figure 2 : Comparison of ERC's OPEX Forecasts with VECO's Proposal (PhP million, real 2009)**

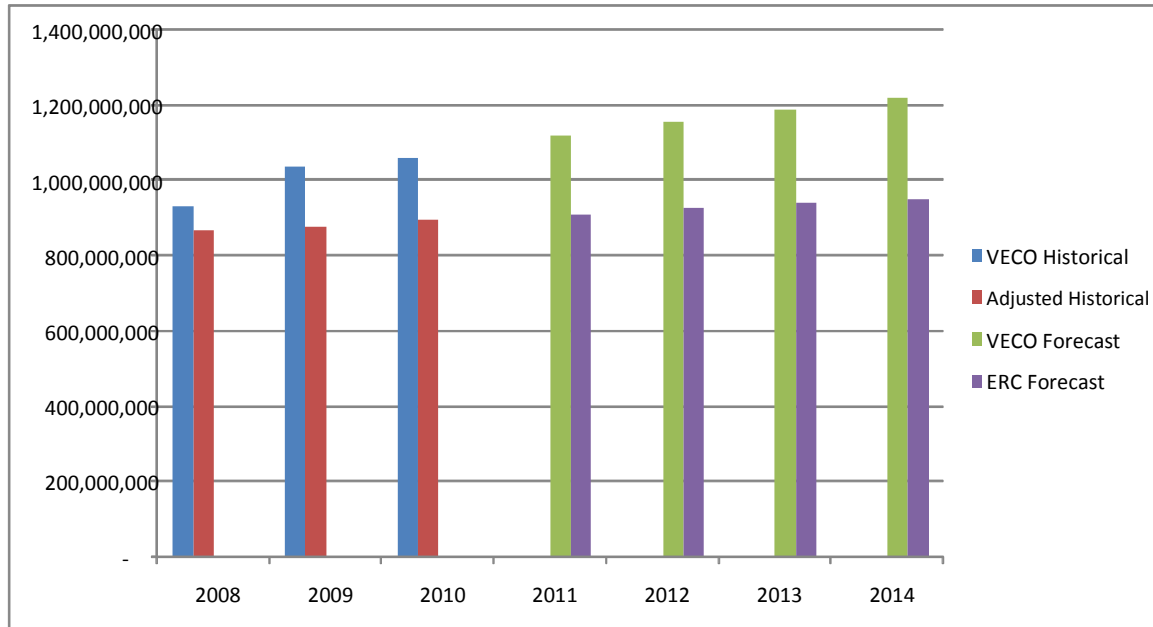
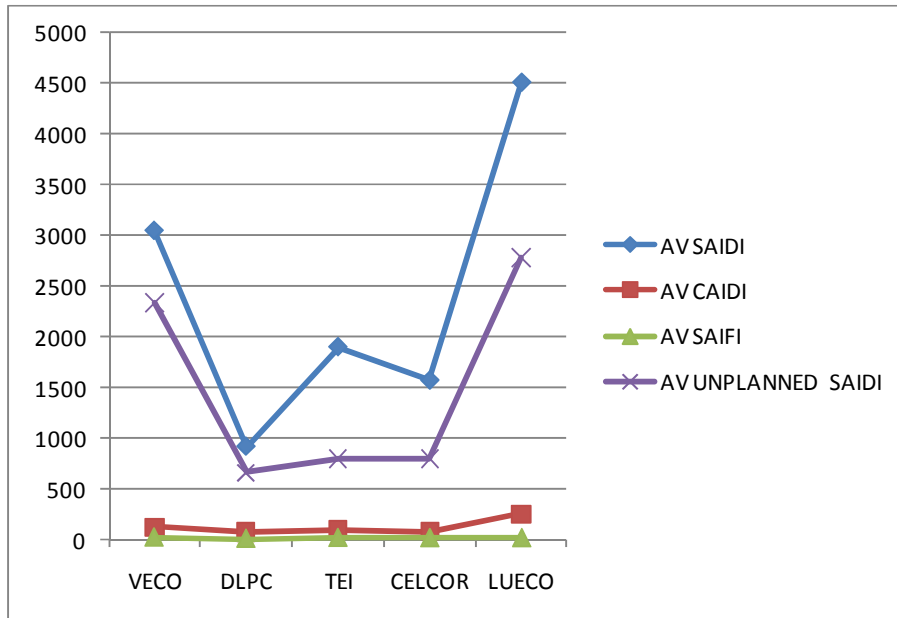


Figure 3 below shows the relative network performance of VECO over 2006 to 2008. This may not be conclusive as there is need to have more sufficient data and to identify extreme events falling beyond the control of the utilities. The ERC intends to monitor network performance during the current regulatory period and then incorporate either network performance benchmarking or performance improvements for the Third Regulatory Period.

**Figure 3 : Historical Network Performance**



### TAXES, LEVIES AND DUTIES

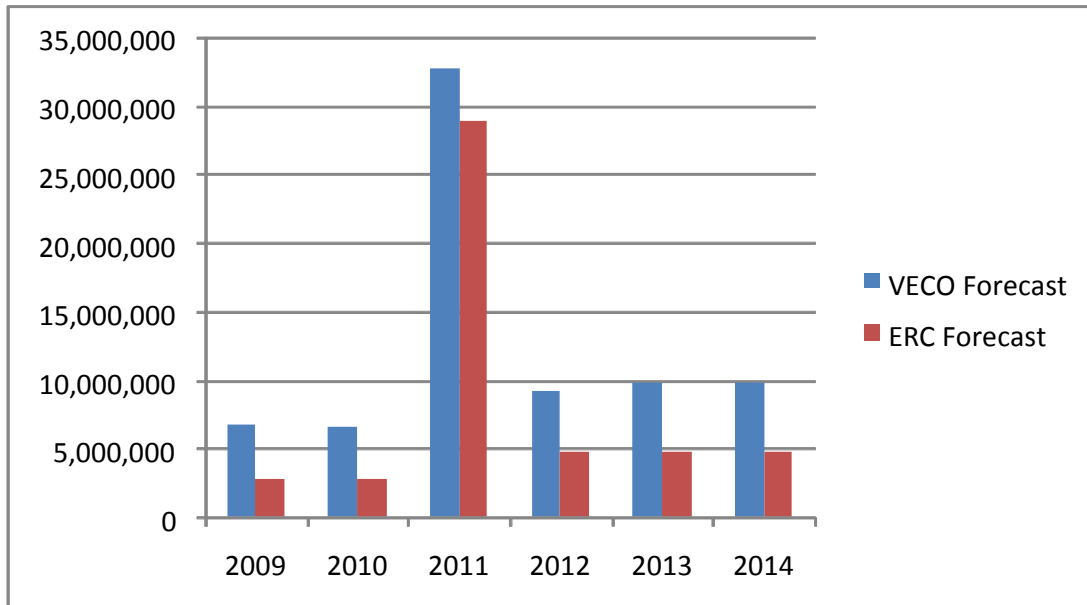
ERC has made the following reductions in VECO's proposed provisions for taxes, levies and duties.

**Table 2 : Forecast Taxes, Levies and Duties (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Proposed in VECO's Revenue Application</b>						
Taxes, Levies and Duties	6.78	6.65	32.78	9.12	9.79	9.75
<b>ERC Adjustments</b>						
Real Property Tax	1.06	0.92	0.92	1.35	2.07	2.07
Fringe Benefits Tax	1.30	1.30	1.30	1.30	1.30	1.30
Value Added Tax	1.70	1.70	1.70	1.70	1.70	1.70
<b>Total Adjustments</b>	<b>4.06</b>	<b>3.92</b>	<b>3.92</b>	<b>4.35</b>	<b>5.07</b>	<b>5.07</b>
<b>ERC's Provision for Taxes, Levies and Duties</b>	<b>2.72</b>	<b>2.73</b>	<b>28.86</b>	<b>4.77</b>	<b>4.72</b>	<b>4.68</b>

Source: Schedule G3 of VECO's Revenue Application June 2009

**Figure 4 : Comparison of ERC's Taxes, Levies and Duties Forecasts with VECO's Historical and Forecast Taxes, Levies and Duties (PhP million, real 2009)**



The increase in RY2011 entails regulatory reset project costs for the period 2006-2010, which is yet to be recovered by VECO. It should be noted that on the average over the four-year regulatory period, the taxes, levies and duties forecast, is only an insignificant 0.92% of the total OPEX forecast.

. The key findings on VECO's taxes, levies and duties are as follows:

- The annual provision for real property tax has been adjusted down to the CY 2008 value as VECO provided insufficient justification for its forecast increases.
- VECO's forecast taxes, levies and duties included a provision for fringe benefit tax. This component pertains to tax imposed on the fringe benefits provided by VECO to its officers and employees. It should be noted that VECO did not provide information that clearly explains how the expenditure was determined.
- VECO's forecast included value added tax. ERC excluded these in accordance with Section 3.2 of the Position Paper, as value added taxes are passed-through under the unbundled rate structure.

### 3 REVIEW OF THE OPERATING AND MAINTENANCE EXPENDITURE

#### 3.1 VECO'S HISTORICAL OPERATING AND MAINTENANCE EXPENDITURE AND NETWORK PERFORMANCE

##### 3.1.1 Historical Operating and Maintenance Expenditure

VECO's historical total operating expenditure in nominal PhP is shown in Table 3.1.

**Table 3.1 : Historical Operating and Maintenance Expenditure (PhP million, nominal)**

Operating and Maintenance Expenditure Category	2005	2006	2007	2008	2009 <sup>1</sup>	2010 <sup>2</sup>
Distribution and Connection Services Operating and Maintenance	226.81	248.36	294.35	328.71	353.60	360.97
Administrative and General	296.73	176.41	237.43	262.04	279.86	290.64
Regulated Retail Services	234.23	288.28	330.97	327.31	405.36	418.13
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>757.77</b>	<b>713.04</b>	<b>862.75</b>	<b>918.06</b>	<b>1,038.82</b>	<b>1,069.74</b>

Source: Schedule G of VECO's Revenue Application, June 2009

Note 1: Budgeted figures for the 2009 calendar year period.

Note 2: Forecasted for the 2010 regulatory year period and beyond.

The historical expenditures reported by VECO shown in Table 3.1 are expressed in nominal PhP, thus include the impact of inflation. A better assessment of the relative expenditure from year to year can be obtained if historical expenditures are expressed in real 2009 PhP, using historical inflation indicators. Table 3.2 shows historical operating expenditure in real 2009 PhP.

**Table 3.2 : Historical Operating and Maintenance Expenditure (PhP million, real 2009)**

Operating and Maintenance Expenditure Category	2005	2006	2007	2008	2009 <sup>1</sup>	2010 <sup>2</sup>
Distribution and Connection Services Operating and Maintenance	274.88	283.76	327.21	333.99	353.60	357.59
Administrative and General	359.62	201.56	263.93	266.25	279.86	287.92
Regulated Retail Services	283.88	329.37	367.91	332.57	405.36	414.21
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>918.38</b>	<b>814.69</b>	<b>959.05</b>	<b>932.81</b>	<b>1,038.82</b>	<b>1,059.72</b>

Source: Schedule G of VECO's Revenue Application, June 2009

Note 1: Budgeted figures for the 2009 calendar year period.

Note 2: Forecasted for the 2010 regulatory year period and beyond.

This historical operating and maintenance expenditure, expressed in real 2009 PhP, is shown graphically in Figure 3.1.

**Figure 3.1 : Historical Operating and Maintenance Expenditure (PhP million, real 2009)**

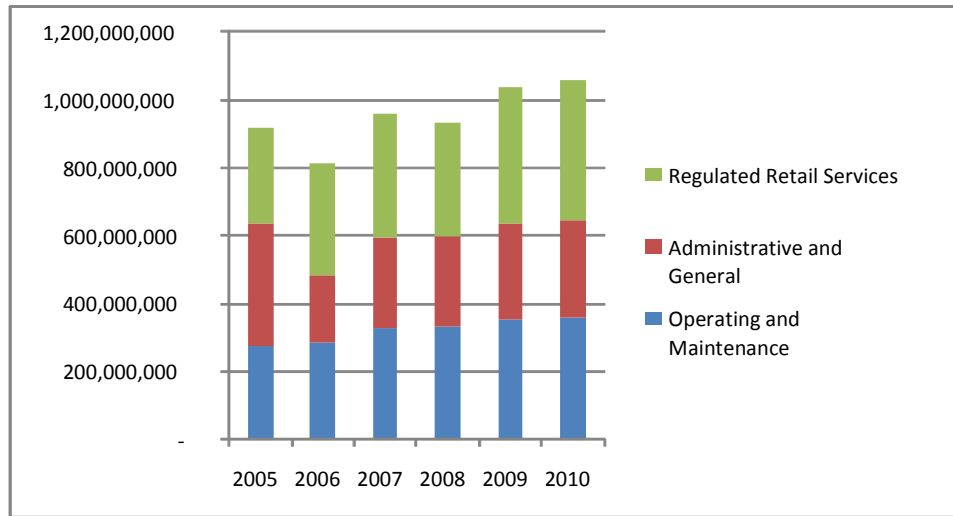


Table 3.2 and Figure 3.1 demonstrate that the annual historical operating and maintenance expenditure remained relatively constant over the period 2005 to 2008. Customer numbers increased by an average 2.74% per annum over the same period.

### 3.1.2 Historical network performance

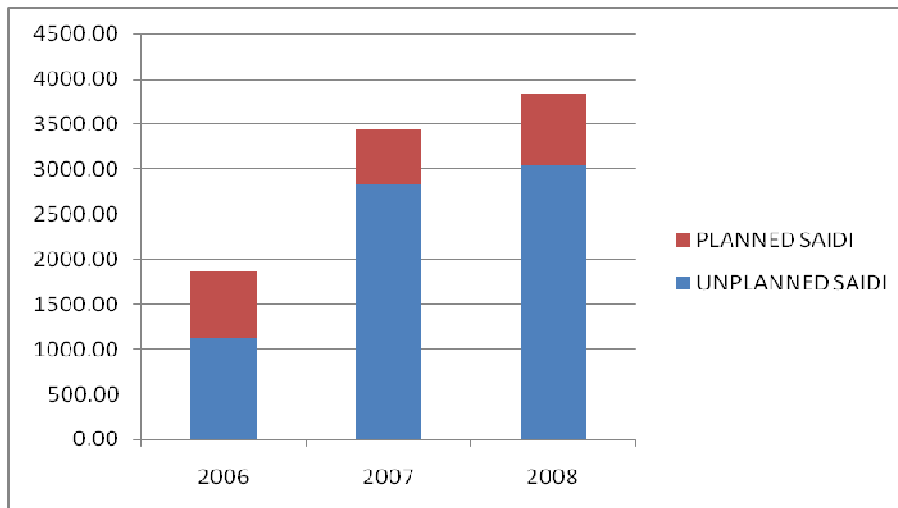
VECO's historical total system network performance, expressed in minutes, is shown in Table 3.3.

**Table 3.3 : Historical Network Performance (in minutes)**

Performance Indicators	2006	2007	2008
Unplanned SAIDI	1,120.51	2,832.05	3,053.16
Planned SAIDI	751.76	601.07	780.72
<b>TOTAL SAIDI</b>	<b>1,872.27</b>	<b>3,433.12</b>	<b>3,833.88</b>

The historical total system network performance is graphically shown in Figure 3.2:

**Figure 3.2 : Historical Network Performance  
 System Average Interruption Duration Index (SAIDI) in minutes**



The above graph, covering only a three (3) year period from 2006 to 2008 as provided by VECO in its application, may not be conclusive as there is need to have more sufficient data and to identify factors such as extreme events, thus, the ERC intends to commence monitoring network performance over the next regulatory period. This historical data will be used by the ERC to develop either network performance benchmarking or performance improvement targets for the Third Regulatory Period..

### 3.2 VECO’S FORECASTING METHODOLOGY

As Per Schedule G of its revenue application, VECO stated that, *both CY 2009 budget figure and RY2010 forecast figure utilize CY 2008 as its basis for increases, as RY 2010 is only a half year slip from CY 2009 and its expenditure levels are comparably at par.* Further justifying the increases in its forecast OPEX for the second regulatory period, VECO indicated that the forecasts reflect its growth in energy conveyed, demand, number of customers, its continuous drive to meet performance standards set by the ERC, salary related increase mandated by the Collective Bargaining Agreement (CBA) for the rank and file employees, and salary related increase based on performance for management employees.

#### 3.2.1 VECO’s Forecast Operating and Maintenance Expenditure

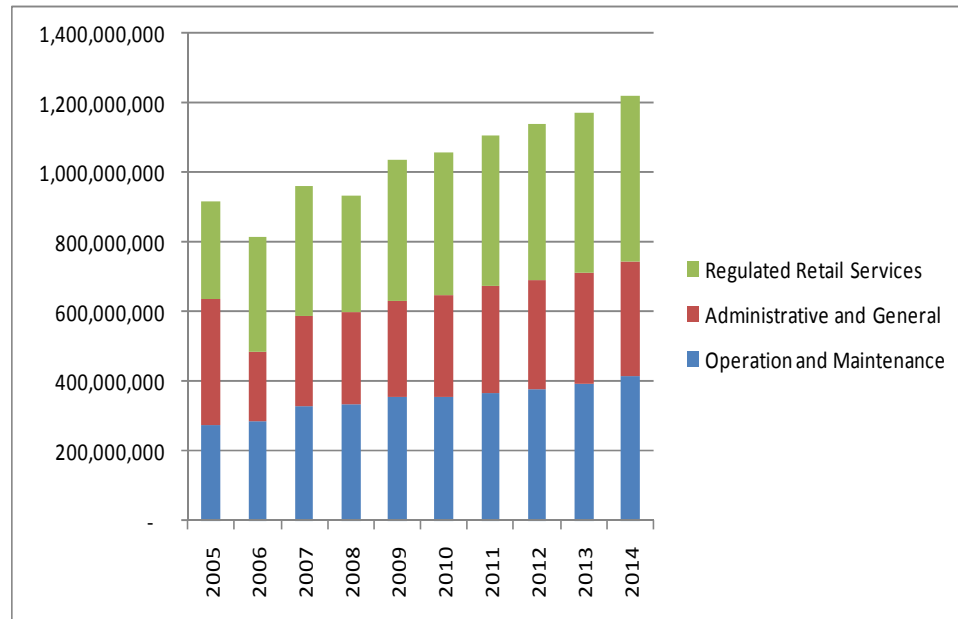
Operating and maintenance expenditure forecasts for the second regulatory period, included in VECO’s revenue application, are shown in the Table 3.4 in real 2009 PhP. These results are also shown graphically in Figure 3.3.

**Table 3.4 : Forecast Total Operating and Maintenance Expenditure (Real PhP million, 2009)**

Operating and Maintenance Expenditure Category	2011	2012	2013	2014
Distribution and Connection Services Operating and Maintenance	366.04	380.04	395.02	414.06
Administrative and General	308.64	312.11	319.56	329.09
Regulated Retail Services	430.77	446.12	459.87	477.50
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>1,105.45</b>	<b>1,138.27</b>	<b>1,174.46</b>	<b>1,220.65</b>

Source: VECO revenue application June, 2009

**Figure 3.3 : Total Operating and Maintenance Expenditure (PhP million, real 2009)**



As per additional submission dated September 1, 2009, VECO manifests that there will be additional OPEX incidental to the 138 kV proposed CAPEX project. This would entail costs for the tree planting activity in compliance with the DENR requirement and permit fees being imposed by the ERC for CAPEX projects. VECO submitted a revised OPEX forecast including its proposed additional OPEX as shown in Table 4.43.5. It is noted that the said additional OPEX was not part of its revenue application but has only been submitted through a manifestation after the clarificatory meeting.

**Table 3.5 : Revised Forecast Total Operating and Maintenance Expenditure (Real PhP million, 2009)**

<b>Operating and Maintenance Expenditure Category</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Distribution and Connection Services Operating and Maintenance	366.04	380.04	395.02	414.06
Administrative and General	325.25	329.09	336.23	329.09
Regulated Retail Services	430.77	446.12	459.87	477.50
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>1,122.07</b>	<b>1,155.26</b>	<b>1,191.12</b>	<b>1,220.65</b>

Source: VECO Submissions September 2009

### 3.3 REVIEW METHODOLOGY AND ASSUMPTIONS

Table 3.5 above shows that VECO's forecast operating expenditure in real terms for the second regulatory period is significantly higher than the historical operating expenditure over the period 2005 to 2008. The average annual forecast operating expenditure for the second regulatory period is PhP1,172.27 million, compared to an average annual expenditure of PhP812.90 million over the four year historical period. VECO did not provide any information on the methodology used to forecast future operating expenditures nor did it provide an operating expenditure model which should facilitate the review of the underlying assumptions and inputs incorporated into the modelling.

Hence in order to assess the reasonableness of the VECO forecasts, the ERC used its OPEX forecasting model<sup>3</sup> to predict a reasonable level of operating and maintenance expenditure, based on industry standards and a "business as usual" expenditure pattern. The forecasts calculated from the ERC model were then compared with the expenditure forecast provided by VECO in its revenue application.

The OPEX model forecasts specific cost categories by escalating the base year values by the correlated cost drivers. For example operation and maintenance expenditures are correlated to the growth in assets under management, which is closely aligned to the proposed capital expenditures; while regulated retail services expenditures are closely aligned to the growth in customer numbers.

The audited OPEX in the base year is used to forecast future OPEX. The base year expenditures have to be tested for cost efficiency and any "one off or non business as usual" expenditures have to be removed prior to modelling.

This modelling assumes that there are no new or significant "one off" changes to OPEX costs from the base year through to the end of the next regulatory period. Any additional expenditures, not included in the base year forecast, need to be reviewed and modelled independently and then added to the base case expenditures to determine the total forecast annual expenditures.

Hence the overall process the ERC used to assess VECO's efficient and prudent annual operating and maintenance expenditure forecasts included the following steps:

<sup>3</sup> This was originally developed by PB Associates and provided to the ERC under Groups A and B expenditure reviews.

- Determine the base year operating and maintenance expenditures on a cost category basis;
- Assess each component of base year for any additional or extraordinary expenditures;
- Confirm that the base year operating and maintenance expenditures are efficient;
- Identify operating and maintenance expenditure cost drivers and the impact of efficiency initiatives;
- Project the base year operating and maintenance expenditure forward for each year of the regulatory period, taking into account projected changes in the cost drivers and the impact of any efficiency initiatives;
- Determine total OPEX forecasts and test for cost efficiency; and
- Compare OPEX forecasts to the applicant's OPEX forecasts and determine the annual adjustments.

The specific processes performed in the aforementioned steps are discussed in more detail in the following sections.

### **3.3.1 Determination of Efficient Base Year Operating Expenditure**

The following were done to assess the efficiency of the base year OPEX:

- The itemized CY 2008 OPEX was reviewed to identify line items that appeared abnormally high or low. Identified line items were reviewed in more detail and adjusted as necessary to ensure that each line item represented efficient use of funds and was consistent with expected recurring expenditure levels for that line item; and
- VECO's adjusted OPEX was benchmarked using an efficiency frontier methodology based on the average historical data of five (5) of the DUs in the third entry point (IEEC was omitted as it was considered an outlier). This also includes the three (3) DUs in the second entry point given sufficient information to include them in the analysis. OPEX per line lengths and the average number of customers per line lengths were used.

This approach results in establishing the relative cost efficiency of the adjusted base year expenditures which are then used in the OPEX modelling to forecast future OPEX expenditures.

#### **3.3.1.1 Review of OPEX Line Items**

VECO advised that it used the 2008 calendar year as its base year for determining forecast OPEX. From the application, VECO indicated that it used the 2008 figures as the basis for the increase in CY2009 budget. ERC also used the 2008 figures as the base year since this is the latest actual full-year expenditure data available.

#### ***Distribution System Operations - Information Technology***

The historical and budgeted expenditure for Distribution System Operations - Information Technology account fluctuates with the upgrade and maintenance of IT related applications and IT related special projects. VECO's expenditure for this line item in CY 2006-2007 and 2009 historical years seems to be high due to the upgrade and maintenance of IT related applications and IT related special projects such as Network Configuration, Blackberry Enterprise Server Upgrade, etc, as noted in submissions made after the clarificatory meeting.

For this reason, ERC used the average expenditure over CY 2005-08, as the base year expenditure. The magnitude of the resulting downward adjustment is PhP3.55 million.

**Administrative and General Expenditures – Employee Pension and Benefits**

During the clarificatory meeting, VECO was asked to provide details of its employee pension and benefits expenses for CY2008. The ERC contends that additional benefits like medical expenses, meal allowance, employees’ welfare and rice subsidy given to VECO employees should not be recovered from its customer rates. If VECO wishes to provide additional benefits to its employees, the ERC believes that these additional benefits constitute a management prerogative, thus, should not be funded from the regulated revenue. The disallowances of the additional benefits, however, do not preclude VECO from providing these to its employees provided that the cost or associated expenses are not passed on to its customers. The impact of this adjustment on the base year OPEX is a reduction by PhP21.36 million.

**Administrative and General Expenditures – Miscellaneous**

VECO indicated in its submissions that it included representation expenses as part of its 2008 base year costs. Similarly, representation costs are part of management prerogatives thus should not be included in the revenue requirement. However, this does not preclude VECO from spending representation costs provided that these costs are not passed on to its customers. The impact of this adjustment on the base year OPEX is a reduction by PhP2.29 million.

**Regulated Retail – Bad Debts Expense**

VECO included the amount of PhP40.04 million as uncollectible accounts expense. The policy of the Commission for reasonable uncollectible accounts is to adopt the lowest of the actual accounts written-off for the test year; or the last 5 years’ average of accounts written-off; or 1% of outstanding trade accounts receivable for the test year.

VECO’s 2008 Audited Financial Statement stated that the accounts written-off amounted to PhP38.83 million and Accounts Receivable-Trade (AR) amounted to PhP770.37 million. 1% of outstanding trade accounts receivable is PhP7.7 million and hence this is the amount that ERC has allowed for bad debt expense in the base year, consistent with the Commission’s Decision under ERC Case No. 2009-024RC. The reduction in the proposed amount of bad debts is by PhP32.34 million.

The resulting 2008 base year operating expenditures after the ERC’s total adjustments amounting to PhP63.5 million are as shown in Table 3.6. This has been used in the OPEX model to forecast future expenditures:

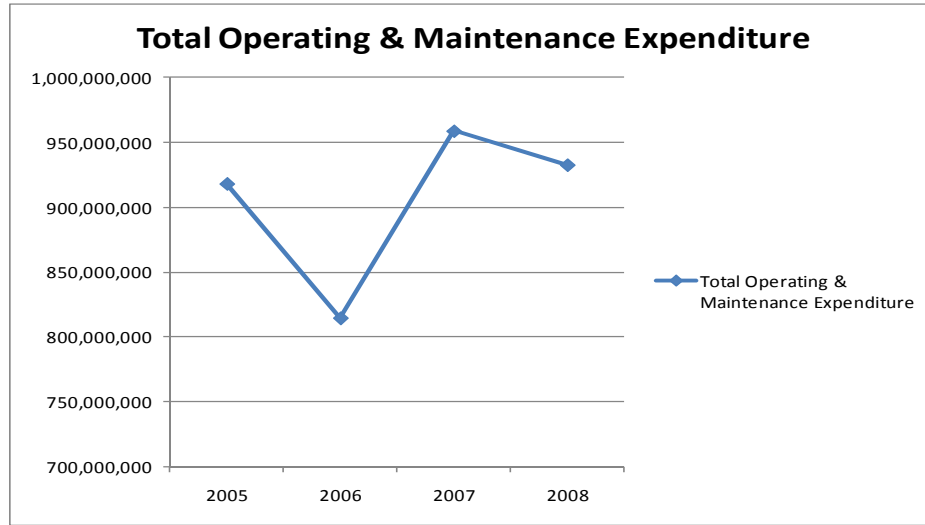
**Table 3.6 : Adjusted Base Year 2008 Operating and Maintenance Expenditure (PhP million, real 2009)**

Operating and Maintenance Expenditure Category	2008
Operation	182.49
Maintenance	147.80
Administration and General	243.77
Regulated Retail Services	294.28
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>868.34</b>

**3.3.1.2 Confirmation that the Base Year Cost Data is Efficient**

To better understand the historical operating expenditure pattern, the ERC redrafted these historical expenditures in real peso such that variations in the expenditure trend are clearly visible. This is shown in Figure 3.4.

**Figure 3.4 : Historical Operating and Maintenance Expenditures (Real PhP)**



As shown in the above graph, the total OPEX varies each historical year and has abruptly increased in CY 2007.

In its analysis, the ERC has determined that 36% of the total OPEX of the historical year 2008 is the regulated retail costs. Figure 3.5 below shows a comparison among the five (5) DUs in terms of its base year retail costs per number of customers.

**Figure 3.5: Base Year Regulated Retail Costs Per Customer**

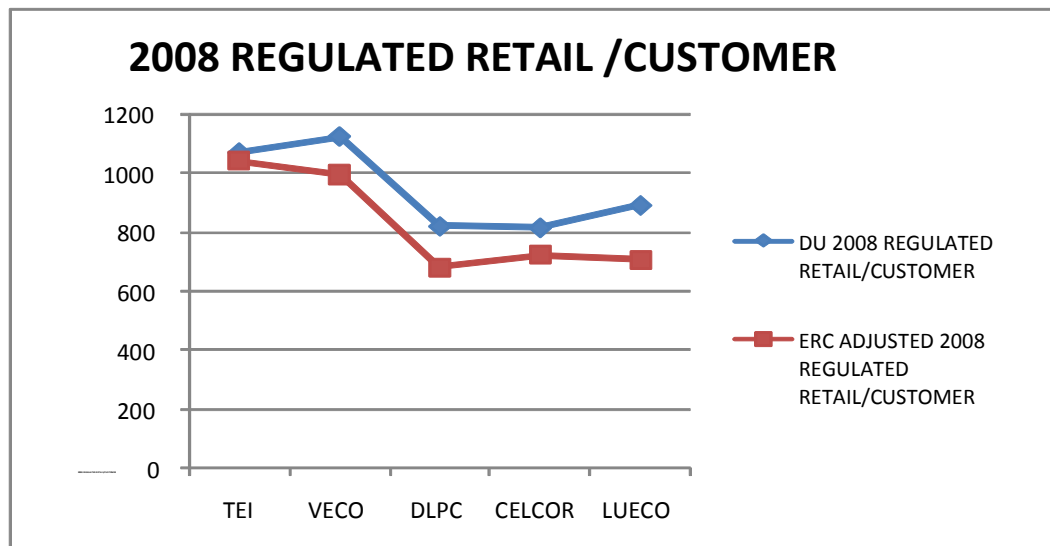


Figure 3.5 above illustrates that VECO is relatively high in terms of its 2008 base year retail costs per customer. This re-enforces the ERC's adjustment from the 2008 regulated retail costs amounting to PhP37.7 million, equivalent to an 11% reduction. This adjustment is included in the base year figure shown in Table 3.6 above.

Figure 3.6 below shows a linear regression analysis showing the efficiency frontier using the average historical OPEX of the 6 DUs (VECO, DLPC, TEI, CELCOR, LUECO and ILPI<sup>4</sup>).

**Figure 3.6 : Average Historical OPEX Per Line Length vs. Customer Per Line Length**

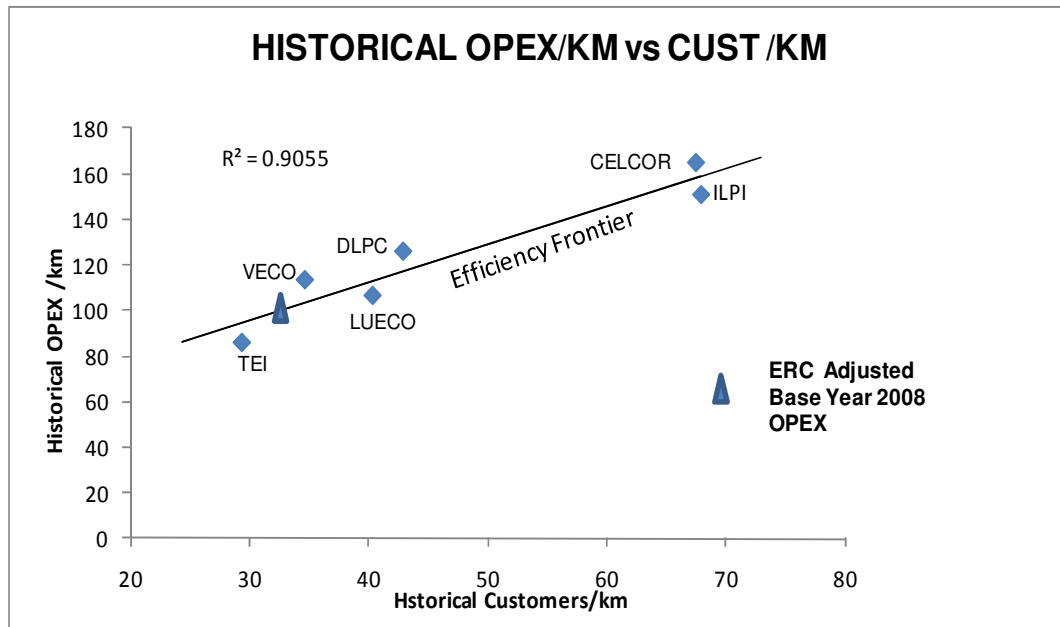


Figure 3.6 illustrates VECO's average historical OPEX which is above the efficiency frontier. The ERC' adjusted base year OPEX, which has also been plotted on the graph, positions practically on the efficiency frontier.

Hence, the ERC concluded that the adjusted base year 2008 operating expenditure represents an efficient base expenditure for forecasting future operating expenditures.

### 3.3.2 Identification of Cost Drivers and Impact of Efficiency Initiatives

ERC used the following cost drivers in its OPEX model:

- *Size of the Regulatory Asset Base (RAB)*

The replacement cost of the RAB as of December 31, 2008 as detailed in the VECO valuation report is used as a surrogate for asset size and is adjusted going forward to compensate for the impact of refurbishment and renewal CAPEX on future OPEX. The replacement cost of the RAB is increased to compensate for the growth in assets under management; renewal and refurbishment capital expenditures are considered to replace existing assets at or near the end of their service lives and therefore reduces the OPEX required to maintain these assets.

Also, efficiency factors are incorporated in forecasting distribution and connection services, operation and maintenance, and administrative & general expenditures. These efficiency factors arise from the ability of an established business to manage and operate additional assets more efficiently.

These efficiencies of scale and scope are derived from experience gained from performing similar expenditure reviews for a significant number of distribution utilities.

<sup>4</sup> ILPI, an entrant DU in the second entry point, is included in the analysis given sufficient information while MECO and CLPC were not included because of insufficient information to be able to plot in the graph.

Experience indicates that the efficiencies of scale and scope are remarkably similar for both rural and city-based distribution businesses as well as for businesses of various sizes. Any differences usually relate to the methods used within each business to achieve these efficiencies. Larger businesses tend to rely heavily on technological innovation whilst smaller businesses tend to concentrate on resource innovation such as cross skilling and flexibility. The efficiency factors also reflect the efficiencies that a DU is required to demonstrate under clause 4.13.3 of the RDWR.

It is believed that the commissioning of new assets results in lower forecast OPEX as these new assets generally require minimal defect-rectification based maintenance during the regulatory period in which they are commissioned. Consistent with the previous expenditure reviews, the savings in forecast OPEX resulting from the commissioning of new assets or the replacement of aged assets averages 20% and this efficiency factor has been incorporated into the ERC operating expenditure model.

In addition, numerous studies undertaken by experts, including in the Philippines, indicate that, on the average, the variable component of the administrative & general expenditure is 10%. Only this variable component of administrative and general has been escalated in the ERC operating expenditure model.

In determining the replacement cost of the RAB for 2008 and each year of the second regulatory period, the ERC's reductions in CAPEX described in the CAPEX report undertaken by GBA has been taken into account.

- *Customer Numbers*

The OPEX model accounts for the impact of increasing customer numbers on the regulated retail services expenditures as there is a well accepted correlation between regulated retail service expenditures and customer numbers.

Based on the customer numbers forecast by the evaluated utilities, the ERC has modelled a 5% efficiency gain in regulated retail services to compensate for the economies of scale.

- *Staff Numbers*

The OPEX Model accounts for the correlation between water and electricity consumption and the number of employees/staff.

The OPEX Model escalators are based on the staff numbers forecast by VECO.

- *Prices of Materials*

The OPEX model allows real growth inflators input for both material and labor costs.

Copper and aluminium prices influence the cost of distribution maintenance materials. Referring to Figures 3.7 and 3.8, it is clear that copper and aluminium prices have not changed significantly over the past three years. Other major cost drivers that may influence cost of materials include exchange rates as well as the market conditions for electrical equipment. It is difficult to predict exchange rate changes and market conditions for electrical equipment; thus, it has been assumed that these factors will remain relatively constant over the regulatory period. Consequently, equipment costs are assumed to remain constant in real terms. This means that nominal material costs will increase over the regulatory period in line with the forecast CPI.

Furthermore, OPEX materials generally consist of lower cost, high quantity items that are generally purchased on term contracts, where the prices are linked to CPI. Historically the cost of distribution maintenance materials rises in line with inflation; that, it remains constant in real terms.

**Figure 3.7 : Aluminium Prices over a Three-Year Period (Philippine Peso/Pound)**



Source: [www.infomine.com](http://www.infomine.com)

**Figure 3.8 : Copper Prices over a Three-Year Period (Philippine Peso/Pound)**



Source: [www.infomine.com](http://www.infomine.com)

The model further assumes that cost of materials comprise 25% of total costs for office based functions such as administrative and general, 20% for operations and 30% for maintenance.

o *Labor Costs*

Labor costs form a significant proportion of operating and maintenance costs; hence the model allows this variable to be altered to reflect any expected real increase in labor costs. It is recognised that it is always difficult to select an appropriate real escalator for future labor rates; the modelling was carried out with the real labor escalator set to zero. This assumes labor costs to increase at the rate of inflation. This is believed to be reasonable since labor cost is a major driver of inflation and economic theory indicates that increases above the rate of inflation cannot be sustained over time, unless there are real increases in productivity throughout the economy. No evidence has been provided that labor costs for electricity distribution workers will escalate at a rate that is materially different from labor costs in other sectors of the economy.

It is also noted that labor costs form a significant component of the distribution wheeling rate and all utilities must carefully manage their labor costs if electricity prices are to be contained. Utilities have more control over the cost of labor than over the cost of

materials. For this reason, regulators are very reluctant to include real increases in labor costs, unless there is a compelling reason to do so. It is noted that controlling labor costs is not simply a matter of limiting wage rates. Other tools that are potentially available include improving labour efficiency and productivity, business process improvement, rebalancing staffing requirements, and increasing the level of outsourcing and multi-tasking.

**3.3.3 Forecast Future Expenditures using the OPEX Model**

As noted above, the OPEX model is based on the assumption of “business as usual” in forecasting future OPEX and any known changes in future expenditure patterns need to be modelled independently. In addition, any “one off” or “non business as usual” expenditures included in the base year costs need to be identified and backed out of the base year costs prior to modelling. Hence VECO has been requested to provide information with regards to any known changes in future expenditure patterns or any “one off” expenditures included in the base year costs which do not represent “business as usual” expenditures.

During the clarificatory meeting, VECO indicated a “one off” expenditure entailed in a tree planting activity required by the DENR for the approval of its proposed 138kV line CAPEX project.

**3.4 BASE OPEX FORECASTS GENERATED BY THE MODEL**

Based on the analysis discussed in this section, the OPEX Model has produced the OPEX forecast as shown in Table 3.7.

**Table 3.7: ERC’s Base OPEX Forecasts**

<b>Operating and Maintenance Expenditure Category</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
Distribution and Connection Services Operating and Maintenance	354.25	364.48	368.29	370.38
Administrative and General	250.70	251.47	251.77	251.94
Regulated Retail Services	307.08	314.24	321.48	328.79
<b>Total Operating &amp; Maintenance Expenditure</b>	<b>912.03</b>	<b>930.19</b>	<b>941.55</b>	<b>951.11</b>

**3.4.1 Additional Operating and Maintenance Expenditure**

Additional OPEX is above and beyond expenditure incurred in a “business as usual” environment or expenditure on new initiatives where costs were not incurred in the base year and hence have not been included in the OPEX model.

VECO proposed to include an additional OPEX forecast cost amounting to PHP50 million, incidental to a tree planting activity in compliance with the DENR requirement, for its proposed 138kV capital project. VECO indicated that it intends to recover such costs for a period of three (3) years over the Second Regulatory Period.

This cost being incidental to the 138 kV capital project, VECO ensures that this cost is not part of its corporate social responsibility but rather a governmental requirement imposed to a particular DU project.

Considering that GB Associates recommends deletion of the substation on the 138kV project including the 138kV line between the said substation and Quiot, ERC disallowed VECO’s proposed additional OPEX cost for the current application. Should the Commission approve the project in the future, the ERC would determine whether such additional costs are statutory in nature and the amount is reasonable.

### 3.5 ERC'S OPERATING AND MAINTENANCE EXPENDITURES

As discussed above, the ERC used the OPEX Model to forecast future base operating expenditures with both the real labour and real material inflators set at 0%. With these inputs, the model produced the forecast base operating expenditures shown in Table 3.7.

The ERC adopts the adjusted VECO OPEX forecasts indicated in the aforesaid Table 3.7.

Table 3.8 also compares, for each major operating and maintenance expenditure category, the ERC's annual forecast operating and maintenance expenditure with the forecast operating and maintenance expenditure which VECO included in its revenue application.

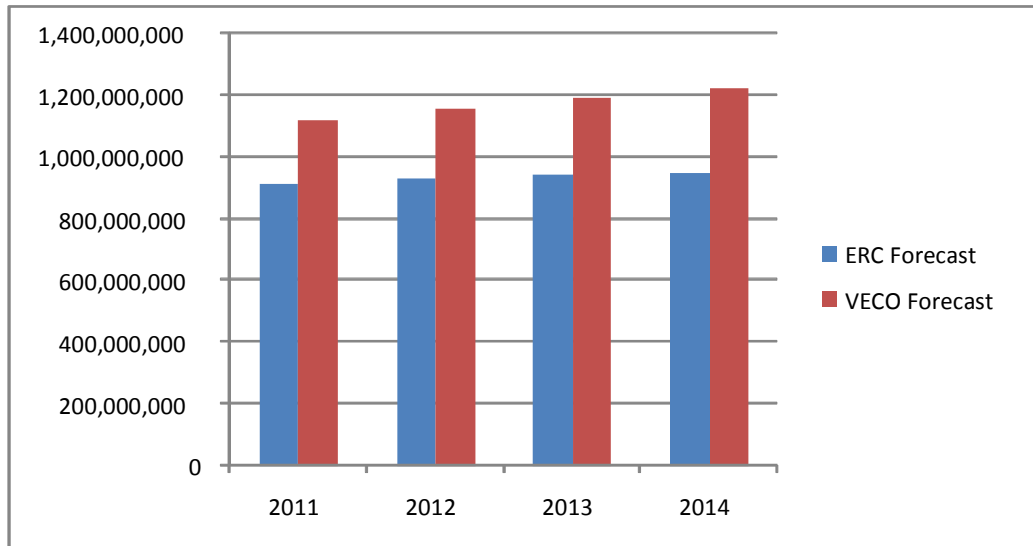
**Table 3.8 : Comparison of VECO and ERC' Forecast Operating and Maintenance Expenditure (PhP million, real 2009)**

Operating and Maintenance Expenditure Category	2010	2011	2012	2013	2014	Total <sup>1</sup>
<b>Distribution and Connection Services Operation and Maintenance</b>						
VECO Forecast	357.59	366.04	380.04	395.02	414.06	1,912.75
ERC Forecast	343.67	354.25	364.48	368.29	370.38	1,801.07
Difference	-13.92	-11.79	-15.56	-26.73	-43.68	-111.68
<b>Administrative and General</b>						
VECO Forecast	287.92	325.25	329.10	336.23	329.09	1,607.59
ERC Forecast	249.89	250.70	251.47	251.77	251.94	1,255.78
Difference	-38.03	-74.55	-77.63	-84.46	-77.15	-351.82
<b>Regulated Retail Services</b>						
VECO Forecast	414.21	430.77	446.12	459.87	477.50	2,228.47
ERC Forecast	301.77	307.08	314.24	321.48	328.79	1,573.35
Difference	-112.44	-123.69	-131.88	-138.39	-148.71	-655.11
<b>Total Operating and Maintenance Expenditure</b>						
VECO Forecast	1,059.72	1,122.07	1,155.26	1,191.12	1,220.65	5,748.81
ERC Forecast	895.32	912.03	930.19	941.55	951.11	4,630.20
Difference	-164.39	-210.04	-225.07	-249.57	-269.54	-1,118.61
<b>ERC Adjustment</b>	<b>-164.39</b>	<b>-210.04</b>	<b>-225.07</b>	<b>-249.57</b>	<b>-269.54</b>	<b>-1,118.61</b>

<sup>1</sup> It includes RY2010 plus the Second Regulatory Period which comprises a four-year regulatory period

A graphical comparison between VECO's and the ERC's forecast OPEX is shown in Figure 3.9. The ERC's OPEX forecast entails a reduction of 20% in the operating expenditures applied for by VECO amounting to PhP954.22 million over the four year regulatory period.

**Figure 3.9 : Comparison between VECO and ERC Forecast Operating Expenditure Forecast (Php million, real 2009)**



### 3.6 BENCHMARKING WITH OTHER GROUP C UTILITIES

#### 3.6.1 Inter Business Benchmarking

In order to determine if the ERC's adjusted OPEX forecasts were efficient, the ERC relied on two (2) inter business benchmarking studies. The first is a simple OPEX vs. RAB study and the second is a study normalised by line length of OPEX/km vs. customers/ km. In both studies, ERC used the historical data of five (5) of the DUs in the third entry point to develop an efficiency frontier; the IEEC data has not been included as it is considered an outlier, which would distort the results of the studies. The ERC adjusted forecasts have been compared to these frontiers to test for relative efficiency.

Figure 3.10 below shows the study of OPEX vs. RAB with the average ERC adjusted forecasts plotted on the graph. This study includes three (3) DUs in the second entry point (MECO, CLPC and ILPI) given available data used in the analysis. The average ERC OPEX forecasts are just below the efficiency frontier indicating relative efficiency. It should be noted that the coefficient of determination (R squared) for this study is 0.95 indicating a strong correlation between the dependent and independent variables.

Additionally, Figure 4 also shows the relative size of VECO and DLPC with the size of TEI, CELCOR, ILPI, CLPC, LUECO and MECO. The utilities in the latter group are all grouped in the lower left side of the graph indicating low magnitudes of their asset base.

**Figure 3.10 : Average Historical OPEX Per RAB**

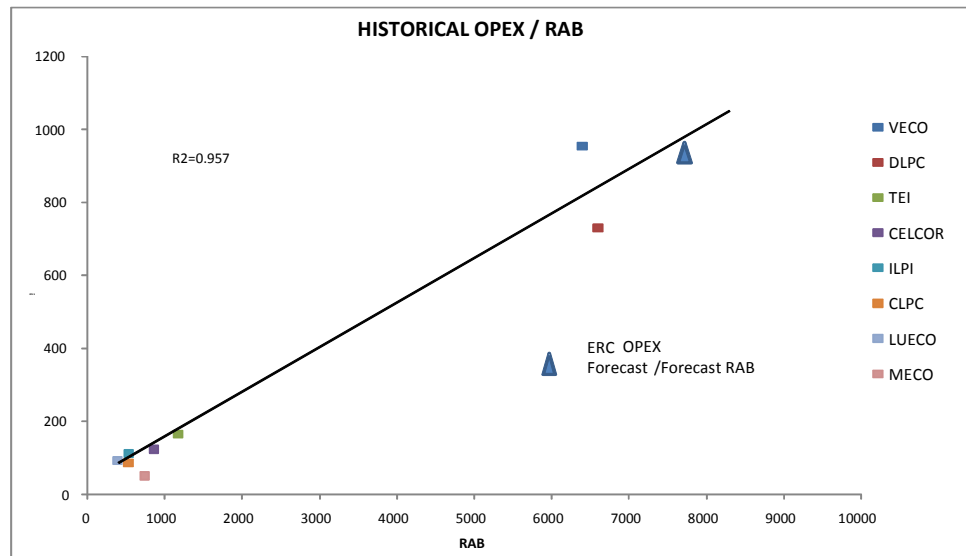
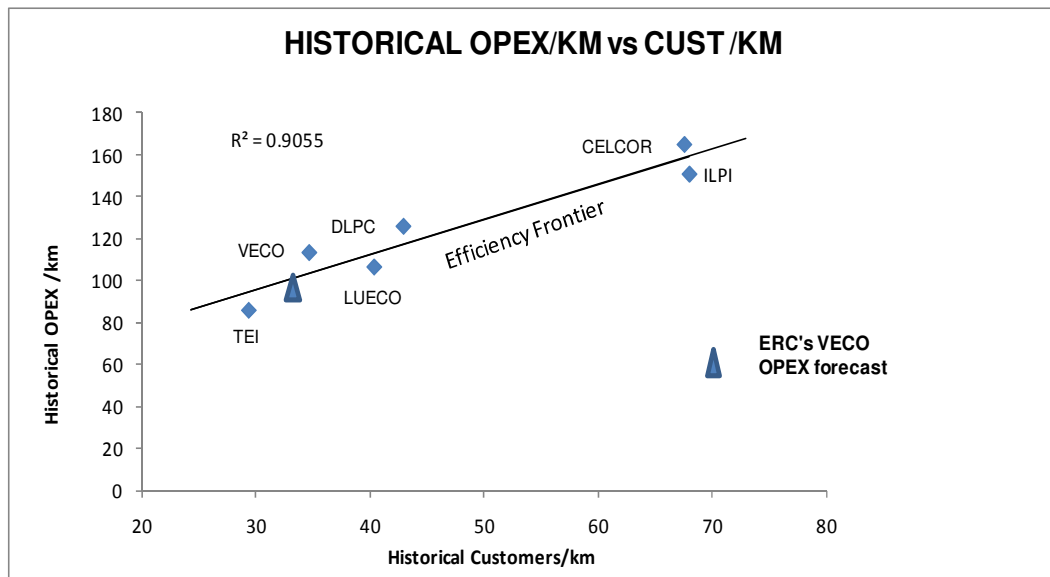


Figure 3.10.1 shows the normalised benchmarking study of OPEX/km vs. customers/km with the average ERC adjusted OPEX forecasts plotted on the graph. In this study, ERC included Iligan Light and Power, Inc. (ILPI), an entrant DU in the second entry point, given sufficient information to include it in this analysis. MECO and CLPC were not included given insufficient information to be included. The ERC adjusted OPEX forecasts are below the efficiency frontier and hence ERC considers these forecasts to be relatively efficient.

It should be noted that the coefficient of determination (R squared) for this study is 0.92 indicating a strong correlation between the dependent and independent variables.

**Figure 3.10.1 : Average Historical OPEX Per Line Length and Customer Per Line Length**

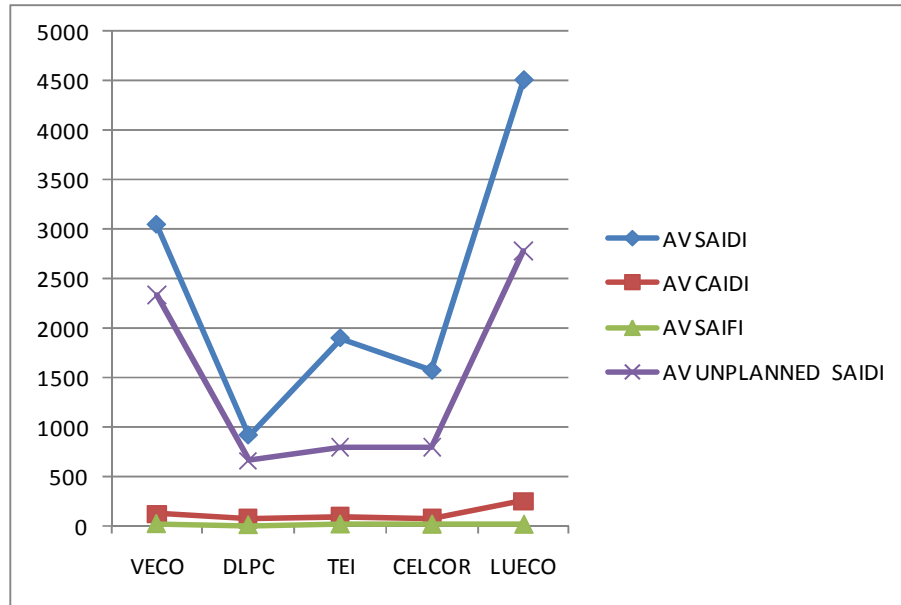


Based on these two benchmarking studies, ERC contends that its adjusted OPEX forecasts are relatively efficient.

**3.6.2 OPEX vs. Performance/Efficiency Benchmarking**

The ERC has benchmarked the historical network performance of five (5) of the six (6) DUs entering PBR at the third entry point, IEEC was excluded due to limited data available. The results of this analysis are shown graphically in Figure 3.10.2.

**Figure 3.10.2 : Group C DUs (except IEEC) Average Historical Network Performance**



Note: IEEC data has not been included as only one year's data is available and it is considered an outlier.

The above graph uses CY2006 to CY2008 data submitted by the utilities. This may not be conclusive as there is need to have sufficient data to identify extreme events falling beyond the control of the utilities. The ERC intends to incorporate either network performance benchmarking or performance improvements for the Third Regulatory Period in order to enhance network performance.

## 4 REVIEW OF TAXES, LEVIES AND DUTIES

### 4.1 HISTORICAL AND FORECAST TAXES, LEVIES AND DUTIES

#### 4.1.1 Historical Taxes, Levies and Duties Expenditure

VECO's historical expenditure on taxes, levies and duties over the 2005-2008 calendar years is shown in Table 4.1. The average annual expenditure over this period is approximately PhP 8.12 million in nominal terms including the comparatively higher spend in CY 2005<sup>5</sup>.

**Table 4.1 : Historical Taxes, Levies and Duties (PhP million, nominal)**

Year	CY 2005	CY 2006	CY 2007	CY 2008
<b>Taxes, Levies and Duties</b>	16.43	-0.28	8.46	7.86

Source: Schedule G3 of VECO's Revenue Application, June 2009

To obtain a better assessment of the relative expenditure, the actual historical expenditures were inflated to real 2009 PhP using actual historical inflation indicators. The table below shows the actual historical taxes, levies and duties expenditure in real 2009 PhP.

**Table 4.2 : Historical Taxes, Levies and Duties (PhP million, real 2009)**

Year	CY 2005	CY 2006	CY 2007	CY 2008
<b>Taxes, Levies and Duties</b>	19.92	-0.32	9.41	7.98

Source: Schedule G3 of VECO's Revenue Application, June 2009

The average annual expenditure over this period in real terms is approximately PhP9.25 million.

#### 4.1.2 Forecast Taxes, Levies and Duties Expenditure

VECO's forecast taxes, levies and duties are shown in Table 4.3.

**Table 4.3 : Forecast Taxes, Levies and Duties (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Taxes, Levies and Duties</b>	6.78	6.65	32.78	9.12	9.79	9.75

Source: Schedule G3 of VECO's Revenue Application, June 2009

The average annual taxes, levies and duties expenditure forecast for the second regulatory period, which excludes CY 2009 and RY 2010, is approximately PhP15.36 million. The main components contributing to the significant differences for each year of the second regulatory period when compared to the 2009 budget calendar year and 2010 forecast regulatory year are the regulatory reset expert fees and the deficiency and amnesty taxes. The explanation for these costs is provided in Section 4.3 below.

### 4.2 TAXES, LEVIES AND DUTIES BREAKDOWN

#### 4.2.1 Historical Taxes, Levies and Duties Expenditure Breakdown

A breakdown of VECO's taxes, levies and duties over the 2005-2008 calendar years is presented in Table 4.4 below. Real property tax and custom duties comprise, on average, 76% of the total annual taxes, levies and duties expenditure across the period.

<sup>5</sup> The significant increase in the 2005 amounts can be attributed to the high expenditure on deficiency and amnesty taxes and other taxes.

**Table 4.4 : Disaggregated Historical Taxes, Levies and Duties (PhP million, real 2009)**

Year	CY 2005	CY 2006	CY 2007	CY 2008
<b>Taxes</b>				
Community Tax			0.01	
Deficiency and Amnesty Taxes	13.72	-	5.52	2.04
Documentary Stamp Tax	0.01	0.02	0.07	0.01
Fringe Benefit Tax	0.02	0.98	1.08	1.37
Registration and Filing Fees	0.17	0.06	0.08	0.001
Taxes and Licenses-Miscellaneous	2.80	0.24	0.33	0.58
VAT Expense	0.05	-1.88	-0.73	1.99
Real Estate Tax	3.14	0.09	3.02	1.98
<b>Sub-Total Taxes</b>	<b>19.91</b>	<b>-0.49</b>	<b>9.38</b>	<b>7.97</b>
<b>Levies</b>				
Regulatory Reset Expert Fees	-	-	-	-
<b>Taxes, Levies and Duties</b>	<b>19.91</b>	<b>-0.49</b>	<b>9.38</b>	<b>7.97</b>

Source: Schedule G3 of VECO's Revenue Application June 2009

#### 4.2.2 Forecast Taxes, Levies and Duties Expenditure Breakdown

VECO's forecast expenditure on taxes, levies and duties can be disaggregated into the components shown in

Table 4.5 below.

**Table 4.5 : Disaggregated Forecast Taxes, Levies and Duties (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Taxes</b>						
Community Tax	0.01	0.01	0.01	0.01	0.01	0.01
Deficiency and Amnesty Taxes	-	-	-	-	-	-
Documentary Stamp Tax	0.013	0.013	0.013	0.013	0.013	0.013
Fringe Benefit Tax	1.30	1.30	1.30	1.30	1.30	1.30
Registration and Filing Fees	0.005	0.005	0.005	0.005	0.005	0.005
Taxes and Licenses-Miscellaneous	0.72	0.72	0.72	0.72	0.72	0.72
VAT Expense	1.70	1.70	1.70	1.70	1.70	1.70
Real Estate Tax	3.03	2.90	2.90	3.33	4.05	4.05
<b>Sub-Total Taxes</b>						
<b>Levies</b>						
Regulatory Reset Expert Fees	-	-	26.13	2.04	2.00	1.95
<b>Taxes, Levies and Duties</b>	<b>6.78</b>	<b>6.65</b>	<b>32.78</b>	<b>9.12</b>	<b>9.79</b>	<b>9.75</b>

Source: Schedule G3 of VECO's Revenue Application June 2009

### 4.3 COMMENTARY

The main difference in the forecast levels of taxes, levies and duties compared to historical payments arises from expenditures for regulatory reset expert fees and deficiency and amnesty taxes. These are discussed further in the sections below.

The taxes, levies and duties in VECO's application cover expenditure relating to the distribution business.

#### 4.3.1 Regulatory Reset Expert Fees

As stated in Section 2.3.3 of the ERC Position Paper dated December 8, 2008 for the third entry point into PBR, the costs for the Regulatory Reset Experts during the Second Regulatory Period are considered to be a levy and will therefore be recoverable under the "levies, duties or taxes other than corporate income tax" building block. Furthermore, the position paper states that ERC will provide the Regulated Entities the forecasts costs to be included in their Revenue Applications.

As part of its application, VECO has included the following amounts which consist of the costs for the engagement of experts to undertake the asset valuation, review the expenditure forecasts, prepare the Issues Paper and Position Paper, and assist the ERC with financial modelling and project management:

**Table 4.6 : Forecast Regulatory Reset Expert Fees (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Regulatory Reset Expert Fees</b>	-	-	26.13	2.04	2.00	1.95

Source: Schedule G3 of VECO's Revenue Application June 2009

VECO's provision for regulatory reset expert fees is consistent with the requirements of the Position Paper and the amounts advised by ERC. It should be noted that the increase in RY2011 amount entails regulatory reset project costs for the period 2006-2010 which VECO can only recover in the first regulatory year.

#### 4.3.2 Real Property Taxes

Table 4.7 below provides the real property taxes that VECO has included in its application:

**Table 4.7 : Forecast Real Property Taxes (PhP million, real 2009)**

Year	CY 2008	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Real Property Taxes</b>	1.98	3.04	2.90	2.90	3.33	4.05	4.05

Source: Schedule G3 of VECO's Revenue Application June 2009

The real property tax component includes taxes imposed by the local government on all of VECO's real properties. It should be noted, however, that VECO neither identified the specific real properties included under this expenditure nor provided sufficient information to explain how the expenditure was determined. In particular, VECO has provided no evidence of the legal basis on which it anticipates the very significant change in its real property tax liability in 2009 as well as the additional tax that it expects will apply over the remainder of the forecast period.

### 4.3.3 Fringe Benefit Tax

Table 4.8 below provides the fringe benefit tax that VECO has included in its application:

**Table 4.8 : Forecast Fringe Benefit Tax (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Fringe Benefit Tax</b>	1.30	1.30	1.30	1.30	1.30	1.30

Source: Schedule G3 of VECO's Revenue Application

This component pertains to fringe benefit tax imposed on the fringe benefits provided by VECO to its officers and employees. It should be noted, however, that VECO did not provide information that clearly explains how the expenditure was determined.

### 4.3.4 Value Added Tax (VAT)

Table 4.9 below provides the value added tax that VECO has included in its application:

**Table 4.9 : Forecast Value Added Tax (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Value Added Tax</b>	1.70	1.70	1.70	1.70	1.70	1.70

Source: Schedule G3 of VECO's Revenue Application

This component pertains to value added tax based on its gross revenue from its distribution services provided to its customers. It should be noted that value added tax is charged to the consumers as a separate line item in the bill. Thus, ERC ensures that these should not form part of the VECO's annual revenue requirement.

## 4.4 ERC PROVISION FOR TAXES, LEVIES AND DUTIES

Upon the detailed review of each line item of the taxes, levies and duties expenditure application of VECO, ERC made the following adjustments:

- The annual provision for real property tax should be adjusted down to the CY 2008 value. Taxes for which VECO's liability has not been confirmed should not be included. In the event of the future imposition of additional real property taxes or should VECO become liable for taxes that are not included in the annual revenue requirement, Article XI of the RDWR allows for unexpected tax liabilities imposed during the Second Regulatory Period by means of a "Tax Event Pass Through";
- VECO's forecast taxes, levies and duties included a provision for fringe benefit tax. This component pertains to tax imposed on the fringe benefits provided by VECO to its officers and employees. It should be noted, however, that VECO did not provide information that clearly explains how the expenditure was determined. In this regard, ERC excluded such amount in the forecast.
- VECO's forecast includes value added tax. This should be excluded in accordance with Section 3.2 of the Position Paper, as value added tax is a pass-through under the unbundled rate structure.

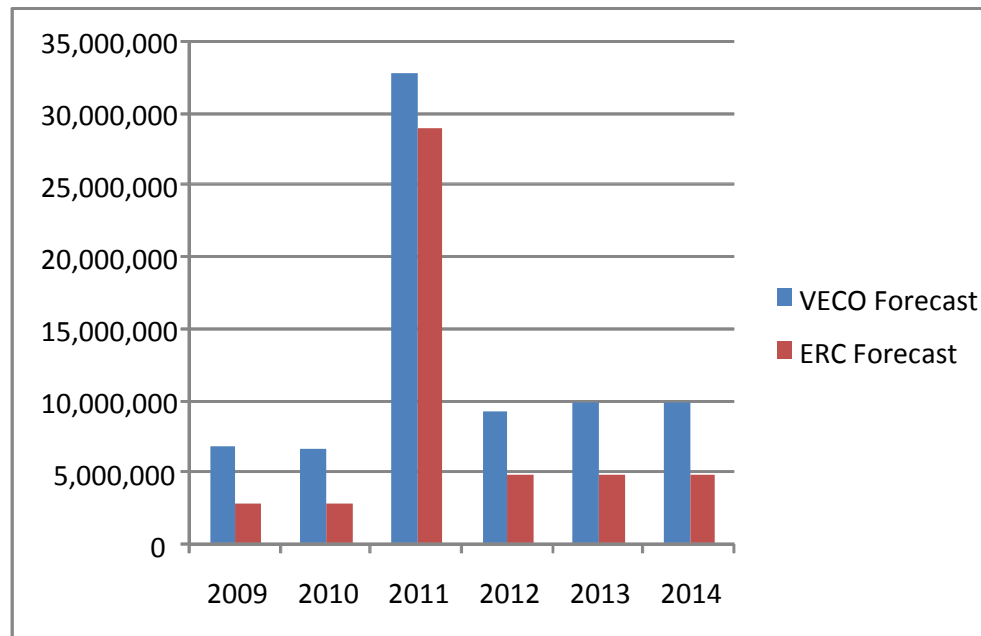
Consequently, the ERC's provisions for taxes, levies and duties are indicated in Table 4.10 below.

**Table 4.10 : ERC's Provision for Taxes, Levies and Duties (PhP million, real 2009)**

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
<b>Proposed in VECO's Revenue Application</b>						
Taxes, Levies and Duties	6.78	6.65	32.78	9.12	9.79	9.75
<b>ERC Adjustments</b>						
Real Property Tax	1.06	0.92	0.92	1.35	2.07	2.07
Fringe Benefits Tax	1.30	1.30	1.30	1.30	1.30	1.30
Value Added Tax	1.70	1.70	1.70	1.70	1.70	1.70
<b>Total Adjustments</b>	<b>4.06</b>	<b>3.92</b>	<b>3.92</b>	<b>4.35</b>	<b>5.07</b>	<b>5.07</b>
<b>ERC's Provision for Taxes, Levies and Duties</b>	<b>2.72</b>	<b>2.73</b>	<b>28.86</b>	<b>4.77</b>	<b>4.72</b>	<b>4.68</b>

A graphical comparison between VECO's forecasts and the ERC forecast for taxes, levies and duties is shown in Figure 4.1.

**Figure 4.1 : Comparison between VECO's Forecast and ERC's Forecast (PhP million, real 2009)**



The increase in RY2011 entails regulatory reset project costs for the period 2006-2010, which can only be recovered by VECO in the first regulatory year. It should be noted that, on average, over the four-year regulatory period, the taxes, levies and duties forecast is only an insignificant 0.92% of the total OPEX forecast.

The graph shows an average difference of 10.4% between VECO's forecast and ERC's forecast for the regulatory years 2011 to 2014.