



PB ASSOCIATES

**REVIEW OF FORECAST EXPENDITURE:
SECOND REGULATORY PERIOD**

Manila Electric Company

ADDENDUM

Prepared for

ENERGY REGULATORY COMMISSION

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EXECUTIVE SUMMARY**CAPITAL EXPENDITURE (CAPEX)**

We recommend that the ERC make the following adjustments to the forecast capital expenditure recommended in PB Associates' expenditure report.

Adjustments to Forecast Capital Expenditure (PhP million, real)

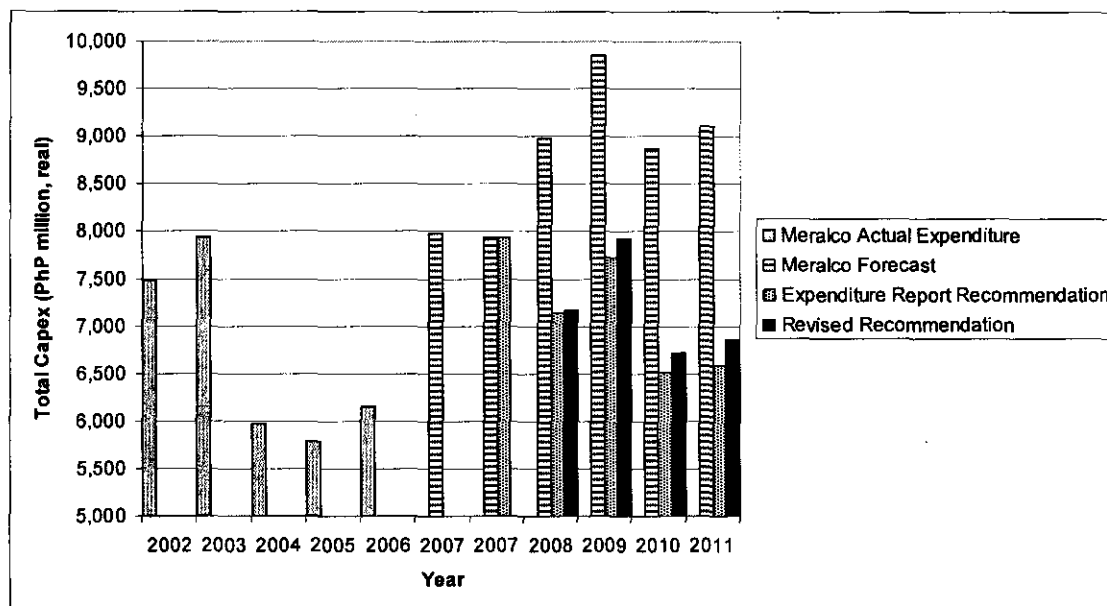
	2008	2009	2010	2011	Total
Recommended capex in expenditure report	7,135.00	7,736.00	6,504.00	6,590.00	27,965.00
Recommended adjustments					
Increase in the size of Amadeo transformer		46.00			46.00
Increased capex for growth related service drops	103.00	95.46	91.42	85.47	375.35
Adjustment to metering related capex	(67.84)	55.19	127.48	183.45	298.28
Revised recommendation	7,170.16	7,932.65	6,722.90	6,858.92	28,684.63

The three proposed adjustments relate to the following:

- At the public consultation Meralco submitted that a larger transformer at Amadeo was required to accommodate a load transfer from Sector 3. We are satisfied that this load transfer was prudent and was not taken into account in the expenditure report.
- The adjustment for the capex in the cost of growth related service drops results from an error in the expenditure report where the average cost of service drop installation was underestimated. We have recalculated the appropriate provision for new service drops on the basis of updated information.
- We accept Meralco's submission that the meters optimized out of the valuation asset base do not actually exist. However we do not fully accept Meralco's submission on growth related metering costs and we believe that our revised provision is a realistic estimate if all new customer meters are purchased rather than drawn from existing stock. , Meralco's records of its metering assets are inaccurate, as they have not been cleansed of meters that have been withdrawn from service.

The figure below compares Meralco's application forecast, the capex forecast as recommended in the expenditure report and the current recommendation with Meralco's historic capex.

Recommended Capital Expenditure



OPERATIONS AND MAINTENANCE EXPENDITURE (OPEX)

We recommend that the ERC make the following adjustment to the forecast operations and maintenance expenditure recommended in the expenditure report.

Adjustment to Forecast Operations and Maintenance Expenditure (PhP million, real)

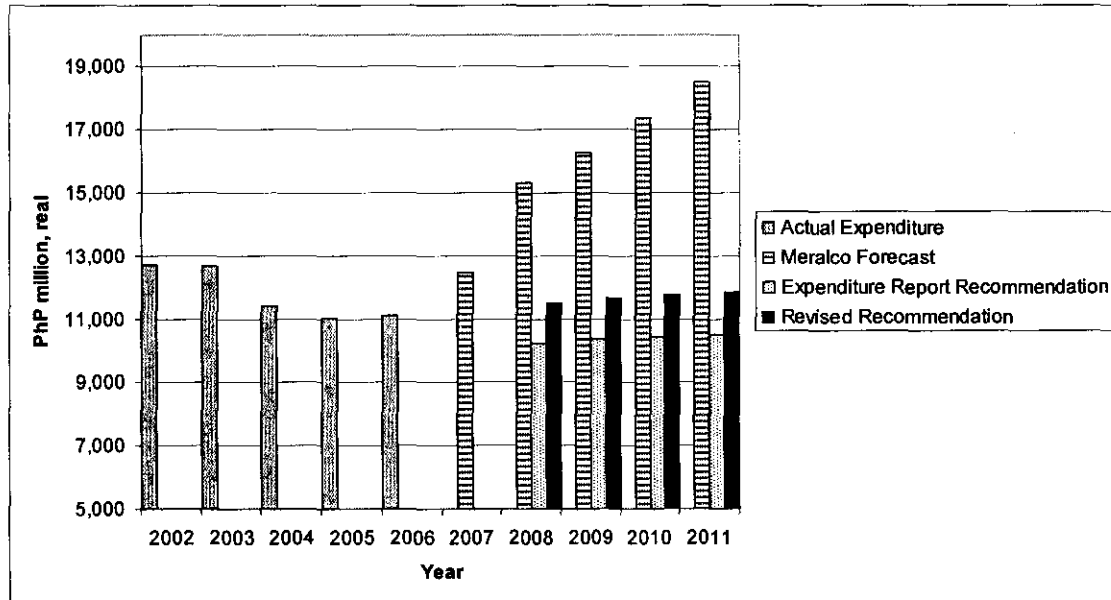
	2008	2008	2009	2010	Total
Expenditure report recommendation	10,243.00	10,348.00	10,419.00	10,509.00	41,519.00
Maintenance backlog adjustment	52.93	52.51	53.89	54.52	213.85
Bad debt adjustment	63.18	57.58	48.68	53.73	223.17
Employee pension adjustment	1,137.61	1,188.81	1,236.30	1,286.87	4,849.59
Revised recommendation	11,496.72	11,646.90	11,757.87	11,904.12	46,805.61

The three proposed adjustments relate to the following:

- Meralco has submitted that it has a backlog in its asset inspection and testing program. We have recommended an adjustment to allow Meralco to eliminate this backlog over the second regulatory period based on our belief that such a backlog could adversely impact network reliability.
- We accept Meralco's submission that the bad debt provision in its revenue application was net of forecast recoveries and have recalculated a reasonable provision on this basis.
- Meralco made an error in its revenue application opex forecast in that its estimated provision for employee pensions and benefits in 2006 was well below the actual expenditure later reported. We are satisfied that this was a genuine error. As our opex forecasting model used the estimated 2006 opex as a key input we have reforecast this line item on the basis of Meralco's actual 2006 expenditure.

The figure below compares Meralco's application forecast, the opex recommended in the expenditure report, and the current recommendation with Meralco's historic opex.

Recommended Operations and Maintenance Expenditure



1. INTRODUCTION

The Energy Regulatory Commission (ERC) has promulgated a performance-based form of regulation (PBR) for investor owned electricity distribution utilities (IOU) 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 setting the price cap for the three IOUs entering the PBR at the first entry point is currently underway. This process will result in setting a maximum price path that will determine the maximum average price an IOU can charge for each year of the Second Regulatory Period (which commences on 1 July 2007 and ends on 30 June 2011).

The mechanism for the calculation of the price cap and the procedure and timelines for the introduction of this price cap, are described in the Rules for Setting the Distribution Wheeling Rate (RDWR), which was released by the ERC on August 11 2006¹. The ERC has also formulated its position on the reset process – as set out in a Position Paper dated December 7, 2005².

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 to which IOUs are entitled 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) was engaged by the ERC to review the expenditure forecasts of the three IOUs (including Meralco) that will be entering PBR at the first entry point.

Meralco submitted a PBR revenue application to the ERC on August 31 2006³ (revenue application). PB Associates submitted its report on its review of the expenditure forecasts included in Meralco's revenue application on February 22 2007⁴ (expenditure report). The ERC issued a draft determination on the revenue application on May 16 2007⁵ (draft determination). Following the release of the draft determination, the ERC held a public consultation in Manila on June 26 2007. At this public consultation, Meralco raised a number of issues in respect of the draft determination and was required by the ERC to subsequently provide additional information to support its position. PB Associates was present at the public consultation and has now reviewed the additional information supplied by Meralco insofar as this information relates to expenditure forecasts. In this addendum to the expenditure report we document our review of the issues raised and, where appropriate, have modified the recommendations in the expenditure report on Meralco's reasonable expenditure requirements for the second regulatory period.

In undertaking this review we have relied on the accuracy of the information provided to the ERC by Meralco. We cannot be held responsible for any conclusions based on misleading or inaccurate information provided to us.

¹ *Rules for Setting Distribution Wheeling Rates (RDWR) for Privately Owned Distribution Utilities Entering Performance Based Regulation (First Entry Point)*, ERC, August 7 2006.

² *Regulatory Reset for the Privately Owned Distribution Utilities subject to Performance Based Regulation (PBR) for July 2007 to June 2011, Position Paper*, ERC, December 7 2005.

³ ERC Case No 2006-042RC.

⁴ *Review of Forecast Expenditure: Second Regulatory Period, Manila Electric Company*, PB Associates, February 22 2007.

⁵ *Regulatory Reset for Manila Electric Corporation July 2007 to June 2011 Draft Determination*, ERC, May 16 2007.

2. CAPITAL EXPENDITURE

2.1 AMADEO SUBSTATION

2.1.1 Background

In the draft determination the ERC proposed that the new transformer capacity at Amadeo substation be reduced from 300 to 150 MVA and consequently reduced the forecast expenditure by PhP 46 million (real)⁶ in year 2009. Meralco submitted that this decision did not allow for the proposed 118 MVA load shifting from Bacoor and Imus substations to the Cavite sector in 2012.

The draft determination also reduced the quantity of switchgear to be provided for in the construction of Amadeo substation on the basis that it was only necessary to divert one circuit of the double circuit line into the substation. This resulted in a reduction of PhP 120 million (real) in the forecast capex. Meralco submitted that the full expenditure should be allowed since it was a TransCo requirement that both circuits be diverted.

2.1.2 Analysis

Meralco is correct in that the expenditure report did not make any provision for load transfers between sectors. The lack of transformer capacity is discussed in Section 2.6.3.1 of the expenditure report and Table 2.10 of the same report shows a 74.2% utilization of transformer capacity in Sector 3. This utilization is higher than 70% which is considered to be a reasonable maximum. Transferring some of this load to the more lightly loaded Cavite sector seems reasonable. Meralco further provided supporting information to show, that with the proposed load transfers, the transformer utilizations in both Sector 3 and the Cavite sector will be reasonable.

The only reason given by Meralco for the diversion of both Calaca-Dasmarinas 230 kV lines into the new Amadeo substation is that it is a TransCo requirement. However, the reason for this requirement is not clear. Diversion of only a single line would provide the required N-1 level of security and in this respect we note that both Sta Rosa and Caluan substations have only two incoming circuits.

In order to undertake a more in depth, but nevertheless high level review, of the need to divert both circuits we asked we asked Meralco to provide us with line rating and load flow information. The load flow that it provided showed that under the most critical contingency situation with forecast 2009 loads, one Calaca-Amadeo circuit could be loaded to 95% capacity with the other circuit out. This assumed a generation profile that caused a net export of 1,000 MW from the Sta Rita 230 kV substation, a condition that is only likely to occur if the Sta Rita and San Lorenzo natural gas power stations are generating close to full capacity. Under this generation profile, there is a 230 kV infeed of 442 MW into the Dasmarinas substation from the Calaca substation, even though the Dasmarinas substation has a 500 kV interconnection⁷. However, even under this generation profile, which maximizes the load on the Calaca-Dasmarinas 230 kV line, the

⁶ Draft determination Table 4.3m p24.

⁷ Transmission networks are normally operated so that high voltage interconnections inject power into lower voltage networks. It is therefore a little unusual to see power being injected at lower voltage into a higher voltage connection point under normal operating conditions. However we understand this is normal in this part of the TransCo network because Meralco wants to maximise generation from its contracted energy providers, Sta Rita and San Lorenzo, which are connected to the transmission network at 230 kV. The Calaca-Dasmarinas 230 kV line loading would be reduced if 500 kV infeeds to Dasmarinas substation were increased, but this would require increased generation from the Ilijan combined cycle power station, which is contracted to NPC.

diversion of only one circuit of the line into the Amadeo substation would not materially increase the load on the other line under the most severe line outage contingency⁸.

2.1.3 Conclusion

We accept that the installation of a 300 MVA transformer at Amadeo is reasonable and recommend that the additional capital expenditure of PhP 50 million needed to provide for this be reinstated.

The only substantive reason provided for the diversion of both Calaca-Dasmarinas circuits into the Amadeo substation is that it is a TransCo requirement. On the basis of a high level analysis of the information available to us, we cannot see a reason for this requirement. We would caution however, that technical and economic studies of transmission system development options are complex and it may be that the diversion of both circuits is justified by factors of which we have not been made aware. We did recommend that the ERC write to TransCo and ask why the requirement to divert both circuits is necessary, but we have not been advised of any response.

We asked Meralco for a report on the status of the Amadeo substation project. The feedback provided advised that (i) the site designation for industrial development has been secured, (ii) site works will commence in September 2007, (iii) equipment and materials for the project are "for procurement" and (iv) the target completion date is December 2008. However, it is not clear whether this means that the full project as currently planned, including the additional switchgear needed for the diversion of both circuits, is committed.

Nevertheless, on the information available to us, we are not able to recommend that the incremental capital expenditure of PhP 120 million required to provide for the diversion of both circuits into the substation, be reinstated. While Meralco argues that its failure to comply with TransCo requirements will result in an outright refusal by TransCo to connect, this is not sufficient reason for the ERC to allow the expenditure. To resolve any impasse, we think that further discussions between the two parties should occur and that the ERC should be involved in these discussions in order to ensure that the issue is resolved in a way that minimizes the long term costs to customers.

2.2 DISTRIBUTION TRANSFORMER UTILIZATION

2.2.1 Background

In the draft determination⁹ the ERC reduced Meralco's forecast capital expenditure by a total of PhP 1,446 million (real) due to the fact that the proposed capital expenditure would reduce Meralco's distribution transformer utilization below the 50% allowed for in the ERC's asset valuation policy guidelines¹⁰. Meralco submitted that it plans to continuously improve the capacity utilization of its distribution transformers by proper sizing and rotating of units to match the load requirement. It therefore expects to improve the utilization to beyond 50% utilization in 2010 and 2011. Meralco further submits that for solely served customers the distribution transformer size is based on applied load and not the actual utilization, and that about half of its solely served customers have a distribution transformer loading of 50% and below.

2.2.2 Analysis

The ERC's asset valuation policy guidelines referenced above in Section 2.2.1 state:

⁸ Irrespective of whether one or two circuits were diverted, under a contingency condition the remaining Calaca-Dasmarinas circuit would need to carry the full Amadeo load and the infeed into Dasmarinas.

⁹ Draft determination, Table 4.3, p24.

¹⁰ ERC Resolution No 43, Series of 2006, Annex A, p29

The aggregated utilization of distribution line transformers expressed as the non-coincident maximum demand of the LV system divided by the total installed distribution line transformer capacity in MVA should not be less than 50%.

As this forms part of an ERC resolution, we have no discretion on this matter.

Meralco has provided evidence to show that there are 6,080 distribution transformers on its network that serve solely served customers and that have a loading of less than 50%. This is a relatively small percentage of the total number of distribution transformers on the network¹¹. The 50% minimum distribution transformer utilization is an average taken across the whole network and we would expect that, in practice, some distribution transformers would have a utilization of much higher than 50%, whereas the utilization of other units would be less. Hence the additional information provided by Meralco, which focuses on the utilization of some individual transformers, is not really relevant.

We further note that Table 4 of the Meralco Optimization Report indicated an aggregated distribution transformer utilization of 54.7% at the end of the 5-year planning period.

2.2.3 Conclusion

We consider the removal of PhP 1,446 million from Meralco's forecast capex to provide for increased distribution transformer utilization to be reasonable.

2.3 SERVICE DROP LENGTHS

2.3.1 Background

The draft determination¹² reduced the provision for new service drops by a total of PhP 433 million on the basis of an average length of 7.5 meters per service drop. This adjustment was based on Table 2.7 of the expenditure report. Meralco believes that this reduction limits its ability to provide a service connection to the majority of its customers, who would require a service drop length greater than 7.5 meters.

2.3.2 Analysis

In recommending the reduction in growth expenditure for the provision of service drops, we relied on item 2.6 of the minutes of the second consultation meeting where it was stated that the forecast capex assumes an average length of 30 meters per service drop. However following the additional information submitted by Meralco we revisited the service drop costs in the replacement cost report and, while we still believe our estimated average service line length of 7.5 is reasonable, we are satisfied that the recommended adjustment in the expenditure report was excessive.

In the information for the public consultation, Meralco provided an analysis (CAPEX-4) that showed that the average cost per customer will increase in real terms from PhP 2,212 in year 2008 to PhP 2,486 in year 2011, an increase of 12%, which is justified by a progressively longer average service line length. However, we think that there is no reason for the average service line length to increase over time and believe that the average cost per customer, for the installation of growth related service connections, should remain constant throughout the second regulatory period.

2.3.3 Conclusion

On the basis of the above analysis, we recommend that the forecast capex for growth related services provided in the draft determination be adjusted as shown in Table 2.1

¹¹ Table 2 of the Meralco Asset Valuation Report stated that there were 147,930 different distribution transformer locations.

¹² Draft determination, Table 4.3, p24.

below. This provides in full the 2008 capex forecast in Meralco's revenue application. In subsequent years this forecast is adjusted only to reflect changes in the number of customers.

Table 2.1: Adjustments to Growth Related Service Drop Capex (PhP million, real)

	2008	2009	2010	2011
Meralco application	227.71	237.53	242.66	249.41
Draft determination adjustment	(103.00)	(107.00)	(110.00)	(113.00)
Draft determination provision	124.71	130.53	132.66	136.41
Number of new customers	97,794	97,055	96,235	95,292
Recommended provision	227.71	225.99	224.08	221.88
Recommended adjustment to draft determination	103.00	95.46	91.42	85.47

2.4 RENEWAL AND REFURBISHMENT EXPENDITURE

2.4.1 Background

The draft determination provided for a total reduction of PhP 2,870 million in the forecast capex provision for asset renewals, in accordance with Table 2.16 of the expenditure report. Meralco submitted that the age-based modeling technique used by PB Associates to determine the amount of the reduction was not applicable to the Philippines because of the higher temperature, humidity and air pollution; the overhead network configuration and the very high population density in the Manila area.

2.4.2 Analysis

We agree with Meralco that environmental conditions could mean that equipment service lives are shorter in the Philippines than in less tropical climates such as that experienced in the UK and the more populated states of Australia. However this has been accounted for in our modeling, which used the asset lives in the asset lives report¹³. Asset lives are key input variables to the model and shortening the asset lives will increase the level of asset replacement indicated by the model. In determining the appropriate adjustment we also allowed for a significantly higher level of premature asset replacement than we would normally include if modeling asset replacement requirements in more developed countries. We are therefore confident of the validity of our model and the robustness of our analysis.

2.4.3 Conclusion

We consider the removal of PhP 2,870 million from Meralco's forecast capex to provide for a reduced level of asset renewal to be reasonable.

2.5 METERING

2.5.1 Background

In the draft determination the ERC reduced Meralco's capex forecast by a total of PhP 1,430 million to reflect the use of meters that were optimized out of the asset base in the optimization report. This was in accordance with the recommendations of Section 2.6.5.2 of the expenditure report. The rationale was that if the meters were optimized out of Meralco's regulatory asset base they were available to be used. Hence expenditure

¹³ Standard Asset Lives for Philippines Distribution Utilities, PB Associates and Asian Appraisal, August 2006.

would not be needed to purchase new meters. However at the public consultation Meralco submitted that not all of the PhP 10,560 million worth of meters that were optimized out of the asset base are available or usable. The 1,035,155 meters that were optimized out include those with unresolved status, missing, junk, for disposal, with court case or sold, and Meralco requested that ERC consider these meters not usable or available.

2.5.2 Analysis

We accept Meralco's submission that the meters optimized out of the asset base, as identified in the optimization report, do not exist. Meralco provided supporting information (CAPEX-6) that provides a breakdown of the 1,369,728 "excess" meters identified by PB Associates and shows an actual inventory of only 87,266 meters. Of the balance, 2,362 have been retained as evidence in tampering or electricity theft proceedings and the remaining meters are classified as missing, junk, disposed of or sold. However, we note that even though none of these meters existed, they remain on Meralco's asset register. It is of concern that the 1,261,000 meters in these categories were still on the Meralco asset register at the time of the asset valuation. We suggest that the ERC require Meralco to cleanse its asset register of all non-existent or unserviceable metering (and other) assets.

At the public consultation we asked Meralco to provide a more detailed breakdown of its forecast capital expenditure requirements for metering in support of its submission that the reduction in the draft determination should be reinstated. The information that was provided is concerning. In particular:

- The information provided indicates that Meralco purchases approximately 206,000 new meters a year (excluding metering transformers) to support load growth. However Meralco connects only approximately 97,000 new customers each year.
- The budget breakdown provided included refurbishment costs and indicated a total forecast capex similar to the total forecast expenditure shown in Table 2.17 of the expenditure report. However this specifically excluded refurbishment costs (as refurbishment does not involve the use of a new meter). As meter refurbishment capex in the revenue application represents about 20% of the total metering capex requirement it would appear that Meralco is now indicating that its requirement for metering capex is now only about 80% of the amount included in its revenue application. Furthermore the refurbishment costs in the revenue application decreased from PhP 518 million in 2008 to PhP 173 million in 2011, whereas in the breakdown they were a constant PhP 230 million per year. The reason for this discrepancy is not clear.
- It is unclear what the meter refurbishment capex is for. The breakdown provided by Meralco indicated an average refurbishment cost of PhP 52 per meter, which indicates to us that refurbishment most likely involves recalibration only. We think that recalibration costs should be treated as opex, since it does not involve an extension of the useful life of the meter beyond the standard life of 25 years.

The total forecast expenditure (capex and opex) on metering in Meralco's revenue application over the second regulatory period is shown in Table 2.2 below.

**Table 2.2: Total Forecast Metering Expenditure in Meralco Revenue Application
(PhP million real)**

	2008	2009	2010	2011
Growth capex	669.50	681.90	704.18	725.43
Renewal capex	496.50	503.38	497.53	504.25
Refurbishment capex	518.01	332.21	235.63	173.24
Distribution operations opex	1,704.47	1,741.53	1,778.68	1,815.81
Distribution maintenance opex	408.42	435.91	465.56	497.34
Total	3,796.90	3,694.93	3,681.58	3,716.07

We think the total expenditure shown in Table 2.2 is excessive. Firstly opex represents about 60% of the total cost, even though it appears not to include meter recalibrations and testing and further does not include expenses for meter reading (which is a customer service cost). It is unclear what all this expenditure is for. We note that total meter reading costs are only 12% of the forecast distribution costs related to the management of metering assets. Secondly we estimate that the total costs shown in Table 2.2 would be sufficient to replace almost 75% of the 2008 meter population over the regulatory period¹⁴.

Given the inconsistencies we found in the above analysis we have re-estimated the total metering capex requirement on the following basis:

- Growth related metering capex is estimated by assuming a new meter requirement equal to 110% of the total number of new customers each year. The average cost per meter was assumed to be PhP 4,287 per unit based on our analysis of the asset valuation data.
- Renewal related metering capex is based on the PB Associates modeling shown in Table 2.16 of the expenditure report. We have added 10% to the expenditure derived from the model to provide for premature asset replacement.
- All other expenditure that does not require the installation of a brand new meter is assumed to be covered by the opex forecast.

On this basis our analysis to determine the required adjustments to the draft determination is shown in Table 2.3.

¹⁴ We have taken the total meter population to be 110% of the total customer numbers and the weighted average replacement cost to be PhP 4,287 per meter. This was derived from an analysis of asset valuation data. We also calculated a weighted average replacement cost of PhP 3,722 from an analysis of the breakdown provided by Meralco following the public consultation but consider this cost to be low.

Table 2.3: Analysis of Metering Capex Requirement (PhP million, real)

	2008	2009	2010	2011
Capex Requirement				
No of new customers	97,794	97,055	96,235	95,292
No of new meters (110% of new customers)	107,573	106,761	105,859	104,821
Growth related capex requirement (PhP 4,287 per meter)	461.17	457.68	453.82	449.37
Renewal capex requirement	154.00	187.00	231.00	286.00
Recommended capex requirement	615.17	644.68	684.82	735.37
Draft Determination				
Total forecast capex in revenue application				
Customer load growth	669.50	681.90	704.18	725.43
Renewal	496.50	503.38	497.53	504.25
Refurbishment	518.01	332.21	235.63	173.24
Total (PhP million)	1,684.01	1,517.49	1,437.34	1,402.92
Less renewals reduction	790.00	600.00	470.00	370.00
Less reduction for use of optimized stock	211.00	328.00	410.00	481.00
Draft Determination Provision	683.01	589.49	557.34	551.91
Recommended adjustment to draft determination	(67.84)	55.19	127.48	183.45

2.5.3 Conclusion

While we accept that the meters that were assumed in the expenditure report to be in stock do not actually exist, this situation has arisen only because of significant inaccuracies in Meralco's asset register, as it relates to the recording of metering assets. We recommend that the ERC require Meralco to cleanse its asset register of all non-existent or unserviceable metering assets.

We further recommend that the adjustments shown in Table 2.3 be made to the draft determination capital expenditure provision as a result of our revised analysis of Meralco's metering capex requirements for the second regulatory period.

2.6 VALUE ADDED TAX

2.6.1 Background

The draft determination removed a total of PhP 502 million from Meralco's expenditure forecast due to the removal of value added tax (VAT). This was consistent with Section 2.6.7 of the expenditure report, which concluded that the forecast capex expenditure in Meralco's revenue application included VAT and that the total VAT component of the forecast was PhP 502 million, after making due allowance for other adjustments to the forecast. Meralco submitted that the forecast capex in its revenue application did *not* include GST.

2.6.2 Analysis

We do not dispute that Meralco's forecast capex excluded VAT.

However, our review of the expenditure forecasts not only included a review of the extent to which the costs included in Meralco's capex forecast were *necessary* but also a review

of the extent to which necessary costs were *efficient*. In undertaking this latter component of the review we used the costs in the asset valuation replacement costs report¹⁵ as a benchmark for efficient unit costs.

As the replacement costs in the replacement cost report included provision for both VAT and storage we would have expected that the efficient replacement costs used by Meralco in developing its capex forecast would be consistently lower than the costs in the replacement cost report. However in undertaking our review we did not find this. While some of Meralco's costs were lower than those in the replacement cost report others were higher. In some cases where a direct comparison was possible, the costs used by Meralco were identical to those in the replacement cost report. Overall we considered that the costs used by Meralco in its capex forecast were reasonably consistent with the replacement cost benchmarks. Given that these benchmarks included VAT, we considered that a VAT adjustment was appropriate, given the impact of Republic Act 9337.

If, as Meralco has submitted, its capex forecast excluded VAT, it follows that the costs that it used were inefficient when compared to the replacement cost benchmarks. We therefore consider the adjustment to remain appropriate.

2.6.3 Conclusion

We consider that the removal of PhP 506 million from Meralco's forecast capex to provide for the removal of VAT should remain on the basis that, as the Meralco forecast did not include VAT, an efficiency adjustment is required.

2.7 STORES COSTS

2.7.1 Background

The draft determination removed a total of PhP 323 million for the over recovery of stores costs. This was consistent with Section 2.7 of the expenditure report, where PB Associate concluded that 1.7% of the total cost of significant capex projects and 1.8% of the total cost of residual projects represented the allocated cost of stores. Meralco submitted that there were no stores costs included in the capex forecast in its revenue application.

2.7.2 Analysis

We do not dispute that Meralco's forecast capex did not include provision for the cost of storage. However, the benchmark replacement costs in the replacement cost report did include provision for storage. Since the costs used by Meralco in developing its capex forecast were consistent with the benchmark costs, an efficiency adjustment is indicated if the Meralco costs did not provide for the stores component. The rationale here is the same as that applied to the VAT adjustment discussed in Section 2.6.2 above.

2.7.3 Conclusion

We consider that the removal of PhP 323 million from Meralco's forecast capex to provide for the removal of stores costs should remain on the basis that, as the Meralco forecast did not include stores costs, an efficiency adjustment is required.

¹⁵ Standard Replacement Costs for Meralco, PB Associates, August 2006.

3. OPERATIONS AND MAINTENANCE EXPENDITURE

3.1 EFFICIENCY FACTORS

3.1.1 Background

PB Associates used its own opex forecast model to develop its view of a reasonable base opex¹⁶ forecast for the second regulatory period for Meralco. The model escalates actual base year opex in accordance with changes in expenditure drivers, such as customer numbers and the size of the asset base. However, in the escalation process, efficiency factors were also applied to reflect economies of scale and additional efficiencies that we believe a utility should be able to generate in the operation of the business. In determining the efficiency factors to apply in the model, we drew on our experience in other jurisdictions, particularly Australia.

At the public consultation Meralco submitted that efficiency factors that applied to Australia were not applicable to the Philippines and that higher factors should have been used, thereby reducing the efficiency gains built into the model. Meralco further submitted that efficiency factors are applicable only to activities fully utilizing in-house or regular labor since associated fixed costs can be spread out to more units of work. On the other hand outsourced activities are directly affected by the volume of the cost drivers. For example, in meter reading, the increase in customer count will directly result in a corresponding increase in cost as these are paid on a per customer basis.

3.1.2 Analysis

Clause 4.13.3 of the RDWR states:

The annual operating and maintenance expenditure forecasts referred to in Section 4.13.1 must be accompanied by a justification against each of the expenditure categories referred to in Section 4.13.1 as to why the forecast expenditures are necessary and are of reasonable magnitude (such forecasts could, for example, be supported by benchmarks against overseas electricity distribution businesses). The written justification must also demonstrate improvements in operational efficiency and productivity over the Second Regulatory Period. For these purposes, benchmarks against operational parameters such as staff numbers, energy throughput, service performance or other measures may be used to justify the relevant expenditures.

Had Meralco complied with this requirement we would not have used our model for the review but would have limited our study to consideration of the justifications provided for each line item and whether the improvements in operational efficiency indicated by Meralco were sufficient. This was the approach that we took in reviewing Decorp's proposed opex, where we had the benefit of access to Decorp's full forecasting model.

However, in its revenue application Meralco did not provide sufficient justification for its opex forecast for us to be able to assess its reasonableness or otherwise. Furthermore, we found that Meralco's forecast operating efficiency progressively deteriorated over the second regulatory period, and did not reflect the efficiency improvements demanded by the RDWR. For example, Meralco forecasted its customer services costs per customer measured in real terms to increase by 21% from PhP 776 in 2007 to PhP 938 in 2011¹⁷, and did not provide any justification for such a significant increase in its unit costs. PB Associates therefore had no alternative other than to use its own modeling in order to achieve the objectives of this review.

¹⁶ Base opex refer to existing opex costs and excludes any costs incurred during the second regulatory period for activities that are not currently undertaken.

¹⁷ Source: Expenditure Report, p46.

We consider the efficiency factors that we used in our modeling to be applicable to Meralco. While it is true that the factors are based on efficiencies that are typically applied in developed economies, they are generally applied in situations where the use of a variant of PBR is much more mature. Hence the distribution businesses to which the factors are applied have already extracted significant efficiencies in their operation and are approaching a point of diminishing returns in the extraction of efficiency gains. We do not believe that Meralco has reached this point and have seen nothing in our review to indicate that the efficiency gains indicated by our modeling are not achievable. Nevertheless, we acknowledge that some efficiency gains may be difficult to achieve if Meralco applies a "business as usual" operating model. In developed countries distribution businesses have achieved efficiencies through methods such as the use of more efficient business processes, restructuring, staff reductions, increased use of outsourcing and reductions in overheads. Meralco may need to consider whether some of these approaches are appropriate.

We also do not accept that our efficiency factors are applicable only to activities fully utilizing only in-house or regular labor. Contractors also have fixed costs that can be spread out over more units of work and, partly for this reason we would expect that unit costs (measured in real terms) that are outsourced in a competitive environment to gradually decline over time. In developed economies the efficiency factors we used in our model are applied to businesses that typically outsource their operations to a much higher level than is Meralco's current practice.

3.1.3 Conclusion

We see no basis for adjusting the efficiency factors that we used in modeling Meralco's base opex requirements for the second regulatory period.

3.2 IT SERVICE CONTRACTS

3.2.1 Background

Meralco submits that the efficiency factors used in PB Associates' opex modeling should not be applied to maintenance agreements and service contracts under the IT line items and also the load dispatch communication line item, and provided a detailed breakdown of the costs that it considered should be excluded.

3.2.2 Analysis

Our opex modeling analysis was a high level top down exercise that did not consider each line item separately and considered only the three broad categories of distribution operations and maintenance, customer services and administration and general. In taking this high level approach we recognize that the escalation factors used will not necessarily apply directly to each and every expenditure item. For some items the modeled efficiencies will not be achievable but for others greater efficiencies should be possible. The expenditure identified by Meralco as applicable to this submission represents approximately 3.8% of Meralco's total forecast base opex over the second regulatory period.

3.2.3 Conclusion

Given the high level top down opex modeling that was used and the relatively small component of opex affected, we see no basis for any adjustment.

3.3 ADDITIONAL EXPENDITURES

3.3.1 Background

In the opex forecast included in its revenue application, Meralco included a total PhP 2,463 million additional expenditure, which was over and above that included as base opex. Section 5.5 of the draft determination excluded all additional expenditure, which was consistent with the recommendation in Section 3.5.1 of the expenditure report. At the public consultation, Meralco submitted a breakdown of this additional expenditure and requested the ERC to reconsider reinstating the additional expenditure.

3.3.2 Analysis

The additional expenditure forecast by Meralco was disaggregated into three broad categories, regulatory compliance activities, ICT expenditures and maintenance backlogs. The supporting information submitted for the public consultation included a more comprehensive breakdown of these three categories, but did not include a discussion of why the expenditure should be considered additional to the base opex or of the benefits that Meralco hoped to realize from any of the expenditure. The additional expenditure submitted for the public consultation totaled PhP 1,785 million over the second regulatory period, a 27.5% reduction on the total PhP 2,463 million forecast in Meralco's revenue application. We consider each of the three broad categories separately.

Regulatory Compliance Activities

In Section 3.5.3.1 of the expenditure report PB Associates stated:

We have examined this list of activities and note that most are not specifically regulatory compliance activities. Indeed, they are generally normal business processes and activities that a well managed distribution business should be routinely undertaking. No details of the actual drivers for the additional work were provided other than the very general comments in Schedule G1.4 of the revenue application which states the drivers are "the PBR-RDWR, the Magna Carta, DSOAR, Business Separation Guidelines and other guidelines and rules that the ERC will implement in the immediate future."

The amount of additional revenue requested for this line item over the regulatory period is material. We would have expected it to have been supported by a robust justification that would have described in some detail the additional programs proposed and the benefits from their implementation. Importantly, Meralco would also need to establish that the programs would utilize resources additional to those already available to the company and included in the base opex forecast. In particular, Meralco has not provided details of the methodology used to quantify the additional regulatory compliance work as a result of new regulatory requirements, nor its estimate of the additional work load in FTE staff numbers, nor was any information provided as to the capability of existing staff to cope with a proportion, if any, of the additional work load.

On the information provided it is not clear to us that these are activities that Meralco undertakes over and above those already carried out in the normal course of business and therefore be already provided for in the expenditure forecast. Hence we recommend that they not be included in the allowed total opex.

Even though the expenditure made very clear the nature of the supporting information that we would require before recommending approval of additional regulatory compliance expenditure, the information has not been provided. Furthermore, the expenditure listed in the breakdown supplied for the public consultation appears to relate largely to business process management improvements (such as the updating of the geographical

information system database) rather than to compliance costs related to a specific regulatory obligation.

Business processes and management systems in a well managed business are dynamic and the subject of continuous improvement. As time passes new systems and processes are developed and implemented and older processes replaced. This evolutionary process development is not without cost, but businesses normally fund this underlying development out of base opex in the expectation that it will lead to increased efficiencies over time and these efficiencies will enable the development costs to be recovered.

Since this system development process is ongoing, an underlying level of business process development cost would therefore have been captured in the base year opex, and therefore be included in the opex forecasts. Because of this, in order for process development and management system costs to be treated as "additional expenditure", Meralco would have to demonstrate that either; (i) the annual forecast business process and management systems development expenditure is materially higher than provided for in the base opex, that all this expenditure is justified and the claimed amount covers only incremental expenditure over and above the underlying process development expenditure included in the base year opex; or (ii) the expenditure is driven by a specific regulatory requirement that imposes a compliance cost that an efficiently managed business would not otherwise incur and (iii) that the forecast costs are efficient. An example of a potential regulatory compliance expenditure, which would be classified as "additional", is the requirement for biannual meter testing in accordance with the requirements of the implementing rules and regulations of the Anti-pilferage Act.

Since the costs itemized by Meralco appear to be business process and management development costs of a nature that an efficient distribution business would incur in the normal course of operation, and since Meralco has provided no evidence to show that the level of expenditure is materially higher than provided for in its base year opex, we are unable to recommend approval of this expenditure.

ICT expenditures

Again, these expenditures appear to be ICT development costs of a nature that an efficient business would incur in the normal course of operation. Since Meralco has provided no evidence to show that the level of expenditure is materially higher than already provided for in its base year opex, we are unable to recommend approval for this expenditure.

Maintenance Backlogs

The total forecast expenditure on maintenance backlogs over the second regulatory period, as submitted for the public consultation, was a total of PhP 214 million over the second regulatory period. This was a reduction of 13% or PhP 46 million of the forecast in the revenue application. Furthermore it represents less than 2% of the total PhP 11.1 billion maintenance expenditure forecast by Meralco for the second regulatory period.

In Section 5.3.3 of the expenditure report PB Associates stated:

...It is not even clear to us how Meralco measures maintenance backlog. Moreover Meralco stated at the evidentiary hearing that the proposed amount was sufficient to remove completely the backlog by the end of the second regulatory period. It then stated that it considered a 10% maintenance backlog to be reasonable. We consider that a competently managed should have a target residual maintenance backlog that it considers efficient, rather than aim to eliminate the backlog completely.

Maintenance backlogs can broadly be categorized into two different types. Firstly, a lines business can fall behind in its routine inspection and testing activities. This can have a potentially significant impact on network reliability as it is possible for a serious defect to

go undetected. Secondly, a backlog in the correction of known defects is potentially less serious, since work can be prioritized according to the seriousness of the defect. We would therefore expect an efficiently managed business to be up to date with its inspection and testing program, but to have some backlog in its correction of defects. The statement quoted above from the expenditure report referred to defect correction activities rather than inspection and testing.

We have reviewed the itemized schedule of maintenance backlogs provided for the public consultation and have noted that the backlog relates in the main to inspection and testing. We therefore recommend, given that the ERC is introducing a performance incentive scheme (PIS) with this price determination, that the requested additional expenditure be allowed. This should ensure that sufficient funds are provided to enable Meralco to keep its inspection and testing regime up to date in order to ensure that the network is capable of meeting the performance requirements implied by the PIS. We note that this adjustment will increase Meralco's total network maintenance expenditure by less than 2% and its overall opex by approximately 0.5%.

3.3.3 Conclusion

We recommend that the ERC increase Meralco's allowed opex as identified in Table 3.1 below. This increase will ensure that Meralco is able to eliminate its backlog of asset inspection and maintenance activities.

Table 3.1: Recommended Maintenance Backlog Adjustment (PhP million real)

	2008	2009	2010	2011
Recommended adjustment	52.93	52.51	53.89	54.52

3.4 RELATED BUSINESS INCOME

3.4.1 Background

Section 5.7 of the draft determination identified a reduction in the opex forecast by a total of PhP 730 million over the second regulatory period to cover related business activities. This reduction is consistent with Section 3.6 of the expenditure report.

Meralco wishes to clarify the intent of Section 4.3.4 of the RDWR in respect of related business activities and the difference between related business activities and essential distribution related activities. Meralco considers that related businesses that utilize regulated distribution activities are optional activities that they can perform to maximize the utilization of its assets. However, some items listed in Section 4.3.4 are essential activities that Meralco has to perform whether or not it derives a net income from such activities. Meralco's position is that these are day to day operations, whose costs are part and parcel of the regulated distribution charge. In some instances, revenues derived from these activities are merely cost recovery.

3.4.2 Comment

We agree with Meralco that two types of business activities are listed in Section 4.3.4 of the RDWR and consider the distinction made by Meralco to be important. The expenditure report reduction of PhP 730 million was in fact divided into two components. The first component of PhP 362 million related to pole and space rental, which is clearly a business in the discretionary category identified by Meralco. The balance of the reduction related to unspecified related business activities, but was intended to apply to activities in the second category, those which are currently "part and parcel of the regulated distribution charge".

Activities in this category that are listed in Section 4.3.4 of the RDWR are those that are not integral to the management of the fixed system assets and which will potentially be managed by electricity retailers when open access becomes a reality. The DSOAR contains provisions whereby the costs of these activities can, following approval by the ERC, be recovered from the customers that request the service, rather than through the regulated distribution rate. We understand that Meralco has already applied to the ERC for this to occur for some activities and is in the process of preparing further applications.

Should an IOU's allowed revenue fully provide for the expected cost of undertaking this second category of related business activities, and should the ERC subsequently approve an application for the costs of providing the service to be recovered directly from customer, there will be a double recovery of these costs between the time the approval becomes effective and the end of the regulatory period. The purpose of the second component of the related business reduction is to mitigate this potential double recovery.

We believe that the philosophy underpinning DSOAR is well founded and, in any case, there is little point in developing the rules unless the ERC intends to implement them. Unfortunately it is difficult to determine an appropriate level of reduction as little information is available on actual costs and it is not known how quickly DSOAR will be implemented. Nevertheless we consider it important that the potential for double recovery of costs be mitigated and also that utilities be given an incentive to implement DSOAR by applying for customer specific costs to be recovered directly from the customers concerned. We therefore recommended to the ERC that it apply the reductions on a sliding scale, at a level that we believed to be below the total potential recoveries. The basis on which we determined the appropriate reductions was the same for all three IOUs.

3.5 CORPORATE WELLNESS CENTER

3.5.1 Background

Section 5.8.2 of the Draft Determination reduced the allowed opex for the corporate wellness center by an amount associated with the use of the facility by affiliates, retirees and the public. Meralco accepts the reduction in respect of affiliates and the public but proposes that the cost for retirees be included in the allowed opex. This cost is estimated at PhP 42 million per year.

3.5.2 Analysis

Meralco does not appear to have a legal obligation to fund the health costs of its retirees. However it has a contractual obligation to provide these benefits as they are enshrined in the collective bargaining agreement. Meralco also notes that Article 100 of the Labor Code of the Philippines prohibits the elimination or diminution of such benefits. It argues that to disallow the wellness center costs associated with retirees would constrain Meralco to reduce its contractual obligation to retirees, which would violate the Labor Code and other provisions of the Civil Code.

We do not dispute Meralco's contractual obligation to provide these benefits to retirees who were employed under the existing collective bargaining agreement nor do we suggest that Meralco not meet its contractual obligations. The issue is whether Meralco's owners or existing customers should fund these benefits.

Existing customers receive no benefits from the actions of Meralco retirees and it is therefore hard to see a rationale for why they should pay these costs. On the other hand the equity that the existing owners have in the business has been accumulated over time in part through the efforts of these former employees. Hence payment of retiree health costs by these owners could logically be considered recognition of this. On this basis we consider that there is a much stronger case for these costs to be funded by Meralco's owners than by its customers.

3.5.3 Conclusion

We recommend that the removal of the costs associated with the use of the corporate wellness center from Meralco's forecast opex should remain.

3.6 LABOR COSTS

3.6.1 Background

PB Associates' opex forecasting model provides for real¹⁸ changes in the real unit cost of labor and materials to be analyzed separately from the impact of other business related expenditure drivers, such as the number of customers. In running the opex model for this review we assumed that unit labor costs would increase at a level of 0% per annum in real terms. This is discussed in some detail in Sections 3.7.2 of the expenditure report.

At the public consultation Meralco argued that the assumption that it could hold unit labor costs to 0% real through the second regulatory period was unrealistic and submitted that a real increase in unit labor costs of 2% should be allowed.

3.6.2 Analysis

Section 3.7.2 of the expenditure report discusses this issue in some detail, and Meralco has not provided any substantive new information to support its position. We note that the ERC is taking a firm position on labor costs and that no provision was made for real increases in labor costs in the TransCo PBR rate determination.

We modeled the impact of Meralco's proposed 2% real increase in labor rates on its required opex and found that it would increase the requirement by 3.4% in 2008 rising to 8.8% in 2011. In order to fund this increase, we estimated that electricity rates would need to increase in real terms by 1.4 centavos in 2008 and further increase to 3.3 centavos in 2011. Increases to counter the effect of inflation on Meralco's operations (including the effect of inflation on labor costs) would be additional.

In Section 3.7.2 of the expenditure report we acknowledged that it may be difficult for Meralco to keep its in-house labor rates constant in real terms given the expectations of staff and the predictions of economic forecasters that labor rates will rise. However, it is clear from the above analysis that labor costs must be kept under control if the industry is to achieve the objective of containing price levels while at the same time ensuring that industry participants obtain a fair return on their investment. At present it appears that businesses are subsidizing labor costs (through accepting unrealistically low rates of return) and Meralco is now suggesting that this responsibility be passed to customers.

In the expenditure report we noted that Meralco has other options available to control labor costs, even if wages and salaries continue to rise in real terms. The problem that Meralco currently faces in addressing labor costs is not new and has occurred in most countries where significant industry restructuring has taken place. Typical responses to this problem include introducing more effective business and asset management processes, reducing in-house staff numbers and increased outsourcing of operations.

3.6.3 Conclusion

We recommend that the existing 0% real change in unit labor costs, as modeled for the expenditure report should not be changed.

¹⁸ Excluding the impact of inflation.

3.7 BAD DEBTS**3.7.1 Background**

The draft determination identified a total reduction in Meralco's forecast opex for bad debt recoveries of PhP 544 million. This was consistent with Section 3.7.4 of the expenditure report, which recommended the reduction on the basis that Meralco's forecast for bad debts was the gross provision for bad debt recoveries. The expenditure report argued that the forecast should be the net provision as the actual bad debt recoveries should be treated as revenue in the year the debts were recovered.

Meralco submitted that the bad debt provision in the forecast was actually the net provision for bad debts and allowed for expected recoveries. The net provision was calculated on the basis of 3% of the forecast accounts receivables ending balance, which in turn was calculated to be 7% of forecast yearly revenue. This methodology was based on historical averages. Following the public consultation, Meralco provided a spreadsheet showing the actual position in 2006 and the basis for its forecast revenue requirement.

3.7.2 Analysis

We accept Meralco's position that the bad debt provision in its opex forecast was actually a net provision and we accept that its forecasting methodology is reasonable. However our review of the supporting spreadsheet revealed a "creep" in the forecast in that, while the net bad debt provision in 2006 was 3.16% of accounts receivable, in 2011 the provision was 3.48%. By 2011 the difference between Meralco's forecast and an amount calculated as 3% of accounts receivable was PhP 110 million, an amount we consider material for a single line item.

We have therefore undertaken our own analysis of an appropriate adjustment based on the revenue forecast provided by Meralco and its stated forecasting methodology. This analysis is shown in Table 3.2 below. In our view this analysis still favors Meralco, since the revenue forecast that underpins the analysis is based on Meralco's revenue application rather than the revenues approved by the ERC. However we have taken the view that this is a second order impact and not material.

Table 3.2: Provision for Bad Debts (PhP million real)

	2008	2009	2010	2011
Revenue application forecast	520.89	598.70	700.08	800.92
Bad debt recovery reduction	110.00	126.00	144.00	164.00
Net bad debt provision in draft determination	410.89	472.70	556.08	636.92
A/R ending balance	15,802.59	17,676.00	20,158.44	23,021.65
3% of A/R	474.08	530.28	604.75	690.65
Adjustment	63.19	57.58	48.67	53.73

3.7.3 Conclusion

We recommend the opex provision in the draft determination be adjusted as shown in Table 3.2 to increase the bad debt provision in the forecast.

3.8 EMPLOYEE PENSIONS AND BENEFITS

3.8.1 Background

At the public consultation Meralco advised that it had made an error in its forecasted provision for employee pensions and benefits. As a result of this error the opex forecast was understated by PhP 786 million. Meralco also based its forecast employee pension requirement on an actuarial valuation dated 25 February 2005, which was based on December 2004 data. However Meralco has had a subsequent actuarial valuation based on December 31 2006 data, which indicates an even higher provision is warranted Meralco therefore submits that the forecast should be increased by PhP 1,769 million to account for this error. Meralco therefore submitted at the public consultation that these adjustments should be reflected in the final determination on the revenue application.

3.8.2 Analysis

After the public consultation we asked Meralco to provide a breakdown of its forecast opex, before and after the requested adjustment, for the line item "employee pensions and benefits". The reason for this was to establish how Meralco considered the lump sum information provided at the public consultation should be reflected in the annual expenditure forecast. However the "after" information provided was based on a further actuarial valuation undertaken in August 2007. We are unable to reconcile the figures provided in the spreadsheet with the lump sum figures provided at the public consultation. It is not clear to us whether the August 2007 actuarial valuation increased or decreased Meralco's position at the public consultation.

The impact of the additional revenue that Meralco is seeking is substantial. The total forecast pension reserve requirement submitted after the public consultation represents an *increase* of PhP 6.71 billion (real) over the total second regulatory period, almost twice the *total* requirement of PhP 3.84 billion (real) included in Meralco's revenue application¹⁹. This increase also represents 39% of the total forecasted administration and general expenses in Meralco's revenue application. It is not realistic of Meralco to expect us to recommend approval of an increase of this magnitude on the basis of the limited information provided, particularly when Meralco has not explained in detail the relationship between the final requested increase of PhP 6.71 billion (over the full regulatory period) and the additional lump sum of PhP 2.645 billion submitted at the public consultation.

Nevertheless we have some sympathy with Meralco, since the fact that we believe that its requested increase is excessive does not mean that the request is completely without merit. In particular we do not think that Meralco should be penalized simply because it made an error in submitting its application. If this error was made only over the second regulatory period, and not reflected in the (estimated) 2006 figures submitted in the revenue application, we could have discounted its impact since, as discussed above, our modeling to determine a reasonable base opex depended only on Meralco's 2006 base and did not use Meralco's submitted regulatory period forecast.

However this does not appear to be the case. In the information submitted to the ERC following the public consultation, Meralco advised that its actual expenditure on employee pensions and benefits in 2006 was PhP 2,312.80 million, whereas the amount included in its revenue application was PhP 1,252.58 million²⁰. Our recommended adjustment has been derived by assessing the impact of the difference of PhP 1,060.22 million on the

¹⁹ The breakdown of forecast costs in the line item "Employee Pension and Benefits" was not provided in the revenue application but was provided to the ERC following the public consultation. The total requirement of PhP 3.84 billion was taken from this information.

²⁰ Meralco has not advised the proportion of the 2006 employee pensions and benefits expenditure in its revenue application was allocated to pension reserve. We have therefore used the total employee pensions and benefits expenditure for this analysis. Since the adjustment was calculated on the basis of the difference in the actual 2006 employee pensions and benefits payment, this should not introduce a material error.

forecast using our opex forecast model. We think this is fair to Meralco. It also maintains the integrity of our regulatory review by maintaining the top down analysis methodology. As shown in Table 3.3 below, our total recommended adjustment over the four-year regulatory period is PhP 4.85 billion, which is a reduction of 28% on the amount proposed by Meralco.

Table 3.3: Employee Pensions and Benefits (PhP million real)

	2008	2009	2010	2011
Revenue application forecast	1,448.57	1,595.01	1,757.70	1,937.47
Revised submission	2,857.31	3,291.34	3,246.85	3,611.83
Requested adjustment	1,408.74	1,696.33	1,489.15	1,674.36
Proposed adjustment	1,137.61	1,188.81	1,236.30	1,286.87

3.8.3 Conclusion

We recommend that the opex forecast in the draft determination be adjusted as shown in Table 3.3 to reflect additional costs in funding employee pensions.