



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

Davao Light and Power Co., Inc. (DLPC)

Prepared

by the

ENERGY REGULATORY COMMISSION

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1 INTRODUCTION

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 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, 2008¹. The ERC has also formulated its position on the reset process – as set out in a Position Paper dated December 8, 2008².

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 DLPC. These forecasts were submitted to the ERC as part of DLPC's revenue and performance incentive scheme application (revenue application), on June 15, 2009.

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

² *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 DLPC 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, DLPC in this particular report.

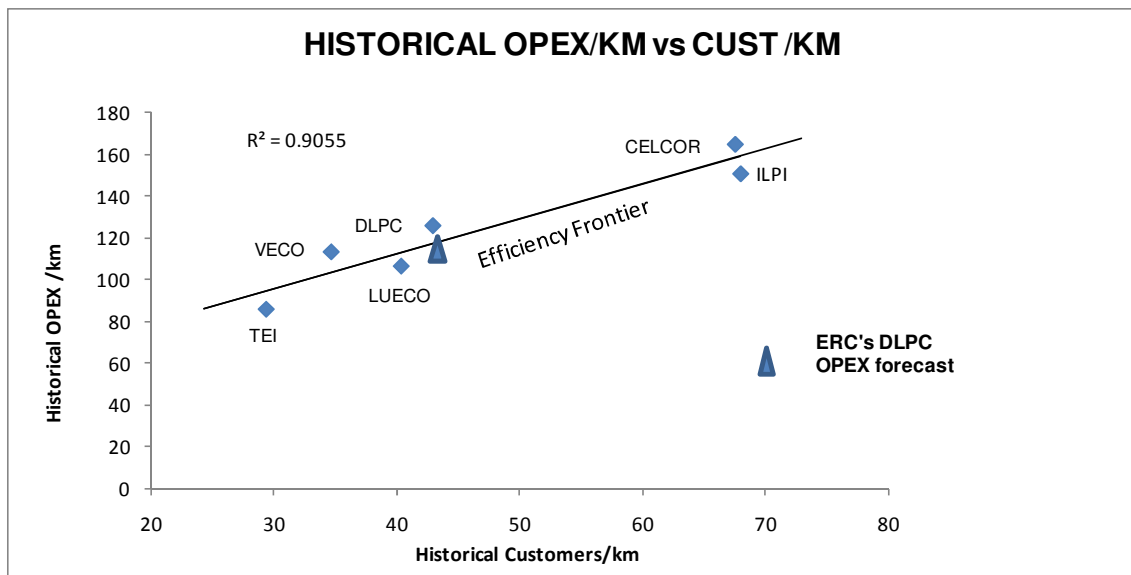
The model took into account that over the modelling period from 2010 to 2014 DLPC's network asset will increase by 5.79% and customer numbers by 21.63%. It also took into account the ERC's capital expenditure forecasts for DLPC, amounting to Php1,487.15 million over the next regulatory period. This is a reduction of 42.37% from DLPC's proposal over the four years, 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 DLPC OPEX forecasts for the second regulatory period which are on the average, 28.38% 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's DLPC 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 DLPC OPEX forecast is deemed to be efficient as it falls 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 DLPC's 2008 base year costs amounting to a total of PhP85.14 million which is equivalent to 12.13% reduction in the total actual 2008 audited OPEX
- Reduction in DLPC's forecast total OPEX for the second regulatory period of PhP1,040 million, equivalent to a 28.38% reduction, shown as follows:

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

		RY 2011	RY 2012	RY 2013	RY 2014	Total
DLPC Forecast Operating and Maintenance Expenditure						
	Distribution and Connection Services Operating and Maintenance	173.59	184.56	197.00	207.42	762.57
	Administrative and General	434.61	466.20	476.72	503.40	1,880.93
	Regulated Retail Services	267.38	280.35	294.51	310.11	1,152.35
TOTAL		875.58	931.11	968.23	1,020.93	3,795.86
ERC Adjustments (based on OPEX model)						
	Distribution and Connection Services Operating and Maintenance	-20.23	-28.96	-39.26	-47.64	-136.09
	Administrative and General	-121.97	-152.92	-162.85	-188.95	-626.69
	Regulated Retail Services	-76.55	-79.15	-80.09	-78.66	-314.46
Total Adjustments		-218.75	-261.03	-282.20	-315.25	-1,077.24
ERC's OPEX Forecasts		656.83	670.08	686.03	705.68	2,718.61

A comparison between DLPC'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 with DLPC's Proposal (PhP real 2009)

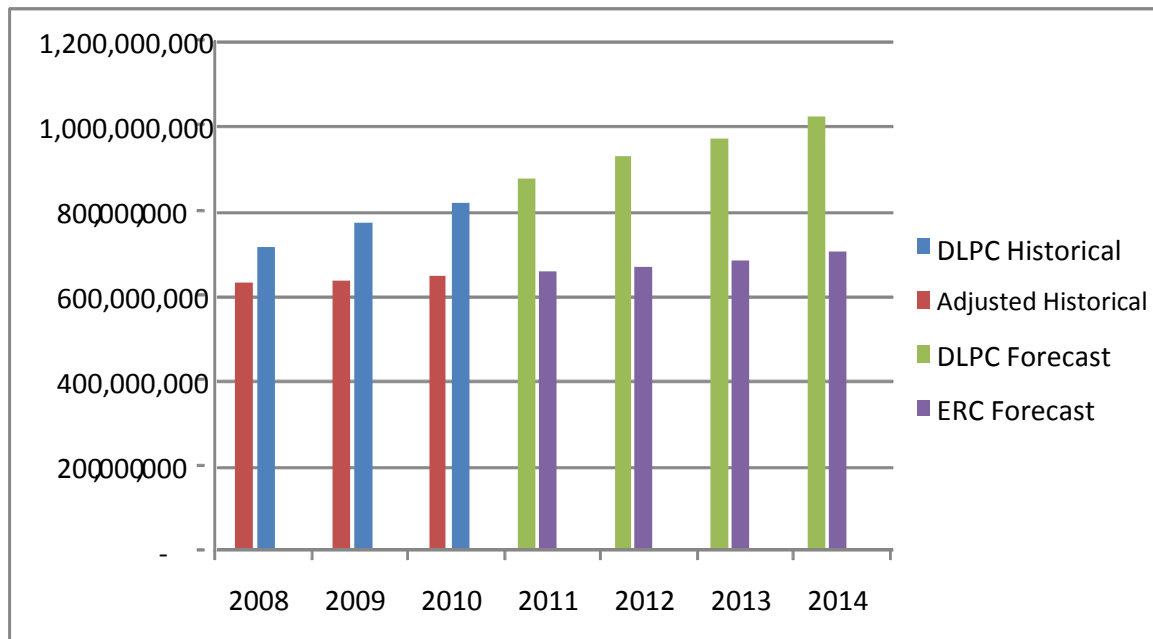
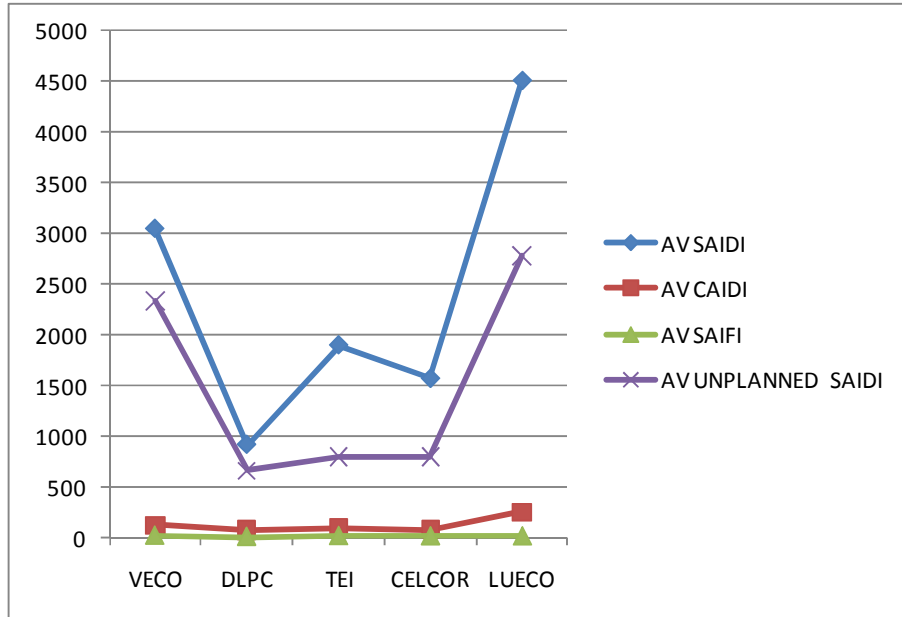


Figure 3 below shows the relative network performance of DLPC over 2006 to 2008. This may not be conclusive as there is need to have sufficient data to identify extreme events falling beyond the control of the utilities. The ERC intends to incorporate either network performance benchmarking or performance improvements for the Third Regulatory Period in order to enhance network performance.

Figure 3 : Historical Network Performance



TAXES, LEVIES AND DUTIES

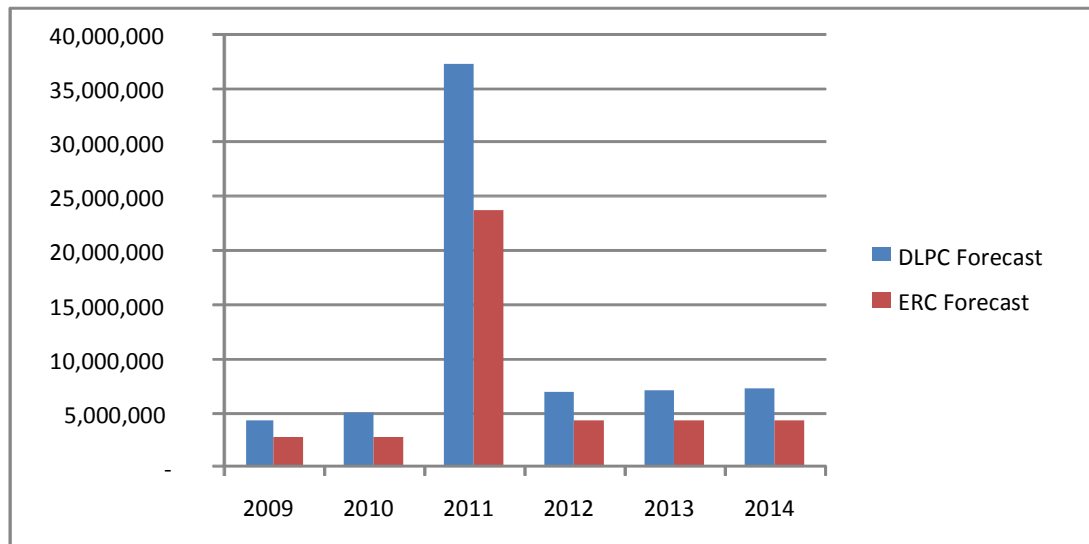
ERC made the following reductions in DLPC's proposed provisions for taxes, levies and duties.

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

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Proposed in DLPC's Revenue Application						
Taxes, Levies and Duties	4.39	5.03	37.28	6.94	7.11	7.29
ERC Adjustments						
Regulatory Reset Expert Fees			-7.19	-0.11	-0.13	-0.14
PBR expenses & Lawyers Fee	0.00	0.00	-11.10	0.00	0.00	0.00
Fringe Benefits	-0.20	-0.22	-0.25	-0.27	-0.30	-0.33
Real Property Taxes	0.00	-0.12	-0.26	-0.39	-0.54	-0.69
Deficiency and Amnesty Taxes	-1.5	-2.0	-2.0	-2.0	-2.0	-2.0
Total Adjustments	-1.70	-2.35	-20.79	-2.77	-2.96	-3.16
ERC's Provision for Taxes, Levies and Duties	2.69	2.68	16.49	4.17	4.15	4.13

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

Figure 4: Comparison of ERC Provision for Taxes, Levies and Duties with DLPC's Historical and Forecast Taxes, Levies and Duties (Php real 2009)



The increase in RY2011 entails legal fees as well as regulatory reset project costs for the period 2007-2009, which are yet to be recovered by DLPC. It should be noted that on the average over the four-year regulatory period, the taxes, levies and duties forecast, is only an insignificant 1.54% of the total OPEX forecast.

The key findings leading to the adjustments in DLPC's taxes, levies and duties are as follows:

- DLPC's forecast taxes, levies and duties included a provision for regulatory reset expert fees. The ERC advised all the DUs sharing for the regulatory reset fees for their respective contribution. It has been noted, however, that the amount included in the forecast differs from the contribution of DLPC as advised by the ERC. In this regard, ERC made adjustment to reflect the regulatory reset fees as advised by the ERC.
- DLPC'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 DLPC to its officers and employees.
- DLPC has included the amount of Php11.6 million under PBR expenses for the year 2007-2009 which consist of the costs for the engagement of casual employees and lawyers for the preparation for the ARR & PIS filing and inventory of assets for the RAB valuation.
- The annual provision for real property tax should be adjusted down to CY 2009 value. Taxes for which DLPC's liability has not been confirmed should not be included. In the event of the future imposition of additional real property taxes or should DLPC become liable for taxes that are not included in the annual revenue requirement, Article IX of the RDWR allows for unexpected tax liabilities imposed during the Second Regulatory Period by means of a "Tax Event Pass Through";
- DLPC proposed a provision for deficiency and amnesty taxes over the second regulatory period. DLPC did not indicate details and justification of such taxes. This should be excluded as a liability of a utility should not be passed on to its customers.

3 REVIEW OF THE OPERATING AND MAINTENANCE EXPENDITURE

3.1 DLPC'S HISTORICAL OPERATING AND MAINTENANCE EXPENDITURE AND NETWORK PERFORMANCE

3.1.1 Historical Operating and Maintenance Expenditure

DLPC's historical total operating and maintenance expenditure in nominal PhP is shown in Table 3.1.

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

Operating Expenditure Category	2005	2006	2007	2008	2009 ¹	2010 ²
Distribution and Connection Services Operating and Maintenance	97.88	124.58	138.68	143.80	157.51	164.87
Regulated Retail Services	161.50	192.18	195.32	203.44	211.53	238.40
Administrative and General	266.83	300.85	324.97	354.50	403.53	423.63
Total Operating & Maintenance Expenditure	526.22	617.61	658.98	701.75	772.57	826.90

Source: Schedule G of DLPC'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 DLPC 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 Expenditure Category	2005	2006	2007	2008	2009 ¹	2010 ²
Distribution and Connection Services Operating and Maintenance	118.63	142.34	154.16	146.11	157.51	163.33
Regulated Retail Services	195.74	219.58	217.12	206.71	211.53	236.16
Administrative and General	323.39	343.73	361.25	360.20	403.53	419.66
Total Operating & Maintenance Expenditure	637.75	705.65	732.53	713.02	772.57	819.15

Source: Schedule G of DLPC'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 real 2009)

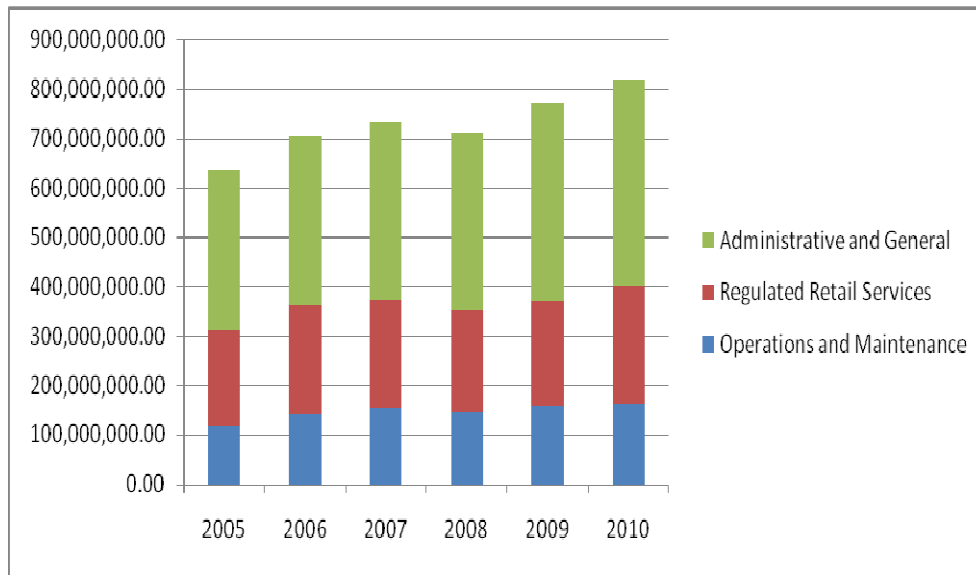


Table 3.2 and Figure 3.1 demonstrate that the annual historical operating and maintenance expenditure remained relatively constant over the period 2005 to 2008. Customer numbers increased by an average 3.30% per annum over the same period.

3.1.2 Historical network performance

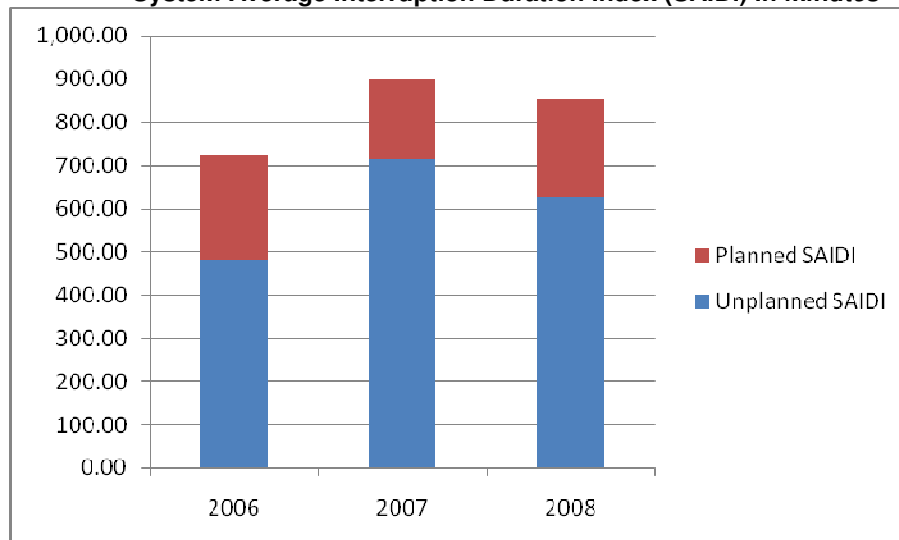
DLPC's historical total system network performance, expressed in minutes, is shown in Table 3.3.

Table 3.3 : Historical Network Performance (in minutes)

Performance Indicators	2006	2007	2008
Unplanned SAIDI	482.59	712.89	626.23
Planned SAIDI	240.30	185.61	225.95
TOTAL SAIDI	722.89	898.50	852.18

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 DLPC in its application, may not be conclusive as there is need to have more sufficient data and to identify factors such as extreme events. The ERC intends to monitor network performance over the second regulatory period and in conjunction with historical data, determine either standards or targets for the third regulatory period. Further, the ERC intends to incorporate either network performance benchmarking or performance improvements for the Third Regulatory Period..

3.2 DLPC'S FORECASTING METHODOLOGY

As Per Schedule G of its revenue application, DLPC 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, DLPC 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 DLPC's Forecast Operating and Maintenance Expenditure

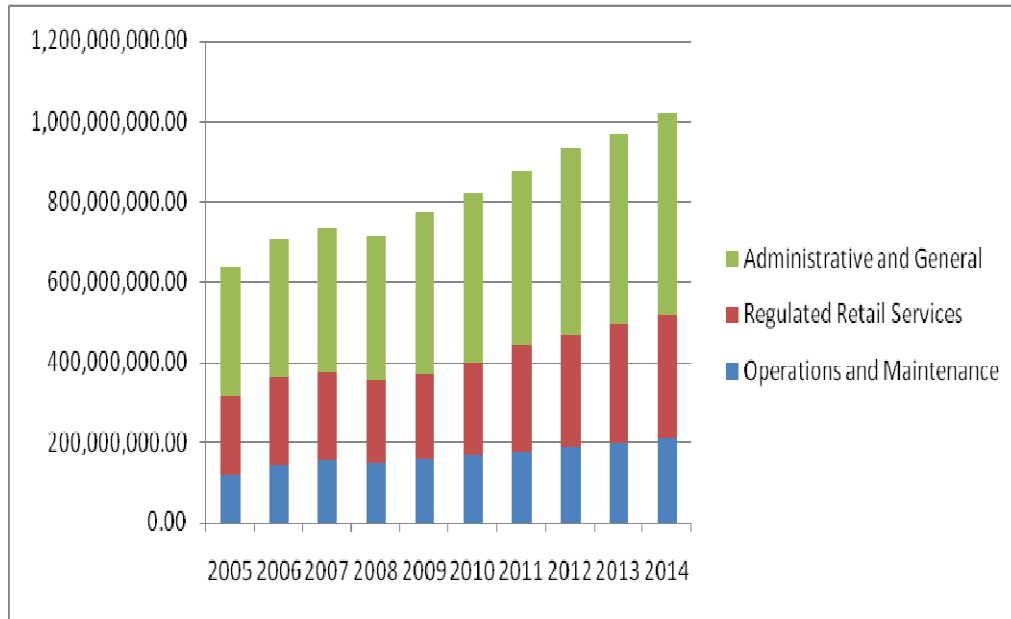
Operating and maintenance expenditure forecasts for the second regulatory period, included in DLPC's revenue application, are shown in the Table 3.4 in real 2009 PhP. These results are also shown graphically in Figure 3.3.

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	173.59	184.56	197.00	207.42
Administrative and General	267.38	280.35	294.51	310.11
Regulated Retail Services	434.61	466.20	476.72	503.40
Total Operating & Maintenance Expenditure	875.58	931.11	968.23	1,020.93

Source: DLPC revenue application June, 2009

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



3.3 REVIEW METHODOLOGY AND ASSUMPTIONS

Table 3.4 above shows that DLPC’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 PhP949 million, compared to an average annual expenditure of PhP697.24 million over the four year historical period. DLPC 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 DLPC forecasts, the ERC used the OPEX forecasting model³ 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 DLPC in its revenue application.

The OPEX model forecasts specific cost categories by escalating the base year values by the correlated cost drivers. For example, operating 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.

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

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

- Determine the base year operating and maintenance expenditures on a cost category basis;
- Assess each component of the 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
- DLPC'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

DLPC used the 2008 calendar year as its base year for determining forecast OPEX. From the application it is apparent that DLPC used the 2008 figures as the basis for the 2009 budget. ERC also used the 2008 figures as the base year since this is the latest actual full-year expenditure data available.

Administrative and General Expenditures - Management Contract

DLPC has a management contract in place with Aboitiz Power Corporation (APC) for the provision of management expertise and services. In return, it pays APC for management fees equal to 2% of its gross revenue. The key officers under the management contract consists of seven (7) directors and eleven (11) executives who do not receive any compensation in terms

of salary and related fees from DLPC but are covered by the management fee. The management fee for the year 2008 amounted to PhP136 million, which represents 19% of its total OPEX. Services provided by APC that are charged to the management fee and not directly to DLPC include the following:

- legal and corporate services;
- treasury service;
- corporate finance service;
- computer service;
- human resources development services;
- internal audit services;
- messengerial and liaison services;
- corporate support service group; and
- regulatory services

A comprehensive description of these services is provided in the revenue application but no attempt was made to quantify the value of each of these services. In response to a clarificatory question asking DLPC to provide a breakdown of how this management fee is paid, DLPC stated that the cost was a certain percent charge to revenue per contract and they further explained as follows:

In the absence of a management contract, DLPC will have to put in place seven (7) directors, eleven (11) executives and fifty-six (56) staff to perform the function of the APC support personnel. Based on the theoretical cost, the hiring of personnel will entail additional OPEX cost amounting to PhP213 million.

ERC assessed what it considered to be a reasonable complement of additional staff required if the services supplied under the management contract were supplied in house and costed these additional positions. Based on this assessment, ERC considers the management fee to be reasonable.

Administrative and General Expenditures – Office Supplies and Expenses

DLPC indicated in its submission that part of said expense was that of litigation or legal in nature in which no further information was provided. ERC contends that these services should form part of the services supplied under the APC management contract. The impact of this adjustment on the base year OPEX is a reduction by PhP5.38 million.

Administrative and General Expenditures – Outside Services

DLPC indicated in its submission that part of said expense was that of audit and legal consultancy in which no further information was provided. ERC contends that these services should form part of the services supplied under the APC management contract. The impact of this adjustment on the base year OPEX is a reduction by PhP23.49 million.

Administrative and General Expenditures – Employee Pension and Benefits

During the clarificatory meeting, DLPC 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 DLPC employees should not be recovered from its consumer rates. If DLPC 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 DLPC 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 PhP17.58 million.

Regulated Retail – Bad Debts Expense

DLPC included the amount of PhP35 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.

DLPC’s 2008 accounts written-off amounted to PhP34.96 million and Accounts Receivable-Trade (AR) amounted to PhP241.28 million. 1% of outstanding trade accounts receivable is PhP2.4 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 PhP32.55 million.

The resulting 2008 base year operating expenditures after the ERC total adjustments amounting to PhP85.14 million are as shown in Table 3.5. This has been used in the OPEX model to forecast future expenditures:

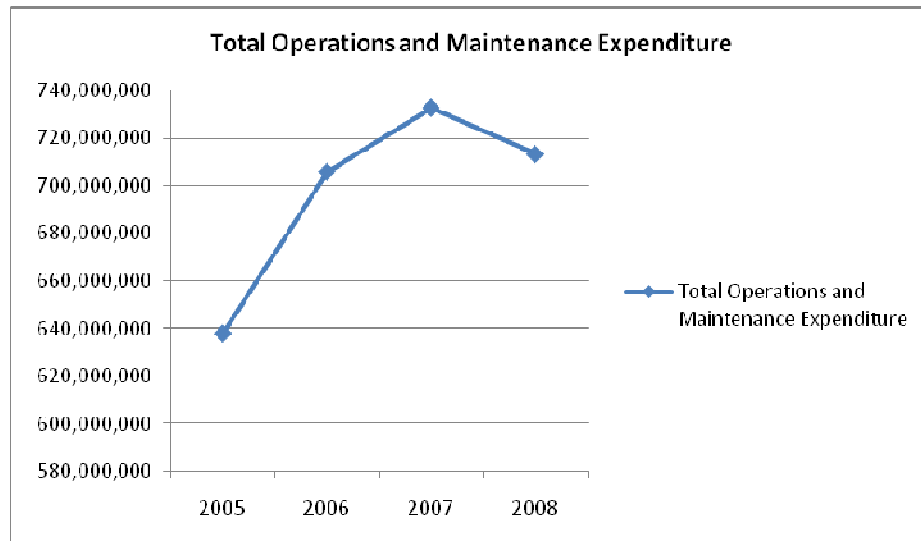
Table 3.5 : Adjusted Base Year 2008 Operating and Maintenance Expenditure (PhP million, real 2009)

Operating and Maintenance Expenditure Category	2008
Operation	59.44
Maintenance	85.02
Administration and General	310.25
Regulated Retail Services	171.83
Total Operating & Maintenance Expenditure	626.54

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.

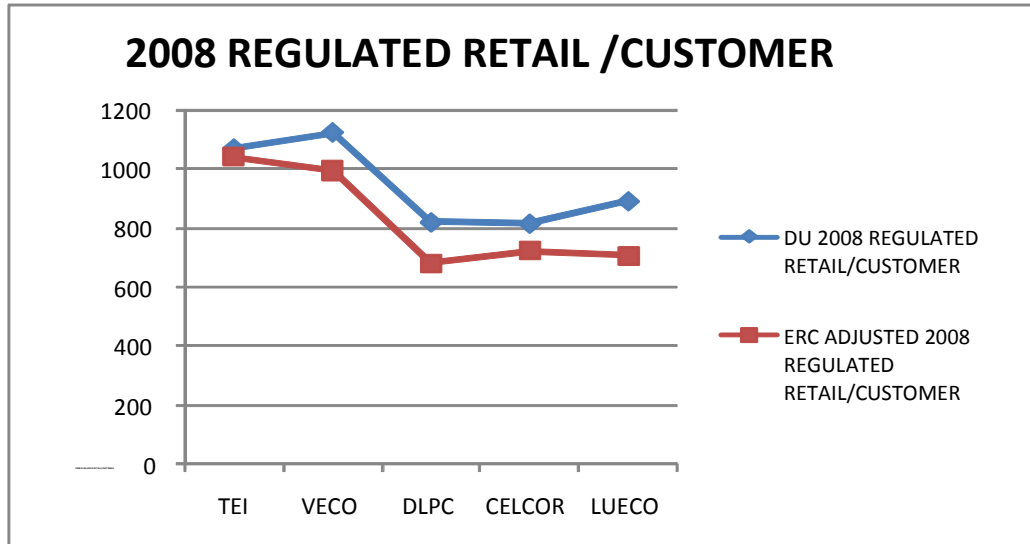
Figure 3.4 : Historical Operating and Maintenance Expenditures (Real PhP)



As shown in the above graph, the total OPEX varies each historical year and has abruptly increased in CYs 2006 and 2007, demonstrating the variability of the annual historical operating expenditures.

In its analysis, the ERC has determined that 50% 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



As illustrated in Figure 3.5 above, DLPC may not be relatively high in terms of its 2008 base year retail costs per customer. However, the ERC still made adjustment from its 2008 regulated retail costs amounting to PhP34.3 million, equivalent to a 17% reduction. This adjustment which is included in the base year figure shown in Table 3.5 above, constitute mainly reductions in bad debt expense wherein a policy has been set by the Commission and administrative and general expenditures which are deemed to be excluded from the customer rates.

Figure 3.6 below shows a linear regression analysis showing the efficiency frontier using the average historical OPEX of the 6 DUs (DLPC, DLPC, TEI, CELCOR, LUECO and ILPI⁴).

⁴ 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.

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

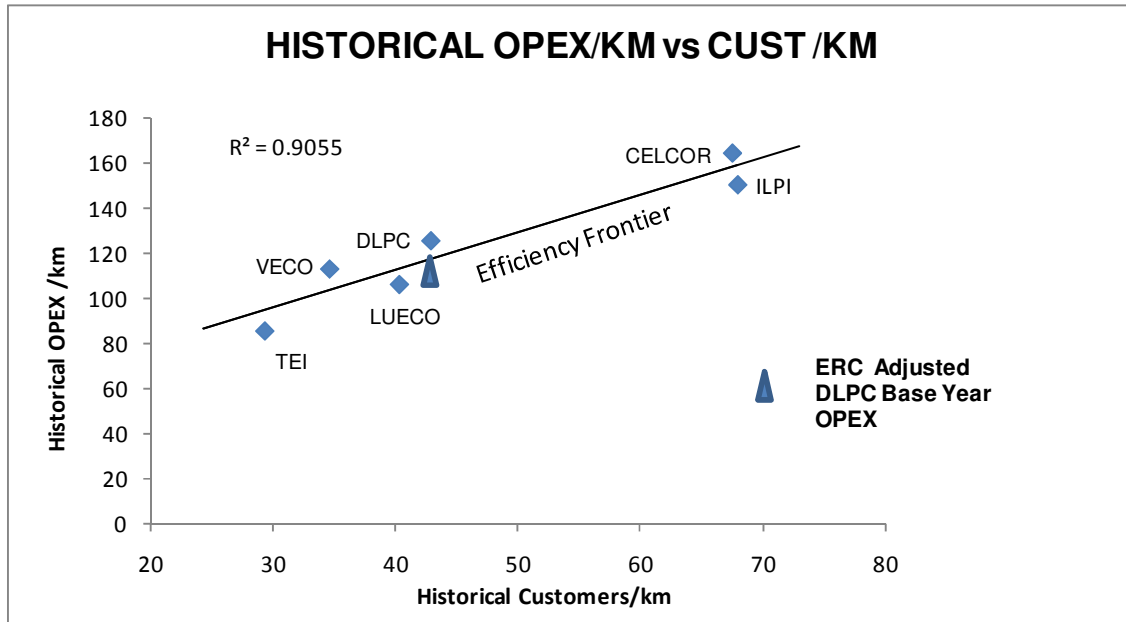


Figure 3.6 illustrates that DLPC's average historical OPEX is above the efficiency frontier indicating its relative inefficiency. The ERC adjusted base year OPEX which has also been plotted on the graph is below the efficiency frontier indicating that it is relatively efficient.

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 DLPC 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. 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 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 DLPC.

- *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 maintenance materials rises in line with inflation, that is, it remains constant in real terms.

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



Source: www.infomine.com

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



Source: 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 incorporate 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.

3.4 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 3.6.

Table 3.6 : ERC's Base OPEX Forecasts

Operating and Maintenance Expenditure Category	2011	2012	2013	2014
Distribution and Connection Services Operating and Maintenance	153.36	155.59	157.74	159.78
Administrative and General	312.63	313.28	313.87	314.45
Regulated Retail Services	190.83	201.20	214.41	231.45
Total Operating & Maintenance Expenditure	656.83	670.08	686.03	705.68

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 3.6.

The ERC adopts the DLPC OPEX forecasts indicated in the aforesaid Table 3.6.

Table 3.7 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 DLPC included in its revenue application.

Table 3.7 : Comparison of DLPC and ERC' Forecast Operating and Maintenance Expenditure (Php million, real 2009)

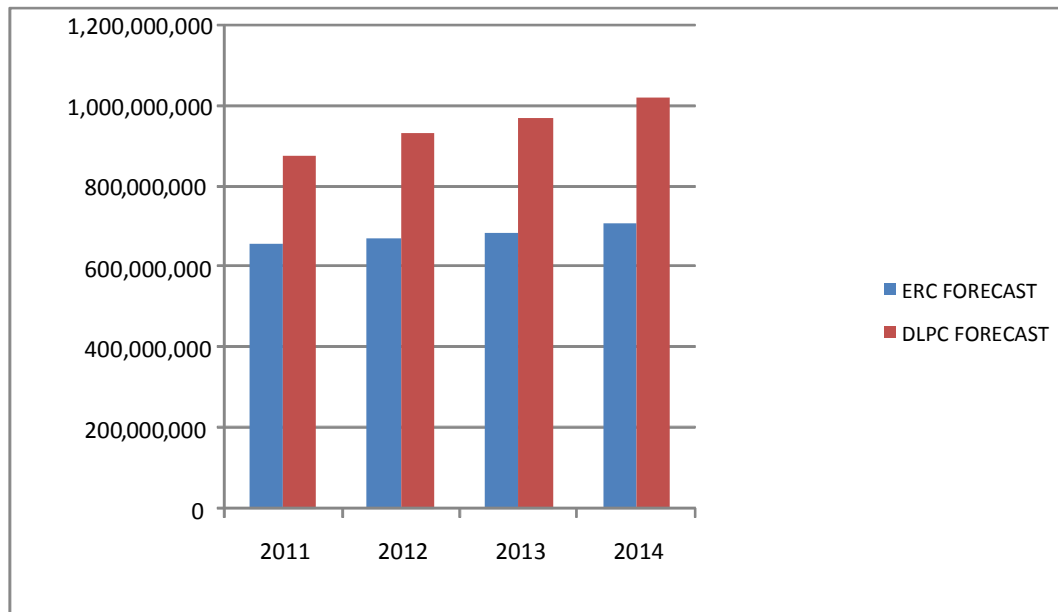
Operating and Maintenance Expenditure Category	2010	2011	2012	2013	2014	Total ¹
Distribution and Connection Services Operating and Maintenance						
DLPC	163.33	173.59	184.56	197.00	207.42	925.90
ERC Forecast	150.25	153.36	155.59	157.74	159.78	776.73
Difference	- 13.07	- 20.23	- 28.96	- 39.26	- 47.64	- 149.17
Administrative and General						
DLPC	419.66	434.61	466.20	476.72	503.40	2,300.59
ERC Forecast	311.77	312.63	313.28	313.87	314.45	1,566.01
Difference	- 107.89	- 121.97	- 152.92	- 162.85	- 188.95	- 734.58
Regulated Retail Services						
DLPC	236.16	267.38	280.35	294.51	310.11	1,388.52
ERC Forecast	182.23	190.83	201.20	214.41	231.45	1,020.13

Difference	- 53.93	- 76.55	- 79.15	- 80.09	- 78.66	- 368.38
Total Operating and Maintenance Expenditure						
DLPC	819.15	875.58	931.11	968.23	1,020.93	4,615.01
ERC Forecast	644.26	656.83	670.08	686.03	705.68	3,362.88
Difference	- 174.89	- 218.75	- 261.03	- 282.20	- 315.25	- 1,252.13
ERC Adjustment	- 174.89	- 218.75	- 261.03	- 282.20	- 315.25	- 1,252.13

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

A graphical comparison between DLPC's and the ERC's OPEX forecast is shown in Figure 3.9. The ERC forecast entails a reduction of 28.38% in the operating expenditures applied for by DLPC amounting to PhP1,077.24 million over the 4 year regulatory period.

Figure 3.9 : Comparison between DLPC and ERC Forecast Operating and Maintenance Expenditure Forecast (PhP real 2009)



3.6 BENCHMARKING WITH OTHER GROUP C UTILITIES

3.6.1 Inter Business Benchmarking

In order to determine if the ERC 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 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 forecast is 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 3.10 also shows the relative size of VECO and DLPC compared to 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. Five (5) of these utilities are almost on the efficiency frontier while one (1) is below the efficiency frontier. DLPC, which is presumed to have the advantage of economies of scale and scope due to its size, should be expected to be below the efficiency frontier.

Figure 3.10. Average Historical OPEX Per RAB

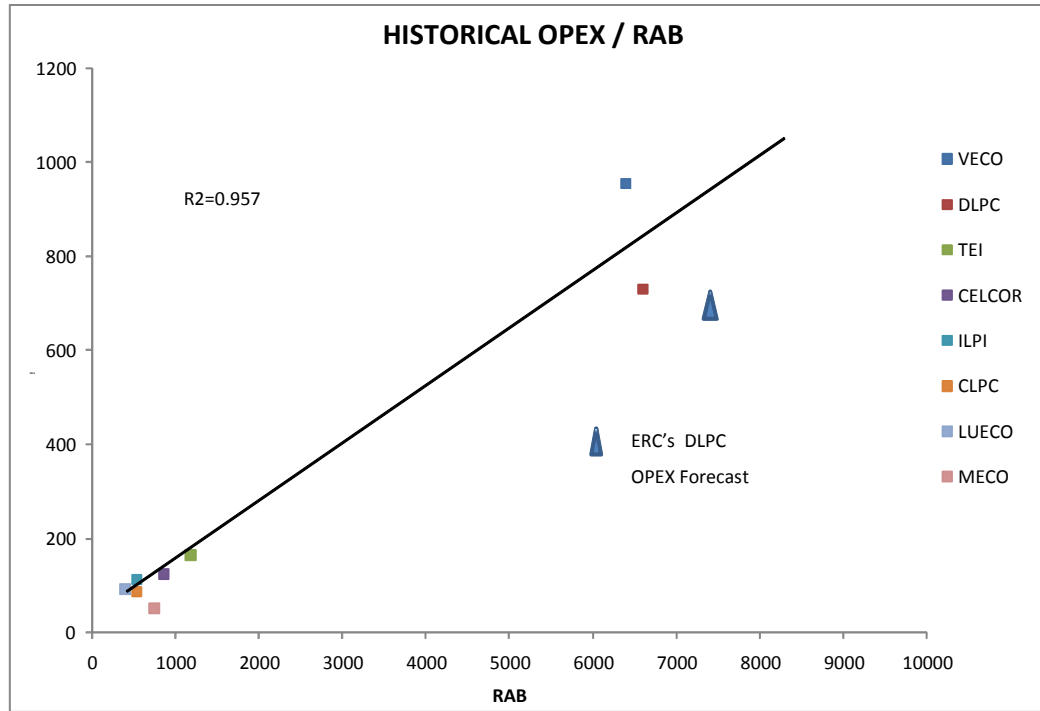
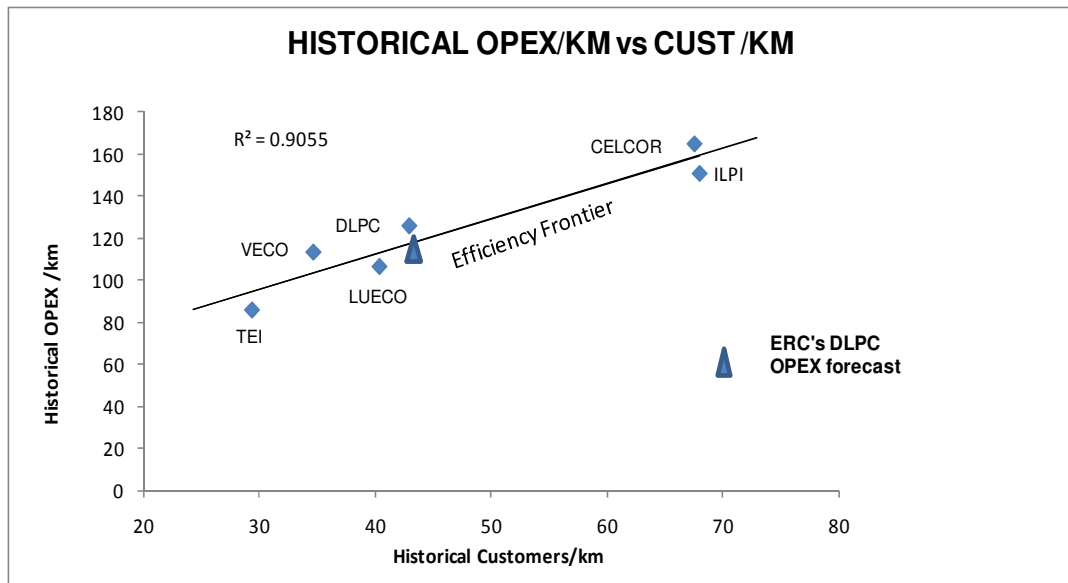


Figure 3.10.1 shows the normalised benchmarking study of OPEX/km vs. customers/km with the average ERC adjusted OPEX forecasts plotted on the graph. In this study, ERC included Iligan Light and Power, Inc. (ILPI), an entrant DU in the second entry point, given sufficient information to include it in this analysis. MECO and CLPC were not included given insufficient information to be included. The ERC adjusted OPEX forecasts do not out lie on 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 0.95 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

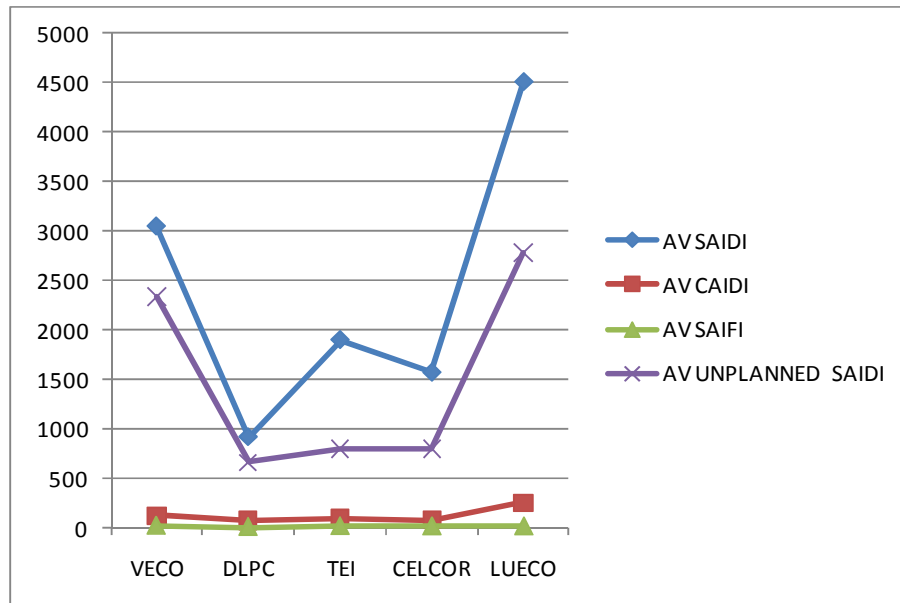


Based on these two benchmarking studies ERC contends that its adjusted OPEX forecasts are relatively efficient.

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.

These shall serve as inputs to ERC in its objective of setting the appropriate performance targets or standards for the third regulatory period.

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

DLPC'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 2.03 million in nominal terms including the comparatively higher spend in CY 2006⁵.

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

Year	CY 2005	CY 2006	CY 2007	CY 2008
Taxes, Levies and Duties	1.47	2.39	2.32	1.94

Source: Schedule G3 of DLPC'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
Taxes, Levies and Duties	1.79	2.73	2.58	1.97

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

The average annual expenditure over this period in real terms is approximately PhP2.27 million.

4.1.2 Forecast Taxes, Levies and Duties Expenditure

DLPC'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
Taxes, Levies and Duties	4.39	5.03	37.28	6.94	7.11	7.29

Source: Schedule G3 of DLPC'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 PhP14.65 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 DLPC'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.

⁵ 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
Taxes				
Business Operations Permits	0.16	0.15	0.15	0.13
Community Tax	0.01	0.01	0.01	0.01
Real Property Tax	1.27	1.26	1.22	1.30
Deficiency and Amnesty Taxes	0.14	0.00	1.00	0.00
Documentary Stamp Tax	0.00	1.05	0.00	0.26
Fringe Benefit Tax	0.16	0.26	0.20	0.19
Miscellaneous Taxes	0.05	0.00	0.00	0.08
Sub-Total Taxes	1.79	2.73	2.58	1.97
Duties				
Levies				
Taxes, Levies and Duties	1.79	2.73	2.58	1.97

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

4.2.2 Forecast Taxes, Levies and Duties Expenditure Breakdown

DLPC'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
Taxes						
Community Tax	0.01	0.01	0.01	0.01	0.01	0.01
Business Operations Permit	0.18	0.18	0.19	0.20	0.21	0.21
Real Estate Tax	2.49	2.64	2.88	3.15	3.44	3.75
Fringe Benefit Tax	0.20	0.23	0.26	0.30	0.34	0.39
Deficiency and Amnesty Taxes	1.5	2.0	2.1	2.2	2.3	2.4
Sub-Total Taxes	4.4	5.1	5.5	5.9	6.3	6.8
Duties						
Levies						
Regulatory Reset Expert Fees	-	-	21.95	1.73	1.80	1.87
Taxes, Levies and Duties	4.4	5.1	39.3	7.6	8.1	8.7

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

4.3 COMMENTARY

The main difference in the forecast levels of taxes, levies and duties compared to historical payments arise 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 DLPC'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, DLPC has included the amount of PhP11.6 million under PBR expenses for the year 2007-2009 which consist of the costs for the engagement of casual employees and lawyers for the preparation for the ARR & PIS filing and inventory of assets for the RAB valuation. Likewise for the engagement of experts to undertake the asset valuation; review the expenditure forecasts; prepare the Issues Paper and Position Paper; and to 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
Regulatory Reset Expert Fees	-	-	21.95	1.73	1.80	1.87

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

DLPC's provision for regulatory reset expert fees is consistent with the requirements of the Position Paper and the amounts advised by ERC.

4.3.2 Fringe Benefit Tax

Table 4.7 below provides the fringe benefit tax that DLPC has included in its application:

Table 4.7 : Forecast Fringe Benefit Tax (PhP million, real 2009)

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Fringe Benefit Tax	0.20	0.22	0.25	0.27	0.30	0.33

Source: Schedule G3 of DLPC's Revenue Application

This component pertains to fringe benefit tax imposed on the fringe benefits provided by DLPC to its officers and employees.

4.3.3 Real Property Taxes

Table 4.8 below provides the real property taxes that DLPC has included in its application:

Table 4.8 : Forecast Real Property Taxes (PhP million, real 2008)

Year	CY 2008	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Real Property Taxes	1.30	2.49	2.64	2.88	3.15	3.44	3.75

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

The real property tax component includes taxes imposed by the local government on all of DLPC's real properties. It should be noted, however, that DLPC neither identified the specific real properties included under this expenditure nor provided sufficient information to explain how the expenditure was determined. In particular, DLPC 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.

4.3.4 Deficiency and Amnesty Taxes

Table 4.9 below provides the real property taxes that DLPC has included in its application:

Table 4.9 : Forecast Deficiency and Amnesty Taxes (PhP million, real 2008)

Year	CY 2008	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Deficiency and Amnesty Taxes	0	1.5	2.0	2.1	2.2	2.3	2.4

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

DLPC proposed a provision for deficiency and amnesty taxes over the second regulatory period. However, DLPC did not indicate details and justification of such taxes.

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 DLPC, ERC has disallowed the following:

- DLPC's forecast taxes, levies and duties included a provision for regulatory reset expert fees. The ERC advised all the DUs sharing for the regulatory reset fees for their respective contribution. It has been noted, however, that the amount included in the forecast differs from the contribution of DLPC as advised by the ERC. In this regard, ERC made adjustment to reflect the regulatory reset fees as advised by the ERC.
- DLPC'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 DLPC to its officers and employees.
- DLPC has included the amount of PhP11.6 million under PBR expenses for the year 2007-2009 which consist of the costs for the engagement of casual employees and lawyers for the preparation for the ARR & PIS filing and inventory of assets for the RAB valuation;
- The annual provision for real property tax should be adjusted down to CY 2009 value. Taxes for which DLPC's liability has not been confirmed should not be included. In the event of the future imposition of additional real property taxes or should DLPC become liable for taxes that are not included in the annual revenue requirement, Article IX of the RDWR allows for unexpected tax liabilities imposed during the Second Regulatory Period by means of a "Tax Event Pass Through";
- DLPC proposed a provision for deficiency and amnesty taxes over the second regulatory period. DLPC did not indicate details and justification of such taxes. This should be excluded as a liability of a utility should not be passed on to its customers.

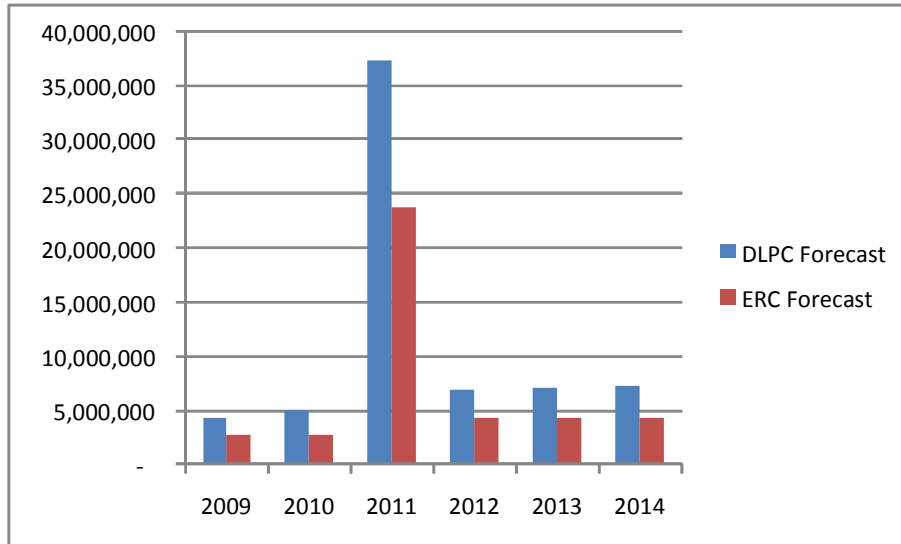
Consequently, the ERC allowed provisions for taxes, levies and duties as shown in Table 4.9 below:

Table 4.9 : ERC's Provision for Taxes, Levies and Duties (PhP million, real 2008)

Year	CY 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Proposed in DLPC's Revenue Application						
Taxes, Levies and Duties	4.39	5.03	37.28	6.94	7.11	7.29
ERC Adjustments						
Regulatory Reset Expert Fees			-7.19	0.11	-0.13	-0.14
PBR expenses & Lawyers Fee	0.00	0.00	-11.10	0.00	0.00	0.00
Fringe Benefits	-0.20	-0.22	-0.25	-0.27	-0.30	-0.33
Real Property Taxes	0.00	-0.12	-0.26	-0.39	-0.54	-0.69
Deficiency and Amnesty Taxes	-1.5	-2.0	-2.0	-2.0	-2.0	-2.0
Total Adjustments	-1.70	-2.35	-20.79	-2.77	-2.96	-3.16
ERC Provision for Taxes, Levies and Duties	2.69	2.68	16.49	4.17	4.15	4.13

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

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



The increase in RY2011 entails legal fees as well as regulatory reset project cost for the period 2007-2009, which are yet to be recovered by DLPC on the first regulatory period. It should be noted that on the average, over the four-year regulatory period, the taxes, levies and duties forecast, is only an insignificant 1.34% of the total OPEX forecast.

The graph shows an average difference of 38% between DLPC's forecast and ERC forecast for the regulatory years 2011 to 2014.