

GEOFF BROWN & ASSOCIATES LTD

**PERFORMANCE BASED RATE SETTING
REVIEW OF FORECAST CAPITAL EXPENDITURE FOR THE SECOND
REGULATORY PERIOD**

**CABANATUAN ELECTRIC CORPORATION
(CELCOR)**

Prepared for
ENERGY REGULATORY COMMISSION

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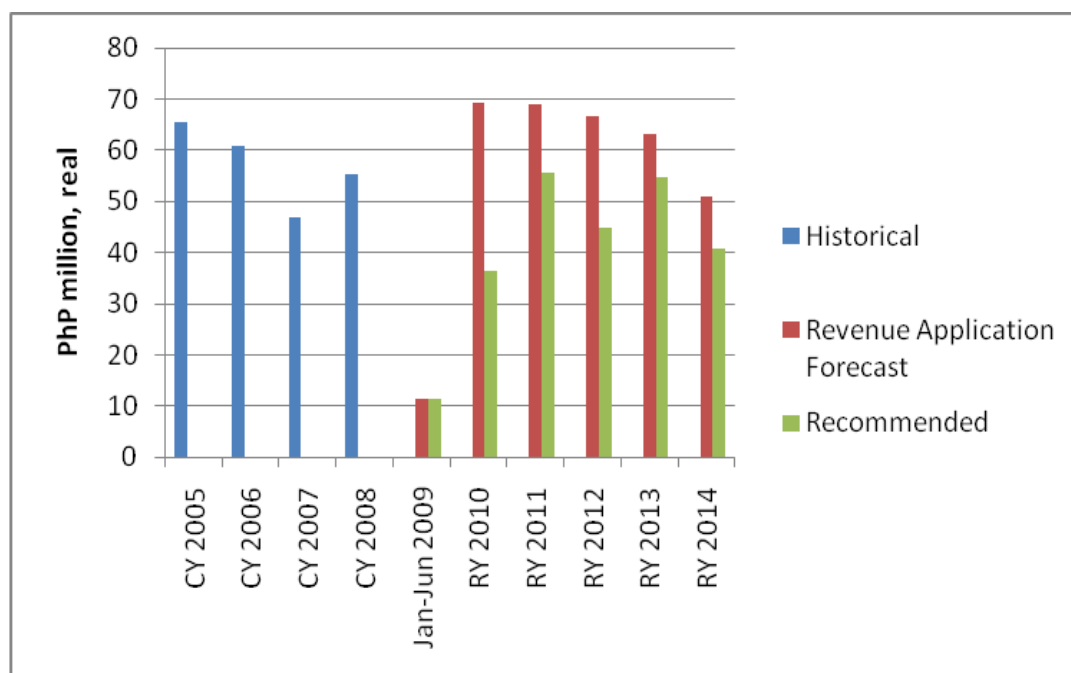
EXECUTIVE SUMMARY**TOTAL CAPEX**

A comparison of total our recommended total CAPEX with CELCOR's forecast for the period January 2009 to June 2014 is shown in the table below.

Comparison of CELCOR Forecast and Recommended CAPEX (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014	Total (RY 2011-14)
CELCOR Forecast	11.56	69.25	68.88	66.53	63.11	51.11	249.63
Recommended	11.56	36.52	55.73	44.97	54.70	40.71	196.11
Adjustment	-	(32.73)	(13.15)	(21.56)	(8.41)	(10.40)	(53.52)
Impact of Adjustment	-	(47%)	(19%)	(32%)	(13%)	(20%)	(21%)

A comparison of the recommended and forecast CAPEX with actual expenditure over the historical period CY 2005-08 is shown in the figure below.

Comparison of Forecast, Recommended and Historical Total CAPEX**MAJOR PROJECTS**

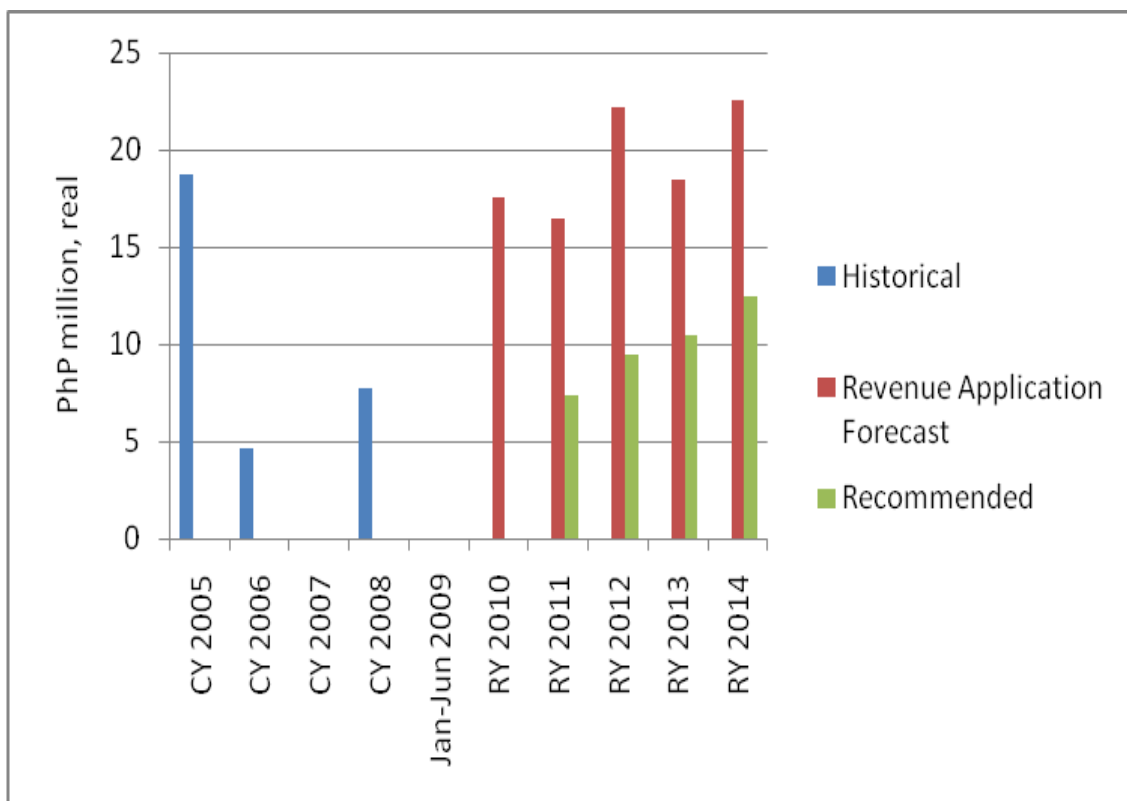
A comparison of our recommended total major project CAPEX with CELCOR's forecast for the period January 2009 to June 2014 is shown in the table below.

Comparison of Recommended CAPEX with CELCOR Forecast (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014	Total (RY 2011-14)
VECO Forecast	-	17.58	16.49	22.23	18.51	22.55	79.78
Recommended	-	-	7.41	9.47	10.45	12.49	39.82
Adjustment	-	(17.58)	(9.08)	(12.76)	(8.06)	(10.06)	(39.96)
Impact of Adjustment	-	(100%)	(55%)	(57%)	(44%)	(45%)	(50%)

A comparison of our recommended and CELCOR's forecast major project CAPEX with its actual major project expenditure over the historical period CY 2005-08 is shown in the figure below.

Comparison of Recommended and Forecast Major Project CAPEX



We made an initial reconciliation adjustment to CELCOR's forecast major project CAPEX since the forecast expenditure in the major project template submitted with the revenue application did not reconcile with the major project justifications provided. The most significant component of this adjustment was a reduction of PhP17.58 Million in RY 2010 because no justification or project sheet was provided to support this expenditure.

Unlike the major projects for other distribution utilities, which generally involve the construction or upgrade of major substations or sub-transmission lines, CELCOR's major projects focus on the distribution network. Each major project comprises a series of smaller sub-projects, which are designed to upgrade and rehabilitate different parts of the 13.8 kV primary distribution network and the 400 V secondary network. The upgrades to the 13.8 kV network are aimed at reducing technical losses and increasing the ability to move load around the network in the event of a fault. Upgrades to the 400 V network are also designed to reduce losses and can be expected to increase the voltage at load connection points, thereby improving the quality of supply delivered to customers.

We reviewed each sub-project and have recommended that those which, in our view, would not result in significant loss reductions or potentially improve the quality and reliability of supply be removed from the program.

We recommend no further adjustments (over and above the deletion of those sub-projects that we considered were not required) to CELCOR's program for upgrading its main feeder backbone lines. However, we recommend that the remaining expenditure on 13.8 kV lateral and secondary line upgrades be subject to a further reduction of 25%. The individual line upgrades in CELCOR's programs are each relatively small and to some extent discretionary. Hence, it should be possible for CELCOR to slow down the rate at which it implements the programs without having an immediate and material impact on either its quality of supply to customers or its total network losses. We envisage that, in response to this reduction, CELCOR will slow down its program implementation but not stop it completely. In recommending this reduction, we have refrained from specifying those sub-projects that should be deferred. It will be up to CELCOR to prioritize the different sub-projects and defer those that it considers less critical.

RESIDUAL RENEWAL CAPEX

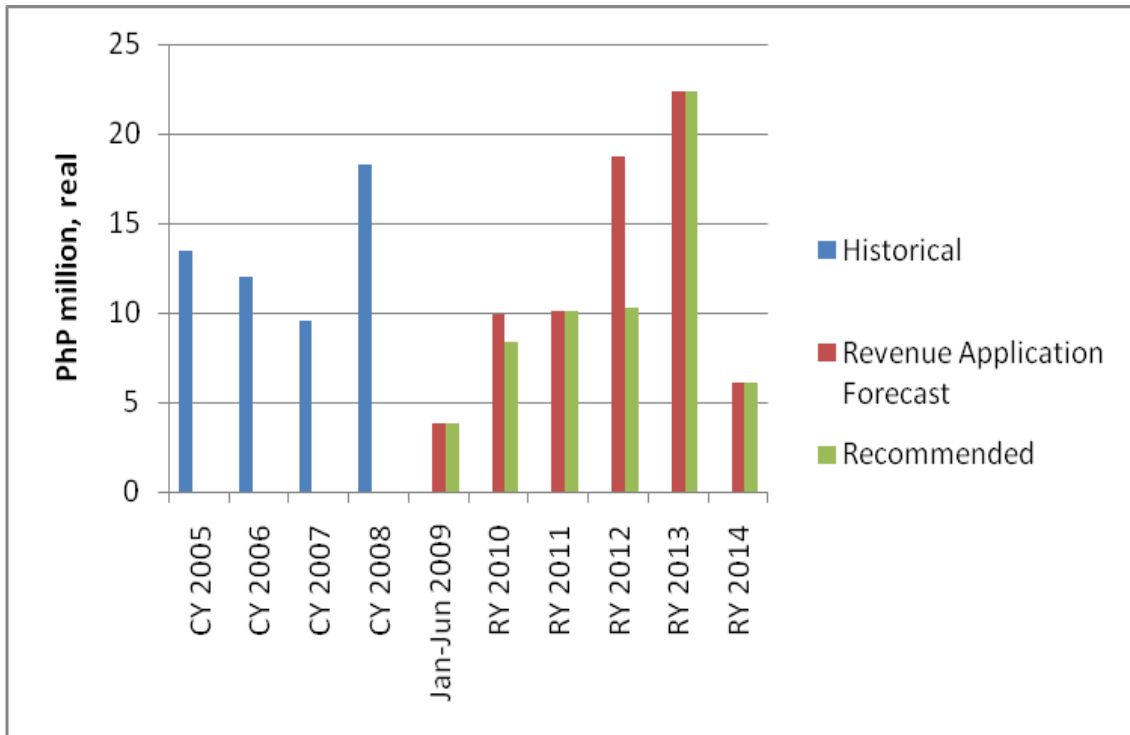
A comparison of our recommended residual renewal CAPEX with CELCOR's forecast for the period January 2009 to June 2014 is shown in the table below.

Comparison of CELCOR Forecast and Recommended Residual Renewal CAPEX (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014	Total (RY 2011-14)
CELCOR Forecast	3.87	9.91	10.10	18.73	22.36	6.09	57.28
Recommended	3.87	8.41	10.10	10.28	22.36	6.09	48.83
Adjustment	-	(1.50)	-	(8.45)	-	-	(8.45)
Impact of Adjustment	-	(15%)	-	(45%)	-	-	(15%)

A comparison of our recommended and CELCOR's forecast renewal CAPEX with its actual renewal expenditure over the historical period CY 2005-08 is shown in the figure below.

Comparison of Recommended and Forecast Residual Renewal CAPEX



CELCOR forecast a renewal expenditure on materials and supplies (including spares) of PhP1.50 Million in RY 2010, but no renewal CAPEX for this line item in other years of the forecast period. CAPEX on materials and supplies is directly related to an overall increase in the size of the inventory and CELCOR provided no explanation for such an increase in just one year. We therefore recommend that this expenditure be removed from the forecast.

The forecast renewal expenditure in RY 2012 on meters, instruments and metering transformers was significantly higher than in other years. As we see no reason for this, and as CELCOR provided no explanation, we recommend that the expenditure be adjusted down to the average level for the forecast period.

RESIDUAL GROWTH CAPEX

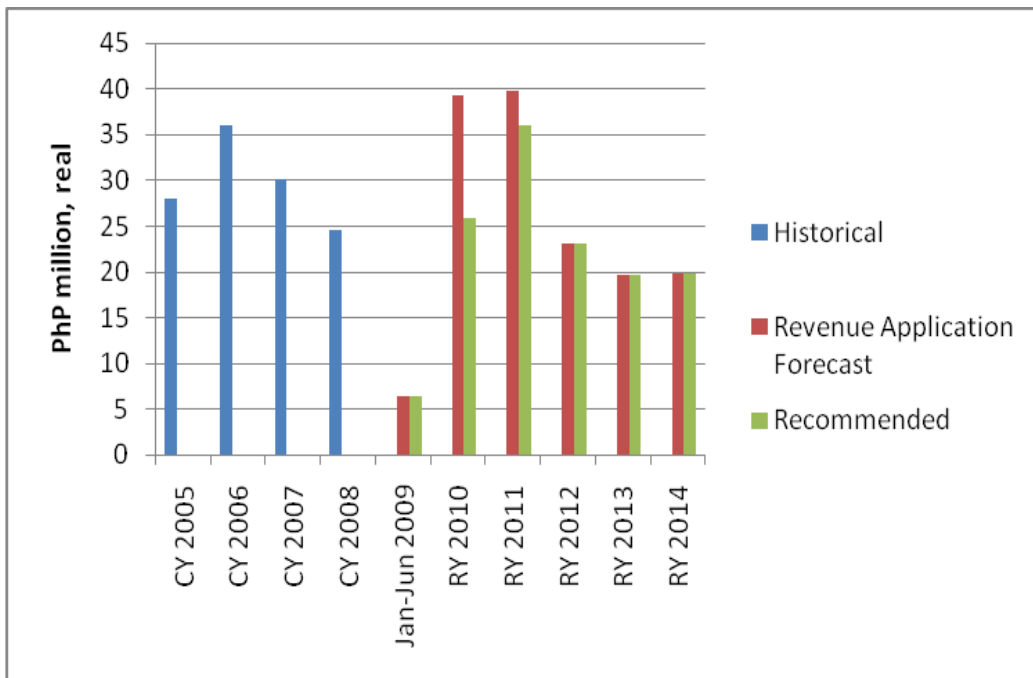
A comparison of our recommended residual growth CAPEX with CELCOR's forecast for the period January 2009 to June 2014 is shown in the table below.

Comparison of CELCOR Forecast and Recommended Residual Growth CAPEX (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014	Total (RY 2011-14)
CELCOR Forecast	6.44	39.27	39.80	23.08	19.75	19.85	102.48
Recommended	6.44	25.97	36.08	23.08	19.75	19.85	98.76
Adjustment	-	(13.30)	(3.72)	-	-	-	(3.72)
Impact of Adjustment	-	(34%)	(9%)	-	-	-	(4%)

A comparison of our recommended and CELCOR's forecast residual growth CAPEX with its actual residual growth expenditure over the historical period CY 2005-08 is shown in the figure below.

Comparison of Recommended and Forecast Residual Growth CAPEX



CELCOR forecast a growth expenditure on materials and supplies (including spares) of PhP9.58 Million in RY 2010, but no CAPEX on this line item in other years of the forecast period. CAPEX on materials and supplies is directly related to an overall increase in the size of the inventory and CELCOR provided no explanation for such a large increase in just one year. We therefore recommend that this expenditure be removed from the forecast.

We also recommend a reduction of PhP3.72 Million in RY 2010 and also in RY 2011 as the forecast growth CAPEX in these two years for the meters, instruments and metering transformers was approximately twice as high as the average annual expenditure in the remaining years of the forecast period.

RESIDUAL REFURBISHMENT CAPEX

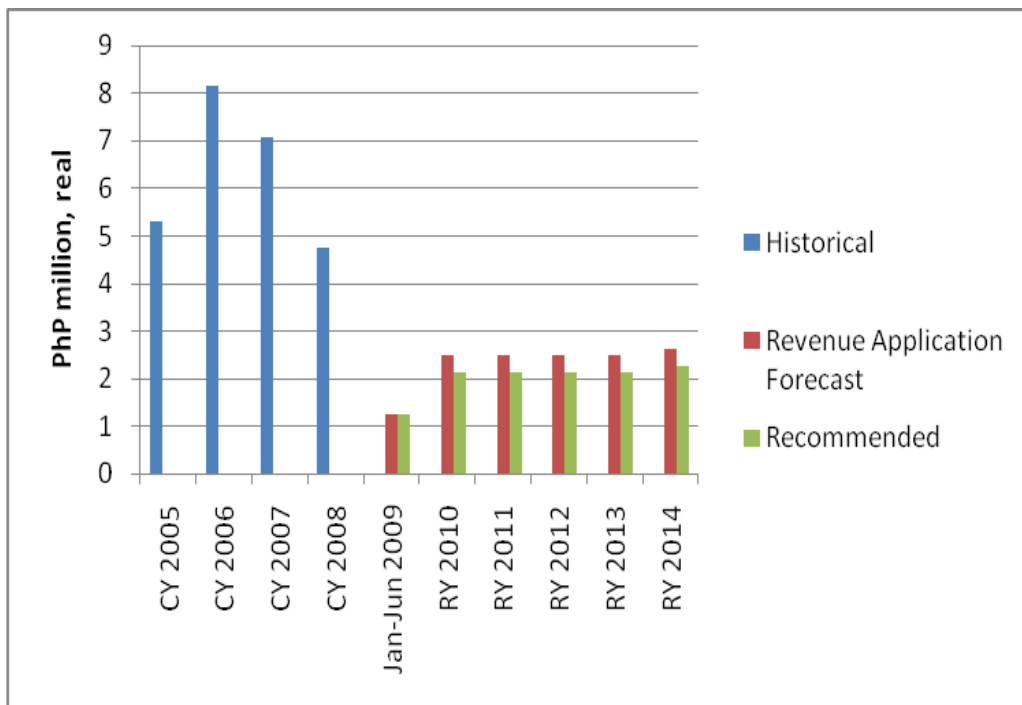
A comparison of our recommended total residual refurbishment CAPEX with CELCOR's forecast for the period January 2009 to June 2014 is shown in the table below.

Comparison of CELCOR Forecast and Recommended Residual Refurbishment CAPEX (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014	Total (RY 2011-14)
CELCOR Forecast	1.25	2.49	2.49	2.49	2.49	2.63	10.10
Recommended	1.25	2.14	2.14	2.14	2.14	2.28	8.70
Adjustment	-	(0.35)	(0.35)	(0.35)	(0.35)	(0.35)	(1.40)
Impact of Adjustment	-	(14%)	(14%)	(14%)	(14%)	(13%)	(14%)

A comparison of our recommended and CELCOR's forecast residual refurbishment CAPEX with its actual refurbishment expenditure over the historical period CY 2005-08 is shown in the figure below.

Comparison of Recommended and Forecast Residual Refurbishment CAPEX



We recommend a reduction in the refurbishment CAPEX for meters, instruments and metering transformers for the period RY 2010-14 as the forecast CAPEX was higher than the average CAPEX over the historical period, when measured in real terms.

1. INTRODUCTION

The Energy Regulatory Commission (ERC) is currently implementing a performance-based form of regulation (PBR) for investor owned electricity distribution utilities in the Philippines. Under the PBR framework a distribution utility will be subject to a cap on the average price that it may charge for the delivery of distribution wheeling services. This price cap is reset in advance of each four (4) year regulatory period using the building block approach described in the Rules for Setting the Distribution Wheeling Rate (RDWR), which was released by the ERC on December 8, 2008¹. It takes the form of a price path that specifies the maximum average price (MAP) that a regulated utility may charge in each year of the regulatory period.

The entry of distribution utilities into the PBR process has been staggered into four (4) entry points and the reset process for the setting of the price cap for the six (6) utilities entering the PBR at the third entry point is currently underway. This process will result in the setting of the price path for each utility for a regulatory period that commences on July 1, 2010 and terminates on June 30, 2014. This regulatory period is specified in the RDWR as the second regulatory period².

The ERC has published a Position Paper, also dated December 8, 2008, which sets out in some detail how the price reset process for the six (6) third entry point utilities will be undertaken³.

An important requirement of this reset process is the review of the capital expenditure (CAPEX) forecasts submitted by the investor owned utilities in the revenue applications that have been submitted in accordance with the requirements of the RDWR and the Position Paper. CAPEX over the second regulatory period will impact the size of the regulated asset base (RAB), which will in turn impact both the return on capital (profit) and return of capital (depreciation). Profit and depreciation form two of the building blocks in the price setting process specified in the RDWR.

Geoff Brown & Associates Ltd (GBA) has been engaged by the ERC to review the capital expenditure forecasts of the utilities that will enter PBR at the third entry point. These are:

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

In accordance with clause 4.12.4 of the RDWR, the objective of the review is to determine whether each capital expenditure forecast is:

- based on the best available prices obtainable from international markets;
- reasonably efficient from a design and implementation point of view;

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

² No first regulatory period applied to the six utilities entering PBR at the third entry point.

³ Regulatory Reset for the July 2010 to June 2014 Regulatory Period for Privately Owned Distribution Utilities subject to Performance Based Regulation, Position Paper, Energy Regulatory Commission, December 8, 2008.

- likely to support the forecast growth in connections, co-incident peak demand and energy delivered; and
- sufficient to allow the relevant utility to achieve or exceed the applicable target levels of performance.

This report presents GBA's review of the CAPEX forecast of Cabanatuan Electric Corporation (CELCOR). The forecast was submitted to the ERC as part of CELCOR's revenue and performance incentive scheme application (revenue application), on June 19, 2009.

In undertaking this review we have relied on the accuracy of the information provided to the ERC by CELCOR. During the clarificatory meeting process, we queried information that appeared to be incomplete, inconsistent or inaccurate. However, we did not undertake an audit or attempt to verify the information on which we relied. We therefore cannot be held responsible for any conclusions or recommendations based on misleading or inaccurate information provided to us.

2. NETWORK OVERVIEW

2.1 NETWORK DESCRIPTION

CELCOR takes its supply at 69 kV from the National Grid Corporation of the Philippines (NGCP) substation in the south of Cabanatuan city. This substation supplies one CELCOR-owned 69 kV line, which supplies two CELCOR-owned zone substations, Bitas and Barrera, each of which has a single 25 MVA power transformer. A FCVC⁴ generating station with a capacity of 18 MW is connected through a generator step up transformer of 25 MVA capacity to the end of 69 kV line at Bitas substation.

CELCOR's two power transformers convert electricity from 69 kV to 13.8 kV and supply a distribution network that is used to supply electricity to approximately 2000 distribution transformers located throughout its franchise area. The distribution transformers are used to convert the electricity from 13.8 kV to a low voltage level that is used to supply the majority of CELCOR's 49,500 customers.

While the above accurately describes the essence of the CELCOR's network the following features are of note.

- The 69 kV sub-transmission line is owned and maintained by CELCOR.
- The sub-transmission network does not have full 'n-1' capability. In the event of loss of the 69 kV line, customers will lose supply. The 18 MW power plant connected at the end of 69 kV line can be used as an alternative means of providing supply under contingency conditions but this power plant has insufficient capacity to fully supply all CELCOR's customers. The 25 MVA step-up transformer at the power station is owned by CELCOR.
- A revenue meter located at NGCP's 69 kV Cabanatuan substation measures the energy delivered to the CELCOR grid by NGCP.
- Since CY 2008, CELCOR has been sourcing all of its power from the NGCP substation. Due to high price of fuel, the 18 MW diesel power plant is normally not used by CELCOR to supply electricity and it is not clear whether it is currently operational.
- CELCOR has 15 customers connected at 13.8 kV. The normally-open interconnections at 13.8 kV network level provide partial 'n-1' capability between substations.
- In CY 2008, the maximum demand at Bitas substation was 14.97 MW and at Barrera substation it was 13.71 MW⁵.
- Network losses in 2008 were 11%.

2.2 CURRENT AND FORECAST ENERGY SALES AND DEMAND

Growth in peak demand is a key driver of CAPEX and the forecast growth in demand therefore underpins this review. If, for example, the ERC considers that the peak demand forecast in the revenue application is high, then some of the projects forecast for commissioning towards the end of the second regulatory period may not be required until after the start of the third regulatory period. CELCOR's revenue application forecast the network after diversity peak demand to grow from a peak demand of 28.68 MW in CY 2008 to 33.50 MW in CY 2014 and is shown in Table 2.2. This is an overall increase

⁴ FCVC stands for First Cabanatuan Ventures Corporation, Bitas Power Plant, Cabanatuan City

⁵ Table 5 Spreadsheet-CELCOR's Revenue Application

of 4.8 MW, corresponding to an average growth rate of 2.7% per year. At the same time, energy sales are forecasted to grow from 145.97 GWh in CY 2008 to 162.92 GWh in RY 2014, an average growth of 1.93% per year. Details are shown in Figure 2.1 and Table 2.1.

Figure 2.1: CELCOR's Actual and Forecast Energy Consumption

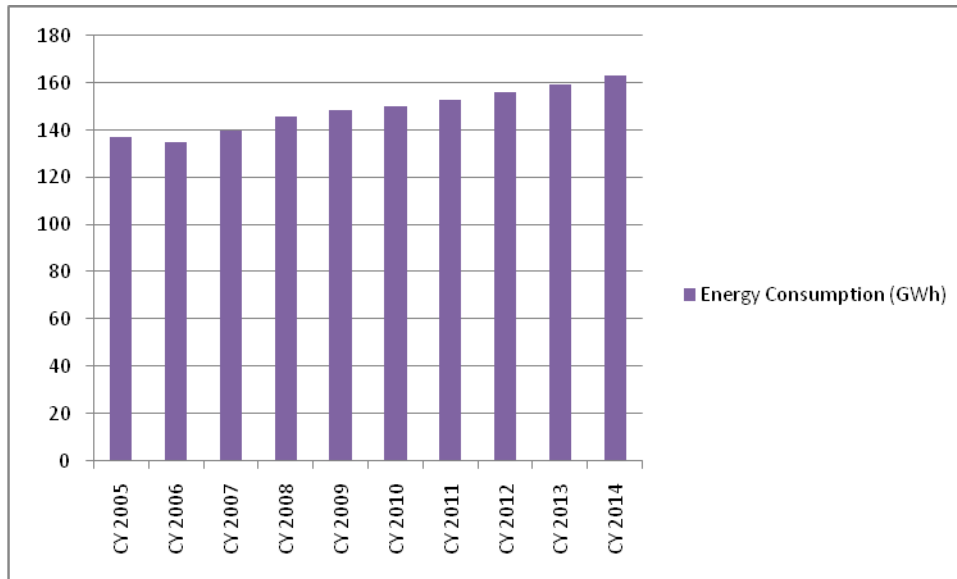


Table 2.1: Energy Consumption-Actual and Forecast

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Energy Consumption (GWh)										
Forecast –Revenue Application for regulated distribution system	137.05	135.11	140.03	145.97	148.38	150.10	153.04	156.28	159.29	162.92
Change compared to previous year	-	(1.42%)	3.64%	4.24%	1.65%	1.16%	1.95%	2.12%	1.93%	2.28%

The actual and forecast maximum demands for CELCOR are shown in Figure 2.2 and Table 2.2.

Figure 2.2: CELCOR's Actual and Forecast Maximum Demand

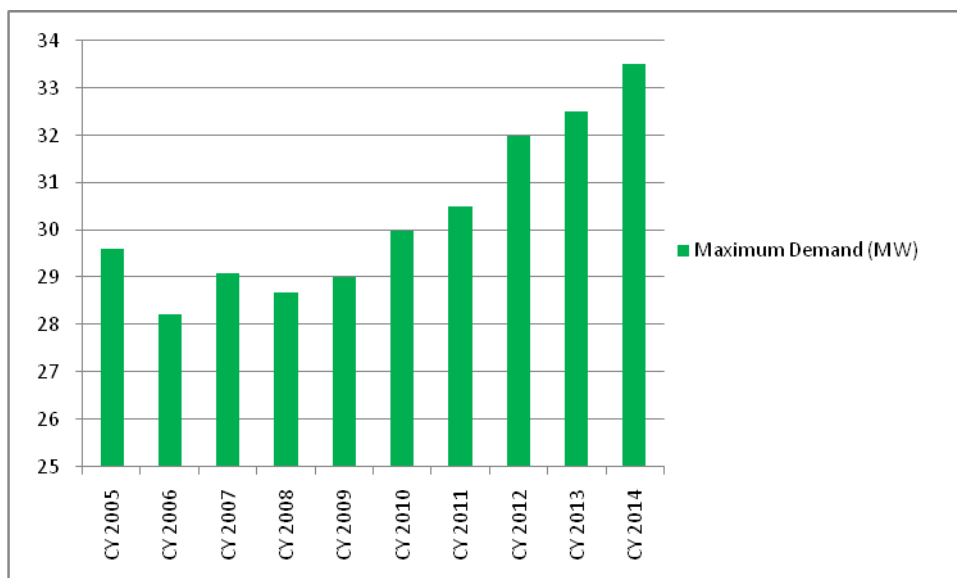


Table 2.2: Forecast Total Grid Point Maximum Demand (MW)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Forecast – Revenue Application for network	29.61	28.23	29.08	28.68	29.00	30.00	30.50	32.00	32.50	33.50
Change compared to previous year	-	(4.66%)	3.01%	(1.38%)	1.12%	3.45%	1.67%	4.92%	1.56%	3.08%

It can be seen from the above that while peak demand declined from 29.61 MW to 28.68 MW over the historical period 2005-08, energy use over that time actually increased from 137.05 GWh to 145.97 GWh. The figures also indicate that the volatility of demand from year to year is greater than that of energy. We further note from Figure 2.1 that there was an apparent surge in energy use between 2007 and 2008 to the extent that the average growth rate as measured over the period 2005-08 (2.0%) may not be sustained over the longer term.

We believe that over time, assuming no sustained change in the pattern of energy use, the growth rates of energy and demand are likely to be similar. Hence we consider that the reduction in demand growth experienced between 2005 and 2008 is an anomaly that should correct itself before the end of the second regulatory period.

CELCOR's demand forecast is consistent with an average growth in demand of 1.4% over the period of interest 2005-14. This is somewhat lower than the energy growth rate over the period 2005-08, which as noted above may be high, due to the surge in energy use experienced between 2007 and 2008. Overall we consider CELCOR's forecast demand in 2014 to be reasonable and an acceptable basis for this review.

2.3 NETWORK UTILIZATION

The extent to which the existing network is utilized is also relevant to the required CAPEX since if the network is lightly utilized then proposed CAPEX can be deferred until demand growth has used up existing spare capacity.

A network that is over-utilized is normally unable to provide a reasonable reliability of supply. On the other hand networks that are under-utilized are economically inefficient because they include excess assets that must be paid for by customers. Hence determining the appropriate level of network utilization requires reliability to be balanced against economic efficiency. Table 5.1 of the Position Paper specifies the level of security that may be allowed for in network design and permits the 69 kV sub-transmission network and the zone substations to have a level of security of 'n-1'. We interpret this to mean that, following the loss of any one sub-transmission line or zone substation transformer at peak load, sufficient redundant capacity may be built into the network to allow supply to be restored following network reconfiguration and utilizing any embedded generation that may reasonably be expected to be available.

2.3.1 Utilization of Power Transformers

The 69/13.8 kV power transformers currently on the CELCOR's network are shown in Table 2.3.

Table 2.3: Existing Transformer Capacity

Substation	Transformers	Total Capacity (MVA)
Bitas (69/13.8 kV)	1 x 20/25 MVA	25
Barrera (69/13.8 kV)	1 x 20/25 MVA	25
Barrera (69/13.8 kV) (Generating unit step-up transformer)	1 x 20/25 MVA	-
Total		50

Source: SKM's Regulatory Asset Valuation Report for CELCOR, Dated 24 April 2009.

We have not considered the generator step up transformer in this analysis as it cannot directly supply CELCOR's load, which is all connected at 13.8 kV and below. Should CELCOR lose one of its 25 MVA transformers it will be unable to supply its current load of 30.2 MVA (assuming a power factor of 0.95) much less the forecast 2014 load of 35.3 MVA.

2.3.2 Utilization of the Distribution Network

The maximum demand that CELCOR will be able to supply in the event of the loss of one of its power transformers depends on its ability to use the distribution network to transfer load between its two substations. Such load transfers are only possible if there is spare capacity at the 13.8 kV distribution voltage level. To provide some indication of this power transfer capability, we have assessed the level of distribution network utilization by calculating the total capacity of the distribution network (at the connection point of each feeder) and comparing this with the network peak demand.

Tables 4.16 – 4.18 of the SKM Asset Valuation Report⁶ show that there are a total of seven (7) distribution feeders. The 13.8 kV feeder 23BR4 at Barrera substation uses AWG #2/0 aluminum core steel reinforced (ACSR) conductors with 6.45 MVA thermal capacity. The remaining feeders use 336.4 MCM ACSR conductors with a power transfer capacity of 12.31 MVA. Hence the total capacity of 13.8 kV network is more than 80.3 MVA. Based on the forecast peak demand, the utilization of the 13.8 kV network in 2014 will be 43.9%, which indicates that a significant proportion of the load can potentially be transferred between substations should a contingency arise.

2.3.3 Utilization of the 69 kV Sub-transmission Network

The 69 kV sub-transmission line is 7.56 km long and consists of 336.4 MCM ACSR conductor having a thermal capacity of 61.55 MVA. CELCOR owns and maintains the entire 69 kV line from NGCP's Cabanatuan substation to the Barrera substation and from Barrera substation to the Bitas substation. As per Table 4.9 of SKM's Asset Valuation Report, the maximum loading on the 69 kV line in CY 2008 was 29 MVA. In RY 2014 the maximum forecasted load is 35 MVA and therefore the existing 69 kV sub-transmission line has sufficient capacity for the second regulatory period. However, the sub-transmission network does not have an 'n-1' capability but this a function of its configuration rather than its loading.

The 18 MW power plant owned by FCVC is an alternative means of partially supplying electricity in the event of loss of NGCP supply, although we understand that the power station may not be operational at this time.

⁶ Sinclair Knight Merz (SKM), *Performance Based Regulation – Third Entry Point: Asset Valuation. Cabanatuan Electric Corporation. Valuation Date 31 December 2008; 24 April 2009*

3. OVERVIEW OF HISTORICAL AND FORECAST EXPENDITURE

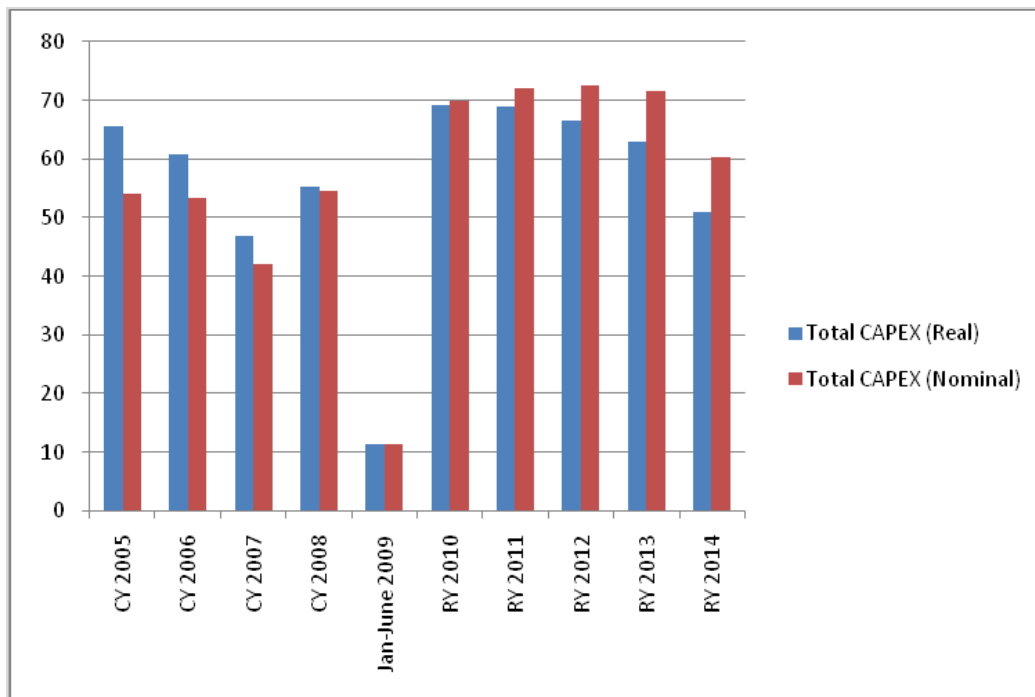
CELCOR's historical and forecast total CAPEX, as presented in its revenue application, is shown in Table 3.1 below. In its revenue application template CELCOR did not explicitly show expenditure for CY 2009. Instead it showed expenditure for Jan-Jun 2009 and included the expenditure for Jul-Dec 2009 in RY 2010. Hence expenditure in the overlap period between CY 2009 and RY 2010 was not shown twice.

Table 3.1: Total Historical and Forecast CAPEX (PhP Million)

	Historical (Calendar Year)					Forecast (Regulatory Year)				
	2005	2006	2007	2008	Jan-Jun 2009	2010	2011	2012	2013	2014
PhP nominal	54.07	53.34	42.14	54.53	11.56	69.90	72.03	72.50	71.53	60.24
PhP real	65.53	60.94	46.84	55.41	11.56	69.25	68.88	66.53	63.11	51.11

This historical and forecast CAPEX is also shown graphically in Figure 3.1 below.

Figure 3.1: Total Historical and Forecast CAPEX (PhP Million)



An examination of the information above indicates that the base year for conversion from real to nominal is 2009. In this year real and nominal CAPEX are identical. For prior years nominal CAPEX is less than the same expenditure expressed in real terms while in subsequent years it is vice versa. This is to be expected in situations where the real value of the PhP depreciates over time. In this report all expenditures are expressed as PhP real, unless otherwise stated, in order to remove the impact of this depreciation on the analysis.

For CELCOR and all third entry point utilities the regulatory year starts on 1 July and finishes on 30 June. RY 2010 denotes the regulatory year ending 30 June 2010.

It can also be seen that, in real terms, budgeted and forecast CAPEX is generally higher over the period RY 2010-14 compared to historical years CY 2005-08. At the clarificatory meeting, CELCOR indicated that it did not have sufficient funds during the historical

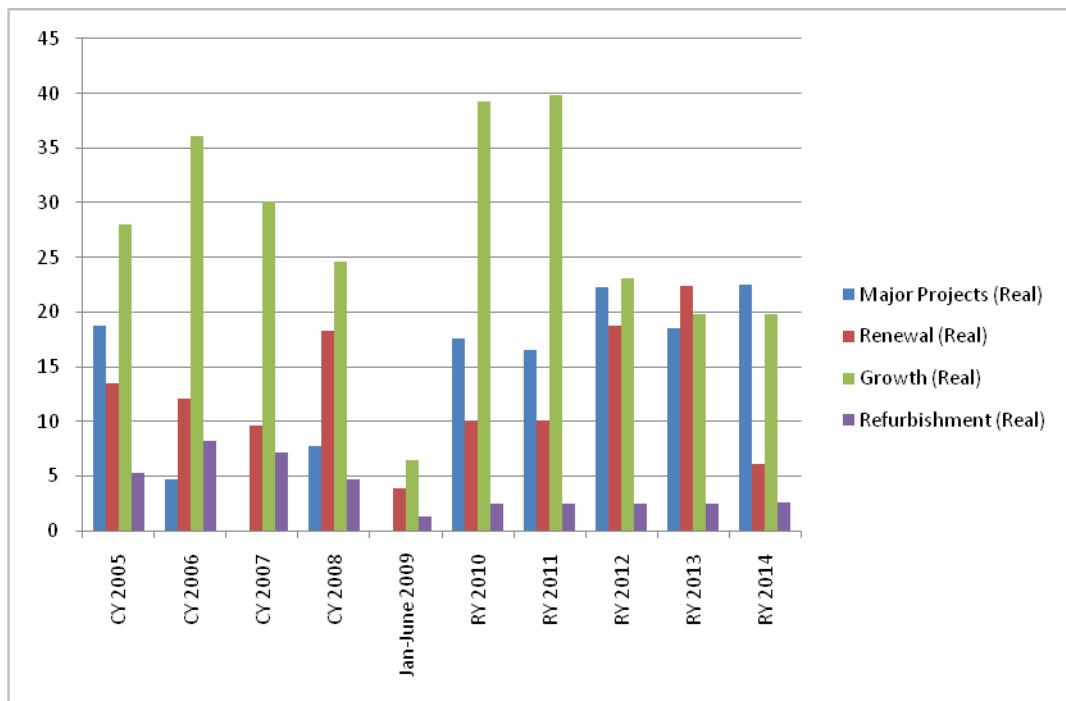
period and therefore CAPEX was constrained. In the second regulatory period CELCOR has forecast major CAPEX for overhead line refurbishments and upgrades.

The breakdown of the revised historical and forecast expenditure into ERC's standard expenditure categories is shown below in Table 3.2 and Figure 3.2.

Table 3.2: Breakdown of Forecast Expenditure (PhP Million, real)

	Historical (Calendar Year)				Jan-Jun 2009	Forecast (Regulatory Year)				
	2005	2006	2007	2008		2010	2011	2012	2013	2014
Major Projects	18.78	4.64	-	7.75	-	17.58	16.49	22.23	18.51	22.55
Renewal	13.48	12.05	9.61	18.26	3.87	9.91	10.10	18.73	22.36	6.09
Growth	27.98	36.09	30.13	24.65	6.44	39.27	39.80	23.08	19.75	19.85
Refurbishment	5.30	8.15	7.09	4.74	1.25	2.49	2.49	2.49	2.49	2.63

Figure 3.2: Breakdown of Forecast Expenditure (PhP Million, real)



An analysis of Table 3.2 indicates that the average annual total CAPEX for the period RY 2010-14 was 11.5% higher than the historical period CY 2005-08. This was due primarily to a 149.8% increase in the average annual major project CAPEX, which was not fully offset by a 10.3% reduction in the average annual residual CAPEX.

4. MAJOR PROJECT EXPENDITURE

4.1 INTRODUCTION

We were unable to fully reconcile the major CAPEX template with the costs in the individual project sheets provided to support this expenditure. In order to reconcile the template with the project sheets we have made an initial reconciliation adjustment as shown in Table 4.1.

Table 4.1: Reconciliation Adjustment (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Major Project Template	-	17.58	16.49	22.23	18.51	22.55
Project Sheets						
Upgrading of distribution network feeder backbone	-	-	9.36	3.73	0.00	18.24
Upgrading of distribution network lateral lines	-	-	6.98	3.98	8.68	1.63
Upgrading and rehabilitation of distribution network secondary lines	-	-	4.49	12.12	10.76	0.00
Total	-	-	20.82	19.83	19.44	19.87
Reconciliation adjustment		(17.58)	4.33	(2.40)	0.93	(2.68)

It can be seen from Table 4.1 that CELCOR's total forecast major project expenditure, as presented in the project sheets, over the period RY 2010-14 is PhP79.95 Million as against PhP97.35 Million given in the CAPEX template⁷. CELCOR did not provide any justification for its major project CAPEX in RY 2010 and therefore we had no option but to remove this expenditure from our recommended CAPEX.

In the major project review we have used the values from the major project justification sheet as reference and made adjustments accordingly.

Unlike the major projects for other distribution utilities, which generally involve the construction or upgrade of major substations or sub-transmission lines, CELCOR's major projects focus on the distribution network. Each major project includes a series of smaller sub-projects, which are designed to upgrade and rehabilitate different parts of the 13.8 kV primary distribution network and the 400 V secondary networks. The upgrades to the 13.8 kV network are aimed at reducing technical losses and increasing the ability to move load around the network in the event of a fault. Upgrades to the 400 V network are also designed to reduce losses and can be expected to increase the voltage at load connection points, thereby improving the quality of supply delivered to customers.

4.2 DISTRIBUTION NETWORK FEEDER BACKBONE (RY 2011, RY 2012, RY 2014)

This project includes the replacement of old wooden pole structures and upgrading of conductors on 13.8 kV feeder backbones at a total cost of PhP31.33 Million. The project has six sub-projects, as shown in Table 4.2, which will be commissioned progressively over the period RY 2011 to RY 2014. As per the information in CELCOR's revenue application, the feeder backbone sections to be upgraded use smaller, lower capacity conductor and therefore limit CELCOR's ability to transfer loads from other feeders or substations during faults or maintenance. As per Table 4-4 of SKM's Asset Valuation Report, the maximum load on the 23BR4 feeder is 4.39 MVA in CY 2008 and is forecast to grow to a maximum 4.8 MVA in RY 2014⁸. From this it can be seen that CELCOR proposes to upgrade all the conductors from AWG # 2 ACSR (4.18 MVA) or AWG #2/0 ACSR (6.45 MVA) to 336.4 MCM ACSR with a capacity of 12.31 MVA except for one line section in BB005.

⁷ The CAPEX template is a part of CELCOR's revenue application

⁸ Based on CELCOR's forecast peak demand in 2014.

Table 4.2: Details of Proposed 13.8 kV Primary Feeder Upgrades

Primary Line	Existing		Proposed		Commissioning Year
	Conductor (AWG)	Length (km)	Conductor (AWG)	Length (km)	
San Josef Norte to Sumacab sur (BB001)	2/0	3.39	336.4	3.40	RY 2011
	2	1.63	336.4	1.63	RY 2011
Sanciangco Extension to Jollibee Circumferential (BB002)	2, 2/0	2.52	336.4	2.93	RY 2011
City proper (Melencio Street, General Luna and Gabaldon Street) (BB003)	2/0	0.97	336.4	0.97	RY 2012
City proper (From General Tinto to Sanciangco Mc Donald) (BB004)	2/0	1.59	336.4	1.59	RY 2012
Barangay Sumacab Este (BB005)	2	0.25	2/0	1.15	RY 2012
Felipe Vergara Highway (BB006)	2	0.17	336.4	9.41	RY 2014

As per CELCOR's single line diagrams, the primary feeders shown in Table 4.2 are interconnected with other main feeders from Barrera and Bitas substation. Therefore under contingency situations the primary feeders in Table 4-2 should have sufficient capacity to supply additional loads. We consider that CELCOR should plan for a feeder capacity of twice the maximum load forecasted on any of the feeders, based on the fact that it has only two substations and thus requires sufficient capacity in the distribution network to transfer load from one substation to another in the event of a sustained failure of a power transformer. The maximum load on 23BR4 feeder is 4.34 MVA in RY 2014 and twice this load is 8.68 MVA. A 336.4 MCM ACSR conductor is rated for 12.3 MVA and we see this as an appropriate size.

We consider that CELCOR should proceed with all of the above sub-projects, except for BB002. Sub-project BB002 is a normally open interconnection between main feeders 25BR4 and 22BR4. Our view is that for an 'n-1' condition there will be sufficient interconnection capacity after the above conductor upgrades are completed and an additional interconnection, as shown in the CELCOR's single line diagram, is not required. Hence we consider that this sub-project BB002 can be deferred until after the second regulatory period.

For project BB006, 4.452 km of the proposed line is used only to connect a new customer and does not require 336.4 MCM conductor as this section of line is not a part of any interconnection. We therefore recommend that the forecast CAPEX for this project be reduced by PhP4.50 Million.

Our recommended adjustments to CELCOR's forecast expenditure for upgrading feeder backbone lines are shown in Table 4.3.

Table 4.3: Adjustments to Cost of Upgrading of Feeder Backbones (PhP Million, real)

Sub-project Number	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
BB001			5.91			
BB002			3.46			
BB003				1.25		
BB004				1.58		
BB005				0.91		
BB006						18.25
Recommended Adjustments						
BB002			(3.46)			
BB006						(4.50)

4.3 UPGRADING OF DISTRIBUTION NETWORK LATERAL LINES (RY 2011, RY 2012, RY 2014)

This project involves the replacement of old wooden pole structures, reducing sags, line extensions, conversion from 1 phase to 3 phase and upgrading of conductors on 13.8 kV lateral lines. The total cost for this project is PhP22.39 Million and this project has 19 sub-projects, as shown in Table 4.4. The commissioning of these sub-projects is spread over the period RY 2011-14.

It can be seen from Table 4.4 that CELCOR proposes to upgrade all the conductors from AWG # 2 ACSR (rated at 4.18 MVA) to AWG #2/0 ACSR (rated at 6.45 MVA) or 336.4 MCM ACSR rated at 12.31 MVA.

Table 4.4: Details of Proposed Lateral Lines Primary Feeder Upgrades

Primary Line	Existing		Proposed		Completion
	Conductor (AWG)	Length (km)	Conductor (AWG)	Length (km)	
From Ibabao Bana to Polilio (LL001)	2	5.88	2/0	5.88	RY 2011
Mabini Homesite (LL002)	2	1.65	2/0	1.65	RY 2011
Cecilio Street, Magsaysay Norte (LL003)	2	0.80	2/0	0.80	RY 2011
Melencio Street (Portion) (LL004)	2	0.58	2/0	0.58	RY 2011
Mabini Street (LL005)	2	0.67	2/0	0.67	RY 2011
Burgos Street (LL006)	2	0.49	336.4	0.49	RY 2011
Gabaldon Extension(LL007)	2	0.44	2/0	0.44	RY 2011
Batangay Talipapa (LL008)	2	1.80	2/0	2.41	RY 2012
Batangay Accfa, Imelda and MS Garcia (LL009)	2	2.47	2/0	1.65	RY 2012
			2	0.82	
Barangay Caudillo (LL010)	2	1.83	2/0	1.83	RY 2012
Hinukay, Mayayap Sur (L011)	2	0.94	2/0	1.61	RY 2012
Barangay Kalikid Sur to Norte (LL012)	2	2.89	2/0	3.43	RY 2013
Barangay Lagare (LL013)	2	5.23	2/0	5.24	RY 2013
From Cinco-Cinco to Embuscado (LL014)	2	3.61	2/0	3.61	RY 2013
Barangay Pagas (LL015)	2	1.61	2/0	2.42	RY 2013

Primary Line	Existing		Proposed		Completion
	Conductor (AWG)	Length (km)	Conductor (AWG)	Length (km)	
Barangay Bonifacio to San Jose Norte (LL016)	2	0.68	2/0	1.17	RY 2013
Barangay Daan Sarlie (LL017)	2	1.47	2/0	1.72	RY 2013
Barangay Valle Curz (LL018)	2	3.48	2/0	3.48	RY 2014
Barangay Pangatia (LL019)	2	1.34	2/0	1.60	RY 2014

CELCOR's single line diagrams indicate that the line sections shown in Table 4.4 are used to distribute electricity from primary feeders. Our view is that CELCOR should be allowed to upgrade its main lateral lines primarily because it will help reduce its technical losses. The technical losses in CELCOR's distribution network in CY 2008 were 10.96%, significantly higher than the 8.5% loss cap allowed by the ERC.

Notwithstanding this, we consider that CELCOR should not proceed with project LL09 as this upgrade consists of a section that is normally open. Our review of the single line diagram indicates that the network will have sufficient capacity to cater for contingency situations if the other upgrades recommended in this review are completed.

We also consider that conductor upgrades for LL001 and LL013 are not needed at this time as the existing loading on these line sections is low and CELCOR's single line diagram does not show any interconnection to these lines. The technical loss reduction due to upgrades of LL001 and LL013 conductors will not be significant so we consider these two sub-projects should be removed. We recommend the forecast expenditure for the project be reduced by PhP4.96 Million for the removal of LL001 and PhP2.09 Million for the removal of LL013.

The remaining 16 proposed line upgrades are each relatively small and to some extent discretionary. That is, it will be possible for CELCOR to slow down the rate at which it implements this program without having an immediate and material impact on either its quality of supply to customers or its total network losses. Since there is a need for the ERC to be cognizant of the impact of discretionary CAPEX on the price paid by customers, we recommend that the remaining CAPEX in this program be reduced by 25%. We envisage that, in response to this reduction, CELCOR will slow down the rate at which it implements this program but not stop it completely. In recommending this reduction, we have deliberately not specified those sub-projects that should be deferred. It will be up to CELCOR to prioritize the different sub-projects and defer those that it considers less critical.

Our recommended adjustments to project costs are shown in Table 4.5.

Table 4.5: Adjustments to Cost of Upgrading Lateral Lines (PhP Million, real)

Sub-project Number	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
LL001			4.96			
LL002			0.82			
LL003			0.24			
LL004			0.16			
LL005			0.19			
LL006			0.38			
LL007			0.22			
LL008				1.62		
LL009				1.07		
LL010				1.29		
LL011					1.09	
LL012					1.46	
LL013					2.09	
LL014					1.57	
LL015					1.17	
LL016					0.56	
LL017					0.74	
LL018						1.63
LL019						1.13
Total			6.97	3.98	8.68	2.76
Recommended Sub-project Adjustments						
LL002			(4.96)			
LL009				(1.07)		
LL013					(2.09)	
Revised Project Cost			2.01	2.91	6.59	2.76
Discretionary Adjustment			(0.50)	(0.73)	(1.65)	(0.69)
Recommended Forecast			1.51	2.18	4.94	2.07
Total Recommended Adjustments			(5.46)	(1.80)	(3.74)	(0.69)

4.4 UPGRADING AND REHABILITATION OF SECONDARY LINES (RY 2011, RY 2012, RY 2013, RY 2014)

CELCOR proposes to rehabilitate low voltage secondary lines of its distribution network due to customer growth and the replacement of damaged structures. CELCOR has estimated a total project cost of PhP29.53 Million in the revenue application for this project, which includes 14 sub-projects as shown in Table 4.6. The sub-projects will be commissioned over the period RY 2011-14.

Table 4.6: Details of proposed upgrading and rehabilitation of secondary feeders⁹

Primary Line	Existing		Proposed		Commissioning Year
	Conductor (AWG)	Length (km)	Conductor (AWG)	Length (km)	
San Josef Norte to Sumacab Sur (SL001)	2, 1/0	5.38	1/0	5.38	RY 2011
Sanciangco Extension to Jollibee Circumferential (SL002)	2	2.19	1/0	2.93	RY 2012
Ibabao Bana to Polilio (SL003)	2, 1/0	5.36	1/0	5.88	RY 2012
Talipapa (SL004)	2, 1/0	3.79	1/0	4.27	RY 2012
Accfa Imelda and MS Gracia (SL005)	2, 1/0	4.56	1/0	1.15	RY 2012
Caudillo (SL006)	2	1.63	1/0	1.78	RY 2012
Sumacab Est (SL007)	2	0.56	1/0	1.14	RY 2012
Purok Hinukay, Mayapyap Sur (SL008)	2, 1/0	1.46	1/0	1.55	RY 2013
Kalikid Sur to Kalikid Norte (SL009)	2	4.50	1/0	4.64	RY 2013
Lagare (SL010)	2, 1/0	6.68	1/0	7.56	RY 2013
Cinco-cinco to Embuscado (SI011)	2	3.44	1/0	3.70	RY 2013
Pagas (SL012)	2	2.15	1/0	2.47	RY 2013
Bonifacio (SL013)	1/0	1.17	1/0	1.17	RY 2013
Valle Curz (SL014)	2	4.51	1/0	4.51	RY 2014

Our view is that CELCOR should proceed with this rehabilitation work except for sub-projects SL001, SL003, SL005, SL010 and SL014. We consider the existing secondary lines for these sub-projects have sufficient capacity to carry the loads and the technical loss reduction from the deletion of these sub-projects is not significant¹⁰. Our recommended adjustment to the forecast expenditure to allow for these deletions is shown in Table 4.7.

The remaining nine (9) proposed line upgrades are each relatively small and to some extent discretionary. That is, it will be possible for CELCOR to slow down the rate at which it implements the program without having an immediate and material impact on either its quality of supply to customers or its total network losses. Since there is a need for the ERC to be cognizant of the impact of discretionary CAPEX on the price paid by customers, we recommend that the remaining CAPEX in this program be reduced by 25%. We envisage that, in response to this reduction, CELCOR will slow down the rate at which it implements this program but not stop it completely. In recommending this reduction, we have deliberately not specified those sub-projects that should be deferred. It will be up to CELCOR to prioritize the different sub-projects and defer those that it considers less critical.

⁹ AWG #2 and AWG #1/0 have ratings of 86 kVA and 116 kVA respectively at secondary voltage 0.48 kV

¹⁰ Based on technical loss details provided by CELCOR

Table 4.7: Adjustments to Cost of Upgrading and Rehabilitation of Secondary Lines (PhP Million, real)

Project Number	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
SL001			4.49			
SL002				1.49		
SL003				3.42		
SL004				1.87		
SL005				3.95		
SL006				0.71		
SL007				0.68		
SL008					0.80	
SL009					1.98	
SL010					3.41	
SL011					1.54	
SL012					1.30	
SL013					1.73	
SL014						2.19
Total			4.49	12.12	10.76	2.19
Recommended Sub-project Adjustments						
SL001			(4.49)			
SL003				(3.42)		
SL005				(3.95)		
SL010					(3.41)	
SL014						(2.19)
Revised Project Cost			-	4.75	7.35	-
Discretionary Adjustment				(1.19)	(1.84)	
Recommended Forecast				3.56	5.51	
Total Recommended Adjustment			(4.49)	(8.56)	(5.25)	(2.19)

4.5 SUMMARY OF MAJOR PROJECT EXPENDITURE

A breakdown of CELCOR's forecast major project expenditure into individual projects is shown in Table 4.1 above.

The recommended individual project adjustments are summarized in Table 4.8.

Table 4.8: Summary of Individual Adjustments (PhP Million, real)

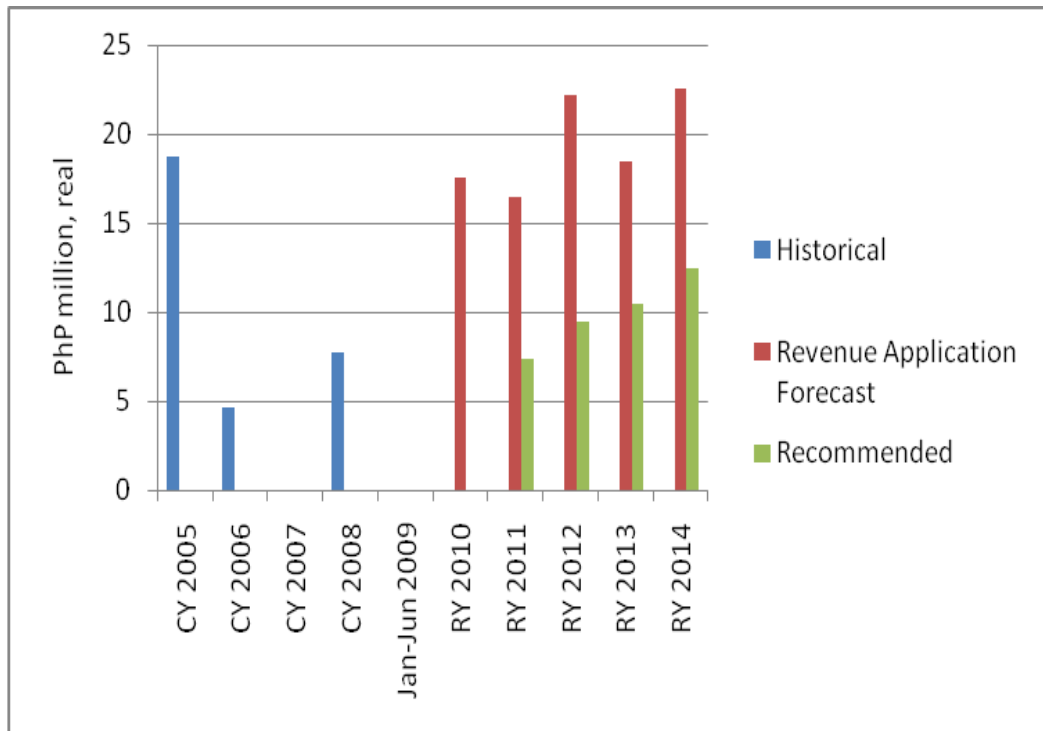
	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Reconciliation adjustment		(17.58)	4.33	(2.40)	0.93	(2.68)
Adjustments to feeder backbone upgrades			(3.46)			(4.50)
Adjustments to lateral line upgrades			(5.46)	(1.80)	(3.74)	(0.69)
Adjustments to secondary line upgrades			(4.49)	(8.56)	(5.25)	(2.19)
Total		(17.58)	(9.08)	(12.76)	(8.06)	(10.06)

Our recommended major project CAPEX for the second regulatory period is shown in Table 4.9 and a comparison between the CELCOR forecast and our recommendation is shown in Figure 4.1.

Table 4.9: Summary of Recommended Major CAPEX Expenditure (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Revenue application template	-	17.58	16.49	22.23	18.51	22.55
Recommended adjustments	-	(17.58)	(9.08)	(12.76)	(8.06)	(10.06)
Recommended major project CAPEX	-	-	7.41	9.47	10.45	12.49

Figure 4.1: Comparison of CELCOR Forecast and Recommended Major Project CAPEX



All CELCOR's major project CAPEX should be categorized as growth for operational expenditure (OPEX) forecasting purposes.

5. REVIEW OF RESIDUAL CAPITAL EXPENDITURE

We have focused our review of CELCOR's residual CAPEX on those line items in the CAPEX template where the average annual forecast expenditure is substantially higher than that in the historical years CY 2005-2008.

5.1 STATION EQUIPMENT

CELCOR has forecast total expenditure of PhP6.97 Million on growth and refurbishment related residual capital expenditure on station equipment¹¹ over the period RY 2010-RY 2014. Similar historical expenditure was not reported by CELCOR for either growth or refurbishment expenditure.

As per CELCOR's minor projects justification, the expenditure is towards the installation of Genius meters for both major substations in RY 2011, the replacement of disconnect switches for reclosers in RY 2012 and repair of switchgear at Bitas substation RY 2014. CELCOR states that the purpose of these projects is to meet the ERC requirements and reduce unwanted interruption.

We recommend that all residual expenditure shown in Table 5.1 be allowed for station equipment for the second regulatory period.

Table 5.1: Forecast CAPEX on Station Equipment (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application						
Growth forecast as per revenue application			3.28	0.66		2.93
Refurbishment forecast as per revenue application						1.35

5.2 POLES, TOWERS AND FIXTURES

CELCOR's expenditure forecast includes PhP27.88 Million for residual CAPEX expenditure on poles, towers and fixtures for the period RY 2010-14. This represents an average annual spend of PhP5.58 Million compared to the average annual historical CAPEX of PhP12.98 Million over the period CY 2005-08. This expenditure is primarily for the replacement of rotten wooden poles for both the primary and secondary lines. While the forecast expenditure appears substantially lower than historical levels, it does not include expenditure on pole replacements included in the major project section of the revenue application. The forecast shown in Table 5.3 indicates that the renewal, growth and refurbishment related expenditure forecast is consistent throughout the second regulatory period.

Table 5.2: Historical CAPEX on Poles, Towers and Fixtures (PhP Million, real)

	CY 2005	CY 2006	CY 2007	CY 2008
Renewal CAPEX as per revenue application	3.46	2.09	3.08	0.19
Growth CAPEX as per revenue application	8.8	9.65	6.98	2.63
Refurbishment CAPEX as per revenue application	2.55	6.55	5.38	3.24

¹¹ As per the RDWR asset breakdown the station equipment includes protective equipments, switchgear, communications and metering and control equipments.

Table 5.3: Forecast CAPEX on Poles, Towers and Fixtures (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application	0.47	0.89	2.11	2.11	2.11	0.89
Growth forecast as per revenue application	1.36	2.42	2.45	2.45	2.32	2.33
Refurbishment forecast as per revenue application	0.78	1.56	1.56	1.56	1.56	1.56

We recommend that CELCOR should be allowed its requested residual expenditure for poles, towers and fixtures in full.

5.3 OVERHEAD CONDUCTORS AND DEVICES

CELCOR's residual CAPEX forecast includes PhP9.77 Million for renewal and growth related expenditure on overhead conductors and devices over the period RY 2010-14. This represents an average annual spend of PhP1.95 Million compared to the average annual CAPEX of PhP4.48 Million over the historical period CY 2005-08.

CELCOR indicated that this expenditure is required for the upgrading of primary and secondary lines and also to cater for the needs of customers connected on the main lines as well as for the new customers. While the forecast expenditure appears substantially lower than historical levels, it does not include expenditure on conductor upgrades included in the major project section of the revenue application.

Based on the analysis of customer number growth for historical years, we consider that the forecast expenditure is reasonable.

We recommend that CELCOR be allowed its full forecast renewal and growth related residual expenditure for overhead conductors and devices for the second regulatory period.

Table 5.4: Historical CAPEX on Overhead Conductors and Devices (PhP Million, real)

	CY 2005	CY 2006	CY 2007	CY 2008
Renewal CAPEX as per revenue application	0.93	1.46	0.19	0.13
Growth CAPEX as per revenue application	2.89	1.92	4.25	0.90
Refurbishment CAPEX as per revenue application	1.97	1.15	1.24	0.87

Table 5.5: Forecast CAPEX on Overhead Conductors and Devices (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application	0.16	0.33	1.40	1.40	1.40	0.33
Growth forecast as per revenue application	0.17	0.98	0.98	0.98	0.98	0.98
Refurbishment forecast as per revenue application						

5.4 DISTRIBUTION LINE TRANSFORMERS

CELCOR has forecast total CAPEX of PhP53.84 Million for residual expenditure on distribution transformers over the forecast period RY 2010-14. This represents an average annual spend of PhP10.76 Million compared to the average annual CAPEX of PhP11.18 Million over the historical period CY 2005-08.

We recommend that CELCOR's forecast CAPEX on this line item be accepted in full.

Table 5.6: Historical CAPEX on Distribution Line Transformers (PhP Million, real)

	CY 2005	CY 2006	CY 2007	CY 2008
Renewal CAPEX as per revenue application	3.28	3.56	3.24	2.32
Growth CAPEX as per revenue application	6.54	9.45	10.13	6.20
Refurbishment CAPEX as per revenue application	3.28	3.56	3.24	2.32

Table 5.7: Forecast CAPEX on Distribution Line Transformers (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application	2.26	4.17	4.13	3.92	3.50	3.08
Growth forecast as per revenue application	0.32	9.38	7.28	7.21	6.38	4.79
Refurbishment forecast as per revenue application						

5.5 METERS, INSTRUMENTS AND METERING TRANSFORMERS (REGULATED RETAIL SERVICES)

CELCOR has forecast PhP58.52 Million for expenditure on meters, instruments and metering transformers over the forecast period RY 2010-14. This represents an average annual spend of PhP11.70 Million compared to the average annual historical CAPEX of PhP12.37 Million over the historical period CY 2005-08.

This expenditure is towards meters, instruments and instrument transformers required to serve new and existing customers. The average annual refurbishment and growth related expenditure was higher over the forecast years than the equivalent average annual growth CAPEX over the historical period. However the forecast average annual renewal expenditure was lower than in the historical years.

For RY 2012 the forecast renewal CAPEX is PhP10.22 Million, which is much higher than the average annual spend for the other years in the forecast period. While we note that actual renewal expenditure on consumer metering was also very high in CY 2008 CELCOR has not explained why the forecast expenditure in RY 2012 is more than five times higher than the average annual spend in the other years of the forecast period. We therefore recommend that this expenditure be reduced by PhP8.45 Million, which will bring it down on average CAPEX for the other forecast years.

The forecast growth related expenditure for RY 2010 and RY 2011 is PhP9.47 Million, which is almost twice as high as the average annual forecast CAPEX of PhP5.75 Million over the remaining three years of the forecast period. We see no reason why forecast growth related metering CAPEX should vary significantly from year to year. We therefore recommend that the forecast CAPEX for this line item be reduced by PhP3.72 Million for the years RY 2010-11 to reduce this expenditure to the average level forecast for the following three years.

CELCOR has provided no explanation as to why the forecast average annual refurbishment CAPEX should be higher than over the historical period and we recommend this expenditure be adjusted to maintain the refurbishment related forecast expenditure at the same level as the historical average expenditure.

Our recommended adjustments to the forecast CAPEX for consumer meters, instruments and metering transformers are shown in Table 5.9.

Table 5.8: Historical Cost of Distribution Line Transformers (PhP Million, real)

	CY 2005	CY 2006	CY 2007	CY 2008
Renewal CAPEX as per revenue application	3.08	1.83	1.89	11.95
Growth CAPEX as per revenue application	7.28	6.53	5.84	8.77
Refurbishment CAPEX as per revenue application	0.77	0.46	0.47	0.63

Table 5.9: Adjustments to Cost of Meters, Instruments and Metering Transformers (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application	0.64	2.57	1.96	10.22	1.47	1.47
Growth forecast as per revenue application	2.78	9.47	9.47	5.92	5.66	5.66
Refurbishment forecast as per revenue application	0.47	0.93	0.93	0.93	0.93	0.93
Recommended adjustments to renewal forecast				(8.45)		
Recommended adjustments to growth forecast		(3.72)	(3.72)			
Recommended adjustments to refurbishment forecast		(0.35)	(0.35)	(0.35)	(0.35)	(0.35)

5.6 INFORMATION SYSTEM EQUIPMENT (NON-NETWORK)

CELCOR's CAPEX forecast includes PhP15.10 Million for growth related residual expenditure on non-network related information system equipment. The expenditure is towards software and hardware upgrades and annual license fees for engineering analysis and billing system software. The historical expenditure shown in Table 5.10 for this line item was significantly lower than the forecast CAPEX over the period RY 2010-14 shown in Table 5.11.

Table 5.10: Historical Cost of Information System Equipment (PhP Million, real)

	CY 2005	CY 2006	CY 2007	CY 2008
Renewal CAPEX as per revenue application				
Growth CAPEX as per revenue application	0.09	0.46	0.54	0.29
Refurbishment CAPEX as per revenue application				

Table 5.11: Forecast Cost of Information System Equipment (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application						
Growth forecast as per revenue application	0.26	0.83	9.59	1.59	1.95	1.14
Refurbishment forecast as per revenue application						

During the clarificatory meeting CELCOR indicated that this expenditure is required for installation of new servers, storage area network, and billing and collection system and for the purchase of other software. The hardware upgrades presumably account for the very high forecast expenditure in RY 2011. We recommend that CELCOR be allowed the full residual expenditure on non-network related information system equipment.

5.7 OFFICE FURNITURE AND EQUIPMENT (NON-NETWORK)

CELCOR's CAPEX templates forecast a total of PhP1.88 Million for residual expenditure on non-network related office furniture and equipment for the forecast period RY 2010-14 and another PhP0.38 Million for Jan-Jun 2009. The average annual expenditure was only marginally higher than the reported actual expenditure over the historical period. CELCOR indicated that the renewal related expenditure is required to replace ageing office equipment.

Table 5.12: Cost of Office Furniture and Equipment (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application	0.19	0.18	0.13	0.03	0.05	0.017
Growth forecast as per revenue application	0.19	1.04	0.35	0.01	0.06	-
Refurbishment forecast as per revenue application						

We recommend that CELCOR be allowed the full residual expenditure on non-network related office furniture and equipments as shown in Table 5.12.

5.8 MATERIALS AND SUPPLIES INCLUDING SPARES

CELCOR's residual CAPEX forecast includes one-off CAPEX of PhP11.08 Million in RY 2010 for residual expenditure on renewal and growth related materials and supplies including spares. There is no other CAPEX in this line item either for the historical period or for the remainder of the forecast period. No explanation for this one-off expenditure has been provided in the revenue application.

We consider this expenditure to be sufficiently material to have been justified in the revenue application. Since no such justification has been provided we recommend that the expenditure not be allowed. These adjustments are shown in Table 5.13.

Table 5.13: Adjustments to Cost of Materials and Supplies including Spares (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application		1.50				
Growth forecast as per revenue application		9.58				
Refurbishment forecast as per revenue application						
Recommended adjustment to renewal forecast		(1.50)				
Recommended adjustment to growth forecast		(9.58)				

5.9 OVERHEAD CONDUCTORS AND DEVICES (CUSTOMER)

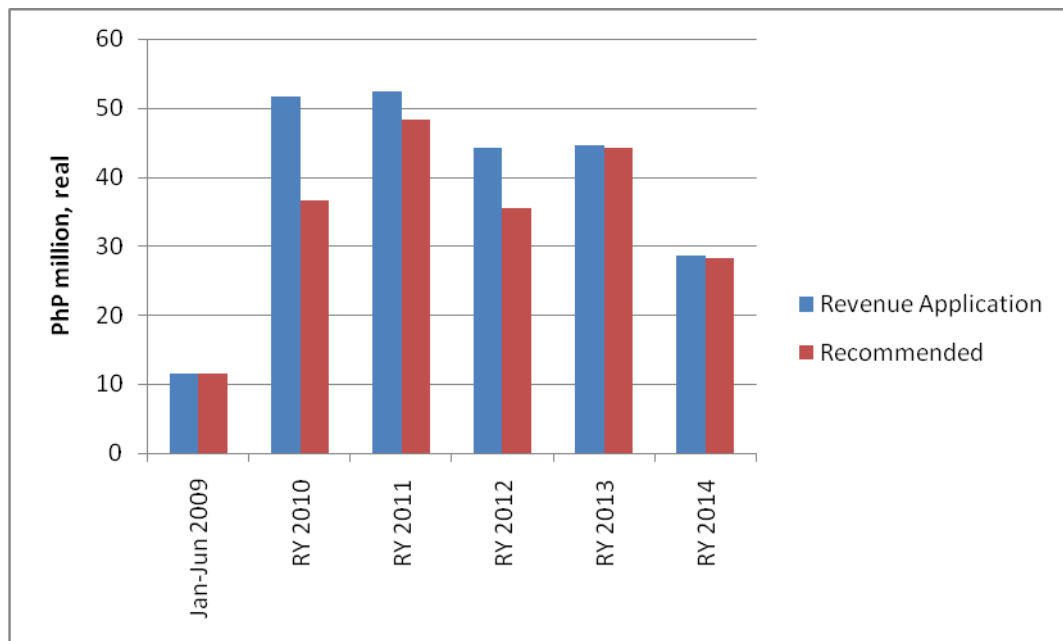
CELCOR's residual CAPEX forecast includes PhP9.70 Million growth CAPEX over the period RY 2010-14 for customer related overhead conductor and devices (service drops) as shown in Table 5.14. There was no reported growth related historical expenditure for this line item over CY 2005-08 but CELCOR appears to have inadvertently shown this expenditure in its renewal template. Overall the average annual forecast expenditure is 31% lower than the reported actual historical spend. We recommend that this expenditure be included in CELCOR's CAPEX forecast.

Table 5.14: Adjustments to Cost of Materials and Supplies including spares (PhP Million, real)

	Jan-June 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Renewal forecast as per revenue application						
Growth forecast as per revenue application	0.97	1.94	1.94	1.94	1.94	1.94
Refurbishment forecast as per revenue application						

5.10 SUMMARY OF RECOMMENDED ADJUSTMENTS TO RESIDUAL FORECAST CAPEX

On the basis of the analysis above, we recommend the residual expenditure shown in Figure 5.1 and Table 5.15 be allowed for RY 2010-14. The recommended residual expenditure over the five-year forecast period RY 2010-14 is PhP192.81 Million, a decrease of 12.9% on CELCOR's revenue application value of PhP221.53 Million for total residual expenditure over the same period.

Figure 5.1: Recommended Residual CAPEX (PhP Million real)**Table 5.15: Recommended Residual CAPEX (PhP Million, real)**

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Residual Forecast CAPEX (revenue application)	11.56	51.67	52.39	44.30	44.60	28.57
Total Recommended Adjustments		(15.15)	(4.07)	(8.80)	(0.35)	(0.35)
Recommended Residual Forecast CAPEX	11.56	36.52	48.32	35.50	44.25	28.22

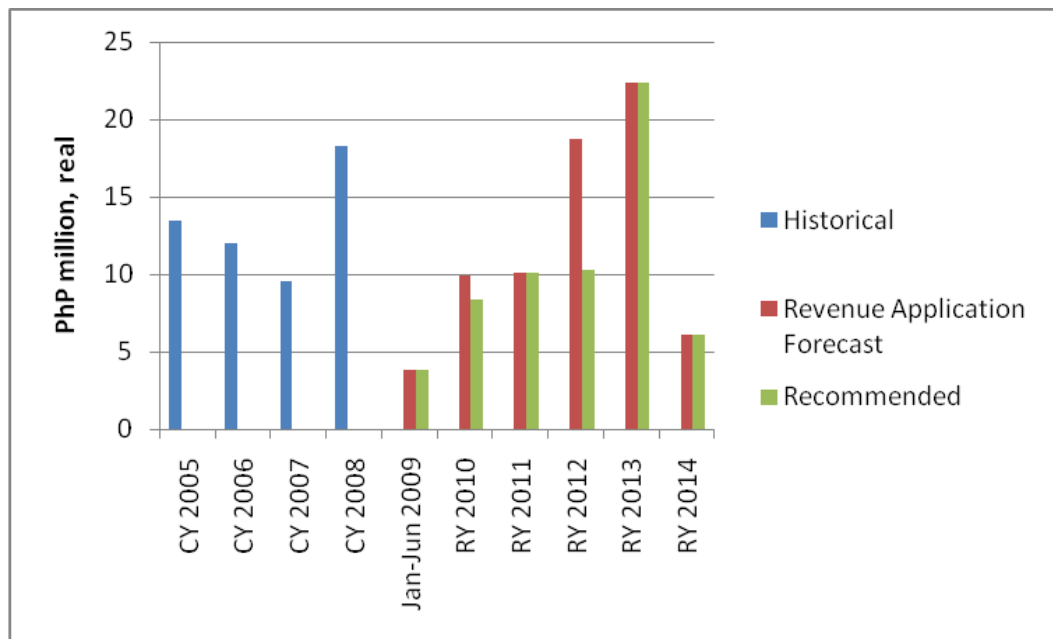
5.10.1 Residual Renewal CAPEX

CELCOR's forecast residual renewal CAPEX and our recommended adjustments are summarized in Table 5.16 and Figure 5.2

Table 5.16: Comparison of Forecast and Recommended Residual Renewal CAPEX (PhP million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Revenue application forecast	3.87	9.91	10.10	18.73	22.36	6.09
Recommended adjustments						
Adjustments to meters, instruments and metering transformers				(8.45)		
Adjustments to materials and supplies (including spares)		(1.50)				
Total recommended adjustments		(1.50)		(8.45)		
Recommended residual renewal forecast	3.87	8.41	10.10	10.28	22.36	6.09

Figure 5.2: Comparison of Historical and Forecast Residual Renewal CAPEX (PhP Million, real)



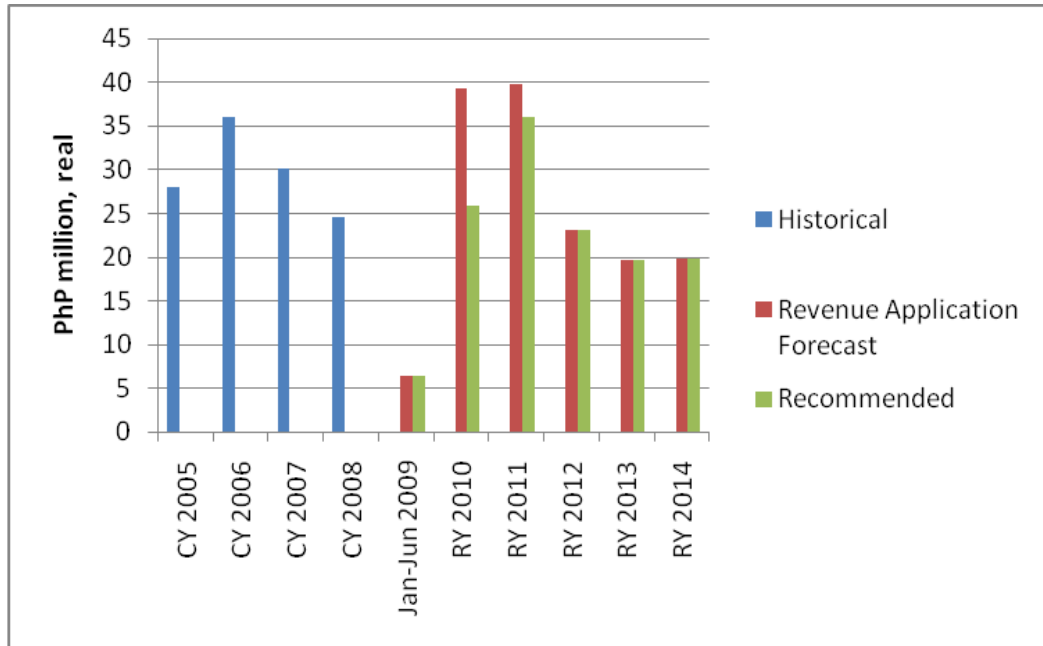
5.10.2 Residual Growth CAPEX

CELCOR's forecast residual growth CAPEX and our recommended adjustments are summarized in Table 5.17 and Figure 5.3

Table 5.17: Comparison of Forecast and Recommended Residual Growth CAPEX (PhP million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Revenue application forecast	6.44	39.27	39.80	23.08	19.75	19.85
Recommended adjustments						
Recommended adjustment to meters, instruments and metering transformers		(3.72)	(3.72)			
Recommended adjustment to materials and supplies (including spares)		(9.58)				
Total recommended adjustments		(13.30)	(3.72)			
Recommended residual growth forecast	6.44	25.97	36.08	23.08	19.75	19.85

Figure 5.3: Comparison of Historical and Forecast Residual Growth CAPEX



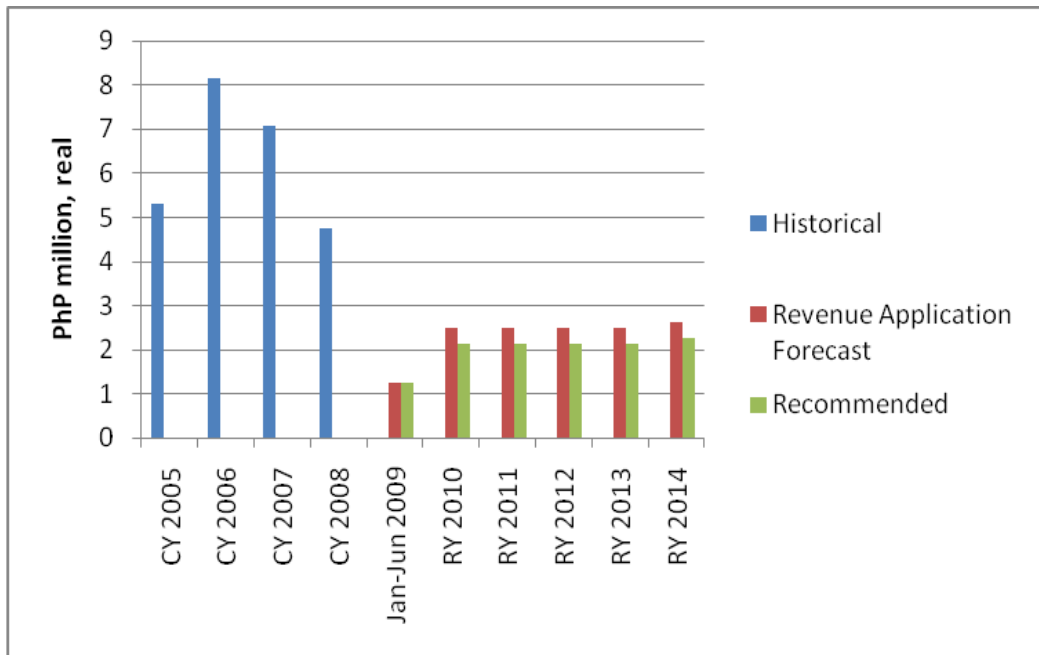
5.10.3 Residual Refurbishment CAPEX

CELCOR's forecast residual refurbishment CAPEX and our recommended adjustments are summarized in Table 5.18 and Figure 5.4

Table 5.18: Comparison of Forecast and Recommended Residual Refurbishment CAPEX (PhP million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Revenue application forecast	1.25	2.49	2.49	2.49	2.49	2.63
Recommended adjustment to meters, instruments and metering transformers		(0.35)	(0.35)	(0.35)	(0.35)	(0.35)
Recommended residual renewal forecast	1.25	2.14	2.14	2.14	2.14	2.28

Figure 5.4: Comparison of Historical and Forecast Residual Refurbishment CAPEX



6. SUMMARY OF RECOMMENDED TOTAL CAPITAL EXPENDITURE

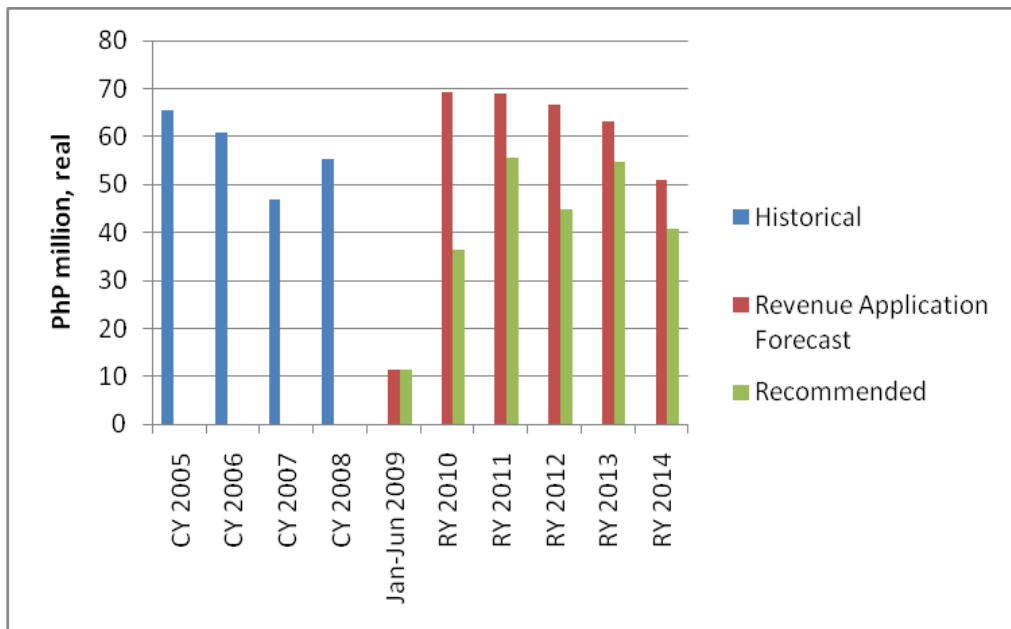
On the basis of the analysis for major projects and residual expenditure, we recommend the CAPEX shown in Table 6.1 be allowed for the forecast period January 2009 to June 2014. The total recommended CAPEX over the forecast period Jan 2009-Jun 2014 is PhP244.19 Million, a decrease of 26% on CELCOR's revenue application value of PhP330.44 Million forecast for total CAPEX over the same period.

Table 6.1: Adjustments to Forecast Total CAPEX (PhP Million, real)

	Jan-Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Submitted by CELCOR in revenue application	11.56	69.25	68.88	66.53	63.11	51.11
Recommended forecast	11.56	36.52	55.73	44.97	54.70	40.71

These recommended adjustments to forecast CAPEX is shown graphically in Figure 6.1 below.

Figure 6.1: Recommended Adjustments to Forecast Total CAPEX (PhP Million, real)



The breakdown of the recommended forecast expenditure into the ERC's standard expenditure categories shown in Table 6.2 and Figure 6.2.

Table 6.2: Breakdown of Recommended Forecast Expenditure (PhP Million, real)

	Jan –Jun 2009	RY 2010	RY 2011	RY 2012	RY 2013	RY 2014
Major Projects	-	-	7.41	9.47	10.45	12.49
Renewal	3.87	8.41	10.10	10.28	22.36	6.09
Growth	6.44	25.97	36.08	23.08	19.75	19.85
Refurbishment	1.25	2.14	2.14	2.14	2.14	2.28
Total	11.56	36.52	55.73	44.97	54.70	40.71

Figure 6.2: Breakdown of Recommended Forecast Expenditure (PhP Million, real)

