PB ASSOCIATES

REVIEW OF FORECAST EXPENDITURE: SECOND REGULATORY PERIOD

Mactan Electric Company

Prepared for

ENERGY REGULATORY COMMISSION

26 September 2008

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EXECUTIVE SUMMARY

CAPITAL EXPENDITURE (CAPEX)

We recommend that the Energy Regulatory Commission (ERC) make the following adjustments to the capital expenditure proposed by Mactan Electric Company (MECO):

Forecast Capital Expenditure (PhP million, real 2008)

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013	Total[1]
Major Projects						
Forecast capex	**15.60**	**71.17**	**50.89**			137.66
Adjustments						0
Cost and Timing Adjustment	37.17					37.17
Cost Adjustment for Substation #5			(24.09)			(24.09)
Timing Adjustment for Substation #5		(71.17)	7.10	64.07		0
Timing Adjustment for Building Renovations	(15.60)	15.60				0
Recommended Major Project Capex	**37.17**	**15.60**	**33.90**	**64.07**		150.74
Residual Capex						
Forecast Capex	**40.34**	**43.60**	**40.32**	**40.16**	**37.00**	201.42
Adjustments						
Cost and Timing Adjustment	(1.93)	(2.45)	2.46	0.12	2.37	0.57
Recommended Residual Capex	**38.41**	**41.15**	**42.78**	**40.28**	**39.37**	**201.99**
TOTAL FORECAST CAPEX	**55.94**	**114.77**	**91.21**	**40.16**	**37.00**	**339.08**
TOTAL RECOMMENDED CAPEX	**75.58**	**56.75**	**76.68**	**104.35**	**39.37**	**352.73**
Recommended Total Adjustment	19.64	(58.02)	(14.53)	64.19	2.37	13.65
Impact of Recommended Total Adjustment	35.1%	(50.6%)	(15.9%)	(159.8%)	(6.4%)	4.0%

Note 1: Total for RY 2009-13.

Our recommended adjustment represents a small (4.0%) increase on the RY 2009-13 capex forecast submitted in MECO's revenue application. However we believe that, due to the way that MECO has compiled and presented its forecast, the forecast shown in the revenue application for the period RY 2009-13 does not include all the capex that MECO expects to spend between 1 April 2008 and 31 March 2013. As noted below we have made cost and timing adjustments to correct for this and we consider that our cost and time adjusted capex forecast is a more valid baseline for measuring the impact of our expenditure review. This is shown in the table below. It can be seen that the expenditure adjustments recommended in this review would reduce MECO's cost and time adjusted capex over the forecast period by 6.4%.

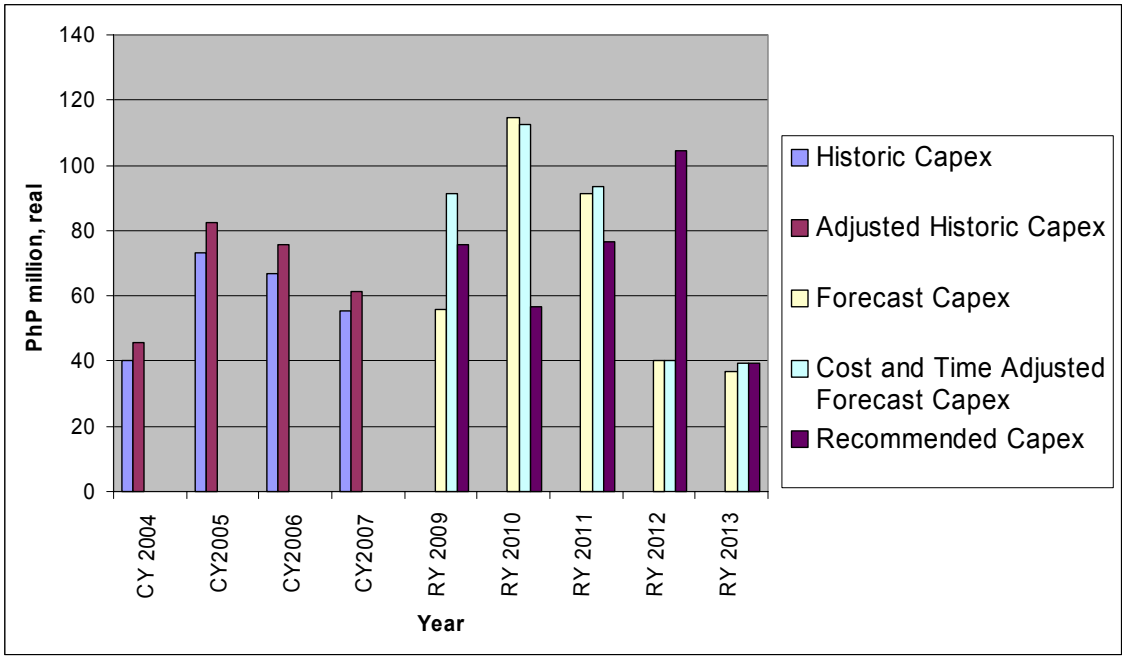
Adjusted Forecast Capital Expenditure (PhP million, real 2008)

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013	Total[1]
Major Projects						
Forecast capex	**15.60**	**71.17**	**50.89**			**137.66**
Cost and Timing Adjustment	37.17					37.17
Cost and Time Adjusted Major Projects	52.77	71.17	50.89			174.83
Residual Capex						
Forecast Capex	**40.34**	**43.60**	**40.32**	**40.16**	**37.00**	**201.42**
Cost and Timing Adjustment	(1.93)	(2.45)	2.46	0.12	2.37	0.57
Cost and Time Adjusted Residual Capex	38.41	41.15	42.78	40.28	39.37	201.99
TOTAL COST AND TIME ADJUSTED CAPEX	**91.18**	**112.32**	**93.67**	**40.28**	**39.37**	**376.82**
TOTAL RECOMMENDED CAPEX	**75.58**	**56.75**	**76.68**	**104.35**	**39.37**	**352.73**
Total Recommended Cost Adjustment	(15.60)	(55.57)	(16.99)	64.07	-	(24.09)
Impact of Recommended Cost Adjustments	(17.1%)	(49.5%)	(18.1%)	(159.1%)	-	(6.4%)

Note 1: Total for RY 2009-13.

A comparison of our recommended capex with MECO's submitted and adjusted historic and forecast capex is shown in the figure below.

Comparison of Recommended Capex with MECO's Historic and Forecast Capex (PhP million, real 2008)



The key findings of our capex review are as follows:

- MECO's CY 2004-07 historic and CY 2008 budget capex includes materials costs only, whereas its forecast capex for the period RY 2009-13 includes both materials and installation costs. Hence the historic and forecast capex streams submitted in MECO's revenue application are not directly comparable. We have therefore adjusted the CY 2004-08 historic capex to include estimated installation costs and used this adjusted expenditure stream for comparison purposes. The impact of the adjustment is shown in the above diagram.

- In preparing its forecast MECO appears to have assumed that each capex template column from CY 2008 to RY 2013 refers to a separate calendar year. Hence we do not believe that MECO's revenue application capex forecast has properly accounted for the nine-month overlap between CY 2008 and RY 2009. We conclude this from the fact that the major projects budgeted for CY 2008 are different projects from those forecast for RY 2009 and also because many of the minor projects in the residual project forecast are scheduled for completion after 31 March 2013. Projects due for completion after 31 March 2013 should not have been included in the forecast. We have made a cost and timing adjustment to correct for this apparent forecast timing error. This has had the following effect:

    - It has increased the major project expenditure over the forecast period (RY 2009-13) by PhP 37.17 million due to the inclusion of the major projects budgeted for CY 2008. The PhP 37.17 million was derived by cost-adjusting MECO's budgeted CY 2008 major project cost (PhP 35.28 million) to include the estimated cost of installation. No major projects were excluded from the forecast as MECO did not schedule any major project work for RY 2013.

    - It resulted in an increase of PhP 0.57 million in residual capex over the forecast period due to inclusion of the cost-adjusted residual capex for the period 1 April 2008 – 31 December 2008 and removal of the residual capex for the period 1 April 2013 – 31 December 2013. The overall increase arises because the capex introduced into the forecast from CY 2008 was higher than the capex moved into the third regulatory period from RY 2013.

  These adjustments increased MECO's capex over the five year forecast period by PhP 37.74 million, or 11.1%. In our view this is a more accurate baseline against which the impact of our recommended capex review adjustments should be measured.

- We recommend that the significant projects scheduled for CY 2008 be allowed. However, as noted above, we have cost-adjusted MECO's budget expenditure to include installation costs and time-adjusted it to RY 2009.

- MECO is planning to construct a new 69 kV substation in Barangay Mactan in the north-east of its franchise area with forecast completion in RY 2012. This project, with a forecast cost of PhP 122.06 million, dominates the major project capex forecast. It includes the construction of a new 69 kV line to supply the substation, including a section of underground cable running between the airport and the shoreline. We have reviewed this project carefully and recommend that it be approved, since the additional transformer capacity is needed and the substation location is consistent with the long term load growth in the supply area. We recommend, however, that the project cost be reduced by PhP 24.09 million, as MECO has a near-new spare transformer available that should be used for this project. We have also recommended that the timing of the project expenditure be adjusted to be consistent with the ERC's capitalization policy.

- We recommend the cost for refurbishments to MECO's head office building be allowed but that the expenditure be delayed by one year since completion by 31 March 2009 seems unlikely.

- We recommend that MECO's forecast residual capex expenditure be allowed in full, after the cost and timing adjustments described above have been applied.

OPERATIONS AND MAINTENANCE EXPENDITURE (OPEX)

We recommend that the ERC make the following adjustments to the opex proposed by MECO:

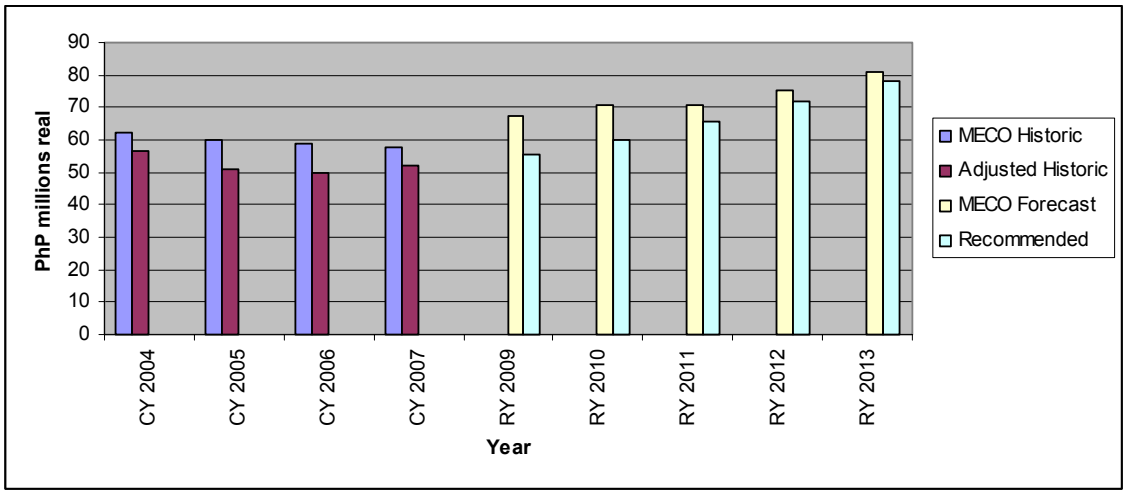
Forecast Operations and Maintenance Expenditure (PhP million, real 2008)

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013	Total[1]
Distribution System Operations and Maintenance						
Revenue Application Forecast	15.16	14.78	16.70	18.87	21.28	86.78
Model	13.32	14.88	16.93	19.65	22.23	87.01
DSOAR Adjustment	-	(0.15)	(0.34)	(0.59)	(0.89)	(1.97)
Recommended Opex	**13.32**	**14.73**	**16.59**	**19.06**	**21.35**	**85.05**
Regulated Retail Services						
Revenue Application Forecast	15.23	12.93	11.09	10.95	11.73	61.93
Recommended Opex	4.39	4.60	4.81	5.01	5.21	24.01
Administrative & General Expenditure						
Revenue Application Forecast	36.90	43.04	42.89	45.44	48.04	216.32
Recommended Opex	37.82	40.80	44.12	47.84	51.73	222.31
Totals						
Revenue Application Forecast	67.29	70.75	70.68	75.26	81.06	365.03
Recommended Opex	55.52	60.14	65.51	71.91	78.29	331.36
Recommended Adjustment	**(11.77)**	**(10.61)**	**(5.17)**	**(3.35)**	**(2.77)**	**(33.67)**
Percentage Adjustment	(17.5%)	(15.0%)	(7.3%)	(4.4%)	(3.4%)	(9.2%)

Note 1: Total for period RY 2009-13
Source: PB Associates

A comparison between MECO's historic opex (after adjustment to remove estimated asset installation related costs), its forecast opex and our recommended opex over the second regulatory period is shown in the figure below.

Comparison of Recommended Opex with MECO's Historic and Forecast Opex (PhP million, real 2008)



The key findings of our opex review are as follows:

- Due to the different allocation of installation related capital costs in the historic and forecast opex, the estimated costs associated with the installation of new capital assets were adjusted out of MECO's reported historic opex, to provide a more valid comparison with its opex forecast. This adjustment is shown in the above diagram.

- As MECO provided insufficient information on how it derived its forecast opex, we were unable to review its methodology for reasonableness. Therefore we used PB Associates' opex forecasting model to estimate MECO's future opex needs and adjusted for the differences between MECO's forecast and the required opex determined from our modelling. Our modelling was based on MECO's actual opex for CY 2007, after adjustment to remove the estimated capex related installation expenditures. However, in developing the base year modelling costs we made some relatively minor additions to MECO's actual CY 2007 opex to include expenditures that were not incurred by MECO in CY 2007 but which we considered would be incurred in the forecast years.

- As part of this review we benchmarked MECO's operational efficiency against the other first and second entry point IOUs. This exercise indicated that MECO benchmarked exceptionally well against its peer IOUs from both entry points, to the extent that we are concerned that its adjusted base year opex level may not be sustainable if the quality and reliability of its service to customers is to be maintained over time. Rather than arbitrarily increasing this base year opex, our model therefore assumed a 10% per annum real increase in total labor costs. We envisage that this additional opex will be used to improve the quality and reliability of the service MECO provides rather than to fund a real increase in unit labor rates.

- Notwithstanding our allowed real increase in total labor costs, our recommended opex is 9.2% lower than the opex forecast by MECO over the five-year forecast period. Reasons for this include:

    - the adjustment to MECO's RY 2007 base year opex to remove capex related installation costs, as noted above;

    - the exclusion of opex related to the assets that were not included in our recommended capex; and

    - our modelling assumption that 90% of administrative and general expenditures are fixed and will not increase with changes in the size of the regulatory asset base over the forecast period.

- Consistent with the final determination for the first entry point IOUs, we have made a reduction to the forecast opex to account for the expected progressive introduction of the Distribution Services Open Access Rules (DSOAR). If this provision was not made, then any charges made to customers for the provision of contestable distribution services during the second regulatory period would also be recovered through the distribution wheeling rate. This would result in a double recovery of these costs.

- At the end of the second regulatory period we estimate that MECO's key performance indicator of total opex per kWh will reduce marginally from a current level of PhP 0.22 to PhP 0.21, when measured in real 2008 PhP. This reduction is based on our adjusted energy sales forecast, which is higher than submitted by MECO in its revenue application. If the MECO forecast was used, the total opex per kWh at the end of the regulatory period would increase to PhP 0.24. Irrespective of the sales forecast used, this indicator is substantially lower than achieved by any other first or second entry point IOU.

TAXES, LEVIES AND DUTIES

We recommend the following reductions in MECO's proposed provisions for taxes, levies and duties:

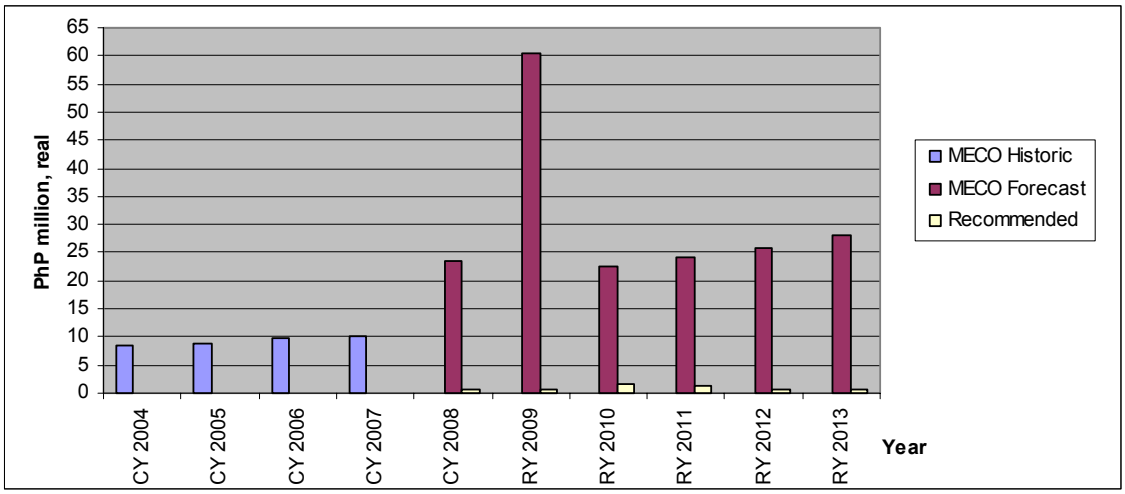
Forecast Taxes, Levies and Duties (PhP million, real 2008)

Year	CY 2008	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013	Total[1]
Proposed in MECO's Revenue Application							
Taxes, Levies and Duties	23.40	60.38	22.59	24.01	25.82	28.16	184.37
Adjustments							
Real Property Tax	0.002	44.157	3.383	3.383	3.383	3.383	57.691
Franchise Tax	10.165	9.896	11.391	13.110	15.087	17.360	77.008
Deficiency Tax	7.172	-	-	-	-	-	7.172
Vehicle Registration Fees	0.004	0.011	0.020	0.029	0.039	0.050	0.154
Regulation and Supervision Fee	0.561	0.561	0.561	0.561	0.561	0.561	3.364
Regulatory Compliance	4.932	5.194	5.457	5.719	5.982	6.244	33.528
Recommended Provision for Taxes, Levies and Duties	**0.56**	**0.56**	**1.78**	**1.21**	**0.77**	**0.56**	**5.46**

Note 1: Total for period RY 2009-13

A comparison between MECO's actual taxes, levies and duties expenditure, its forecast expenditure and our recommended taxes, levies and duties expenditure is shown in the chart below.

Comparison of Recommended Taxes, Levies and Duties with MECO's Historic and Forecast Taxes, Levies and Duties (PhP million, real 2008)



The key findings of our review on MECO's taxes, levies and duties are as follows:

- The major component of MECO's reported historic expenditure on taxes, levies and duties was franchise taxes. These should not have been included in the forecast as franchise taxes are a pass-though under the unbundled rate structure, as stated in Section 3.2 of the Position Paper

- The annual provision for real property tax has been adjusted down to the CY 2007 value as MECO provided insufficient justification for its forecast increases.

- MECO's forecast included franchise taxes. We have excluded these in accordance with Section 3.2 of the Position Paper. We also excluded MECO's forecast deficiency taxes for the same reason, as these arise from deficiencies in the payment of franchise taxes.

- MECO's forecast taxes, levies and duties included a provision for interest on customer deposits. The guidelines for customer deposits have still to be finalized by ERC. Notwithstanding this, ERC has advised that interest on customer deposits are for MECO's account should not be recovered under distribution wheeling rates nor passed-through to customers. We have therefore recommended that the component of regulatory compliance be excluded from MECO's annual revenue requirement.

1. INTRODUCTION

The Energy Regulatory Commission (ERC) has promulgated a performance-based form of regulation (PBR) for investor owned electricity distribution utilities (IOUs) in the Philippines. Under the PBR framework an IOU will be subject to a price-cap for the delivery of distribution wheeling services. The reset process for the setting of the price cap for the three IOUs entering the PBR at the second entry point is currently underway. This process will result in the setting of a maximum price path that will determine the maximum average price (MAP) an IOU can charge for the provision of electricity distribution services in each year of the Second Regulatory Period (which commences on 1 April 2009 and ends on 31 March 2013).

The mechanism for the calculation of the price cap and the procedure and timelines for the introduction of this cap, are described in the Rules for Setting the Distribution Wheeling Rate (RDWR), which was released by the ERC on December 13 2006[1]. The ERC has also formulated its position on the reset process – as set out in a Position Paper dated March 14 2007[2].

An important requirement of the reset process going forward is the review of the expenditure forecasts submitted by the IOUs as part of the rate-setting process under PBR. These expenditure components are critical to the determination of the revenue that IOUs will require for the provision of regulated distribution services over the second regulatory period and on which the price caps will be based.

The RDWR require that the expenditure forecasts provided by an IOU be reviewed by a Regulatory Reset Expert as part of the PBR regulatory reset process. Parsons Brinckerhoff Associates (PB Associates) has been engaged by the ERC to review the expenditure forecasts of the three IOUs that will be entering PBR at the second entry point.

The following expenditure forecasts form part of this review process:

- capital expenditure (capex);
- disposal of fixed assets;
- operating and maintenance expenditure (opex); and
- taxes (other than corporate income tax), levies and duties.

The three IOUs entering PBR at the second entry point are:

- Cotabato Light and Power Company (CLPC);
- Iligan Light and Power Incorporated (ILPI); and
- Mactan Electric Company (MECO).

This report presents the PB Associates' review of the expenditure forecasts of MECO. These forecasts were submitted to the ERC as part of MECO's revenue and performance incentive scheme application (revenue application), on May 23, 2008.

In undertaking this review we have relied on the accuracy of the information provided to the ERC by MECO. While, during the clarificatory meeting process, we queried information that appeared to be incomplete, inconsistent or inaccurate, we did not undertake an audit or attempt to verify the information on which we relied. We therefore

[1] *Rules for Setting Distribution Wheeling Rates for Privately Owned Distribution Utilities Entering Performance Based Regulation (Second and Later Entry Points)*, Energy Regulatory Commission, December 13 2006.

[2] *Regulatory Reset for the October 2008 to September 2012 Regulatory Period for Privately Owned Distribution Utilities subject to Performance Based Regulation, Position Paper*, Energy Regulatory Commission, March 14 2007. Note that the start and finish dates of the regulatory period to which this Position Paper applies were subsequently changed to April 1 2008 and March 31 2013 respectively, by ERC Resolution No 24 Series of 2007, dated October 24 2007.

cannot be held responsible for any conclusions based on misleading or inaccurate information provided to us.

2. CAPITAL EXPENDITURE

2.1 REVIEW METHODOLOGY

The capex review has been undertaken on the basis that proposed expenditure should only be recommended for approval if it is:

1. used for the provision of regulated distribution services;
2. either:
   - required, in that the expenditure is unable to be avoided if distribution services to customers are to continue over time to be provided in accordance with the Philippines Distribution Code and the IOU's other legal and regulatory obligations; or
   - discretionary, and the IOU is able to demonstrate that the value to customers of the benefits that it expects to receive through making the expenditure outweighs the cost of the expenditure, after taking due account of any uncertainties in the assumptions used in this analysis; and
3. economically efficient in that the timing of the expenditure is appropriate and the level of expenditure is no higher than necessary to achieve the required outcome.

2.2 OVERVIEW OF EXISTING DISTRIBUTION NETWORK

The bulk of MECO's electricity requirements are supplied at 69 kV from TransCo's 138/69 kV, 2x100 MVA gas insulated switchgear (GIS) substation at the termination point of the 138 kV Cebu-Mactan cable. In addition MECO takes supply at 13.8 kV on a single feeder from TransCo's 1x10 MVA Load End substation, which is supplied from the old 69 kV cable.

MECO currently owns and operates four 69/13.8 kV substations supplied from a radial 69 kV network. While the bulk of this network is owned by TransCo, MECO owns two line sections with a total length of 2.7 km. Distribution is via a 13.8 kV three-wire distribution network comprising eight feeders. A ninth feeder supplies the Mactan International Airport, but this is not owned by MECO.

The MECO network had a 2007 maximum demand of 43.0 MW and annual energy sales of 238.2 GWh. Total losses are approximately 9.8%. No customers are connected at 69 kV but it has 44 directly connected 13.8 kV customers.

2.3 DEMAND ANALYSIS

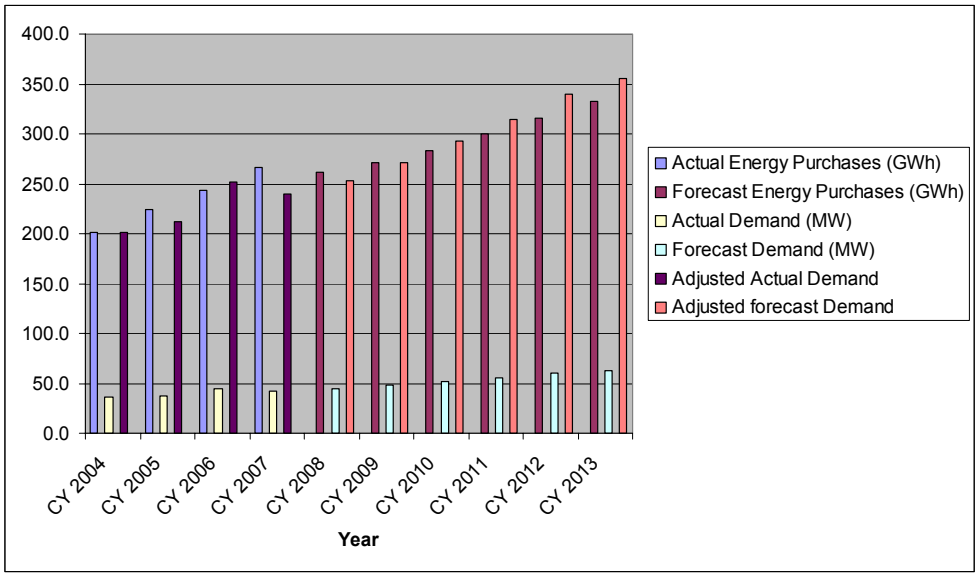
It is not within the terms of reference of this review to undertake a detailed study of the forecasts of energy sales, peak demand and customer numbers included in MECO's revenue application. However, as load driven capex is dependent on the growth in peak demand on the network, we have reviewed the demand forecast at a high level in order to be satisfied that the assumptions made by MECO as the basis for its capex forecast are reasonable.

Figure 2.1 compares MECO's actual and forecast total energy purchases with its non-diversified peak demand[3]. In order to graphically compare the rates of growth in energy purchases and demand more easily, we have also scaled all demands by a factor of 5.67. This technique means that the CY 2004 energy sales (in GWh) and the scaled demand are numerically equal and that the actual or forecast growth rates of energy and demand can be directly compared.

A review of Figure 2.1 shows that over the period CY 2004-07 energy sales grew at the exceptionally high rate of 9.8% per annum. MECO is forecasting a reduction in sales of 1.9% in 2008 and an overall growth rate of only 3.7% per annum over the period 2007-2013. Actual demand over the period CY 2004-07 fluctuates when compared to energy consumption but increases at an average rate of only 5.9% per annum. We think that this is due to the short time over which measurements are available rather than a fundamental shift in the nature of the load – if the growth in demand is measured over the three year period CY 2004-06, then the annual growth of peak demand increases to 11.7%.

MECO has forecast a reduction in energy consumption in CY 2008 but expects nevertheless a small increase in demand, probably because of the apparently low relative demand in CY 2007. It has not offered any reason for reduced energy consumption in CY 2008 and we do not know if the forecast reduction mirrors an actual decline in energy consumption experienced over the first four months of the year, before the revenue application was finalized. It is fair to say that growth rates of the order of 10% are unsustainable even in fast growing economies and some reduction from the high growth rates of the historic period can be expected.

Figure 2.1: MECO's Actual and Forecast Demand and Energy Sales



Beyond CY 2008, demand is forecast to grow at 6.8% per annum whereas energy consumption is only forecast to grown at 4.9% per annum. Given the very strong growth over the period CY 2004-07 the forecast peak demand growth rate of 6.8% would not seem unreasonable. However, a divergence between the rate of growth of energy sales and demand is unsustainable over time without a significant change in the nature of the load being supplied. MECO has provided no convincing evidence of such a change so

[3] As each of MECO's main substations is directly connected to TransCo's 69 kV subtransmission system and each uses a separate metering point, the peak demand reported by MECO is the non-diversified total of the individual maximum demands at each substation.

we consider that the forecast growth in energy consumption over the period CY 2008-13 should be increased to match the forecast growth in demand and note that such a change would have the effect of lowering the MAP.

Table 2.1: Forecast Grid Point Demand and Energy Sales

	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012	CY 2013
Energy Consumption (GWh)						
MECO Forecast	261.6	271.4	282.8	299.5	315.3	332.0
Adjusted Forecast	261.6	279.4	298.4	318.7	340.4	363.5
Non Diversified Peak Demand (MW)						
MECO Forecast	44.6	47.9	51.7	55.5	59.9	62.7

2.4 OVERVIEW OF HISTORIC, BUDGET AND FORECAST CAPITAL EXPENDITURE.

MECO's historic, budget and forecast capex as submitted in its revenue application is shown in Table 2.2.

Table 2.2: Historic, Budget and Forecast Capex (PhP million, real 2008)

	Calendar Year					Regulatory Year				
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Major Projects	3.47	29.00			35.28	15.60	71.17	50.89		
Residual	36.81	44.10	66.68	55.36	32.69	40.34	43.60	40.32	40.16	37.00
Total	40.28	73.09	66.68	55.36	67.97	55.95	114.77	91.20	40.16	37.00

Our review of MECO's capex template indicated that, in preparing its forecast, MECO did not recognize the nine month overlap between CY 2008 and RY 2009. For some line items, the expenditure in CY 2008 was greater than the sum of the reported expenditures for January-March 2008 and RY 2009. This is impossible, as the period January-March 2008 and RY 2009 extends from January 2008 to March 2009 and hence includes all of CY 2008.

Furthermore, in Schedule C of its revenue application MECO has itemized smaller projects that are not scheduled for commissioning until December 2013. However, projects due for commissioning between April 2013 and December 2013 fall into the third regulatory period and should not have been included in the forecast.

We conclude that MECO's capex forecast over the period 2009-13 relates to calendar years rather than regulatory years. This means that the forecast capex includes nine months expenditure that occurs after the end of the second regulatory period. A timing adjustment is therefore required to remove this excess forecast expenditure and reallocate the remaining expenditure into its correct time period.

MECO has also advised that it used a different cost recognition approach in deriving its forecast capex requirement (RY 2009-13) than in reporting its historic and budget capex (CY 2004-08), in that its forecast capex includes labor and plant costs associated with the design and construction of new assets whereas historic and budget capex include materials costs only. Hence, while all costs in this report are expressed in real 2008 PhP, historic and forecast costs are not directly comparable since they have been assembled using a different cost allocation methodology. A cost adjustment to include installation costs must therefore be applied to historic and budget capex reported through to the end of CY 2008, in order to ensure that this is directly comparable with MECO's forecast capex.

We have applied these timing and cost adjustments separately for major project and residual expenditure.

2.4.1 Adjustments to Major Project Capital Expenditures.

The major one-off projects included in MECO's CY 2008 budget capex are different projects from the one-off projects included in the RY 2009 capex forecast. The revenue application showed no budgeted major project capex over the period January-March 2008. We have therefore assumed that all major project capex in CY 2008 will actually occur in RY 2009. In adjusting MECO's base revenue application capex forecasts we have made no initial timing adjustments for the two major projects scheduled for completion over the period RY 2009-13, but have left this to the individual review of each project in Section 2.5 below.

The cost and timing adjustments made to historic and forecast major capex are shown in Table 2.3 below. We have estimated the appropriate cost adjustment to historic capex on the basis of the installation and overhead margins that were applied to equipment procurement costs to determine the current replacement costs used in the regulatory asset valuations of the three second entry point IOUs[4].

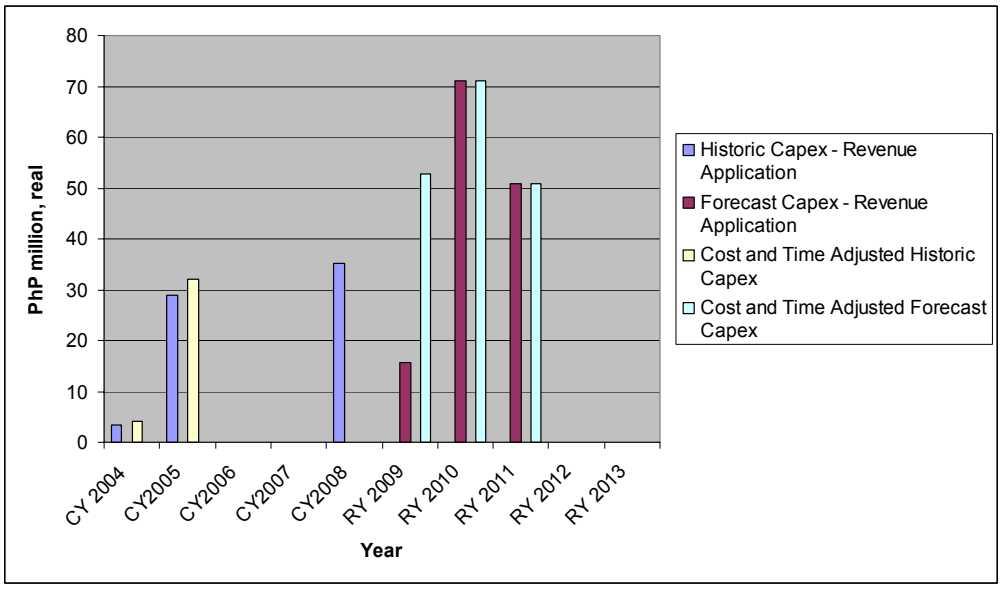
Table 2.3: Adjustment to Major Project Capital Expenditures (PhP million, real 2008).

	Calendar Year					Regulatory Year				
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
MECO Forecast	3.47	29.00			35.28	15.60	71.17	50.89		
Cost Adjustment	0.55	3.07			1.89	-	-	-		
Cost Adjusted Capex	4.02	32.07			37.17	15.60	71.17	50.89		
Timing Adjustment					(37.17)	37.17				
Cost and Time Adjusted Capex	**4.02**	**32.07**				**52.77**	**71.17**	**50.89**		

The impact of these cost and timing adjustments on major project capex is shown in Figure 2.2. It can be seen that forecast major project expenditure is significantly higher than historic expenditure.

[4] Installation costs were estimated on the basis of the installation cost margins for the different asset types that were derived for the asset valuation. Each year's adjustment has also been deducted from the historic opex submitted by MECO to provide the adjusted historic opex (which does not include capex related costs). While this adjustment will indicate a higher capex requirement it will also indicate lower opex and so the overall impact on the allowed revenue is assumed to be minor.

Figure 2.2: Impact of Cost and Timing Adjustments on Major Project Capex (PhP million, real 2008)



2.4.2 Adjustments to Residual Capital Expenditures

The cost adjustments for the historic and budgeted residual capex were estimated using a similar analysis to that described above for major capex expenditures and are shown in Table 2.4 below

Table 2.4: Impact of Cost Adjustment on Residual Capex (PhP million, real 2008)

	Calendar Year					Regulatory Year				
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
MECO Forecast	36.81	44.10	66.68	55.36	32.69	40.34	43.60	40.32	40.16	37.00
Cost Adjustment	4.91	6.23	9.06	5.76	3.81	-	-	-	-	-
Cost Adjusted Residual Capex	41.72	50.33	75.74	61.12	36.50	40.34	43.60	40.32	40.16	37.00

The timing adjustments were made as follows.

- MECO forecasted a residual capex of PhP 7.33 million for the period January-March 2008. This was cost adjusted to PhP 8.18 million. The balance of the cost-adjusted residual capex for CY 2008 was then time adjusted to RY 2009.

- 25% of MECO's forecast residual capex for RY 2009 was assumed to actually occur in RY 2009 and the remaining 75% was time adjusted to RY 2010.

- 75% of the other expenditures in the forecast were time adjusted to the following regulatory year. This meant that 75% of MECO's forecast residual capex for year 2013 is assumed to occur on the third regulatory period and has been excluded from the time adjusted forecast that we used as the baseline for this review.

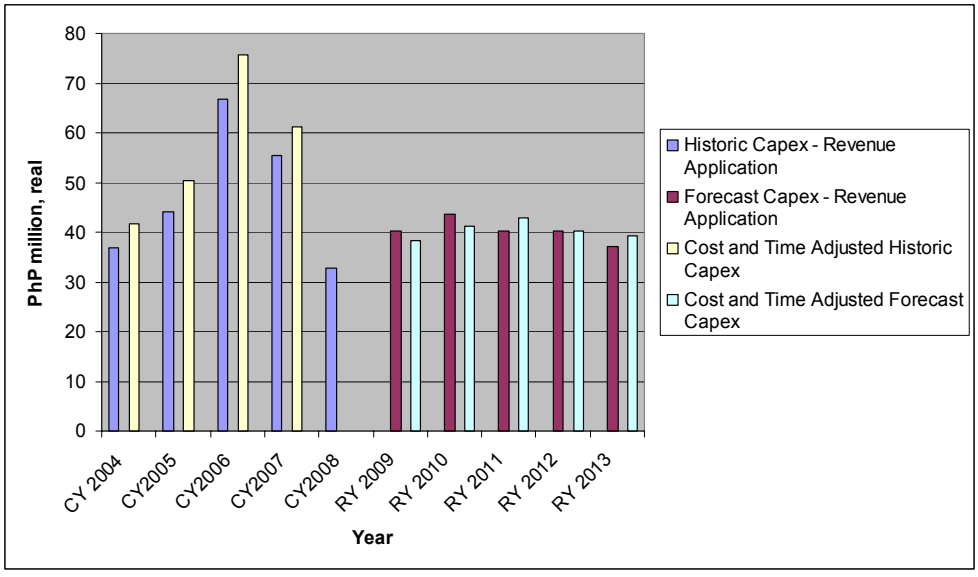
These timing adjustments are shown in Table 2.5 below.

Table 2.5: Impact of Timing Adjustments on Residual Capex (PhP million, real 2008)

	Calendar Year					Regulatory Year				
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Cost Adjusted Residual Capex	**41.72**	**50.33**	**75.74**	**61.12**	**36.50**	**40.34**	**43.60**	**40.32**	**40.16**	**37.00**
Time Adjustments										
Time Adjusted 2008 Forecast						28.32				
Time Adjusted 2009 Forecast						10.09	30.25			
Time Adjusted 2010 Forecast							10.90	32.70		
Time Adjusted 2011 Forecast								10.08	30.24	
Time Adjusted 2012 Forecast									10.04	30.12
Time Adjusted 2013 Forecast										9.25
Overall Adjusted Forecast						**38.41**	**41.15**	**42.78**	**40.28**	**39.37**
Adjustment						(1.93)	(2.45)	2.46	0.12	2.37

The overall impact of these adjustments on MECO's historic and forecast residual capex is shown in Figure 2.3 below. It can be seen that the forecast residual capex is generally lower than historic levels and that the timing adjustments have made little difference to the overall level of forecast capex. This is because the capex removed from the forecast at the end of the period was of similar magnitude to the capex introduced at the beginning of the period.

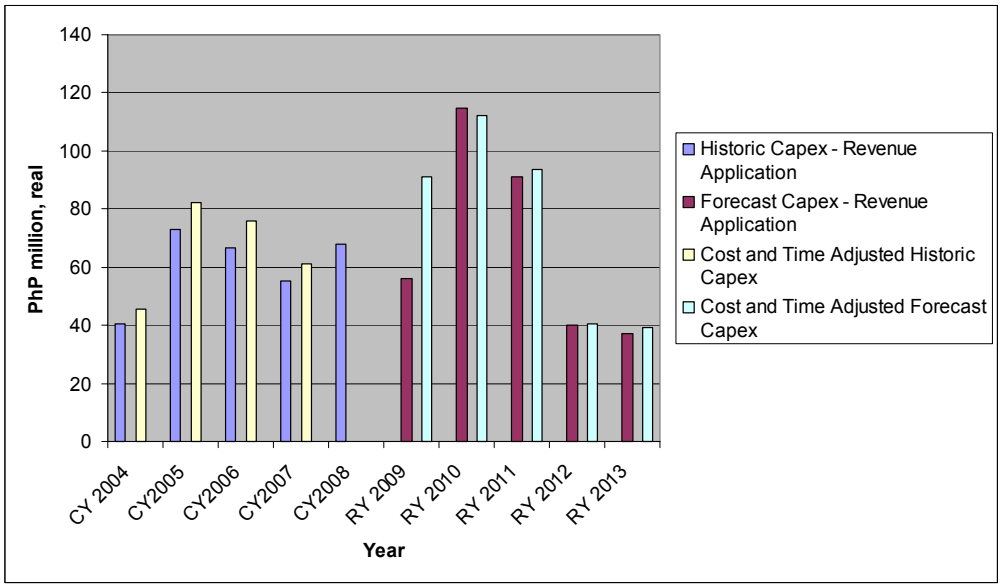
Figure 2.3: Impact of Cost and Timing Adjustments on Residual Capex (PhP million, real 2008)



2.4.3 Impact of Adjustments on Total Capex

Figure 2.4 below shows the impact of the time and cost adjustments on the total capex, including both major projects and residual. The major impact is the increase in the time adjusted forecast capex in RY 2009, due to the inclusion of the CY 2008 major projects.

Figure 2.4: Impact of Adjustments on Total Capex (PhP million, real 2008)



2.5 REVIEW OF MAJOR PROJECTS

2.5.1 Calendar Year 2008

Major projects to be completed in CY 2008 are reviewed in Table 2.6 below. As discussed in Section 2.4, the cost of these projects has been time-adjusted for the purposes of this review to RY 2009. However we have considered these projects separately in this report in line with the presentation in MECO's regulatory application.

Table 2.6: Calendar Year 2008 Projects

Project	Cost (PhP million, real)	Comment
Substation #4 Transformer	31.06	The project involves replacement of the 20 MVA transformer at Substation #4 with a 30 MVA unit. In CY 2006, when MECO experienced its historic peak, its three in-service transformers had a capacity utilization of 86%. Loss of even the smallest transformer would have put the others in overload (without allowing for any forced cooling capability, which we understand to be small). Given the potential high load growth, the replacement of this transformer with a higher capacity unit is justified. The cost, which includes the new pad, is consistent with the procurement costs used by PB for the asset valuation. We recommend that it be allowed in full.
Substation #1 Transformer	2.04	This 10 MVA power transformer developed a major fault and required repair by the manufacturer. The cost appears reasonable when compared with the ex-works procurement cost of a new transformer of similar rating and we recommend that it be allowed in full.

Replacement of 69 kV Circuit Breaker at Substation #3.	2.04	MECO has stated that this is an oil circuit breaker that is leaking. It was made in China and spare parts are difficult to obtain. Given the importance of this asset to the protection of the transformer and the fact that the cost is consistent with the replacement costs used in the asset valuation, we recommend that it be allowed in full.
Installation of Feeder 5A	1.34	We were initially concerned as to whether this feeder was required given the planned site for Substation #5. However following the review of information provided after the clarificatory meeting, we believe that the project will increase network reliability by splitting into two a feeder that supplies customers in a very large portion of MECO's franchise area. It will also allow a higher level of 13.8 kV load transfer between Substation #4 and the proposed new Substation #5. Hence we are satisfied that the new feeder can be justified on the grounds of system reliability. The cost appears to cover only the cost of a new 13.8 kV circuit breaker and protection for the new feeder and is consistent with the replacement costs used for the asset valuation[5]. We assume that any additional poles and wires have been included as residual capex. We recommend that the cost be allowed in full.
Replacement of Battery Charger at Substation #3.	0.50	This existing battery charger is Chinese made and at least 12 years old. The cost is consistent with the replacement costs used for the asset valuation and we recommend that it be allowed in full.
Replacement of Transformer Protection in Substation #2.	0.33	The existing protection, which was installed in 1995, comprises discrete relays rather than a modern integrated protection system. The relays were made in China and are now obsolete. We also note that Substation #2 supplies the Mactan International Airport, which MECO considers to be a very strategic load. The cost is consistent with the replacement costs used for the asset valuation and we recommend it be allowed in full.
Total	**37.31**	

On the basis of the considerations outlined in the above table we recommend that the major project capex of PhP 37.31 million budgeted by MECO for CY 2008 be allowed in full. However, as discussed in Section 2.3, we have time adjusted this expenditure to occur in RY 2009 for the purposes of this review[6].

2.5.2 Substation #5

MECO is planning to install a new 69/13.8 kV substation in Barangay Mactan in the north-east of its franchise area. The new substation will be supplied from TransCo's 138/69 kV GIS substation via a new 69 kV subtransmission line, which includes an underground section to the north of Mactan Airport. This line will also supply Substation #2, which feeds the airport.

The forecast cost of the project is PhP 122.06 million, of which PhP 71.17 million is budgeted for RY 2010 and PhP 50.89 million is budgeted for RY 2011.

Comment

- At the time of the asset valuation, MECO had planned to construct this substation close to Substation #4, which would have avoided the need for the new 69 kV

[5] MECO has priced this asset on the basis of a 2000 A circuit breaker, whereas only a 600 A unit is required. However we nevertheless consider that the full cost should be allowed as it appears that MECO did not allow for the cost of the protection.

[6] The aggregated sum of the RY 2008 major project costs is marginally higher than shown on the major project cost in the capex template. While the difference is not material, we have used the template costs for our review.

line and underground cable. While this may have addressed the immediate problem, it would have meant that MECO's three large substations would have been in close proximity to one another and that practically the whole franchise area would effectively have been reticulated at 13.8 kV from three substations in the same location. It is a principle of distribution network design that zone substations are best located close to the load areas that they serve. We believe that locating the substation in Barangay Mactan is a much better proposal that should result in increased network reliability and lower losses. While the short term costs are significantly greater, we think this will be offset by reductions in the cost of future network augmentations, which should also be able to use the new 69 kV line to be constructed under this project.

- The new 69 kV line is routed so that it can eventually be used as part of a 69 kV ring around the island. This has obvious benefits for the ongoing development of the network and when completed would provide an alternative incoming supply to all 69/13.8 kV substations.

- We accept the need for the underground cable over that section of the route that runs around the perimeter of the airport. The northern end of the airport is very close to the shoreline and we believe that it would not be possible to route an overhead line sufficiently far from the airport to meet normal civil aviation requirements.

- In order to establish the need for the new substation, we compared the available power transformer capacity with the network peak demand. As shown in Table 2.7 the currently available transformer capacity is 70 MVA and the firm n-1 capacity is 40 MVA. With the addition of Substation #5 the available capacity increases to 90 MVA and the firm capacity to 60 MVA.

  As can be seen from Table 2.1 the forecast non-diversified peak demand in 2013 is 62.7 MW or 67.4 MVA assuming a 0.93 power factor. However there is some degree of interconnectivity between the different 13.8 kV feeders, which provides MECO with the ability to transfer load between substations. Hence it is the diversified peak demand that is of most interest for planning purposes. MECO does not measure the diversified peak demand but if a 10% diversity factor is assumed the diversified peak demand would be about 60.7 MVA. Assuming Substation 5 was constructed, the utilization of transformer capacity would be 67% at peak load and marginally over 100% for the worst case n-1 contingency. If Substation 5 was not constructed the utilization of transformer capacity would be 87% with all transformers in service. Under the worst case contingency (loss of the 30 MVA transformer), the peak demand would exceed the available capacity by 50% initially. After the 30 MVA transformer had been replaced by the 20 MVA spare unit, all available transformer capacity would be fully utilized at peak load.

Table 2.7: MECO Power Transformers

Location	Capacity (MVA)	Comment
Substation #1	10	This transformer has recently been repaired after developing an internal fault in CY 2004. It is currently not on load but is reserved as a backup for the airport. MECO has not provided any information on how it is connected to the 13.8 kV network or on its contractual arrangements with the airport. We see little point in keeping the transformer in a standby mode and have assumed in our analysis that it is available to support the network.
Substation #2	10	This transformer supplies the airport and one other 13.8 kV feeder.
Substation #3	20	
Substation #4	30	This transformer is to be installed in CY 2008 and replaces the existing 20 MVA unit.
Spare	20	Ex substation #4.

- We have reviewed the estimated cost of the project and compared the costs of selected equipment items with the replacement costs used for the asset valuation. Except for the cost of the transformer, which at PhP 27.01 million is higher than our estimated replacement cost for a similar 25/32 MVA unit, the costs appear reasonable.

- MECO is planning to complete construction in November 2011 and commission the substation in February 2012 after completing 13.8 kV reconfigurations. However, in providing for expenditure in 2010 and 2011 it appears to be working on the basis of calendar years rather than regulatory years.[7] The allocation across the two years also appears inconsistent with ERC's capitalization policy, which requires that assets be capitalized when they are commissioned and placed in commercial operation rather than when expenditure is incurred. ERC's regulatory model adds a CWIP factor to all network related capex to provide for a return on funds invested prior to the commissioning of a project.

From the above we recommend that the forecast capex provide for the construction of both the substation and new subtransmission line in accordance with the program set out in MECO's revenue application. However we recommend the following adjustments to be made to the expenditure forecast in the revenue application.

- The capex provision for the procurement of a new transformer should be deleted. There appears to be little point in purchasing a new transformer when the transformer removed from Substation #4 is available, except if this transformer was needed to replace a faulted unit in the event of an n-1 contingency situation developing. However, as noted above, under the worst case n-1 contingency the available transformer capacity would be 60 MVA, which would need to supply an estimated after diversity network load of 60.7 MVA at the end of the regulatory period in 2013. While this implies an apparent marginal overload, this could be accommodated by the forced air rating of any transformers equipped with fans[8] and also, if necessary, by utilizing some of the cyclical rating of the transformers[9].

[7] November 2011 is in RY 2012, which extends from April 2011 to March 2012.
[8] Photographs taken during the asset valuation show that the transformer in Substation #3 is fitted with fans.
[9] The typical cyclical rating of a transformer is 120% of capacity, although we are not suggesting that this capacity should be fully utilized as a matter of course, particularly in a tropical country such as the Philippines where ambient temperatures are high.

The asset valuation data shows that the transformer from Substation #4 was manufactured in 2004 so it should still be in good condition. There appears to be no reason why it should not be reused.

The cost of the new transformer proposed by MECO was estimated at PhP 27.01 million. However we assume that this also includes installation costs and overheads, which would still be incurred when installing a spare transformer in a new substation. Based on the overhead factors used for the asset valuation, we estimate the installation costs associated with a 20 MVA transformer to be PhP 2.11 million. On this basis, we recommend that MECO's forecast capex be reduced by PhP 24.90 million to reflect the use of the existing transformer.

- In accordance with the ERC's capitalization policy, we also recommend the cost of the project be time-adjusted so that the cost of the land and the cost of the section of transmission line between the TransCo GIS substation and substation #2, as well as the cost of plant purchased specifically for the project (PhP 33.09 million) is included in RY 2011 and the balance of the project cost is included in RY 2012.

These adjustments are shown in Table 2.8.

Table 2.8: Adjustments to Cost of Substation #5 (PhP million, real 2008)

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
MECO Forecast		71.17	50.89		
Adjustment for use of spare transformer			(24.90)		
Cost adjusted forecast		71.17	25.99		
Time adjusted forecast			33.09	64.07	
Timing adjustment		(71.17)	7.10	64.07	

2.5.3 Building Renovations

MECO has proposed some renovations to its head office building for an estimated cost of PhP 15.60 million, to be spent in RY 2009.

Comment:

- The building adjustments are designed primarily to provide more space and comfort to customers visiting the premises to pay electricity accounts or for other reasons. They will also improve the building façade to make it look less like a power house and more like an office.

- The refurbishment will also improve the conditions for staff working in the building, although we do not believe that the space provided for staff to be in any way excessive.

- The estimated price is supported by a quotation from a building contractor.

We consider that the renovations proposed are relatively modest and that the cost is reasonable. However inclusion of the expenditure in RY 2009 assumes that the building will be competed by 31 March 2009, which would seem to be an unrealistic completion date. We therefore recommend that the expenditure be deferred until RY 2010. This timing adjustment is shown in Table 2.9.

Table 2.9: Adjustments to Cost of Building Renovations (PhP million, real 2008)

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
MECO Forecast	(15.60)	15.60			

2.5.4 Purchase of TransCo Subtransmission Lines

We understand that TransCo has an application with the ERC for the sale of subtransmission assets to MECO. However MECO has not included a capex provision for the purchase costs in its revenue application.

MECO has advised the ERC that this was because it was only advised of the confirmed purchase cost by TransCo after it had submitted its revenue application. It has also indicated that this purchase cost was higher than it had expected and that it was therefore uncertain that proceeding with the transaction would be in the best interests of its customers.

Both ILPI and CLPC included provisions in their PBR capex forecasts for the purchase of subtransmission lines from TransCo. In both cases we are recommending in our expenditure review reports that the capex not be allowed and that all matters associated with the purchase of subtransmission lines be addressed by ERC outside of the PBR process. Should the ERC decide to adopt this recommended approach, then MECO could submit an application to ERC for approval of the transaction at any time, and would not have to wait until after the start of the third regulatory period. We envisage that any application would need to include an analysis of the impact of the transaction on existing TransCo customers directly connected to the 69 kV lines as well as on MECO's own customers.

2.6 REVIEW OF RESIDUAL CAPITAL EXPENDITURE

An analysis of MECO's residual capex expenditure as submitted in its revenue application indicated that the forecast was, on average, 14% per year lower than the historic expenditure. The actual difference would be higher once installation costs were taken into account, as this adjustment increased the historic capex but had no impact on the forecast capex. Therefore our review focused only on those line items where a significant increase in forecast capex was reported. These line items are discussed below.

2.6.1 Station Switchgear

MECO has forecast a total expenditure of PhP 8.15 million on growth related residual capex on station switchgear over the period RY 2009-13. No similar historic expenditure was reported. MECO's revenue application records this expenditure as being used to install a total of five new 13.8 kV circuit breakers in RY 2010 and RY 2012 and a 69 kV circuit breaker in RY 2013.

MECO states that the replacement circuit breakers are to replace existing feeder circuit breakers at Substations #2 and #3. We have looked at photographs of these circuit breakers taken during the asset valuation and they are indoor circuit breakers which, while manufactured in 1994, appear to be of an obsolete design. They are Chinese made and have oil filled interrupters, which apparently are leaking. MECO advises that spare parts for these units are no longer available. If this is the case, we agree with

MECO that they should be replaced not least because the existing units could potentially become a safety hazard.[10]

The 69 kV circuit breaker is located at Substation #2 and is to be replaced for similar reasons. However, as this replacement was scheduled for 2013, the replacement has likely slipped into the third regulatory period as a result of our applied timing adjustment.

We recommend that the requested expenditure for the 13.8 kV circuit breakers be allowed in full.

2.6.2 Station Protective Equipment

MECO has forecast PhP 0.59 million growth related residual expenditure on station protective equipment in RY 2009. No similar historic expenditure was reported. The revenue application indicates that it will be used for one new transformer protection and two new feeder protections. The protection equipment to be replaced is located at Substations #2 and #3.

The equipment was installed in 1995 and 1996, but MECO indicated that it uses mechanical relays that were made in China. We are a little surprised that mechanical protection equipment was still being installed in new substations as the technology had been superseded by electronic protection by that time. However we surmise that MECO purchased obsolete equipment that the manufacturer wanted to dispose of, presumably for what seemed at the time to be a very good price; and note that now the need for the premature replacement of this obsolete Chinese manufactured equipment has become a significant driver of MECO's capex forecast. The lesson here is that the installation of the cheapest available equipment is not always in the best interests of customers over the longer term.

We agree with MECO that the equipment should be replaced and recommend no adjustment to the forecast.

2.6.3 Overhead Conductors and Devices

MECO's capex template shows a 33% increase in expenditure on overhead conductors and devices over reported historic expenditure levels. However this is offset by a 57% reduction in expenditure on poles, towers and fixtures. Overall, average expenditure on these two line items has reduced by 19% and we therefore recommend that no adjustment be made.

2.6.4 Meters, Instruments and Metering Transformers

MECO's capex template shows a 14% increase in forecast expenditure on meters, instruments and metering transformers over reported historic expenditure levels. As this increase is relatively modest, we recommend no adjustment be made.

2.6.5 Transportation Equipment

Forecast average annual expenditure on transportation equipment has increased from PhP 0.29 million to PhP 0.80 million over the forecast period, an increase of 175%. MECO has provided no explanation for the increase, and has not supported it with a vehicle procurement and replacement plan. However since an average expenditure on transportation equipment of PhP 0.80 million per year is not excessive we recommend that no adjustment be made.

[10] Strictly speaking this capex should have been included in the renewal template. However we have not considered the correctness of the cost allocations in our review, as this issue will not have a material impact on our findings.

2.7 SUMMARY OF RECOMMENDED CAPITAL EXPENDITURE

On the basis of the analysis above, we recommend the capex shown in Table 2.11 be allowed for the period RY 2009-13. The total recommended capex over the five-year forecast period RY 2009-13 is PhP 352.73 million, a 4.0% increase on MECO's original PhP 339.08 million total capex forecast for the same period. This apparent increase is due to the fact that MECO's capex forecast did not provide for any overlap between CY 2008 and RY 2009 (and consequently excluded the major project costs scheduled commissioning between April and December 2008).

Our adjustment to correct this anomaly made little difference to the residual capex as the CY 2008 expenditure transferred in to RY 2009 was offset by the RY 2013 expenditure transferred out of the forecast into the third regulatory period. In the case of major project capex, MECO's original forecast was PhP 37.17 million[11] in CY 2008 and no expenditure in RY 2013. Hence the timing adjustment increased the total major project capex in the forecast period by PhP 37.17 million. Our expenditure review resulted in a total capex reduction of PhP 24.09 million, which was not sufficient to fully offset this increase.

A more valid measure of the result of the review would be to compare the recommended capex with the cost and time adjusted total capex forecast. We consider that the adjusted forecast should be thought of as a "corrected" forecast as it avoids the timing error in MECO's revenue application forecast. This analysis is shown in Table 2.12. In this case our total recommended expenditure of PhP 352.73 million is a decrease of 6.4% on the adjusted total forecast capex of PhP 376.82 million.

Table 2.11: Summary of Recommended Capex (PhP Million, real 2008)

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Major Projects					
Forecast capex	**15.60**	**71.17**	**50.89**		
Adjustments					
Cost and Timing Adjustment	37.17				
Cost adjustment for Substation #5			(24.09)		
Timing Adjustment for Substation #5		(71.17)	7.10	64.07	
Timing Adjustment for Building Renovations	(15.60)	15.60			
Recommended Major Project Capex	**37.17**	**15.60**	**33.90**	**64.07**	
Residual Capex					
Forecast Capex	**40.34**	**43.60**	**40.32**	**40.16**	**37.00**
Adjustments					
Cost and Timing Adjustment	(1.93)	(2.45)	2.46	0.12	2.37
Recommended Residual Capex	**38.41**	**41.15**	**42.78**	**40.28**	**39.37**
TOTAL FORECAST CAPEX	**55.94**	**114.77**	**91.21**	**40.16**	**37.00**
TOTAL RECOMMENDED CAPEX	**75.58**	**56.75**	**76.68**	**104.35**	**39.37**
Recommended Total Adjustment	19.64	(58.02)	(14.53)	64.19	2.37
Impact of Recommended Total Adjustment.	35.1%	(50.6%)	(15.9%)	159.8%	6.4%

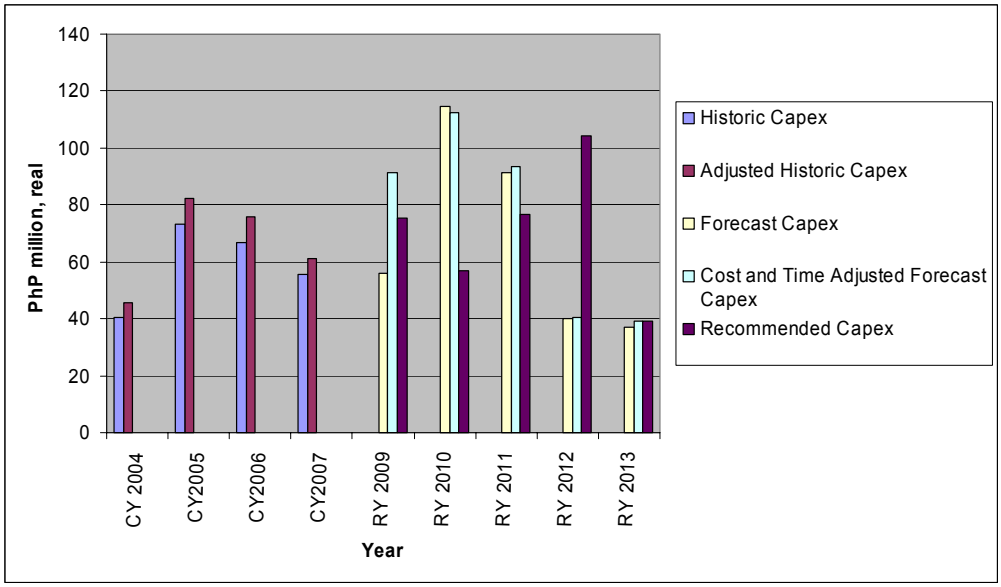
[11] After adjustment to include installation costs.

Table 2.12: Comparison of Recommended Capex with Adjusted Forecast

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Major Projects					
ILPI Forecast	15.60	71.17	50.89		
Adjustment	37.17				
Adjusted Forecast	52.77	71.17	50.89		
Residual Capex					
ILPI Forecast	40.34	43.60	40.32	40.16	37.00
Adjustment	(1.93)	(2.45)	2.46	0.12	2.37
Adjusted Forecast	38.41	41.15	42.78	40.28	39.37
TOTAL ADJUSTED FORECAST CAPEX	**91.18**	**112.32**	**93.67**	**40.28**	**39.37**
TOTAL RECOMMENDED CAPEX	75.58	56.75	76.68	104.35	39.37
Recommended Total Cost Adjustment	(15.6)	(55.57)	(16.99)	(64.07)	-
Impact of Recommended Total Cost Adjustment	(17.1%)	(49.5%)	(18.1%)	159.1%	-

The impact of these adjustments is shown graphically in Figure 2.5 below.

Figure 2.5: Recommended Capex for RY 2009-13 (PhP million, real 2008)



3. OPERATIONS AND MAINTENANCE EXPENDITURE

3.1 MECO'S HISTORICAL OPERATIONAL EXPENDITURE

MECO's historical total opex in nominal Philippine PhP is shown in Table 3.1.

Table 3.1: Historical Total Opex (PhP million nominal)

Operational Expenditure Category	CY 2004	CY 2005	CY 2006	CY 2007
Distribution and Connection Services Operation and Maintenance	14.86	14.04	16.27	17.56
Regulated Retail Services	8.20	8.61	3.50	3.50
Administrative and General	27.87	30.15	34.87	34.41
Total Operations & Maintenance Expenditure	**50.93**	**52.81**	**54.63**	**55.47**

Source: MECO Application, May 2008

The data indicates an average escalation of 2.9% pa in nominal opex over the period 2004 to 2007.

Since the historic opex reported by MECO and shown in Table 3.1 is expressed in nominal PhP, it includes the impact of inflation. A better assessment of the relative expenditure from year to year can be obtained if historic opex is expressed in real 2008 PhP, using historical inflation indicators. Table 3.2 shows historical opex in real 2008 PhP. It will be noted that in real terms, historic opex showed a declining trend over the period, indicating that the escalation noted in Table 3.1 was less than the rate of inflation.

Table 3.2: Historical Total Opex (PhP million, real 2008)

Operational Expenditure Category	CY 2004	CY 2005	CY 2006	CY 2007
Distribution and Connection Services Operation and Maintenance	18.18	16.00	17.47	18.34
Regulated Retail Services	10.04	9.81	3.76	3.66
Administrative and General	34.10	34.35	37.44	35.96
Total Operational & Maintenance Expenditure	**62.31**	**60.15**	**58.67**	**57.95**

Source: MECO Application, May 2008

At the clarificatory meeting MECO confirmed that although the capex in the forecast years includes costs for both materials and installation, the historic and budget capex for CY 2004-08 only included the cost of materials. Capex related installation costs for this period were included in opex. In order to be able to validly compare historic and future opex, it was necessary to adjust the historic opex by excluding the capex related installation costs. We added an installation component to each capex line item based on the installation adjustments used in the asset valuation project for the second entry group of IOUs[12]. Each year's historic opex was also reduced by a corresponding amount and the impact of this adjustment is shown in Table 3.3 below. For purposes of comparison the adjusted historic figures are used in this report.

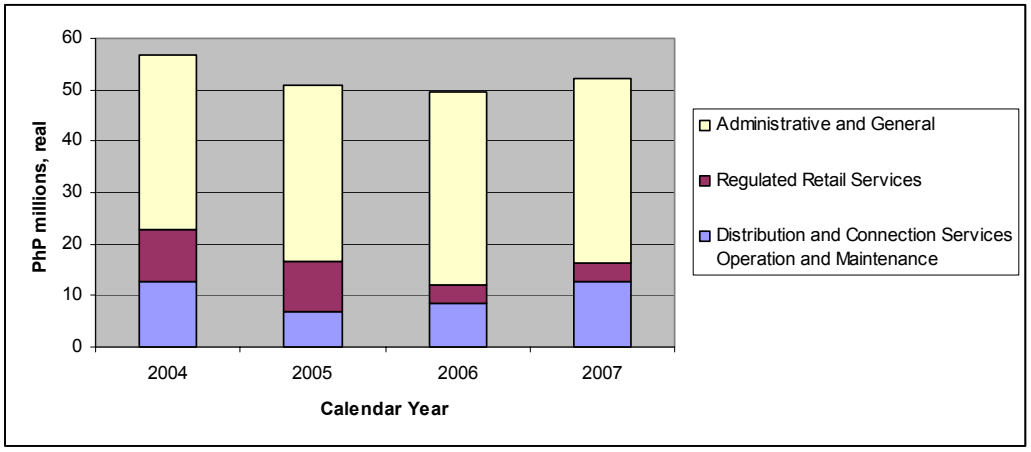
[12] See Section 2.4.

Table 3.3: Adjusted Historical Total Opex (PhP million, real 2008)

Operational Expenditure Category	CY 2004	CY 2005	CY 2006	CY 2007
Adjusted Distribution and Connection Services Operation and Maintenance	12.71	6.70	8.41	12.58
Adjusted Regulated Retail Services	10.04	9.81	3.76	3.66
Adjusted Administrative and General	34.10	34.35	37.44	35.96
Adjusted Total Operational & Maintenance Expenditure	**56.85**	**50.86**	**49.61**	**52.19**
Total Adjustment	**(5.46)**	**(9.29)**	**(9.06)**	**(5.76)**

This adjusted historical opex, expressed in real 2008 PhP, is shown graphically in Figure 3.1.

Figure 3.1: Historical Total Operational Expenditure (PhP million, real 2008)



Source: PB Associates

Table 3.3 and Figure 3.1 demonstrate that the adjusted opex declined marginally over the period 2004 to 2007.

3.2 MECO'S FORECASTING METHODOLOGY

Our review of the information submitted indicated that MECO used its actual opex for CY 2007 as its base year for computing its opex budget for CY 2008 and forecast opex for RY 2009-13. It appears as if the budget and forecast expenditures for each cost category were correlated with business activities, energy consumption forecasts, load growth and customer numbers. However MECO's revenue application did not include an explanation of the correlation process nor did it provide any details of the model used to forecast each cost category.

3.2.1 MECO's Forecast Opex

Budget opex for CY 2008 and forecast opex for RY 2009-13, included in its revenue application, after adjustment to remove capex related installation costs, are shown in Table 3.4 in real 2008 PhP. This information is also shown graphically in Figure 3.2.

Table 3.4: Forecast Total Operational Expenditure (Real PhP million, 2008)

Operational Expenditure Category	CY 2008[1]	RY 2009[2]	RY 2010	RY 2011	RY 2012	RY 2013
Distribution and Connection Services Operation and Maintenance	4.66	15.16	14.78	16.70	18.87	21.28
Regulated Retail Services	7.35	15.23	12.93	11.09	10.95	11.73
Administrative and General	31.41	36.90	43.04	42.89	45.44	48.04
Total Operational & Maintenance Expenditure	**43.42**	**67.29**	**70.75**	**70.68**	**75.26**	**81.06**

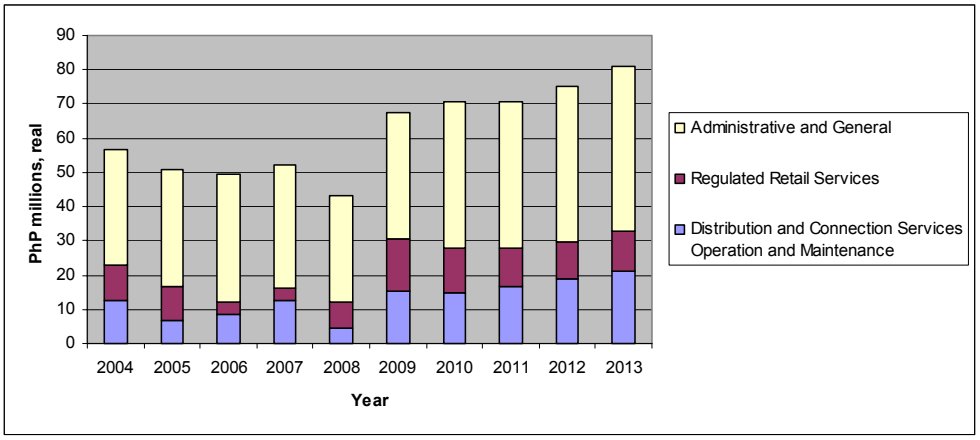
Source: PB Associates based on MECO Application, May 2008
Note 1: The information is budgeted figures and for the 2008 calendar year period and includes the capex related installation component adjustment.
Note 2: The information is forecasted and for the 2009 regulatory year period.

3.3 REVIEW METHODOLOGY AND ASSUMPTIONS

Figure 3.2 shows that MECO's forecast opex for the second regulatory period is significantly higher than the historical opex over the period CY 2004-07 in real terms. The average annual forecast opex for the second regulatory period is PhP 74.44 million, compared to an average annual expenditure of PhP 52.38 million over the four year historic period CY2004-07. As noted above, MECO provided little information on the methodology that it used to forecast future opex and it is therefore not possible for us to meaningfully review the reasonableness of these increases.

Hence we have used PB Associates' opex forecasting model to derive what we consider a realistic opex forecast for each year of the forecast period. The opex forecast derived from the PB Associates' model was then compared with MECO's own expenditure forecast (after removal of the estimated capex related installation costs).

Figure 3.2: Total Opex (PhP million, real 2008)



Source: PB Associates based on MECO Application, May 2008

PB Associates' opex forecasting model forecasts by escalating the base year values of opex in different broad cost categories to reflect forecast changes in key cost drivers. For example the key cost driver for changes in opex for the operation and maintenance of distribution system network assets is the change in the size of the asset base, which is

closely aligned to proposed capex. Similarly the key cost driver for changes in the opex for regulated retail services expenditures is the change in customer numbers[13].

The opex in the base year is used as the starting point for the extrapolation. However, this base year has first to be tested for cost efficiency and any one-off or non-business-as-usual expenditures in the base year have to be removed prior to modelling, since such expenditures would not be incurred over the forecast period. Furthermore, additional expenditures, or expenditures on new initiatives that are not included in the base year forecast, need to be reviewed and modelled independently. Such expenditures are then added to the base opex derived from PB Associates' model to determine the total forecast annual expenditure.

Hence the overall process we used to assess MECO's efficient and prudent opex forecast included the following steps:

- Determine the base year opex for each cost category;
- Confirm that the base year opex is efficient;
- Identify opex cost drivers;
- Project the base year opex forward for each year of the forecast period, taking into account projected changes in the cost drivers;
- Compare MECO's base opex forecast with our model forecast and test for relative efficiency;
- Assess each different additional expenditure individually and make any adjustments as necessary; and
- Combine the recommended base opex and additional expenditure forecast to obtain a total recommended annual opex forecast.

These steps are discussed in more detail in the following sections.

3.3.1 Determination of Efficient Base Year Opex

In order to assess the efficiency of the base year opex we used the following two approaches.

- We benchmarked MECO's adjusted opex against the opex of the other IOUs that are entering PBR at the first or second entry points.
- We reviewed the itemized CY 2007 opex 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 the line item represented an efficient use of funds and was consistent with expected recurring expenditure levels for that line item.

3.3.1.1 Benchmarking

Benchmarking provides an indication of the relative performance of different utilities and is often used internationally for this purpose, not only by regulators but also by utilities

[13] In our extrapolation of base year opex we have modified the PB Associates' model so that the first forecast year following the base year CY 2007 is RY 2009. This means that there is no duplication of the costs shown in the model and the opex over the three month intervening period (1 January – 31 March 2008) is not shown. We have however adjusted the escalation factors that apply between CY 2007 to RY 2009 to reflect anticipated changes in the cost drivers over this three month period.

themselves. As a performance assessment tool, benchmarking has limitations because each business is different and it is difficult to ensure that these differences are properly accounted for in making performance comparisons. It is also necessary to ensure that the indicators used for benchmarking are measured in a similar way by different utilities. However measurement issues can be minimized by benchmarking at a high level. For example, we have used total opex as a performance indicator because the measure will not be affected by differences between businesses in the allocation of expenditures to different line items.

In spite of these limitations, benchmarking can provide a useful indication of the relative efficiency of different utilities, particularly where a utility performs consistently well or poorly across a range of normalized indicators.

We considered a range of possible performance indicators and, having regard to the availability of data, we have identified the following normalized indicators as being particularly appropriate for assessing the relative efficiency of the reported opex spend.

- *Ratio of total opex to kWh sold.* Total opex is one of the building blocks of PBR and the normalized indicator is a direct measure of one of the main components of the MAP.

- *Ratio of total opex to the optimized replacement cost (ORC) of the RAB.* This indicator is relevant because the size of the asset base is one of the key drivers of opex and ORC is the best measure of the size of the asset base.

- *Ratio of total number of customers to total employees.* This is a commonly used indicator of staff productivity and is one of the performance indicators used in MERALCO's annual report. Its main limitation is that the ratio may be influenced by the extent to which a utility outsources the construction and maintenance of distribution system assets. We have no information on the total staff numbers of the first entry point utilities but have taken MERALCO's ratio from its 2007 annual report.

- *Ratio of total number of customers to total number of administration employees.* We have used this ratio in order to mitigate problems arising from the use of the total staff indicator. The use of this indicator assumes that only special administrative projects are outsourced. We were unable to measure this ratio for any of the three first entry point utilities.

We also tried to develop a measure of average salary levels to use as a benchmark. However we were unable to develop a measure that seemed sufficiently robust, possibly because of differences between the three IOUs in the manner in which staff-related costs were identified and allocated to the different line items.

The benchmark data for the second entry point IOUs was taken from their revenue applications or from their asset valuation reports, while data for the first entry point IOUs was taken from their final determinations for RY 2008, the first year of their second regulatory period. Hence the performance indicators of the first entry point IOUs can be considered to represent the ERC's view of an efficient level of operation at this time and thus form a reasonable baseline for assessing the relative efficiency of the second entry point IOUs.

In developing measures to use for benchmarking the second entry point IOUs, we made the following adjustments to the RY 2007 total opex reported in their revenue applications.

- We adjusted out the RY 2007 opex related to the operation and maintenance of CLPC's generating station, since neither MECO nor ILPI operate generation plant.

- We adjusted out the estimated component of total opex related to installation of capital assets. This adjustment was part of the expenditure review for both MECO and ILPI in order to ensure that forecast and historic expenditures were directly comparable and that there was no double counting. In the case of CLPC, a similar adjustment was not necessary for the expenditure review as the cost allocation methodology used for both historic and forecast expenditure streams was similar[14]. However in order to ensure comparability of the CLPC opex with the adjusted opex of the other two second entry point IOUs it is necessary to adjust out CLPC's in-house capex related labor costs. As a first approximation this was assumed to be 50% of the average relative adjustment of MECO and ILPI[15]. This adjustment is only an approximation but we are satisfied that any inaccuracies were not material, in that they have not affected the indicative conclusions made from our benchmarking analysis.

- The value of CLPC's generation plant was not included in the ORC of the CLPC asset base.

- Staff used for the operation of CLPC's generation plant were not included in CLPC's total staff numbers.

The benchmarking data and the normalized benchmarks are shown in Table 3.5.

Table 3.5: Benchmark Data and Normalized Benchmark.

	Second Entry Point (CY 2007)			First Entry Point (RY 2008)[1]		
	CLPC	**ILPI**	**MECO**	**CEPALCO**	**DECORP**	**MERALCO**
Data						
Energy Sales (GWh)	117.5	175.7[2]	238.2	686.3	219.4	26,242.5
Customers	27,966	44,357	58,551	109,672	83,224	4,416,999
ORC (PhP million)	682.06	791.71	918.50	2,966.51	1,347.78	155,257.93
Total Opex (PhP million)	71.91	108.67	57.95			
Adjustment (PhP million)	(2.90)	(6.74)	(5.76)			
Adjusted Opex (PhP million)	69.01	101.93	52.19	217.19	107.08	11,496.72
Total Staff	48	161	69			
Admin Staff	21	71	32			
Normalized Benchmarks						
Adjusted Opex / kWh	0.59	0.58	0.22	0.32	0.49	0.44
Adjusted Opex / ORC	0.10	0.13	0.06	0.07	0.08	0.07
Customers per employee	583	276	849			747
Customers per administration employee	1,332	625	1,830			

Note 1: The second regulatory for the first entry point IOUs is from 1 July 2007-30 June 2008.
Note 2: Includes customers connected at 69 kV

Table 1 indicates that MECO benchmarks very well in that it shows a better performance than the other IOUs considered in the analysis across all indicators. Its adjusted opex per kWh, which forms a significant component of the MAP, is 31% below that of CEPALCO and 50% or more below that of all the other utilities in the analysis. Its staff productivity is also notably better than that of MERALCO and the other two second entry point utilities.

[14] For both historic and forecast expenditure streams, all in-house labor was charged to opex but all contracting costs were capitalized.

[15] The adjustment was limited to 50% as CLPC's outsourced labor costs are already capitalized.

While it scores exceptionally well on the above measures, its adjusted opex / ORC is only marginally better than the three first entry point utilities. This small margin is a little surprising given its exceptional performance against the other indicators, so we investigated this further.

A performance indicator that is unrelated to opex is ORC per kWh. This performance indicator measures the utilization of the asset base – a low indicator indicates an asset base that is highly utilized or, more colloquially, "driven hard". The performance of the six analysed IOUs against this normalized asset utilization indicator is shown in Table 3.6 below.

Table 3.6: ORC per kWh of Benchmarked IOUs

	Second Entry Point (CY 2007)			First Entry Point (RY 2008)[1]		
	CLPC	**ILPI**	**MECO**	**CEPALCO**	**DECORP**	**MERALCO**
Energy Sales (GWh)	117.5	175.7[2]	238.2	686.3	219.4	26,242.5
ORC (PhP million)	682.06	791.71	918.50	2,966.51	1,347.78	155,257.93
ORC / kWh	5.80	4.51	3.86	4.32	6.14	5.92

Note 1: The second regulatory for the first entry point IOUs is from 1 July 2007-30 June 2008.
Note 2: Includes customers connected at 69 kV

This analysis indicates that MECO, as expected, also benchmarks better than all the other IOUs in respect of asset utilization. While this means that it uses its asset base more efficiently than the other IOUs it may also mean that its reliability of supply is lower[16] or that there is a lower "safety margin", which may make it more difficult for it to effectively manage extreme events.

While MECO is to be commended for its relatively efficient operation the downside risk is that if its opex and capex are insufficient, then the quality and reliability of supply will deteriorate over time. While a very lean organization may cope with normal situations, the risk is particularly acute when things go wrong and the business finds itself under stress. Examples of such stress creating situations would be a major typhoon or an unexpected fault in a large power transformer (which in turn could be a consequence of inadequate routine maintenance due to a lack of resources). A very lean organization will find it more difficult to recover from such situations if it has insufficient resources to effectively manage the event.

Our concern with MECO is that it benchmarks so much better than its peer IOUs that this risk may be very real. In is not in the long term interest of its customers if a distribution utility is under-resourced to the extent that its quality and reliability of supply deteriorates over time or that it is unable to deal effectively with adverse operating conditions. We have therefore taken MECO's exceptional benchmarking performance into account when formulating our capex and opex recommendations.

3.3.1.2 Review of Opex Line Items

As noted above, PB Associates' opex model is based on the assumption of business as usual in forecasting future opex and any changes in future expenditure patterns need to be modelled independently. In addition any one-off or non-business-as-usual expenditures as well as expenditures that are considered inefficient, which are included in the base year costs, need to be identified and backed out of the base year costs prior to modelling. Hence MECO was 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 did not represent business as usual expenditures.

[16] The ERC is reviewing reliability of supply in relation to the introduction of a performance incentive scheme. However we have not considered the reliability of supply of the benchmarked utilities in the context of this review.

Distribution System Operations - Information Technology

MECO is proposing to acquire new IT systems including systems that will automate customer services, accounting and payroll as well as inventory control. It has included these costs in this line item. Based on the fact that these improvements involve proposed new systems rather than a more efficient utilization of currently installed systems, we have increased the base year opex in our model to include these in our modelled opex requirement. The reason for including these costs in our model rather than considering them separately as additional expenditures is that we believe it would be more accurate to apply our proposed cost driver to this expenditure, rather than the growth rates proposed by MECO. The impact of this adjustment on the base year opex is an increase of PhP 0.25 million.

Administrative and General Expenditures – Travel Expenses

Travel expenses for the CY 2007 base were very low compared to expenses for CY 2006 or any other historic or forecast year. Since the expenses for CY 2007 do not fairly represent the typical travel expenses in a normal year, it would not be reasonable to use the base year value as the basis for our modelling. For this reason we used the average travel expenses for the historic years CY 2004, CY 2005 and CY 2007 as the base year value. The impact of this adjustment was an increase in the base year travel expense opex of PhP 0.89 million.

Other Issues

A feature of MECO's opex forecast was the use of additional opex accounts from CY 2008 as a result of the transition to the ERC's standard accounting categories. As a result, some line item expenditures were moved from one category to another. This made it difficult for us to compare historic and forecast opex on a line item basis. However to increase the level of consistency we reallocated janitorial services, contractual services and delivery of bills expenditures in the base year.

For this analysis and report it was assumed that any opex shared between the regulated distribution business and any alternative business activity would not be material to this review.

The 2007 base year opex, incorporating the above adjustments that we used for modelling future expenditures is shown in Table 3.7.

Table 3.7: Base 2007 Opex (PhP million, real 2008)

Opex Category	2007
Distribution and Connection Services Operation and Maintenance	12.16
Administration and General	36.85
Regulated Retail Services	4.33
Total Operational & Maintenance Expenditure	**53.33**

Source: PB Associates analysis based on MECO data.

3.3.2 Identification of Cost Drivers and Impact of Efficiency Initiatives

We have used the following cost drivers in our base opex model:

- *Size of the Asset Base*

  We have used the undepreciated ORC value of the RAB as a surrogate for asset size, but have modified the RAB going forward to compensate for the impact of refurbishment and renewal capex on future opex. We consider that renewal and

refurbishment capex replaces existing assets at or near the end of their service lives and therefore reduces the opex required to maintain these assets.

We also believe that the commissioning of new assets results in lower forecast opex as generally these new assets require minimal, if any, condition based maintenance during the regulatory period in which they are commissioned. Our experience is that 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 PB Associates' opex forecasting model.

In addition numerous studies carried out by PB Associates, including in the Philippines, indicates that on average the variable component of the administrative & general expenditure is 10%. Only the variable component of administrative and general expenditures has been escalated by the change in the RAB in the PB Associates' opex model.

In determining the RAB for CY 2007 and forecast year, we took into account the recommended changes to the capex forecast identified in Section 2.7.

- *Customer Numbers*

We have modelled the impact of increasing customer numbers on the regulated retail services opex as there is a well accepted correlation between regulated retail service expenditures and customer numbers.

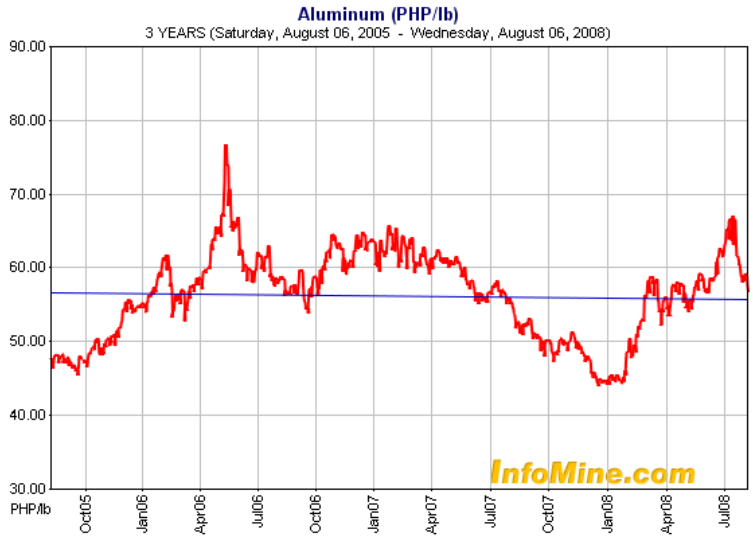
In our model we used the customer numbers forecast by MECO until regulatory year 2012 but revised the forecast for RY 2013 to follow the increasing trend from 2008 to 2012.

- *Material Prices*

PB Associates' opex model allows real growth inflators to be input for both labor and material costs.

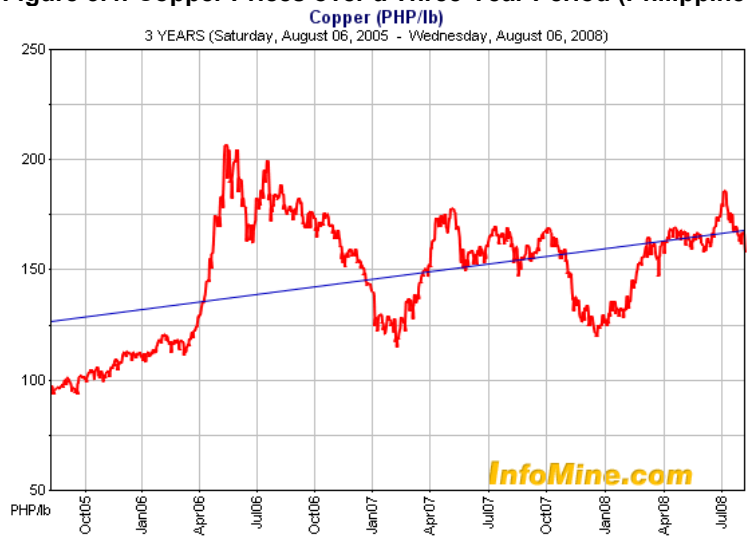
By looking at figure 3.3 and 3.4, it is clear that copper and aluminium prices have not changed significantly over the past three years. Other major cost drivers that may influence material cost include exchange rates as well as the market conditions for electrical equipment. It is difficult to predict how the exchange rate changes and market conditions for electrical equipment will influence material costs and therefore we assumed that these factors will remain relatively constant over the regulatory period. We have therefore assumed equipment costs will remain constant in real terms. This means that nominal material costs will increase over the forecast period in line with forecast CPI.

Figure 3.3: Aluminium Prices over a Three-Year Period (Philippine Peso/Pound)



Source: www.infomine.com

Figure 3.4: Copper Prices over a Three-Year Period (Philippine Peso/Pound)



Source: www.infomine.com

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

- *Labor Costs*

Labor costs form a significant proportion of operating and maintenance costs and hence our model allows this variable to be altered to reflect any expected real change in labor costs. It is recognised that it is always difficult to select an appropriate real escalator for future labour rates and our modelling was carried out with the real labor escalator set to +10%. This allows total labor costs to increase at 10% more than the rate of inflation.

We believe that a reasonable base assumption is that unit labor costs or wage rates will remain constant in real terms. Labor costs are a very significant 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 unit labor costs for electricity distribution workers will, on average, escalate at a rate that is materially different from labor costs in other sectors of the economy.

We note also 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 and for this reason regulators are very reluctant to allow prices that reflect real increases in labor costs, unless there is a compelling reason to do so. We would point out that controlling labor costs is not simply a matter of limiting wage rates. Other tools that are potentially available include reducing staff numbers, increasing the level of outsourcing and multi-tasking.

We have adopted this base assumption for all three second entry point IOUs. However the benchmarking analysis described in Section 3.3.2.1 found that MECO benchmarked exceptionally well for labor utilization when compared to the other second entry point IOUs. The benchmarking also showed that its base year opex, which comprises mainly labor costs, also benchmarked very well against the performance of all three first entry point utilities, which arguably sets a benchmark for what the ERC considers an efficient distribution utility operating performance at this time. Further, we do not know of any compelling reason why MECO's operating performance should be so much better than its peer utilities.

These benchmarking results indicate that there may be little scope for MECO to introduce significant additional efficiencies into its operation without an unacceptable risk to its quality and reliability of supply. If this was the case, such efficiencies would not in our view be in the interests of its customers. We have therefore modelled MECO's opex requirements using a positive labor escalator. We would emphasize however that we expect that the additional opex provided though the use of a positive labor escalator to be used by MECO to improve its quality and reliability of supply and to improve the level of service to its customers, rather than to improve the real wages and conditions of its existing staff.

We note that, notwithstanding the use of a positive labor escalator our recommended total opex is still below the level forecast in MECO's revenue application. Furthermore, assuming our modified electricity sales forecast, MECO's opex / kWh at the end of the regulatory period will be 0.21, marginally below the current level of 0.22. This is because, while opex is forecast to increase over current levels by 50% in real terms by the end of the forecast period, demand is forecast to increase by 53% over the same period.

3.3.3 Additional Opex

Additional opex is expenditure above and beyond expenses 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 allowed for in our modelling. Based on the information provided by MECO, there was no additional opex included in the model.

3.3.4 Implementation of DSOAR

Prior to the implementation of DSOAR, MECO was unable to charge customers directly for work, such as connections and disconnections, which is undertaken at the request of, or for the benefit of, individual customers. Once DSOAR is implemented, such work will be considered potentially contestable and MECO will be able to apply to ERC for approval to charge customers directly for these services. We acknowledge that this process is time consuming and that the outcomes at this stage are uncertain. Nevertheless it seems reasonable to assume that income resulting from the implementation of DSOAR has the potential to increase progressively over the second regulatory period and that some

provision should be made for this in the opex forecast[17]. If no provision is made there will be a double recovery of costs for any services provided under DSOAR, through the distribution wheeling rate and also through the charges made directly to customers. Inclusion of a DSOAR provision will provide MECO with an incentive to take the necessary action to recover revenue directly from customers where appropriate and not to continue to rely on cost reimbursement through the regulated distribution wheeling rate.

We therefore propose to reduce our recommended total distribution system operation and maintenance expenditure on a sliding scale commencing at 1% in RY 2010 through to 4% in 2013 to avoid the potential double recovery of costs that can be recovered directly from customers under the DSOAR provisions. No adjustment is recommended for RY 2009.

This adjustment is shown in Table 3.8 below.

Table 3.8: Recommended Adjustment for DSOAR Recoveries (PhP million, real 2008)

	RY 2010	RY 2011	RY 2012	RY 2013
Recommended Distribution System Operation and Maintenance	14.88	16.93	19.65	22.23
Recommended Adjustment	(0.15)	(0.34)	(0.59)	(0.89)

3.4 RECOMMENDED OPERATIONAL EXPENDITURES

As discussed in Section 3.3.2 above, we have used PB Associates' opex model to forecast future base opex with the real labour inflator set at +10% and the real material inflator set at 0%. With these inputs the model produced the forecast base opex shown in Table 3.9.

Table 3.9 also compares, for each major opex category, our annual forecast opex with the forecast opex for that category that MECO included in its revenue application. Our total recommended opex for the four-year second regulatory period (RY2010-13) is PhP 275.85 million, a 7.9% reduction on the PhP 297.75 million forecast by MECO. Over the total five-year forecast period our total recommended opex is PhP 331.36 million, a 9.2% reduction on the PhP 365.03 million forecast by MECO.

These reductions are recommended, notwithstanding the 10% real labor cost escalator used in our modelling. One reason for our recommended reductions is that our base year opex incorporated an adjustment to remove capex related installation costs. We think MECO would have been unlikely to have incorporated this reduction into its modelling. We have also discussed below other reasons for our recommended reductions as they relate to individual cost categories.

[17] It is noted that MECO is able to deduct any costs associated with providing related business revenue from the net income derived before declaring the net profit from these services to the ERC. In terms of clause 4.3 of the RDWR, 50% of the net profit will be taken into account in the annual resets of the maximum average price cap. It is therefore also in MECO's own interest to recover these costs directly from customers.

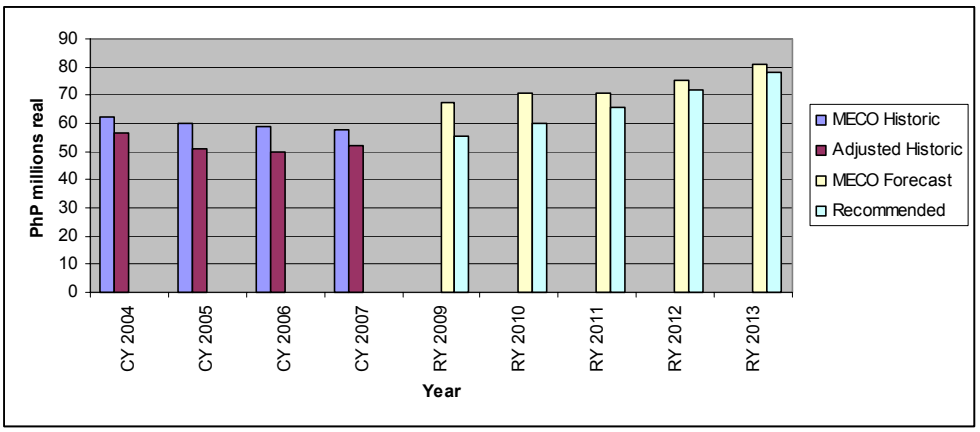
Table 3.9: Comparison of MECO and PB Associates Forecast Base Opex (PhP million, real 2008)

	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Distribution System Operations and Maintenance					
Revenue Application Forecast	15.16	14.78	16.70	18.87	21.28
Model	13.32	14.88	16.93	19.65	22.23
DSOAR Adjustment	-	-0.15	-0.34	-0.59	-0.89
Recommended Opex	**13.32**	**14.73**	**16.59**	**19.06**	**21.35**
Regulated Retail Services					
Revenue Application Forecast	15.23	12.93	11.09	10.95	11.73
Recommended Opex	4.39	4.60	4.81	5.01	5.21
Administrative & General Expenditure					
Revenue Application Forecast	36.90	43.04	42.89	45.44	48.04
Recommended Opex	37.82	40.80	44.12	47.84	51.73
Totals					
Revenue Application Forecast	67.29	70.75	70.68	75.26	81.06
Recommended Opex	55.52	60.14	65.51	71.91	78.29
Recommended Adjustment	**(11.77)**	**(10.61)**	**(5.17)**	**(3.35)**	**(2.77)**
Percentage Adjustment	(17.5%)	(15.0%)	(7.3%)	(4.4%)	(3.4%)

Source: PB Associates

A graphical comparison between MECO's forecasts and our forecast opex is shown in Figure 3.5. In comparing the forecast opex with historic trends it should be remembered that the adjusted historic opex is the more valid comparison because it does not include any capex related expenditure.

Figure 3.5: Comparison between MECO and PB Associates Base Opex Forecast (PhP million, real 2008)



MECO's opex modelling shows regulated retail services expenditures *decreasing* 9.3% over the second regulatory period and administration & general expenditures increasing 11.6% over the same period. However our modelling indicates a percentage *increase* of 13.4% for regulated retail services but administration & general expenditure increasing by 26.8% over the same period. MECO's modelling forecasts distribution and connection services opex to increase by 44.0% over the regulatory period whereas our modelling indicates a percentage increase of 44.9% over the same period.

With regard to regulated retail services, there is a relationship between the number of customers connected to the MECO network and the annual consumer accounts opex and we have assumed that expenditure in this category will increase at the same rate as growth in customer numbers. This operational area is one where it is relatively easy for a large utility to achieve efficiencies of scale with the use of computerisation and business process redesign. However we believe that, notwithstanding MECO's forecast cost reductions, it is more difficult for a small utility like MECO to achieve cost efficiencies in this area and our modelling reflects this.

MECO forecasts administrative and general expenditures to increase 11.6% in real terms over the regulatory period while our modelling indicates a higher increase of 26.8%, including the impact of a positive real labor cost escalator.

We are less clear on the basis on which MECO has forecast its opex for the operations and maintenance of distribution network assets. Our forecast increase of 44.9% is marginally higher than the 44% increase forecast by MECO and is also higher than our forecast expenditure growth rate for other parts of the business. This reflects the priority that we believe should be given to this operational area.

4. TAXES LEVIES AND DUTIES

4.1 HISTORICAL AND FORECAST TAXES, LEVIES AND DUTIES

4.1.1 Historical Taxes, Levies and Duties Expenditure

MECO's historical expenditure on taxes levies and duties over the period CY 2004-07 is shown in Table 4.1. The average annual expenditure over this period was approximately PhP 8.35 million in nominal terms.

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

Year	CY 2004	CY 2005	CY 2006	CY 2007
Taxes, Levies and Duties	6.99	7.60	9.12	9.70

Source: PB Associates based on MECO Application, May 2008

In order to have a better assessment of the relative expenditure from year to year, the actual historic expenditures were inflated to real 2008 PhP using actual historic inflation indicators. Table 4.2 shows the actual historic taxes, levies and duties expenditure in real 2008 PhP.

Table 4.2: Historical Taxes, Levies and Duties (PhP million, real 2008)

Year	CY 2004	CY 2005	CY 2006	CY 2007
Taxes, Levies and Duties	8.55	8.66	9.79	10.14

Source: PB Associates based on MECO Application, May 2008

The average annual expenditure over this period in real terms was approximately PhP 9.28 million. The comparatively higher spend in CY 2006 and CY 2007 can be attributed to the expenditure increase in franchise tax.

4.1.2 Forecast Taxes, Levies and Duties Expenditure

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

Table 4.3: Forecast Taxes, Levies and Duties (PhP million, real 2008)

Year	CY 2008	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Taxes, Levies and Duties	23.40	60.38	22.59	24.01	25.82	28.16

Source: PB Associates based on MECO Application, May 2008

The average annual taxes, levies and duties expenditure forecast for the second regulatory period, which excludes CY 2008 and RY 2009, is approximately PhP 25.15 million. The main components contributing to the significant increase from the historical period as well as the significant differences for each year of the second regulatory period when compared to CY 2008 and RY 2009 are the real property tax, franchise tax and regulatory compliance. The explanation for these costs is provided in 4.3 below.

4.2 TAXES, LEVIES AND DUTIES BREAKDOWN

4.2.1 Historic Taxes, Levies and Duties Expenditure Breakdown

MECO's historical expenditure on taxes, levies and duties over the period CY 2004-07 is shown in Table 4.4 below. Franchise tax comprises, on average, 86% of the total annual taxes, levies and duties expenditure across the period. However we note that, consistent

with Section 3.2 of the Position Paper, franchise tax should not have been included in either the historic or forecast taxes.

Table 4.4: Disaggregated Historic Taxes, Levies and Duties (PhP million, real 2008)

Year	CY 2004	CY 2005	CY 2006	CY 2007
Taxes				
Real Property Tax	0.483	0.450	0.424	0.412
Franchise Tax	7.170	7.405	8.259	8.981
Deficiency Tax	-	-	-	-
Community Tax	0.013	0.012	0.011	0.011
Mayor's Permit Fee	0.006	0.006	0.005	0.005
Garbage Fee	0.061	0.057	0.054	0.052
Fire Inspection Fee	0.007	0.006	0.006	0.006
Occupational Tax	0.009	0.008	0.008	0.007
Other Taxes and Fees	0.002	0.002	0.002	0.002
Vehicle Registration Fees	0.113	0.075	0.110	0.072
Levies				
Regulatory Reset Expert Fees	-	-	-	-
Duties				
Regulation and Supervision Fee	0.686	0.639	0.912	0.586
Regulatory Compliance	-	-	-	-
Taxes, Levies and Duties	**8.55**	**8.66**	**9.79**	**10.14**

Source: PB Associates based on MECO Additional Information Submission, July 2008

4.2.2 Forecast Taxes, Levies and Duties Expenditure Breakdown

MECO's forecast expenditure on taxes, levies and duties can be disaggregated into the components shown in Table 4.5 below. It should be noted that the abnormally high spend in CY 2008 and RY 2009 can be attributed to the forecast payment of deficiency tax and real property tax. The table below also shows that the three components of real property tax, franchise tax and regulatory compliance comprise, on average, 95% of the total annual taxes, levies and duties expenditure across the second regulatory period.

Table 4.5: Disaggregated Forecast Taxes, Levies and Duties (PhP million, real 2008)

Year	CY 2008	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Taxes						
Real Property Tax	0.415	44.569	3.795	3.795	3.795	3.795
Franchise Tax	10.165	9.896	11.391	13.110	15.087	17.360
Deficiency Tax	7.172	-	-	-	-	-
Community Tax	0.011	0.011	0.011	0.011	0.011	0.011
Mayor's Permit Fee	0.005	0.005	0.005	0.005	0.005	0.005
Garbage Fee	0.050	0.050	0.050	0.050	0.050	0.050
Fire Inspection Fee	0.006	0.006	0.006	0.006	0.006	0.006
Occupational Tax	0.007	0.007	0.007	0.007	0.007	0.007
Other Taxes and Fees	0.002	0.002	0.002	0.002	0.002	0.002
Vehicle Registration Fees	0.076	0.084	0.092	0.101	0.112	0.123
Levies						
Regulatory Reset Expert Fees	-	-	1.216	0.647	0.207	-
Duties						
Regulation and Supervision Fee	0.561	0.561	0.561	0.561	0.561	0.561
Regulatory Compliance	4.932	5.194	5.457	5.719	5.982	6.244
Taxes, Levies and Duties	**23.40**	**60.38**	**22.59**	**24.01**	**25.82**	**28.16**

Source: PB Associates based on MECO Additional Information Submission, July 2008

4.3 COMMENTARY

The main difference in the levels of historic and forecast taxes, levies and duties arises from expenditures for real property tax, franchise tax and regulatory compliance. These are discussed in the sections below.

The taxes, levies and duties in MECO's revenue application cover only expenditure relating to the distribution business and not any non-distribution related businesses.

4.3.1 Real Property Tax

As part of its application, MECO has included the following forecast amounts for real property tax:

Table 4.6: Forecast Real Property Tax (PhP million, real 2008)

Year	CY 2008	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Real Property Tax	0.41	44.57	3.80	3.80	3.80	3.80

Source: PB Associates based on MECO Application, May 2008

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

4.3.2 Franchise Tax

Table 4.7 below provides the forecast franchise tax that MECO has included in its revenue application:

Table 4.7: Forecast Franchise Tax (PhP million, real 2008)

Year	CY 2008	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Franchise Tax	10.16	9.90	11.39	13.11	15.09	17.36

Source: PB Associates based on MECO Additional Information Submission, July 2008

The significant increase from the historic period is due to the new imposition of the franchise tax starting 2008 whereby the rate will be 0.85% instead of 0.75% of the gross annual receipts which shall include both cash sales and sales on account realized during the preceding calendar year.

4.3.3 Regulatory Compliance

The regulatory compliance component refers to expenditure related to interest on customer deposits. It should be noted however that MECO did not provide sufficient information that clearly explains the basis for such expenditure.

The table below provides the regulation and supervision fee that MECO has included in its application:

Table 4.8: Forecast Regulatory Compliance (PhP million, real 2008)

Year	CY 2008	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Regulatory Compliance	4.93	5.19	5.46	5.72	5.98	6.24

Source: PB Associates based on MECO Additional Information Submission, July 2008

4.3.4 Regulatory Reset Expert Fees

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

4.3.5 Permit Fees

We note that MECO has made no provision for Permit Fees payable to ERC in respect of opex and assume that these fees have been included in the opex forecast. This treatment is appropriate.

4.4 RECOMMENDATIONS

As a result of our review of each line item of the taxes, levies and duties expenditure application of MECO we have arrived at the following recommendations:

- The annual provision for real property tax should be adjusted down to the CY 2007 value. Taxes for which MECO's liability has not been confirmed should not be included. In the event of the future imposition of additional real property taxes or should MECO 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";

- As stated in Section 3.2 of Position Paper, franchise taxes are a pass-through item and should therefore not be recovered under the distribution wheeling rate. We therefore recommend that the component of franchise tax be excluded from the annual revenue requirement;

- MECO's deficiency tax arose due to the deficiency in payment of the franchise tax from years 1998 to 2003. Since franchise taxes should not be recovered under the distribution wheeling rates, we recommend that the component of deficiency tax be excluded.

- The component of vehicle registration fees in the application was increased annually by 10% starting from CY 2008. However MECO did not provide an explanation of the basis for this increase. We therefore recommend that the component of vehicle registration fees remain constant in real terms;

- Regulation and supervision fees should also be excluded from the annual revenue requirement since such costs should be provided for in the opex expenditure forecast; and

- The guidelines for customer deposits have yet to be finalized by ERC. Notwithstanding this, ERC has advised that interest on customer deposit should not be recovered from the distribution wheeling rate nor should it be passed-through to customers. We therefore recommend that the component of regulatory compliance be excluded from MECO's annual revenue requirement.

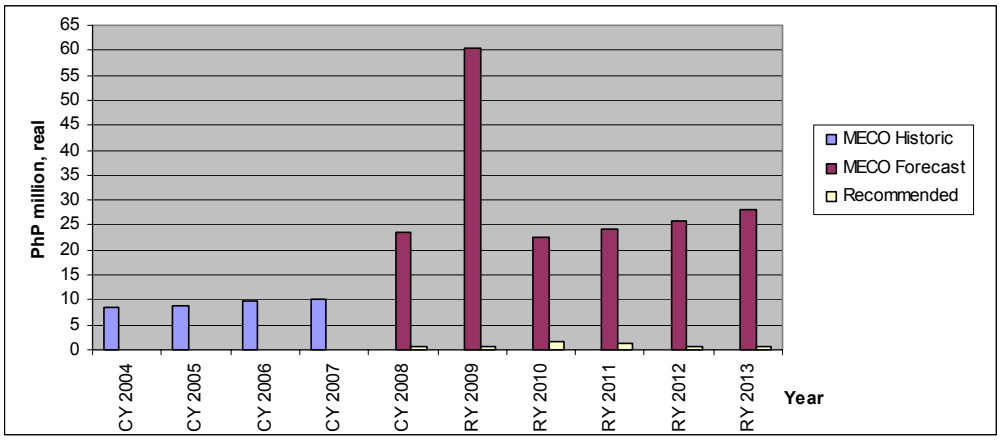
Consequently, our recommended provision for taxes, levies and duties is shown in Table 4.9 below:

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

Year	CY 2008	RY 2009	RY 2010	RY 2011	RY 2012	RY 2013
Proposed in MECO's Revenue Application						
Taxes, Levies and Duties	23.40	60.38	22.59	24.01	25.82	28.16
Adjustments						
Real Property Tax	(0.002)	(44.157)	(3.383)	(3.383)	(3.383)	(3.383)
Franchise Tax	(10.165)	(9.896)	(11.391)	(13.110)	(15.087)	(17.360)
Deficiency Tax	(7.172)	-	-	-	-	-
Vehicle Registration Fees	(0.004)	(0.011)	(0.020)	(0.029)	(0.039)	(0.050)
Regulation and Supervision Fee	(0.561)	(0.561)	(0.561)	(0.561)	(0.561)	(0.561)
Regulatory Compliance	(4.932)	(5.194)	(5.457)	(5.719)	(5.982)	(6.244)
Recommended Provision for Taxes, Levies and Duties	**0.56**	**0.56**	**1.78**	**1.21**	**0.77**	**0.56**

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

Figure 4.1: Comparison between MECO's Forecast and our Recommended Forecast (PhP million, real 2008)



The graph shows an average difference between MECO's forecast and our recommended forecast of 96% over the forecast period.